GEORGIA DOT RESEARCH PROJECT 18-24

FINAL REPORT

ANALYSIS OF THE GEORGIA ADD-ON TO THE 2016–2017 NATIONAL HOUSEHOLD TRAVEL SURVEY

OFFICE OF PERFORMANCE-BASED MANAGEMENT AND RESEARCH

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Final Report

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SI* (MODERN METRIC) CONVERSION FACTORS

APPROXIMATE CONVERSIONS TO SI UNITS

Symbol	When You Know	Multiply By	To Find	Symbol
		LENGTH		
in	inches	25.4	millimeters	mm
ft	feet	0.305	meters	m
yd	yards	0.914	meters	m
mi	miles	1.61	kilometers	km
		AREA		
in^2	square inches	645.2	square millimeters	mm^2
ft^2	square feet	0.093	square meters	m^2
yd^2	square yard	0.836	square meters	m^2
ac	acres	0.405	hectares	ha
mi^2	square miles	2.59	square kilometers	km^2
		VOLUME		
fl oz	fluid ounces	29.57	milliliters	mL
gal	gallons	3.785	liters	L
ft^3	cubic feet	0.028	cubic meters	m^3
yd^3	cubic yards	0.765	cubic meters	m^3
		NOTE: volumes greater than 1000 L shall be shown in m^3		
		MASS		
oz	ounces	28.35	grams	g
lb	pounds	0.454	kilograms	kg
T	short tons (2000 lb)	0.907	megagrams (or "metric ton")	Mg (or "t")
		TEMPERATURE (exact degrees)		
^oF	Fahrenheit	5 (F-32)/9 or (F-32)/1.8	Celsius	^oC
		ILLUMINATION		
fc	foot-candles	10.76	lux	lx
fl	foot-Lamberts	3.426	candela/m^2	cd/m^2
		FORCE and PRESSURE or STRESS		
lbf	poundforce	4.45	newtons	N
lbf/in^2	poundforce per square inch	6.89	kilopascals	kPa

APPROXIMATE CONVERSIONS FROM SI UNITS

Symbol	When You Know	Multiply By	To Find	Symbol
		LENGTH		
mm	millimeters	0.039	inches	in
m	meters	3.28	feet	ft
m	meters	1.09	yards	yd
km	kilometers	0.621	miles	mi
		AREA		
mm^2	square millimeters	0.0016	square inches	in^2
m^2	square meters	10.764	square feet	ft^2
m^2	square meters	1.195	square yards	yd^2
ha	hectares	2.47	acres	ac
km^2	square kilometers	0.386	square miles	mi^2
		VOLUME		
mL	milliliters	0.034	fluid ounces	fl oz
L	liters	0.264	gallons	gal
m^3	cubic meters	35.314	cubic feet	ft^3
m^3	cubic meters	1.307	cubic yards	yd^3
		MASS		
g	grams	0.035	ounces	oz
kg	kilograms	2.202	pounds	lb
Mg (or "t")	megagrams (or "metric ton")	1.103	short tons (2000 lb)	T
		TEMPERATURE (exact degrees)		
^oC	Celsius	1.8C+32	Fahrenheit	^oF
		ILLUMINATION		
lx	lux	0.0929	foot-candles	fc
cd/m^2	candela/m^2	0.2919	foot-Lamberts	fl
		FORCE and PRESSURE or STRESS		
N	newtons	0.225	poundforce	lbf
kPa	kilopascals	0.145	poundforce per square inch	lbf/in^2

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EXECUTIVE SUMMARY

Travel in Georgia is changing. Atlanta is growing, changing the balances of trips across the state. Advanced technologies are generating a number of new products and services with direct implications for travel demand in Georgia, including ridehailing services (e.g., Uber and Lyft), vehicle sharing (e.g., carsharing services such as Zipcar, bikesharing, and, more recently, electric scooters), and alternative-fuel vehicles (e.g., hybrid and electric cars). Working from home almost doubled between 2000 and 2010, and even before the coronavirus disease 2019 (COVID-19) pandemic, online shopping had become an increasingly significant part of Georgians' retail behavior. These new options are transforming individuals' and households' travel-related decision-making. They will substantially modify the demand for housing, vehicle sales, the amount of travel by private vehicles, and the resulting gasoline tax revenues and emissions of greenhouse gases and criteria pollutants.

The impacts of these changes—positive and negative—do not affect all Georgians equally. There is a risk of exacerbating existing inequality, locking Georgia into a two-tiered travel system—literally and figuratively leaving people behind. To ensure a more equitable future, it is imperative to examine the needs of those who, through age, disability, economic disadvantage, gender, or race, are restricted in their mobility and access to opportunities. Further, climate change poses risks to Georgians' health and economic wellbeing. The state is preparing to invest more than $1 billion to mitigate the effects of sea level rise.[1] Additionally, 48 percent of Georgia's population currently lives in areas at elevated risk of wildfires, which are expected to

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[1] See https://sealevelrise.org/states/georgia/.

increase in frequency and intensity as elevated temperatures and droughts become more prevalent.[2] It is, therefore, more urgent than ever to identify and enact sustainable transport solutions.

Travel demand forecasting models and transportation policy need to be updated to account for the latest trends, improving their accuracy and equity. This report provides a baseline and guidance for such work through extensive analysis of the Georgia add-on to the 2016–2017 National Household Travel Survey (NHTS).

ABOUT THIS REPORT

This report provides an in-depth snapshot of the travel behavior of Georgians of all ages. It documents differences in travel needs and behavior by region and between demographic groups, focuses on measurement challenges and improved techniques, and identifies areas where future data collection is needed. More in-depth summaries and a few key findings are included at the beginning of each individual chapter; a brief synopsis of the key messages is provided in Key Messages of this executive summary.

Chapter 1 presents greater detail about the NHTS data and methods, provides an overview of general travel patterns in Georgia, and synthesizes findings about regional differences from throughout the report.

Chapter 2 focuses on work travel, including more accurate measurement of complex commutes (i.e., commutes including one or more stops between home and work). One in every four

[2] See https://statesatrisk.org/georgia.

Georgia commutes is complex. The common practice of using the last trip in the chain as a proxy for commute distance undercounts Georgia's annual commute person miles traveled (PMT) by 2.6 billion miles, about 10 percent of total commute PMT. This chapter presents a new, more accurate method of estimating commute distance.

Chapter 3 explores flexible work locations (i.e., teleworking) and schedules. It examines which workers' jobs allow for flexible time and/or location and how often workers take advantage of that flexibility.

Chapter 4 discusses new technologies and services, including alternative-fuel vehicles, shared mobility, and online shopping.

Chapter 5 focuses on social inclusion and equity. The chapter documents the mobility disadvantages among captive mode users and people with mobility impairments; examines the interrelated effects of gender and age on travel behavior; explores how vehicles are allocated within households; and synthesizes equity findings from throughout the report.

Chapter 6 provides a portrait of walking and biking in Georgia. Access and egress travel (i.e., travel to reach another mode of transportation such as public transit) account for a substantial portion of nonmotorized travel (NMT); thus, the chapter discusses how to incorporate this travel into the analysis. It also discusses nonmotorized travel by children and children's school travel by all modes.

Chapter 7 discusses *travel for its own sake*, or the intrinsic value of travel, beyond its utilitarian purpose of getting from A to B. Loop trips (i.e., trips with the same start and end location) are an easily identifiable form of travel for its own sake. This chapter discusses changes in the NHTS's methods of soliciting information about loop trips; provides an overview of the frequency, mode, and purposes of loop trips; and reviews continued measuring challenges.

KEY MESSAGES

Accounting for complexity is critical. Georgians' travel is often composed of chains rather than individual trips. For example, one in four Georgia commutes is complex (i.e., including one or more stops between home and work), making it important not to underestimate the full extent of commute travel. As teleworking rises, some workers are skipping the commute to work; others are still commuting to the office for part of the day and working an additional shift when they get home. The modes used to access public transit are not always included in mode share figures, which undercounts modes like walking and, to a lesser extent, biking. Decisions about whether, where, and how to travel vary by time of day and day of the week. Accurate measurement and modeling of Georgians' travel habits needs to reflect these sources of complexity.

New technologies and services are reshaping Georgians' travel. Less than a decade after the founding of Uber, 1 in 10 Georgians used a ridehailing app at least once in the past 30 days. Ridehailing apps accounted for 87 percent of vehicle-for-hire trips in Georgia, even more in small MPO areas and rural areas. Two thirds of Georgia households had likewise purchased something online within the past 30 days, ranging from 72 percent of Atlanta-region households to 52 percent of households in rural areas. Statewide, 1.9 percent of Georgia's vehicles were hybrid, electric, or powered by another alternative fuel. High-speed internet has facilitated the rise of teleworking. These trends have likely continued or accelerated in the years since the NHTS data were collected.

Georgians' mobility and travel habits are bifurcated. Residents of the Atlanta region are more mobile than the national average, while residents of smaller metropolitan planning organization (MPO) areas and rural counties are less mobile. Emerging trends such as telecommuting, flexible work scheduling, alternative-fuel vehicles, and online shopping are more pronounced in the Atlanta region compared to the rest of the state. Ridehailing is also more common in Atlanta but has promise for improving mobility in small towns and rural communities. In addition to these geographic differences, there are wide gaps between wealthy and poor Georgians. Transportation-disadvantaged populations such as the elderly and Georgians with mobility impairments, especially those from poor households, are often stuck at home.

Three in ten Georgians do not have full vehicle access. Five percent of Georgians live in households with zero vehicles. An additional 26 percent live in vehicle-deficit households (i.e., households with at least one vehicle but fewer vehicles than potential drivers). On average, Georgians in vehicle-deficit households are more mobile than Georgians from zero-vehicle households, but household members who do not have access to the family car face many of the same barriers to mobility as travelers from carless households.

Captive travelers pay a double penalty. Georgia's current travel environment constitutes a two-tiered system divided not just by mode, but by the ability to choose between modes. The lowest-income Georgians (<$15,000 annual household income) and Georgians who live in vehicle-deficit households overall walk, bike, and take transit more than their wealthier counterparts. These captive travelers pay a double time penalty. The first penalty is not having the option to drive, which is the fastest mode in many cases. The second penalty is that the trips of captive transit users are also longer than those of choice transit users. The same is true of captive pedestrians and cyclists.

Low-income Georgians pay more for less. Low-income Georgians are less mobile than their wealthier counterparts. Only 43 percent of the lowest-income households (those making less than $15,000 per year) are vehicle sufficient, and nearly one third own no vehicles at all. These households purchase older vehicles with an average of 130,000 miles on the odometer at the time of purchase (see chapter 1). Vehicles near the end of their useful lives are financially more accessible to low-income households due to their lower purchase costs. However, these vehicles cost more to maintain and need to be replaced more frequently. Technological improvements in vehicle efficiency are disproportionately benefitting wealthy households.

Walking and biking are easy to undercount. In a typical week, 72.6 percent of Georgians will walk, ride a bike, or both, but this nonmotorized travel can be hidden in the data. In addition to the 950,000 nonmotorized trips Georgians make each year, they walk or bike as a way to access/egress another mode of transportation (e.g., public transit) 260,000 times per year. However, this access/egress travel is considered a part of the mode being accessed and is not included in typical mode share calculations. Incorporating these access/egress legs provides a more complete picture of Georgians' walking and biking.

Accuracy and equity go hand in hand. Many of the measurement issues identified in this report disproportionately affect the accuracy of the data for one or more marginalized populations. For example, since more women than men make complex commutes, better accounting for complex commutes can: (1) better capture the full extent of work travel in Georgia by identifying 2.6 billion PMT that would not have been included, and (2) improve measurement of women's travel patterns and avoid underestimating their commute distances. Similarly, incorporating transit access and egress trips into estimates of nonmotorized travel improves estimates of walking and biking across the board, but particularly for transit-dependent Georgians.

CHALLENGES AND RECOMMENDATIONS

Leveraging NHTS Data to Understand Complex Travel Patterns

This report provides analysis and examples of how to effectively leverage NHTS data to more accurately analyze complex travel patterns, as follows:

- The NHTS contains a rich array of data about Georgians' backgrounds and usual travel habits, as well as a snapshot of their travel. Chapter 1, Methodological Notes provides future analysts with an orientation to NHTS data.
- There is no one "typical" traveler. To understand Georgians' travel behavior, it is necessary to account for diverse needs and experiences. Disaggregating data is vital for uncovering regional variations and demographic differences in mobility.
- For many topics, the NHTS contains data about "usual" practices and observed travel on the travel day. Comparing the two can identify nuances. For instance, nonmotorized travel is the "usual" commute mode of just 2.3 percent of Georgians, but 3.7 percent of observed commute trips were by NMT, suggesting that a number of Georgians who usually drive to work sometimes walk or bike (see chapter 1, Household and Personal Mobility). When commuters who walk or bike to public transit are included, the total amount of walking and biking is higher than the initial figure would suggest.

- In addition to the substantive analysis, the techniques presented here, such as our methods of identifying and measuring work travel (see chapter 2, Defining the Commute), school travel (see chapter 6, Identifying School Trips) or more completely documenting NMT (see chapter 6, Access and Egress Travel), are designed to be useful to future analysts.
- Where appropriate, the report also discusses the limitations of NHTS data. Identifying Data Needs at the end of this section discusses future data needs.

Mainstreaming Equity

Many forms of social inequality and exclusion affect Georgians' mobility. Low-income people, older adults, and people with disabilities face the strongest barriers; differences by gender and race were also documented. While these problems come from outside the transportation system, if pre-existing inequalities are not taken into account, transportation professionals can inadvertently exacerbate them, leaving disadvantaged communities even farther behind. To prevent this, transportation agencies should *mainstream equity* by evaluating differential needs or policy outcomes by gender, race, disability, and other sources of social exclusion as a standard part of planning. One critical first step is disaggregating data to ensure that differences between groups are detected. A valuable approach is to partner with organizations outside of the transportation sector, such as senior services centers, healthcare providers, and community groups, for studying and/or implementing projects to help underserved groups.

Assisting Georgians with Mobility Impairments

Georgians with mobility impairments have a critical need for transportation. Many people with mobility impairments are impoverished. A mobility impairment does not disqualify someone from employment. However, it is worth noting that for some Georgians with disabilities, the biggest obstacle to getting their foot in the door to a new career might be getting their foot *to* the door (see chapter 1, Trip Purpose).

Current paratransit services are inadequate; only 10 percent of adults with disabilities reported using them, while 70 percent reported reducing day-to-day travel. An assessment of the challenges facing local paratransit systems and the experiences of paratransit users is needed. In addition to improving paratransit service, complementary alternatives such as ridehailing should be explored. Fulton County, for example, recently began offering subsidized ridehailing for elderly residents (see chapter 5, Discussion).

Children with mobility impairments may be especially vulnerable. However, the NHTS sample of children with mobility impairments is small; more targeted data collection and study are needed (see chapter 5, Children with Mobility Impairments).

Achieving Sustainable Mobility for Low-income, Carless, and Vehicle-deficit Georgians

The mobility of low-income, carless, and vehicle-deficit Georgians can be improved by improving the level of service for transit and nonmotorized trips. Ridehailing and car-, bike-, and scooter-sharing services can also help carless people, provided they are affordable and technologically accessible. Community carpooling and microtransit could provide more flexible transportation to Georgians without cars.

Helping low-income Georgians acquire cars could have consequences for sustainability and congestion, but automobile access improves mobility, quality of life, and economic opportunities. To maximize the social and environmental benefits of new vehicle technology, policies are needed to help low-income families purchase fuel-efficient and electric vehicles.

Promoting Transit, Walking, and Biking by Addressing Georgians' Concerns

The NHTS provides data on Georgians' preferences for transit service (see chapter 1, Transit Service Preferences Among Workers) and perceived barriers to walking and biking more frequently (see chapter 6, Barriers to Walking and Biking More Frequently). These data provide actionable information by identifying high-priority issues. Captive and choice travelers sometimes have different service priorities; it is important to balance the needs of both groups.

Supporting Captive Transit Users

Whatever the causes, transit-dependent travelers are experiencing a worse quality of service for commutes and other trips than their wealthier neighbors. To reduce this inequality, it is therefore important to examine potential discrepancies in vehicle frequency and route density, and to examine whether current transit routings match the needs of low-income commuters (see chapter 5, Key Equitable Mobility Indicators).

Improving Pedestrian and Cyclist Safety in Every Neighborhood

Unsafe pedestrian and cyclist environments discourage travelers with a choice from walking and biking, and leave captive pedestrians and bicyclists to walk in unsafe environments. Improving the quality of the walking and biking environments encourages more Georgians to choose NMT (see chapter 6, Barriers to Walking and Biking More Frequently). *Captive* pedestrians and cyclists, who are already walking and biking, need safe infrastructure on the routes they are already using to access their homes, work, shops, schools, and transit stations (see chapter 5, Key Equitable Mobility Indicators, and chapter 6, Captive and Choice Nonmotorized Travel).

Walking is also an important mode of transportation for people with mobility impairments, making safety and accessible road design even more important (see chapter 6, Travel Day Walking and Biking by Georgia Adults).

Leveraging New Technologies and Services to Make Transportation More Effective and Equitable

Teleworking, ridehailing, and online shopping are most common among the most mobile and tech-savvy Georgians, centered in the Atlanta region. Room for growth exists with other segments of the state's population. Teleworking, for example, could benefit workers in rural locations and facilitate employment for Georgians with disabilities. Ridehailing services can improve transportation options in rural areas and increase the mobility of disadvantaged groups. Online shopping can provide homebound or busy low-income Georgians better access to goods at an affordable price. Facilitating internet access and technological literacy is key to all three of these trends. Education on using ridehailing apps and smartphones in general is particularly valuable for older adults (see chapter 5, Discussion).

Measuring Work Travel

One in four Georgia commutes is complex (i.e., including one or more stops between home and work). The common practice of using the last trip in the commute as a proxy for commute distance undercounts Georgia's annual commute PMT by 2.6 billion miles, about 10 percent of the total commute PMT. This report presents a new, more accurate method of estimating commute distance and correctly identifying trip anchors based on a combination of purpose and location (see chapter 2, Defining the Commute). It also provides data on the time of day of work journeys and how work and nonwork travel interact over the course of a day (see chapter 2, Overview of Work Journeys). Commute distances also vary by time of day. Finally, there are differences in the employment characteristics of Atlanta, smaller MPO regions, and rural counties; incorporating employment data can inform our understanding of work travel (see chapter 2, Overview of Work Journeys). Data on telework and mixed telework can also inform projections of travel demand (see chapter 3, The Effects of Flexible Scheduling).

Identifying Data Needs

Some of the topics covered by the NHTS change more rapidly than others. Given technological changes and the COVID-19 pandemic, more recent data on alternative-fuel vehicles, teleworking, and online shopping would be beneficial. While the NHTS is a strong data source overall, some topics are less robust in the number or format of questions. For example, telecommuting is undermeasured (see chapter 3, Definitions and Technical Notes). The NHTS measurements of physical activity are flawed (see chapter 6, Physical Activity) and while the measurement of loop trips is significantly improved from the 2009 NHTS, the techniques for recording the purposes of loop trips and other forms of travel for its own sake (TFIOS) need improvement (see chapter 7, Challenges of Identifying and Measuring TFIOS). The occupation categories used by the NHTS are overly broad, limiting their predictive ability for modeling work travel. While educational attainment can be used as a partial proxy to subdivide the categories, a more detailed set of categories would be useful for predicting work travel locations and likely schedules. Finally, the 2017 NHTS does not disaggregate ridehailing data from other types of vehicles for hire (i.e., taxis and limos). While this report provides a tentative estimate for what percentage of vehicle-for-hire trips are made through a ridehailing app (see chapter 4, Ridehailing and Vehicle-for-Hire Trips), more direct data would be valuable. Additionally, new mobility services, such as shared scooters, entered the market after the completion of NHTS data collection.

CHAPTER 1.
KEY TRAVEL PATTERNS IN THE STATE OF GEORGIA

CHAPTER 1 – SUMMARY

This chapter uses analysis of the 2017 National Household Travel Survey (NHTS) to provide an overview of travel patterns in the state of Georgia. It is intended to serve as a reference text. Detailed statistical tables are accompanied by text that provides context and draws attention to notable findings and patterns. Analysis is presented at the state level, and disaggregated by factors such as size of community, sociodemographic characteristics, and vehicle ownership. The chapter is organized in the following sections:

- **Methodological Notes** provides the methodological background on the NHTS itself, and notes on how the data have been processed for this report. It discusses the integration of the regular NHTS and the add-on sample commissioned by the Georgia Department of Transportation (GDOT) and instances where the analytic categories used for this report vary from the default categories provided as part of the NHTS's public use dataset. The section also discusses the geographic divisions used for analysis.
- **Overview** provides summary statistics at the state level, comparisons with national patterns, and regional differences within the state. Georgians' travel habits are bifurcated. Residents of the Atlanta MPO are more mobile than the national average, while residents of smaller MPOs and rural counties are less mobile.
- While most of this paper reports travel by *residents* of Georgia or of MPOs within Georgia, **Trip Patterns by Location of Travel** examines travel that occurs within

Georgia, regardless of the residence of the traveler. Most travel is local; 75 percent of trips stay within a single county, and 95 percent stay within a single MPO. Inter-MPO trips are generally balanced. In other words, the number of trips from A to B is comparable to the number of trips from B to A. However, this does not take time of day into account; there are certainly temporal imbalances, as would be expected on the basis of directional commute and other flows.

- **Household and Personal Mobility** examines differences in household and personal mobility by gender, race, age, income, and disability. Elderly Georgians and Georgians with disabilities have strongly reduced mobility compared to their neighbors. Low-income residents also make fewer trips than other Georgians.
- **Trip Purpose** examines trip purpose across different demographic groups and modes. Why people travel gives insight into what utility they derive from their trips; trip purpose can illuminate patterns that may be obscured by raw trip numbers. For example, men who have reached retirement age make somewhat fewer trips than younger adults, but make more discretionary trips. Their overall lower mobility is accompanied by more trips dedicated to personal fulfillment. Senior women do not seem to enjoy this benefit. In fact, the age-related reduction in mobility falls heavily on senior and elderly women. Gendered differences are strong throughout all age groups. Adult and teenage women, and even female children, devote more of their travel to household-serving trips than do their male counterparts.

  Income also affects trip purpose. Moderate-income households are more mobile than lower-income households, but make more trips to transport someone else than any other group; this suggests moderate-income households' increased mobility over lower-income groups may yield a smaller dividend in terms of utility than would be expected from the raw trip numbers, person miles traveled (PMT), or vehicle miles traveled (VMT).

- **Vehicle Availability and Usage** discusses household vehicle ownership. Vehicle ownership differs substantially by household income, not only in terms of the number of household vehicles, but also in terms of the quality. Low-income vehicle owners typically purchase older, high-mileage vehicles that must be replaced more frequently. The section also discusses differences in the quantity of driving between households that are vehicle-sufficient and those that have fewer vehicles than potential drivers.
- **Transit Preferences and Use** analyzes data about Georgia workers' preferences for transit service using a question included in the add-on commissioned by GDOT.
- Finally, **Summary of Findings on Geographical Differences** synthesizes findings on regional differences from throughout the report.

METHODOLOGICAL NOTES

This report is based on analysis of the Georgia sample from the NHTS, including 8,005 households from the add-on sample commissioned by GDOT and 606 households that were obtained as part of the national sampling design. Households in both subsamples were asked the same survey questions, and survey weights provided by NHTS were calibrated to include both subsamples. Therefore, this report pools the national and add-on subsamples.

Because of the add-on module, GDOT also has access to more detailed and disaggregated variables. The dataset used for this report integrates these confidential variables with the updated public use dataset (version 1.1). Extensive technical documentation of NHTS itself can be found on the official website.[3] This section will give additional information on the integration of the two datasets, as well as other technical matters. Readers more interested in contents than methodology may wish to proceed to Overview in this chapter.

Weighting

NHTS uses expansion weights to allow for the production of representative national estimates. Because of the add-on, the publicly available weights applied to Georgia respondents have also been made to produce representative estimates at the state level—something that is not guaranteed for states that did not commission an add-on. Weights are not guaranteed to be representative for small geographical entities or subpopulations. As suggested in the *2017 NHTS Weighting Report* (Roth, Dai, and DeMatteis 2017), this report is cautious with analysis of small geographies and notes when a sample size may be too small for a reliable estimate.

Unless otherwise noted, all results and statistics are weighted using 7-day weights provided by NHTS. Person weights are used for persons and trips[4] and household weights are used for households and vehicles.[5] This approach is used in the summary of travel trends commissioned by NHTS itself (McGuckin and Fucci 2018). That report was used as a methodological reference for the present document and is drawn upon for some national comparisons. Unweighted sample tables can be found in the appendix.

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[3] See https://nhts.ornl.gov/documentation.

[4] NHTS-provided trip weights are an annualized version of the person-weights. For normalized figures such as trips per household, the numerator and denominator are each calculated using the appropriate weight (in this case, person weights for trips and household weights for households).

[5] When household-level variables are applied to people, person-weights are used. For example, 22.4 percent of Georgia households have an annual income of at least $100,000 (household weights), but those households contain 25.9 percent of Georgia's population (person weights).

Adjustments to Data

This project integrates the confidential dataset provided to GDOT in 2017 with updates to the public-use dataset released in August 2018.[6] Responses of "Other, specify" from the confidential dataset were used to update public variables such as race, homeownership, mode, and internet capability to match NHTS's categories. For example, an "other" response of "iPhone" to a question about what device is used to access the internet would be recoded as "smart phone." Where gender, race, or age are missing, NHTS's imputed values were used.

Race was more comprehensively recoded, as follows:

- To reflect Georgia's racial makeup, the default racial categories are: (1) white non-Hispanic, (2) Black and Black multiracial (including Black-Hispanic), and (3) other. For consistency, respondents listed as "multiracial" in the public dataset were reclassified based on their more detailed responses, available in the private dataset.
- "Other, specify" responses were used to recategorize respondents who did not identify with any of the census-style categories used in the NHTS. For example, a number of Latino respondents selected only "other" and wrote "Latino" or their nationality.[7] Others listed countries of origin that they were not sure how to classify, for example, in southwest Asia.

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[6] Details of what modifications were made from version 1.0 of the dataset are available in the Version 1.1 Release Notes at https://nhts.ornl.gov/documentation.

[7] Some disagreement exists over whether to treat Hispanic as an ethnicity or Latino as a race. This report adopts the latter approach. The NHTS questionnaire did not include Latino as an option for race. Accordingly, the write-in "Latino" responses were grouped with respondents who selected white-Hispanic into the created racial category of Latino only. In the three-category definition used for race in this report's analysis, Latinos are included under (3) other.

- Incorrect or extraneous "other" responses were recoded. For example, a person who selected "white" and wrote "Irish" under "other" is classified by NHTS as multiracial. Cases like this were reclassified in this report as white.

Assorted Definitions and Notes

- NHTS collects trip information only about respondents ages 5 years and older. Following McGuckin and Fucci (2018), reported per capita results are more specifically per person ages 5 years and up, unless otherwise noted.
- NHTS does not ask about drivers' licensing; rather, they ask "do you/does this person drive?" This creates some ambiguity as to how a respondent might classify a teenager with a learner's permit; 56 respondents under the age of 16 were listed as drivers. Unless otherwise stated, drivers is defined to mean driver of legal driving age (16+).[8]
- At a household level, NHTS defines race based on the race of the person who was the first respondent to the survey. Since 7 percent of households sampled are multiracial, this approach has obvious limitations. This report defines a household's race based on its overall composition, typically dividing between all-white, non-Hispanic households and households with one or more nonwhite and/or Latino members.

Key Terms

Though terms such as person miles traveled and vehicle trips are commonly used, a brief reminder may be helpful for some readers:

[8] The exception is that, to match the methods used to calculate national descriptive statistics by McGuckin and Fucci (2018), drivers of all ages were used to calculate the totals presented in chapter 2, Overview.

- *Trip*: A single trip from one origin to one destination, no matter how brief the amount of time spent there. For example, if someone stops for coffee on the way to work, the journey to work would contain two trips. Two types of trips are considered.
- *Person trip*: A trip made by a person.
- *Vehicle trip*: A trip made by a personal occupancy vehicle (POV). More precisely, the trip is measured as the trip made by the *driver* of that vehicle. If a father drives his daughter to school, that action would be counted as one vehicle trip (just the father) and two person trips (both the father and the daughter).
- *Vehicle miles traveled (VMT)*: Similar to vehicle trip, this measure of distance is calculated based just on the distance traveled by the *driver* of a POV for a trip that occurred in a POV.
- *Person miles traveled (PMT)*: Miles traveled by a person, regardless of mode or driver status. In the previous example, if the daughter's school was 1 mile away from home, the trip would generate 2 PMT and 1 VMT. A crucial difference is that PMT also captures travel by other modes, such as transit, walking, and biking. However, the method used by NHTS to calculate trip distance, namely the shortest network distance, is likely to understate the mileage of nonmotorized modes, especially cycling, where travelers are likely to choose a more circuitous route.
- *Work journey (WJ)*: All the trips and intermediate stops a commuter makes between home and work. A work journey is unidirectional (either from home to work, or from work to home). WJs can be simple (proceeding directly between home and work) or complex (containing at least one internal stop).

Geographic Divisions for Analysis

In addition to statewide figures, this report examines differential patterns between different metropolitan planning organizations (MPOs) and kinds of MPOs within Georgia. Counties are classified into four MPO tiers based on size:

- Tier 1: Counties within the Atlanta MPO.
- Tier 2: Counties within MPOs other than Atlanta, with an MPO population over 200,000 (based on American Community Survey [ACS] 2015 5-year estimates). These include Georgia counties that are part of the Tennessee-based Chattanooga MPO.
- Tier 3: Counties within MPOs with population < 200,000.
- Tier 4: Counties that are not in any MPO.

For analytical purposes, MPO boundaries are defined at the county level, following the practice used for *GDOT Research Project 16-31, Impact of Emerging Technologies and Trends on Travel Demand in Georgia* (Kim, Mokhtarian, and Circella 2019). All households in a county that is partially within an MPO are considered MPO households. Table 1 shows the full classification for each county, and figure 1 shows a map of MPO boundaries across county lines.

The sample size for most individual counties is too small to allow for a county-level breakdown of results; several counties are represented by fewer than 10 households in the survey sample (see the appendix). Most of the comparative geographic analysis in this report focuses instead on *types* of counties, using the MPO tier system.

Table 1. NHTS MPO classification by county.

MPO ID	MPO Name	MPO Tier	County Name	County FIPS	Portion in MPO	NHTS Sample Size, unweighted households
1	Albany	3	Dougherty	13095	Total	168
1	Albany	3	Lee	13177	Partial	61
2	Athens	2	Clarke	13059	Total	318
2	Athens	2	Madison	13195	Partial	63
2	Athens	2	Oconee	13219	Partial	90
2	Athens	2	Oglethorpe	13221	Partial	32
3	Atlanta	1	Barrow	13013	Partial	26
3	Atlanta	1	Carroll	13045	Partial	46
3	Atlanta	1	Cherokee	13057	Total	119
3	Atlanta	1	Clayton	13063	Total	97
3	Atlanta	1	Cobb	13067	Total	378
3	Atlanta	1	Coweta	13077	Total	71
3	Atlanta	1	DeKalb	13089	Total	406
3	Atlanta	1	Douglas	13097	Total	59
3	Atlanta	1	Fayette	13113	Total	65
3	Atlanta	1	Forsyth	13117	Total	98
3	Atlanta	1	Fulton	13121	Total	536
3	Atlanta	1	Gwinnett	13135	Total	369
3	Atlanta	1	Henry	13151	Total	74
3	Atlanta	1	Newton	13217	Partial	33
3	Atlanta	1	Paulding	13223	Total	53
3	Atlanta	1	Rockdale	13247	Total	36
3	Atlanta	1	Spalding	13255	Partial	34

Table continues on next page.

Table 1. (Continued).

Continued from previous page.

MPO ID	MPO Name	MPO Tier	County Name	County FIPS	Portion in MPO	NHTS Sample Size, unweighted households
3	Atlanta	1	Walton	13297	Partial	33
5	Augusta	2	Columbia	13073	Partial	326
5	Augusta	2	Richmond	13245	Total	420
6	Brunswick	3	Glynn	13127	Total	245
7	Cartersville	3	Bartow	13015	Total	167
8	Chattanooga/ Catoosa	2	Catoosa	13047	Total	39
8	Chattanooga/ Catoosa	2	Dade	13083	Partial	6
8	Chattanooga/ Catoosa	2	Walker	13295	Partial	25
9	Columbus	2	Chattahoochee	13053	Total; military presence	4
9	Columbus	2	Harris	13145	Partial	88
9	Columbus	2	Muscogee	13215	Partial	411
9	Dalton	3	Whitfield	13313	Total	128
10	Gainesville	2	Hall	13139	Total	384
10	Gainesville	2	Jackson	13157	Partial	128
11	Hinesville	3	Liberty	13179	Total	96
11	Hinesville	3	Long	13183	Partial	19
12	Macon	3	Bibb	13021	Total	292
12	Macon	3	Jones	13169	Partial	58
13	Rome	3	Floyd	13115	Partial	167
14	Savannah	2	Bryan	13029	Partial	75
14	Savannah	2	Chatham	13051	Total	611
14	Savannah	2	Effingham	13103	Partial	125
15	Valdosta	3	Lowndes	13185	Total	202
16	Warner Robins	3	Houston	13153	Total	283
16	Warner Robins	3	Peach	13225	Partial	45
99	Non-MPO	4	Other counties		None	931

Because each county contains a wide variety of built environments, a measure of neighborhood type known as *urbanicity* is sometimes used instead of or in addition to MPO tier. This measure, which was created for the NHTS by consultants at the Claritas company, was released as part of the August 2018 update to the NHTS dataset.[9] The urbanicity measure combines built environment measures, such as density, with data about residents' tendencies to travel within or outside of their communities. Claritas describes the community types as in figure 2.

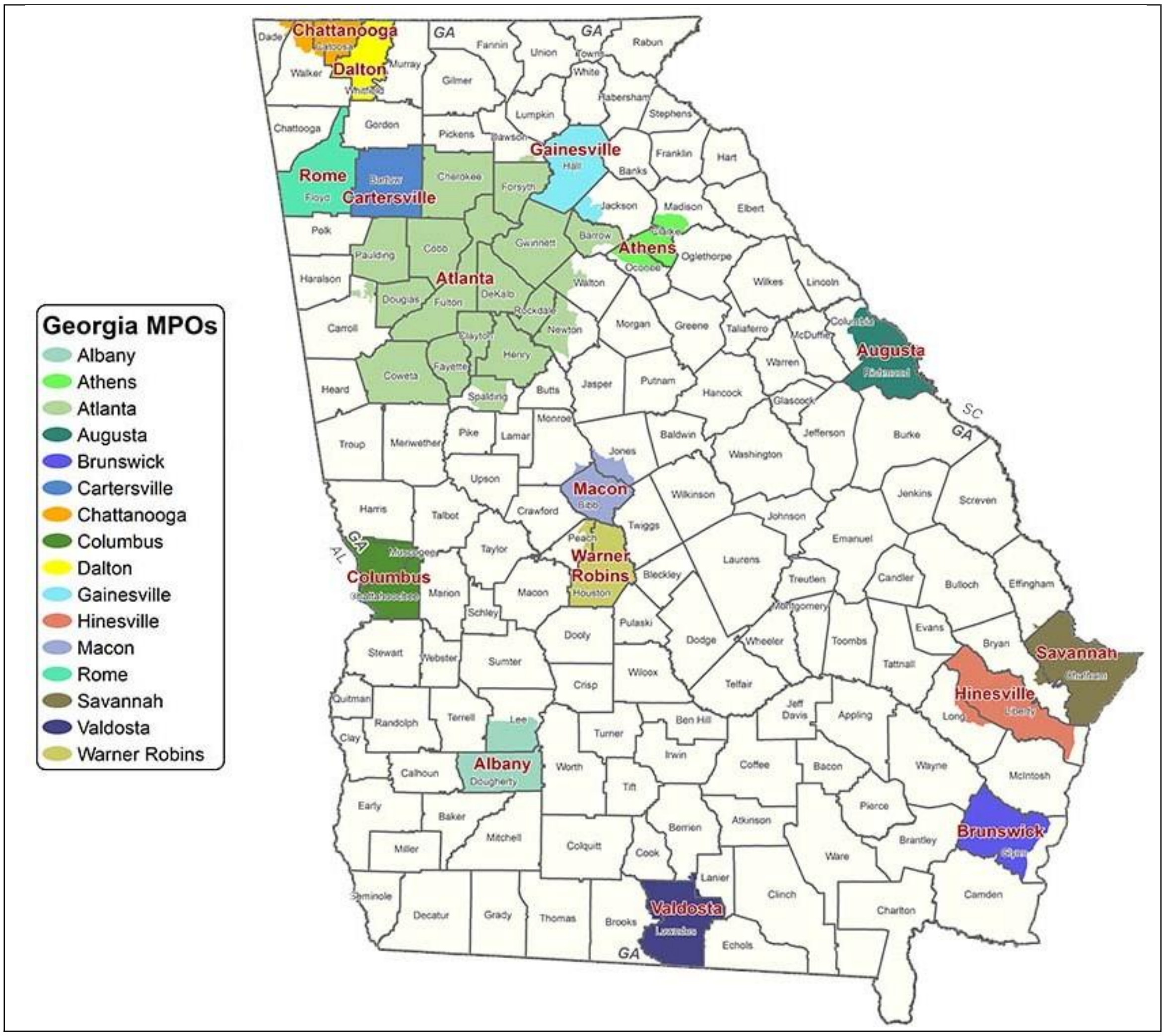

Figure 1. Map. Georgia MPO map. Retrieved 9-25-18 from the Georgia Association of Metropolitan Planning Organizations http://www.gampo.org/members.html. The map shows MPO boundaries within the state of Georgia; the Columbus and Chattanooga MPOs extend into neighboring states.

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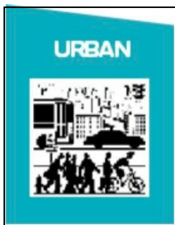
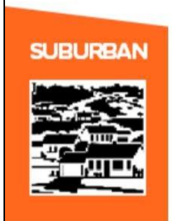
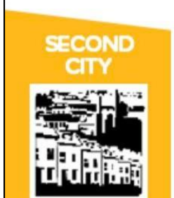
[9] Claritas also updated the census-derived built environment variables, e.g., housing density, and percent renters. More details can be found in the *2017 NHTS Version 1.1 Release Notes* (NHTS 2018).



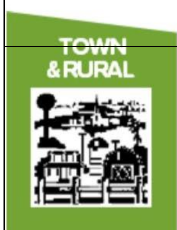
Urban segments are found in areas with population density scores (based on density centiles) mostly between 75 and 99. They include both the downtowns of major cities and surrounding neighborhoods. Households within this classification live within the classic high-density neighborhoods found in the heart of America's largest cities. While almost always anchored by the downtown central business district, these areas often extend beyond city limits and into surrounding jurisdictions to encompass most of America's earliest suburban expansions.



Suburban segments live in areas with population density scores between 40 and 90, and are tied closely to urban areas or second cities. Unlike second cities (defined below), suburban areas are not the population center of their surrounding community, but rather a continuation of the density decline from the city center. While some suburbs may be employment centers, their lifestyles and commuting patterns will be more tied to one another, or to the urban or second city core, than within themselves.



Second City segments are found in areas less-densely populated than urban areas, with population density scores typically between 40 and 90. While similar to suburban areas in their densities, second cities are the population centers of their surrounding communities. As such, many are concentrated within America's larger towns and smaller cities. This class also includes thousands of satellite cities, which are higher-density suburbs encircling major metropolitan centers, typically with far greater



Town & Rural segments contain households that are classified with one of those two urbanicity classifications. The population density scores where they are found range from 0 to 40. This category includes exurbs, towns, farming communities, and a wide range of other rural areas. The town aspect of this class covers the thousands of small towns and villages scattered throughout the rural heartland, as well as the low-density areas far beyond the outer beltways and suburban rings of America's major metros. Households in the exurban segments have slightly higher densities and are more affluent than their rural neighbors.

Figure 2. Classification. Urbanicity classifications. Source: Claritas (2018, pp. 4–5)

As shown in table 2, each MPO tier contains neighborhoods that fall into several different categories. Using urbanicity allows a way to capture these intra-county geographic differences.

Table 2. Classification of sample households by MPO tier and urbanicity.

Urbanicity	MPO Tier 1 Atlanta	2 Medium MPO	3 Small MPO	4 Non-MPO	Subtotal or Total
1. Rural	122	650	555	723	2,050
	4.8%	20.7%	27.7%	77.7%	23.8%
2. Small Town	610	1,104	821	190	2,725
	24.1%	35.1%	41.0%	20.4%	31.6%
3. Suburban	1,162	486	103	0	1,751
	45.9%	15.5%	5.1%	0.0%	20.3%
4. Second City	499	905	525	18	1,947
	19.7%	28.8%	26.2%	1.9%	22.6%
5. Urban	140	0	0	0	140
	5.5%	0.0%	0.0%	0.0%	1.6%
Subtotal or total	2,533	3,145	2,004	931	8,613
	100%	100%	100%	100%	100%

Note: detail may not sum to totals because of rounding.

OVERVIEW

This section compares major travel indicators for the state of Georgia with national figures. (Data will also be compared across different MPO tiers in the Trip Purpose section.) It also summarizes statistics relating to household travel, person travel, trip purpose, and mode choice. Subsequent chapters will examine the relationships between these topics, as well as relationships to demographic traits. The issue of vehicle ownership will also be visited in greater detail.

To set the stage for the statistics to follow, table 3 presents the number of households, people, and vehicles in Georgia and nationally. The Atlanta MPO accounts for more than half of the state's census on all indicators, while the non-MPO portions of the state comprise about a fifth of its census. The remaining one quarter is divided between mid-size and small MPO regions.

Table 3. Summary demographic statistics.

	National	Georgia (Statewide)	Tier 1 Atlanta	Tier 2 Medium MPOs	Tier 3 Small MPOs	Tier 4 Non-MPO Counties
Households	118,208,251	3,651,249	1,956,521	593,833	373,866	727,029
	–	100%	53.6%	16.3%	10.2%	19.9%
Persons, all ages	321,419,000	10,204,581	5,518,955	1,656,452	1,055,347	1,973,827
	–	100%	54.1%	16.2%	10.3%	19.3%
Persons, ages 5+	301,599,169	9,555,773	5,181,569	1,530,993	973,023	1,870,188
	–	100%	54.2%	16.0%	10.2%	19.6%
Vehicles	222,578,926	6,997,337	3,691,992	1,121,151	707,766	1,476,427
	–	100%	52.8%	16.0%	10.1%	21.1%
Drivers, all ages	223,277,172	7,036,938	3,848,238	1,096,159	698,309	1,394,231
	–	100%	54.7%	15.6%	9.9%	19.8%
Drivers, ages 16+	222,780,478	7,000,240	3,832,515	1,091,691	694,927	1,381,108
	–	100%	54.7%	15.6%	9.9%	19.7%
Workers	156,988,243	4,778,570	2,759,079	752,233	477,924	789,334
	–	100%	57.7%	15.7%	10.0%	16.5%

Source: NHTS weighted totals.[10]
– indicates data not available.

Table 4 presents major travel indicators. Georgia households are slightly larger than the national average, but they are statistically similar to the national average for most indicators. Following the national pattern (McGuckin and Fucci 2018), there are as many vehicles as drivers. However, vehicle ownership is not universal; 6.9 percent of households own zero vehicles, and 18.9 percent have a vehicle deficit (fewer vehicles than potential drivers). See Vehicle Availability and Usage in this chapter for more details about vehicle ownership.

Within Georgia, some differences exist between Atlanta (tier 1) and other areas (tiers 2–4). Households in Atlanta are somewhat larger, and the ratios of vehicles to households, drivers, and

[10] NHTS weights were benchmarked to 2015 American Community Survey 1-year estimates where available and 2011–2015 5-year estimates otherwise. See Roth, Dai, and DeMatteis (2017) for further details on the weighting process.

workers are lower. Rural counties (tier 4) have the highest ratios of vehicles per household, driver, and worker. However, the marked difference in the number of vehicles per worker is driven in part by the lower number of workers per household as compared to the rest of the state.

Table 4. Major travel indicators by MPO tier.

	National	Georgia (Statewide)	Tier 1 Atlanta	Tier 2 Mid-sized MPOs	Tier 3 Small MPOs	Tier 4 Non-MPO Counties
Persons (ages 5+) per HH	2.551	2.617	2.648	2.578	2.603	2.572
Workers per HH	1.328	1.309	1.410	1.267	1.278	1.086
Drivers per HH	1.889	1.916	1.887	1.888	1.893	2.031
Vehicles per HH	1.883	1.916	1.887	1.888	1.893	2.031
Vehicles per Driver*	0.997	0.994	0.959	1.023	1.014	1.059
Vehicles per Driver Aged 16+	0.999	1.000	0.963	1.027	1.018	1.069
Vehicles per Worker	1.418	1.464	1.338	1.490	1.481	1.870

** NHTS respondents were asked "Do you/does this person drive," and not about licensing. As a result, some people too young to receive a drivers license are recorded as drivers. Unless otherwise specified, this report will be analyzing drivers of driving age (ages 16+).*

HH = Household.

Table 5 gives information about household composition and trip generation at the level of MPO tier, and table 6 gives the same information about individual MPOs. These data are designed to illuminate local differences. However, caution should be employed when examining estimates for MPOs with a small sample size in the NHTS data. In particular, Chattanooga is represented by only 70 households. Hinesville and Rome are represented by fewer than 200 households each (see the appendix). The sample sizes for the remaining small and medium MPOs range from 201 to 811 households (table 1). Due to these sample size constraints, most analysis will proceed at the level of MPO tier.

Table 5. Summary demographic and travel statistics by MPO tier.

	Demographics			Annual Travel by Residents			
Place	Households	Persons aged 5+	Vehicles	Vehicle Trips (Thousands)	VMT (Millions)	Person Trips (Thousands)	PMT (Millions)
Statewide	3,651,249	9,555,773	6,997,336	6,882,190	71,984	11,073,916	131,078
MPO TIER							
1. Atlanta	1,956,521	5,181,569	3,691,992	3,844,926	40,499	6,172,253	75,945
	53.6%	54.2%	52.8%	55.9%	56.3%	55.7%	57.9%
2. Medium-size MPOs	593,833	1,530,993	1,121,151	1,051,526	9,698	1,746,745	20,596
	16.3%	16.0%	16.0%	15.3%	13.5%	15.8%	15.7%
3. Small MPOs	373,866	973,023	707,766	707,440	6,687	1,115,020	10,672
	10.2%	10.2%	10.1%	10.3%	9.3%	10.1%	8.1%
4. Non-MPO	727,029	1,870,188	1,476,427	1,278,298	15,100	2,039,899	23,864
	19.9%	19.6%	21.1%	18.6%	21.0%	18.4%	18.2%

Table 6. Summary demographic and travel statistics by MPO.

	Demographics			Annual Travel by Residents			
Place	Households	Persons aged 5+	Vehicles	Vehicle Trips (Thousands)	VMT (Millions)	Person Trips (Thousands)	PMT (Millions)
1. Albany	43,355	101,328	72,507	76,265	558	113,246	1,052
2. Athens	91,767	229,894	176,565	149,989	1,356	262,718	4,830
3. Atlanta	1,956,521	5,181,569	3,691,992	3,844,926	40,499	6,172,253	75,945
4. Augusta	137,340	361,997	236,760	257,795	2,061	427,870	3,502
5. Brunswick	40,721	97,161	75,241	94,922	929	148,967	1,726
6. Cartersville	28,688	75,736	66,791	61,532	798	93,980	1,099
7. Chattanooga	41,322	83,631	84,019	56,642	560	80,159	857
8. Columbus	98,590	262,221	173,178	179,854	1,556	285,955	2,708
9. Dalton	40,440	110,803	78,853	65,930	501	118,350	779
10. Gainesville	85,636	229,842	190,512	165,397	1,853	268,332	3,384
11. Hinesville	24,637	75,667	49,648	56,391	851	77,342	1,015
12. Macon	68,827	185,303	123,776	119,437	1,006	198,211	1,841
13. Rome	28,072	63,558	52,625	50,416	407	82,502	704
14. Savannah	139,178	363,409	260,118	241,850	2,312	421,711	5,315
15. Valdosta	39,787	107,097	75,688	80,130	506	117,902	882
16. Warner Robins	59,340	156,370	112,636	102,416	1,129	164,520	1,574

Compared to the U.S. average, Georgians make fewer trips per household and per capita (table 7 and table 8). The exception is the Atlanta MPO, where tripmaking levels and mileage are above average for Georgia, and close to the U.S. average for most indicators. Additionally, Atlanta residents are less likely to be immobile than residents of other MPO tiers (i.e., make no trips on their travel day; see table 9).

Table 7. Summary statistics per household, daily.

Geography	Person Trips	PMT	Vehicle Trips	VMT
Georgia	8.31	98.35	5.16	54.01
National †	8.60	99.46	5.11	53.81
MPO TIER				
1. Atlanta	8.64	106.35	5.38	56.71
2. Medium-size MPOs	8.06	95.02	4.85	44.74
3. Small MPOs	8.17	78.20	5.18	49.01
4. Non-MPO	7.69	89.93	4.82	56.90
MPO				
1. Albany	7.16	66.45	4.82	35.28
2. Athens	7.84	144.21	4.48	40.49
3. Atlanta	8.64	106.35	5.38	56.71
4. Augusta	8.54	69.86	5.14	41.12
5. Brunswick	10.02	116.10	6.39	62.54
6. Cartersville	8.98	104.94	5.88	76.25
7. Chattanooga ‡	5.31	56.84	3.76	37.10
8. Columbus	7.95	75.24	5.00	43.23
9. Dalton	8.02	52.74	4.47	33.96
10. Gainesville	8.58	108.26	5.29	59.29
11. Hinesville‡	8.60	112.90	6.27	94.60
12. Macon	7.89	73.28	4.75	40.04
13. Rome ‡	8.05	68.75	4.92	39.77
14. Savannah	8.30	104.64	4.76	45.50
15. Valdosta	8.12	60.77	5.52	34.87
16. Warner Robins	7.60	72.69	4.73	52.15

† From McGuckin and Fucci (2018, 12)
‡ MPO represented by small sample

Table 8. Summary statistics per capita, daily.

Geography	Per Person (ages 5+) Person Trips	PMT	Vehicle Trips	VMT	Per Driver* Vehicle Trips	VMT
Georgia	3.17	37.58	1.97	20.64	2.68	28.03
National†	3.37	38.98	2.00	19.13	2.70	28.49
MPO TIER						
1. Atlanta	3.26	40.16	2.03	21.41	2.74	28.83
2. Medium MPOs	3.13	36.86	1.88	17.35	2.63	24.24
3. Small MPOs	3.14	30.05	1.99	18.83	2.78	26.24
4. Non-MPO	2.99	34.96	1.87	22.12	2.51	29.67
MPO						
1. Albany	3.06	28.43	2.06	15.10	2.96	21.66
2. Athens	3.13	57.56	1.79	16.16	2.42	21.87
3. Atlanta	3.26	40.16	2.03	21.41	2.74	28.83
4. Augusta	3.24	26.50	1.95	15.60	2.93	23.46
5. Brunswick	4.20	48.66	2.68	26.21	3.55	34.80
6. Cartersville	3.40	39.75	2.23	28.88	2.73	35.47
7. Chattanooga‡	2.63	28.08	1.86	18.33	2.29	22.60
8. Columbus	2.99	28.29	1.88	16.25	2.73	23.65
9. Dalton	2.93	19.25	1.63	12.39	2.53	19.20
10. Gainesville	3.20	40.33	1.97	22.09	2.69	30.11
11. Hinesville‡	2.80	36.76	2.04	30.81	2.97	44.77
12. Macon	2.93	27.22	1.77	14.87	2.50	21.02
13. Rome‡	3.56	30.37	2.17	17.57	3.13	25.27
14. Savannah	3.18	40.07	1.82	17.43	2.47	23.56
15. Valdosta	3.02	22.57	2.05	12.95	2.82	17.82
16. Warner Robins	2.88	27.58	1.79	19.79	2.42	26.64

* *To match national figures, drivers of all ages are used.*

† *From McGuckin and Fucci (2018, p, 13), except for vehicle trips and VMT per person.*

‡ *MPO represented by small sample.*

Table 9. Trip distance and percent of population immobile.

Geography	Average Person Trip Length (mi)	Average Vehicle Trip Length (mi)	Percent Immobile (0 trips on travel day)	Percent Immobile, weekdays only
Georgia	11.85	10.46	19.4%	16.1%
MPO TIER				
1. Atlanta	12.31	10.53	18.2%	15.1%
2. Medium-size MPO	11.80	9.22	20.0%	16.0%
3. Small MPOs	9.58	9.45	20.7%	17.3%
4. Non-MPO	11.71	11.81	21.7%	18.2%
MPO				
1. Albany	9.29	7.32	22.8%	21.6%
2. Athens	18.40	9.04	24.9%	17.0%
3. Atlanta	12.31	10.53	18.2%	15.1%
4. Augusta	8.19	8.00	18.4%	14.5%
5. Brunswick	11.58	9.79	12.3%	14.1%
6. Cartersville	11.69	12.98	14.7%	14.7%
7. Chattanooga ‡	10.69	9.88	20.5%	12.3%
8. Columbus	9.48	8.65	22.9%	17.7%
9. Dalton	6.59	7.60	21.1%	18.9%
10. Gainesville	12.62	11.21	19.3%	19.9%
11. Hinesville‡	13.13	15.09	25.8%	16.1%
12. Macon	9.30	8.42	18.9%	16.1%
13. Rome ‡	8.54	8.08	18.1%	19.7%
14. Savannah	12.61	9.56	16.7%	14.6%
15. Valdosta	7.49	6.32	26.3%	22.1%
16. Warner Robins	9.57	11.03	23.9%	12.5%
‡ MPO represented by small sample.				

Trip Purpose Overview

The NHTS collects detailed information about trip purpose. In most cases, it is desirable, or even necessary (due to small sample sizes), to collapse the NHTS's detailed taxonomy into a smaller number of categories. Table 10 shows descriptive statistics for the most detailed measure of trip purpose—primary activity at destination—and color-coded categories into which these activities are classified.

Broadly, trip purpose is classified into three categories for this report. *Mandatory* trips support required life activities such as working and attending school. *Household-serving* trips contribute to the maintenance of the household. They include transporting other household members, shopping, errands, and medical services. Household-serving trips benefit the household as a whole but may not directly benefit the traveler (for example, picking up dry cleaning for a family member). *Discretionary* trips, in contrast, facilitate activities that are intrinsically valuable to the travelers themselves (e.g., socializing, engaging in recreation, and exercising), allow them to participate in a broader community, or allow them to volunteer their time to a good cause. Trips to return home are the final leg of any circuit of trips. Because of this, they are a good proxy for how often someone leaves the house, without the complications of trip chaining.

Trip purpose (level 1) will be the primary measure used in this report. When analysis requires the use of a smaller number of categories, the summarized purposes or purpose categories will be used. The classification categories used here are nested and mutually compatible. However, they differ slightly from NHTS's predefined categories.[11]

The NHTS classifications base purpose determinations on the purpose at destination, not factoring in origin or physical location. As a result, a trip with the purpose of "work" will be a work trip, regardless of whether the destination was the respondent's official work address. Conversely, trips from work to home are classified as "return home" trips rather than "work commute" trips because the purpose at destination will be regular home activities. However, even when trips both to and from work are accounted for, commuting represents a minority of trips: 17.3 percent of person trips and 23.9 percent of vehicle trips.

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[11] The NHTS combines commuting with other work travel. This study separates them to allow analysis specifically of the work commute versus other related trip purposes. The other difference is the creation of a community activities category. The NHTS classifies religious and community activities with attending school and daycare and volunteer activities with "other," whereas this report combines these three types of community activities into a new category. The categorization of some loop trips were also adjusted (see footnote to table 10).

Table 10. Trip purpose by destination: Types and frequencies.

Level Zero: Primary Activity at Destination	Percent of Person Trips	Percent of Vehicle Trips	Level 1: Trip Purpose	Level 2: Purpose, summarized
Category 1: Mandatory Travel				
Work	11.1%	14.9%	Work Commute	Work Commute
Work-related meeting / trip	1.0%	1.2%	Other Work-related Travel	Other Work-related Travel
Attend school as a student	3.7%	1.1%	Attend School or Day Care	Attend School or Day Care
Attend child care	0.3%	0.1%	Attend School or Day Care	Attend School or Day Care
Attend adult care	0.1%	0.1%	Attend School or Day Care	Attend School or Day Care
Category 2: Household-Serving Travel				
Drop off /pick up someone	6.7%	8.4%	Transport Someone	Transport Someone
Buy goods (groceries, clothes, appliances, gas)	14.1%	15.4%	Shopping/Errands	Other Household-Serving
Buy services (dry cleaners, bank, service a car, pet care)	1.9%	2.3%	Shopping/Errands	Other Household-Serving
Other general errands (post office, library)	2.6%	2.9%	Shopping/Errands	Other Household-Serving
Health care visit (medical, dental, therapy)	1.4%	1.4%	Medical Services	Other Household-Serving
Category 3: Discretionary Travel				
Recreational activities (visit parks, movies, bars, museums)	3.0%	1.9%	Social/Recreational	Personal Enrichment
Exercise (go for a jog, walk, walk the dog, go to the gym)	2.9%	2.5%	Social/Recreational	Personal Enrichment
Visit friends or relatives	3.8%	3.4%	Social/Recreational	Personal Enrichment
Buy meals (go out for a meal, snack, carry-out)	7.9%	7.5%	Meals	Personal Enrichment
Religious or other community activities	2.5%	2.1%	Community Activities	Community
Volunteer activities (not paid)	0.5%	0.6%	Community Activities	Community
Other Travel				
Change type of transportation	1.0%	0.4%	Other	Other
Something else	0.3%	0.1%	Other	Other
Regular home activities (chores, sleep)†	34.3%	32.9%	Return Home	Return Home
Work from home (paid)	0.7%	0.9%	Return Home	Return Home

† To better capture the purpose of loop trips, loop trips where the primary activity at destination was home or school were reclassified as exercise for nonmotorized and recreation for all other modes.

As figure 3 shows, although *where*, *how*, and *how much* Georgians travel may vary from region to region, *why* they travel is strikingly constant. Statewide, half of all person trips are devoted to the day-to-day business of going to work, school, or daycare, and returning home from all kinds of trips. Just over half of the remainder go to household-serving travel (27 percent of total trips), and 22 percent of trips are discretionary.

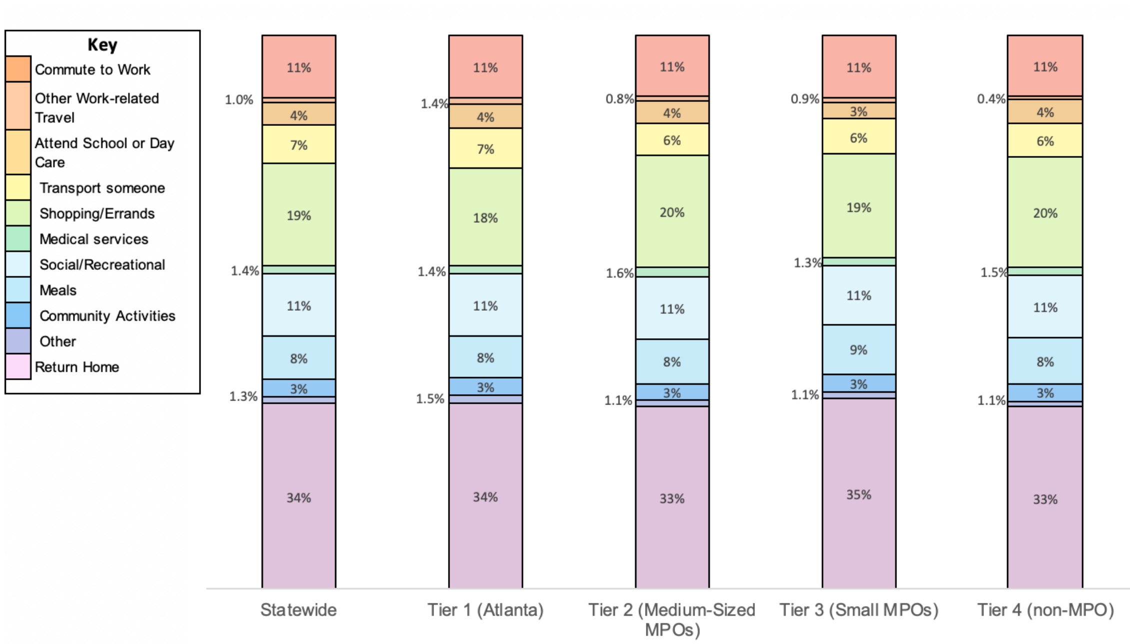

Figure 3. Stacked bar graph. Person trip purpose by MPO tier (color-coded per table 10).

Mode Overview

Privately operated vehicles dominate travel in Georgia, receiving 10 times the share of any other mode (table 11). POVs are predominantly privately owned; only 0.2 percent of POV trips were in rental cars.

Table 11. Person trips by mode (detailed).

Mode	Reported Trips, unweighted	Estimated Annual Trips, weighted (millions)	Percent of Trips, weighted	Mode Category
Privately Operated Vehicle†	52,675	9467.0	85.5%	POV
Pedestrian (walk/wheelchair)‡	4,201	887.2	8.0%	Nonmotorized
Bike	287	68.2	0.6%	Nonmotorized
School Bus	1,213	324.8	2.9%	Bus or train
Public Transit (bus, heavy rail, light rail, and streetcar)	515	157.1	1.4%	Bus or train
Paratransit	56	15.3	0.1%	Other ground or water
Other Bus	141	22.5	0.2%	Bus or train
Taxi/Ridehail/Limo	222	63.2	0.6%	Other ground or water
Air	105	19.0	0.2%	Air
Other§	289	49.5	0.4%	Other ground or water‖

† POV includes car, van, pickup truck, motorcycle/moped, RV, rental car, and trips in a "company vehicle" originally reported under the "something else" category.

‡ "Pedestrian" combines walking with 29 wheelchair trips that were originally reported under the "something else" category.

§ "Other" includes golf cart, Segway, boat, and responses originally reported under the "something else" category (large trucks, agricultural and construction equipment, skateboard/scooter/skates).

‖ Two trips by skateboard/scooter/skates were classified as nonmotorized.

Pedestrian trips, including both walking and wheelchair use, are the second most common, followed by school buses and public transit. No other single mode accounts for more than 1 percent of trips. As a result, while future targeted analysis will focus specifically on less common modes such as ridehailing, paratransit, and biking, analysis of geographic patterns will focus on the mode categories described in table 11, as shown in table 12.

Table 12. Mode share and trip distance by MPO tier.

Mode	Statewide	Tier 1 (Atlanta)	Tier 2 (Medium MPOs)	Tier 3 (Small MPOs)	Tier 4 (Non-MPO)
			Annual Person Trips (millions)		
POV	9,467.0	5,165.6	1,507.5	989.6	1,804.4
Nonmotorized (walk, bike, wheelchair)	955.5	562.9	160.2	80.8	151.6
Bus or train	504.4	347.7	56.9	29.8	69.9
Other ground or water transportation	127.8	80.9	19.9	13.7	13.3
Air	19.0	15.1	2.03	1.22	0.65
			Percent of Person Trips		
Mode	Statewide	Tier 1	Tier 2	Tier 3	Tier 4
POV	85.5%	83.7%	86.3%	88.7%	88.5%
Nonmotorized (walk, bike, wheelchair)	8.6%	9.1%	9.2%	7.2%	7.4%
Bus or train	4.6%	5.6%	3.3%	2.7%	3.4%
Other ground or water transportation	1.2%	1.3%	1.1%	1.2%	0.65%
Air	0.17%	0.24%	0.12%	0.11%	0.03%
			Annual Person Miles (millions)		
Mode	Statewide	Tier 1	Tier 2	Tier 3	Tier 4
POV	103,800	56,869	15,273	9,476	22,181
Nonmotorized (walk, bike, wheelchair)	842	464	196	58	124
Bus or train	4,058	2,637	430	194	797
Other ground or water transportation	1,634	923	167	293	251
Air	20,120	15,052	3,905	651	511
			Average Trip Distance (miles)		
Mode	Statewide	Tier 1	Tier 2	Tier 3	Tier 4
POV	11.0	11.0	10.1	9.6	12.3
Nonmotorized (walk, bike, wheelchair)	0.9	0.8	1.2	0.7	0.8
Bus or train	8.1	7.6	7.6	6.5	11.4
Other ground or water transportation	12.9	11.5	8.5	21.4	18.8
Air	1,059	996	1,927	536	790

POVs account for a smaller proportion of trips in the Atlanta MPO compared to the rest of the state. POV use is offset by comparatively high mode shares for nonmotorized transportation and buses/trains. Nonmotorized mode use is most common in medium and large MPOs (tiers 1–2).

Unsurprisingly, motorized trips comprise the majority of person miles. Motorized trips are the longest in rural, non-MPO counties and the shortest in small MPO counties. Air travel exerts an outsized influence on PMT. Although air travel comprises less than 1 percent of trips made by Georgians, it represents 15 percent of total person miles,[12] making it the second largest component of PMT. Interestingly, tier 2 MPO households make proportionally fewer air trips than Atlanta MPO households do (as might be expected), but the ones they *do* make are about twice as long, on average. A similar comparison holds between tier 4 and tier 3 households.

According to NHTS figures, nonmotorized transit accounts for a small share of PMT. The average reported nonmotorized trip distance is less than 1 mile. However, these figures are likely misleading. The NHTS determines trip distance by calculating the shortest path between the origin and destination. This is likely to underestimate the true length of nonmotorized trips; pedestrians and cyclists often follow circuitous routes to avoid safety hazards, find a pleasant walking environment, or to follow a scenic route (Lu, Scott, and Dalumpines 2018; Misra and Watkins 2017). Cyclist trip lengths are particularly prone to being underestimated; 8 percent of trips by adult cyclists have computed speeds of less than 2 mph based on shortest path distance and reported duration. Further, route choices differ by age and gender; on average, as compared to young male cyclists, women and elderly cyclists choose longer trajectories that are perceived to be safer (Misra and Watkins 2018). Therefore, the shortest path distance is likely to be inaccurate for all cyclists, but it is systematically less accurate for female and elderly cyclists than it is for young males. A time-based measure of cycling is likely more accurate.

[12] The fact that air trips are extreme outliers in terms of length is the reason air has been left as its own category, despite the small quantity of trips.

TRIP PATTERNS BY LOCATION OF TRAVEL

This report focuses primarily on travel by residents of Georgia. However, when considering demand for transportation infrastructure, it is important also to account for trips by nonresidents within Georgia and trips that Georgia residents make outside of the state. This section describes trip patterns by location of travel. Table 13 compares trips made by residents of Georgia and trips by nonresidents that took place partly or entirely in Georgia.

Table 13. Annual trips and vehicle miles by Georgians and within Georgia.

	By Georgia Residents	By Out-of-State U.S. Residents	Total
Person Trips (thousands)			
Entirely Within Georgia	10,610,653	205,771	10,816,424
Partly Within Georgia	162,441	254,385	416,826
Entirely Outside of Georgia	300,822	–	–
Subtotal, Entirely or Partly in Georgia	10,773,094	460,156	11,233,250
Subtotal, Entirely or Partly Outside of Georgia	463,263	–	–
Total	11,073,916	–	–
Vehicle Trips (thousands)			
Entirely Within Georgia	6,687,867	98,115	6,785,982
Partly Within Georgia	85,361	137,011	222,372
Entirely Outside of Georgia	108,961	–	–
Subtotal, Entirely or Partly in Georgia	6,773,228	235,126	7,008,354
Subtotal, Entirely or Partly Outside of Georgia	194,322		
Total	6,882,189	–	–
VMT (thousands)			
Entirely Within Georgia	60,858,290	1,714,764.65	62,573,055
Partly Within Georgia	8,144,777	11,062,151	19,206,928
Entirely Outside of Georgia	2,981,012	–	–
Subtotal, Entirely or Partly in Georgia	69,003,067	12,776,915	81,779,982
Subtotal, Entirely or Partly Outside of Georgia	11,125,789	–	–
Total	71,984,079	–	–

– indicates no data.

Georgians' out-of-state travel is largely offset by trips nonresidents make in Georgia. Georgians make 463 million out-of-state person trips per year, while residents of other U.S. states make 460 million person trips entirely or partially in the state of Georgia.[13]

Motorized travel is less balanced. After accounting for out-of-state trips made by Georgians elsewhere, Georgia roadways receive 40.8 million net additional trips from out-of-state motorists. However, while Georgia is a net recipient of interstate trips (between Georgia and another location), Georgia is a net donor of trips that are entirely out-of-state. Georgians make 109 million vehicle trips per year that take place entirely outside of Georgia, versus 98 million trips entirely within Georgia made by nonresidents.[14]

The distinction between trips in a particular place and trips by residents of a particular place is also relevant when examining travel within different parts of Georgia (table 14). Forty percent of person trips by Georgians cross city lines (i.e., the origin and destination are in different cities or towns). Twenty-four percent cross county lines. However, the overwhelming majority of trips stay within a single MPO; only 5.3 percent of trips cross MPO boundaries.

Trips that cross between different MPO tiers account for 5 percent of total person trips. The directionality of these trips is balanced, with approximately the same number of trips from A to B as from B to A (table 14 and table 15). Therefore, when discussing trips in spatial terms, this report will classify them by origin rather than double-counting them or apportioning them between origin and destination.

[13] Trips by international visitors and residents of U.S. territories are not accounted for in the survey data.

[14] The remainder of the report excludes non-Georgians' travel, but includes Georgians' out-of-state travel, unless otherwise specified.

Table 14. Annual person trips within and between MPO tiers (thousands).

Origin	Destination: 1. Atlanta	2. Medium MPOs	3. Small MPOs	4. Non-MPO	5. Out of State	Total Originating Trips
1. Atlanta	5,829,524	40,462	20,791	62,012	21,730	5,974,519
2. Medium MPOs	44,567	1,562,151	6,415	49,814	31,343	1,694,289
3. Small MPOs	20,291	7,232	1,030,657	57,004	4,605	1,119,789
4. Non-MPO	57,512	50,064	59,563	1,712,594	21,410	1,901,144
5. Out of State	22,328	29,261	7,535	24,230	300,822	384,175
Total Attracted Trips	5,974,223	1,689,170	1,124,961	1,905,654	379,910	11,073,916

Detail may not sum to totals because of rounding.

Table 15. Annual vehicle trips within and between MPO tiers (thousands).

Origin	Destination: 1. Atlanta	2. Medium MPOs	3. Small MPOs	4. Non-MPO	5. Out of State	Total Originating Trips
1. Atlanta	3,691,232	31,356	15,208	40,120	7,200	3,785,115
2. Medium MPOs	33,341	938,663	5,062	34,259	21,425	1,032,749
3. Small MPOs	14,287	5,406	660,930	44,669	3,634	728,926
4. Non-MPO	37,986	33,337	46,123	1,055,889	9,916	1,183,251
5. Out of State	7,018	20,215	5,802	10,152	108,961	152,148
Total Attracted Trips	3,783,864	1,028,977	733,125	1,185,089	151,135	6,882,189

Detail may not sum to totals because of rounding.

While trips between two geographic categories may be balanced on the whole, this does not necessarily apply to trips at a specific time of day. When focusing on rush hour loads or work commutes, a more detailed method for assigning trips to jurisdictions should be considered.

HOUSEHOLD AND PERSONAL MOBILITY

The Overview section provided an overview of household and personal mobility and discussed regional differences. This section focuses on demographic-based patterns.

As shown in table 16, the amount of travel generated by a household differs by gender of household head(s), race,[15] income, and vehicle ownership. However, these patterns are complicated by correlations with household size. For a clearer picture of individuals' mobility, it is important to consider person-level travel, as well.

Table 17 reveals that many household patterns are also observable at the level of individual household members. Several populations have markedly reduced mobility compared to the state average. While some racial discrepancies exist, the largest differences are by income, age, and disability. The two groups with the most restricted mobility are elderly people (ages 80+) and people with disabilities. Over the course of the year, a Georgia resident with a mobility impairment will make 327 fewer person trips than the average Georgian. An elderly Georgian will make 414 fewer trips, a reduction of more than one trip per day. However, younger seniors are, on average, relatively mobile. The declines in tripmaking associated with aging are mainly seen in the elderly population (ages 80+). Nearly 45 percent of this group made no trips on their travel day. People with disabilities (of all ages) face similar constraints; 40 percent were immobile on their travel day. It should be noted that there is considerable overlap between the elderly and disabled populations; 38.5 percent of elderly respondents reported having a medical condition or handicap that impedes travel (compared to 19.2 percent of younger seniors and 6.8 percent of adults). However, the majority of Georgians with disabilities are younger (figure 4). Therefore, the two groups' needs should not be automatically conflated.

[15] See Methodological Notes for more details on how race is defined.

Table 16. Daily household travel by demographic groups.

Subpopulation	Mean Household Size (ages 5+)	Person Trips	Vehicle Trips	PMT	VMT
All	2.49	8.31	5.16	98.35	54.01
Gender					
Female headed*	1.73	6.02	3.63	64.41	36.14
Non-female headed†	2.79	9.22	5.77	111.85	61.12
Household Race‡					
White non-Hispanic§	2.38	7.73	4.99	93.30	51.16
Nonwhite and multiracial‖	2.61	8.98	5.37	104.26	57.35
Annual Household Income					
<$15,000	2.11	6.41	2.84	52.05	26.83
$15,000 to $24,999	2.32	7.02	4.09	71.88	41.04
$25,000 to $34,999	2.29	7.63	4.95	60.67	42.35
$35,000 to $49,999	2.41	8.51	5.62	75.62	52.86
$50,000 to $74,999	2.47	8.32	5.74	113.59	64.07
$75,000 to $99,999	2.73	9.41	6.23	130.93	67.80
$100,000+	2.93	10.36	6.49	139.73	73.08
Household Vehicles Owned					
Zero vehicles	1.77	5.17	0.30	31.67	1.14
One vehicle	1.86	6.48	3.98	70.09	36.13
Two or more vehicles	2.93	9.71	6.40	122.13	70.30

of a female householder.

† *Including households with a sole male head and households with both male and female adults.*

classification for households, which is based on the race of the first respondant to the survey.

§ *All household members are white non-Hispanic.*

‖ *Some or all household members are nonwhite, including Latino.*

Table 17. Daily per capita trips and immobility (persons ages 5+).

Subpopulation	Person Trips	Vehicle Trips*	Percent Immobile†	Percent Immobile, weekdays‡
All	3.17	1.97	19.4%	16.1%
Gender				
Male	3.16	2.02	17.8%	13.8%
Female	3.18	1.93	21.0%	18.3%
Race				
White non-Hispanic	3.25	2.10	17.8%	14.5%
Black & Black multiracial	3.10	1.88	21.3%	18.1%
Other race	3.05	1.72	21.4%	17.5%
Age				
Children (5–15)	2.45	0.01§	22.7%	16.3%
Teens (16–17)	2.54	0.76	22.2%	16.1%
Adults (18–64)	3.44	2.49	16.2%	13.2%
Seniors (65–79)	3.08	2.24	27.6%	25.7%
Elderly (80+)	2.04	1.16	44.7%	47.8%
Disability‖				
No impairment	3.25	2.05	17.6%	14.1%
Impairment present	2.28	1.09	40.3%	37.7%
Annual Household Income				
<$15,000	2.85	1.26	25.9%	23.5%
$15,000 to $24,999	2.82	1.64	23.2%	18.8%
$25,000 to $34,999	3.14	2.03	20.7%	18.1%
$35,000 to $49,999	3.33	2.21	18.5%	17.3%
$50,000 to $74,999	3.20	2.21	18.7%	14.6%
$75,000 to $99,999	3.32	2.20	15.5%	11.6%
$100,000+	3.42	2.14	15.7%	12.1%

** Vehicle trips as driver only.*

† Immobile is defined as zero trips on travel day.

‡ Calculated using 5-day person weights, excluding households whose travel day fell on a weekend or federal holiday.

§ Vehicle trips for this age group stem from minors learning to drive under the supervision of an adult.

‖ Defined by NHTS as "a condition or handicap that makes it difficult to travel outside the home."

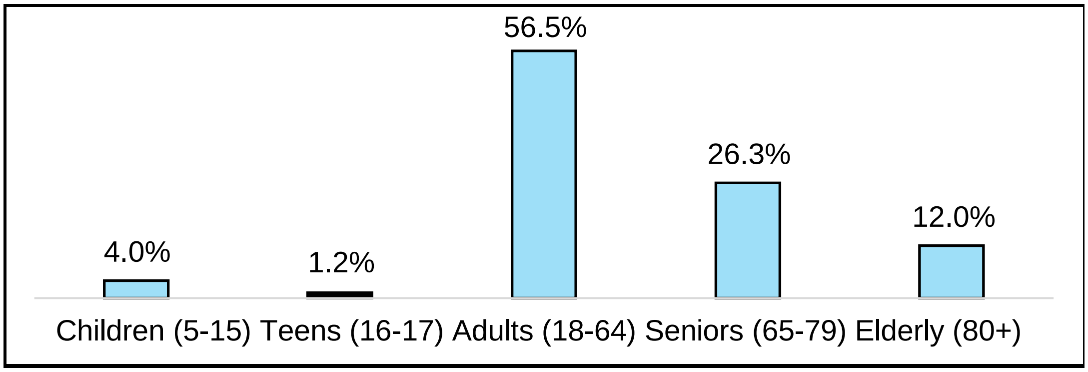

Figure 4. Bar graph. Age of population with mobility impairments.

Interestingly, the elderly and disabled are the only populations for which weekday immobility was higher than overall immobility. One possible explanation for this phenomenon is a difference in trip purpose (e.g., emphasis on visiting family or attending church; fewer or no work trips on weekdays). However, the difference also suggests that elderly and disabled residents' travel is sometimes contingent on the availability of a friend or family member to assist them; 35 percent of elderly and disabled residents reported asking others for rides. Even if still somewhat independently mobile, some elderly and disabled individuals may curtail their travel during peak periods and, thus, defer some trips to weekends or eliminate them altogether; 63 percent reported reducing their travel.[16] On average, men and women make similar numbers of trips (table 17). However, as will be shown in chapter 5, this is not true across all age groups; elderly women's mobility is much lower than that of men of a comparable age. Additionally, trip purposes vary by gender.

In addition to making fewer trips, elderly and disabled residents also make shorter trips (table 18). Though women make as many trips as men, their trips are also shorter. Georgians who earn

[16] Individuals with disabilities were asked about changing travel behavior as a result of their disability; elderly respondents with no reported disability were asked if they had changed their behavior over the last year.

more than $50,000 travel a greater distance than those who earn less, but within the lower income tiers, the relationship does not appear to be linear; there is a spike in trip length and PMT among residents earning between $15,000 and $24,999 as compared to the income groups above and below. It is possible this is linked to employment, e.g., the relative location of low-wage jobs and low-income housing.

Average person trip distance is somewhat longer than that of the average vehicle trip. This result likely reflects the outsized influence of long-distance air travel. Note, for example, that the difference diminishes or reverses in households with income of less than $50,000. An additional reason to treat person trip distances with caution is that, with the exception of loop trips, the NHTS determines trip distance by calculating the shortest path between the origin and destination. While this will understate the distance for at least some motorized trips, it is likely to disproportionately underestimate distance for modes that often follow less direct routes (e.g., walking, biking, and transit).

TRIP PURPOSE

This section examines demographic differences in trip purpose. Specifically, the tables in this section disaggregate by trip purpose the patterns in person trips presented in the previous section, Household and Personal Mobility. This section also examines the relationship between trip purpose and mode.

Table 18. Trip distance and daily PMT and VMT per person ages 5+.

Subpopulation	PMT	VMT	Average Person Trip Length (mi)	Average Vehicle Trip Length (mi)
All	37.58	20.64	11.85	10.44
Gender				
Male	40.53	23.66	12.82	11.71
Female	34.80	17.79	10.93	9.18
Race				
White non-Hispanic	40.31	22.07	12.39	10.52
Black & Black multiracial	34.01	20.01	10.98	10.60
Other race	35.54	16.54	11.68	9.64
Age				
Children (5–15)	19.36	0.07[§]	7.90	6.61
Teens (16–17)	20.32	4.56	8.00	5.97
Adults (18–64)	44.52	26.91	12.96	10.78
Seniors (65–79)	32.77	20.50	10.66	9.14
Elderly (80+)	13.13	6.91	6.46	5.95
Disability[‖]				
No impairment	39.49	21.67	12.14	10.57
Impairment present	16.05	8.98	7.07	7.82
Annual Household Income				
<$15,000	23.17	11.94	8.14	9.24
$15,000 to $24,999	28.85	16.47	10.25	10.04
$25,000 to $34,999	24.94	17.41	7.95	8.56
$35,000 to $49,999	29.68	20.75	8.89	9.40
$50,000 to $74,999	43.66	24.62	13.67	11.15
$75,000 to $99,999	46.18	23.91	13.91	10.89
$100,000+	46.07	24.09	13.49	11.26

[§] *Vehicle trips for this age group stem from minors learning to drive under the supervision of an adult.*

[‖] *Defined by NHTS as "a condition or handicap that makes it difficult to travel outside the home."*

Table 19 shows person trips by purpose and income. Over all, higher income groups make more trips, but these trips are not always spread proportionally across all types. Discretionary travel is a good example. Dining out and takeout generally increase with income. However, trips for community and religious activities are highest in high- and low-income categories, with a dip in moderate income groups. People in the lowest income bracket make a relatively large number of social and recreational trips; approximately the same number as households earning $50,000–$74,999. However, social trips drop markedly among households earning $15,000–$34,999. These groups also make more work trips than members of very low-income households, so part of the difference may relate to the availability of time for recreation among the working poor.

There is a notable spike in trips to transport someone in the $35,000–$49,999 bracket. This likely reflects the travel patterns of households that have acquired at least one car, but may still not have enough vehicles for every potential driver. These households can be characterized as having a vehicle deficit (Blumenberg et al. 2018; see also chapter 5).

The presence of trips to transport someone raises the issue of how much utility travelers obtain from their trips, or whether utility for one household member is obtained at a cost of disutility for another. On average, someone in a household earning $35,000–$49,999 will make 73 more person trips per year than someone in the next income category down, but 22 of those trips, or 30 percent, will be to transport someone else.

Table 19. Annual person trips by purpose and income.

Annual Trips per Person (Ages 5+)							
	Household Income						
Trip Purpose	<$15,000	$15,000 to $24,999	$25,000 to $34,999	$35,000 to $49,999	$50,000 to $74,999	$75,000 to $99,999	$100,000+
All Purposes	1,041	1,028	1,145	1,217	1,166	1,211	1,247
Mandatory Travel	120	166	209	198	204	226	205
Work commute	71	104	149	143	144	160	137
Other work-related travel	6	8	9	9	13	15	19
Attend school or daycare	42.7	53.8	51.1	46.3	46.4	51.0	49
Household-Serving Travel	324	288	314	355	306	321	294
Transport someone	69.0	69.7	74.5	96.2	74.4	76.9	84
Shopping or errands	228	197	223	246	219	225	197
Medical/dental services	27	22	16	13	13	18	13
Discretionary Travel	227	212	216	251	250	260	310
Social/recreational	123	87.3	102	134	122	136	158
Dining	72.0	80.0	85.7	88.1	92.5	87.3	115
Community/religious	32.7	44.5	28.9	29.1	35.7	36.0	36.5
Other Travel	10.2	9.1	12.7	13.5	19.0	14.8	19.4
Other	10.2	9.1	12.7	13.5	19.0	14.8	19.4
Return Home	359.9	353.0	392.6	399.6	388.5	390.5	419.5
Return home	360	353	393	400	388	390	420

Table continues on next page.

Table 19. (Continued).

Continued from previous page.

Trip Purpose	Percent of Trips (Persons Ages 5+) <$15,000	$15,000 to $24,999	$25,000 to $34,999	$35,000 to $49,999	$50,000 to $74,999	$75,000 to $99,999	$100,000+
Mandatory Travel	11.5%	16.1%	18.3%	16.3%	17.5%	18.7%	16.4%
Work commute	6.8%	10.1%	13.1%	11.7%	12.4%	13.2%	11.0%
Other work-related travel	0.6%	0.8%	0.8%	0.7%	1.1%	1.2%	1.5%
Attend school or daycare	4.1%	5.2%	4.5%	3.8%	4.0%	4.2%	3.9%
Household-Serving Travel	31.1%	28.0%	27.4%	29.2%	26.2%	26.5%	23.6%
Transport someone	6.6%	6.8%	6.5%	7.9%	6.4%	6.4%	6.7%
Shopping or errands	21.9%	19.1%	19.5%	20.2%	18.7%	18.6%	15.8%
Medical/dental services	2.6%	2.1%	1.4%	1.0%	1.1%	1.5%	1.1%
Discretionary Travel	21.8%	20.6%	18.9%	20.7%	21.4%	21.4%	24.8%
Social/recreational	11.8%	8.5%	8.9%	11.0%	10.4%	11.3%	12.7%
Dining	6.9%	7.8%	7.5%	7.2%	7.9%	7.2%	9.2%
Community/religious	3.1%	4.3%	2.5%	2.4%	3.1%	3.0%	2.9%
Other Travel	1.0%	0.9%	1.1%	1.1%	1.6%	1.2%	1.6%
Other	1.0%	0.9%	1.1%	1.1%	1.6%	1.2%	1.6%
Return Home	34.6%	34.3%	34.3%	32.8%	33.3%	32.2%	33.6%
Return home	34.6%	34.3%	34.3%	32.8%	33.3%	32.2%	33.6%

As shown in table 20, white respondents make more discretionary trips than do people of color. This tendency holds for all three categories of discretionary travel. Conversely, white respondents make fewer trips to transport someone else.

Homebound (“return home”) trips provide a proxy for the number of times people leave the house, regardless of any trip chaining that may happen once they leave. Examining the total tripmaking of the elderly (ages 80+) and people with disabilities underscores how people in these groups are accessing fewer destinations, while examining their home trips shows that they also leave the house less frequently (table 21).

Unsurprisingly, elderly respondents make very few work-related trips. However, people with mobility impairments also made very few work trips. In fact, people with mobility impairments made nearly 40 percent fewer work trips than did teenagers, most of whom are full-time high school students. NHTS does not contain information about whether participants’ disabilities also impose restrictions on their ability to work, so it is not possible to definitively distinguish between unemployment resulting from an inability to work and unemployment resulting from a travel difficulty. However, it is worth noting that for some Georgians with disabilities, the biggest obstacle to getting their foot in the door to a new career might be getting their foot *to* the door. Chapter 5, Health and Disability will return to the needs of Georgians with mobility impairments.

Table 20. Gender and racial differences in annual person trips by purpose.

Annual Trips per Person (Ages 5+)						
		Gender		Race		
Trip Purpose	All	Male	Female	White Non-Hispanic	Black & Black Multiracial	Other Race
All Purposes	1,158	1,155	1,162	1,187	1,131	1,112
Mandatory Travel	188	219	159	184	184	217
Work commute	129	155	104	132	120	136
Other work-related travel	12	14	11	14	11	9
Attend school or daycare	47.3	50.7	44.1	37.8	52.7	71.5
Household-Serving Travel	310	269	349	301	343	269
Transport someone	77.6	61.9	92.4	67.4	96.5	71.8
Shopping or errands	216	196	236	218	226	186
Medical/dental services	17	12	21	15	21	12
Discretionary Travel	256	259	253	288	219	219
Social/recreational	129	132	126	144	108	122
Dining	91.6	95.6	87.8	106	76.7	69.5
Community/religious	35.2	30.9	39.4	38.1	34.0	27.3
Other Travel	15.1	16.2	14.0	14.6	15.4	15.9
Other	15.1	16.2	14.0	14.6	15.4	15.9
Return Home	388.7	391.8	385.8	399.9	369.6	391.1
Return home	389	392	386	400	370	391

Percent of Trips						
Trip Purpose	All	Male	Female	White Non-Hispanic	Black & Black Multiracial	Other Race
Mandatory Travel	16.3%	19.0%	13.7%	15.5%	16.2%	19.5%
Work commute	11.1%	13.4%	9.0%	11.2%	10.6%	12.2%
Other work-related travel	1.0%	1.2%	0.9%	1.1%	1.0%	0.9%
Attend school or daycare	4.1%	4.4%	3.8%	3.2%	4.7%	6.4%
Household-Serving Travel	26.8%	23.3%	30.1%	25.3%	30.4%	24.2%
Transport someone	6.7%	5.4%	8.0%	5.7%	8.5%	6.5%
Shopping or errands	18.7%	16.9%	20.3%	18.4%	19.9%	16.7%
Medical/dental services	1.4%	1.0%	1.8%	1.3%	1.9%	1.0%
Discretionary Travel	22.1%	22.4%	21.8%	24.3%	19.4%	19.7%
Social/recreational	11.1%	11.4%	10.9%	12.1%	9.6%	11.0%
Dining	7.9%	8.3%	7.6%	9.0%	6.8%	6.2%
Community/religious	3.0%	2.7%	3.4%	3.2%	3.0%	2.5%
Other Travel	1.3%	1.4%	1.2%	1.2%	1.4%	1.4%
Other	1.3%	1.4%	1.2%	1.2%	1.4%	1.4%
Return Home	33.6%	33.9%	33.2%	33.7%	32.7%	35.2%

Table 21. Frequency of trip purposes by age and disability.

Annual Trips per Person (Ages 5+)							
	Age					Mobility Impairment	
Trip Purpose	Children 5–15	Teens 16–17	Adults 18–64	Seniors 65–79	Elderly 80+	Present	Absent
All Purposes	895	928	1,255	1,123	744	831	1,187
Mandatory Travel	179	200	218	60	12	34	202
Work commute	2	31	181	53	9	19	139
Other work-related travel	2	0	17	6	1	3	13
Attend school or daycare	175.1	168.3	20.0	1.6	1.1	12.5	50.4
Household-Serving Travel	147	155	343	402	277	324	309
Transport someone	36	43	94.5	57.0	26.6	42.1	80.8
Shopping or errands	103	108	232	315	221	228	215
Medical/dental services	7	4	17	30	30	54	14
Discretionary Travel	203	216	269	280	203	181	262
Social/recreational	117	123	133	128	102	84.2	133
Dining	54.0	68.6	102	100	55.0	65.8	93.8
Community/religious	31.3	24.2	33.6	51.5	46.5	31.5	35.4
Other Travel	24.8	14.3	13.9	10.0	6.8	8.3	15.7
Other	24.8	14.3	13.9	10.0	6.8	8.3	15.7
Return Home	341.7	342.5	410.7	370.6	244.6	282.9	398.1
Return Home	342	342	411	371	245	283	398

Percent of Trips							
Trip Purpose	Children 5–15	Teens 16–17	Adults 18–64	Seniors 65–79	Elderly 80+	Present	Absent
Mandatory Travel	20.0%	21.5%	17.4%	5.3%	1.6%	4.1%	17.0%
Work commute	0.2%	3.3%	14.4%	4.7%	1.3%	2.2%	11.7%
Other work-related travel	0.2%	0.0%	1.3%	0.5%	0.2%	0.4%	1.1%
Attend school or daycare	19.6%	18.1%	1.6%	0.1%	0.2%	1.5%	4.2%
Household-Serving Travel	16.4%	16.8%	27.4%	35.8%	37.3%	39.0%	26.1%
Transport someone	4.1%	4.7%	7.5%	5.1%	3.6%	5.1%	6.8%
Shopping or errands	11.6%	11.6%	18.5%	28.1%	29.7%	27.5%	18.1%
Medical/dental services	0.8%	0.5%	1.4%	2.7%	4.0%	6.5%	1.1%
Discretionary Travel	22.7%	23.3%	21.4%	24.9%	27.3%	21.8%	22.1%
Social/recreational	13.1%	13.2%	10.6%	11.4%	13.7%	10.1%	11.2%
Dining	6.0%	7.4%	8.1%	8.9%	7.4%	7.9%	7.9%
Community/religious	3.5%	2.6%	2.7%	4.6%	6.3%	3.8%	3.0%
Other Travel	2.8%	1.5%	1.1%	0.9%	0.9%	1.0%	1.3%
Other	2.8%	1.5%	1.1%	0.9%	0.9%	1.0%	1.3%
Return Home	38.2%	36.9%	32.7%	33.0%	32.9%	34.0%	33.5%
Return Home	38.2%	36.9%	32.7%	33.0%	32.9%	34.0%	33.5%

As shown in table 22, age-related patterns in mobility are highly gendered. For example, women's mobility decreases at age 65. Men ages 65–79, on the other hand, experience little reduction in their overall mobility; a decrease in work travel is largely offset by increases in discretionary and household-serving travel. The differences are even more stark among the elderly (ages 80+). Elderly men make 77 percent as many trips as younger adult men (ages 18–64). Elderly women, on the other hand, make only half as many trips as younger adult women, making them substantially less mobile than children.[17] Elderly women with disabilities fare even worse, making just 371 trips per year (versus 673 for elderly men with disabilities).

Gendered differences in travel manifest at earlier ages, as well. Among adults, women make 62 more trips per year than men overall. However, an even larger gap occurs for household-serving travel in particular; compared to adult men, adult women make 113 more household-serving trips per year, or 2.2 per week. The overall gap shrinks from 113 to 62 largely because adult women make 66 fewer commute trips than adult men do.

[17] Some of this difference may come from the fact that women live longer, and a higher percentage of elderly women report having a medical condition that interferes with their mobility (43 percent versus 29 percent). However, the gender gap persists even after accounting for disability. Nondisabled elderly men make 1,062 trips, versus 839 for women.

Table 22. Annual tripmaking by purpose, gender, and age.

	Children 5-15		Teens 16-17		Adults 18-64		Seniors 65-79		Elderly 80+	
Trip Purpose	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
All Purposes	925	862	945	912	1,223	1,285	1,196	1,062	948	636
Mandatory Travel	177	181	225	176	256	182	83	41	28	4
Work commute	3	1	36	26	215	149	73	35	26	1
Other work-related travel	3		0	0	18	15	8	4	2	1
Attend school or daycare	170	180	188	150	23	18	1	2		2
Household-Serving Travel	144	150	114	194	286	399	405	399	345	242
Transport someone	33	40	18	67	72	116	61	53	23	28
Shopping or errands	104	102	91	123	203	260	318	312	284	187
Medical/dental services	7	8	4	5	11	23	26	33	37	26
Discretionary Travel	222	182	234	198	262	275	306	259	256	175
Social/recreational	134	100	137	110	130	136	139	119	133	85
Dining	60	48	72	65	103	100	117	86	74	45
Community/religious	28	35	25	23	29	38	49	53	49	45
Other Travel	32	17	18	11	13	15	14	7	7	7
Other	32	17	18	11	13	15	14	7	7	7
Return Home	350	332	354	332	407	414	389	355	312	209
Return Home	350	332	354	332	407	414	389	355	312	209

Note: detail may not sum to totals because of rounding.

This gendered division of household-serving travel begins early; teenaged girls (ages 16–17) make 1.7 times as many household-serving trips as teenaged boys. It would be a mistake to attribute this difference entirely to social outings to the local mall. Teen girls make 1.3 times as many shopping and errands trips as teen boys, but they make 3.6 times as many trips to transport someone else as do teen boys.[18] In a typical week, a teen boy will make 0.4 trip to transport someone, while a teen girl will make 1.4 trips to transport someone. At the same time, teen girls make markedly fewer recreational trips than do teen boys. Chapter 5, How Much and What For: The Interrelated Effects of Gender and Age on Mobility and Trip Purpose will revisit these issues.

Table 23 and table 24 respectively show trip purpose by mode of travel and mode of travel by trip purpose. So, for example, 11.8 percent of POV trips have a purpose of work commute (table 23), and 90.7 percent of work commute trips are by POV (table 24).

Some uncommon modes have a relatively small number of trips in the NHTS Georgia data. For greater transparency when interpreting estimates, sample sizes by mode are included in table 23. In particular, the reader should be extremely cautious when interpreting statistics about the purpose of trips by paratransit and bus transportation (aside from school bus and public transit).

[18] Under Georgia's graduated driver's license program, teenagers of all genders face limitations on transporting nonfamily members. Teens are prohibited from transporting nonfamily members for the first 6 months after receiving their license, then limited to one nonfamily passenger for the next 6 months. While the data do not have licensing information about the teen drivers surveyed, these restrictions by definition apply to all 16-year-old drivers and some portion of 17-year-old drivers. Teen drivers who have had their license for at least a year are still limited to three nonfamily passengers under age 21, and no driver under 18 is permitted to drive between midnight and 5 a.m. For details, see: https://dds.georgia.gov/teen-drivers.

Table 23. Trip purpose by mode of travel.

Purpose	Privately Operated Vehicle†	Pedestrian (walk or wheelchair)	Bike	School Bus	Public Transit	Other Bus	Taxi, Ridehail, or Limo	Paratransit	Other Ground or Water	Air‡
Work commute	11.8%	6.2%	6.1%	0.6%	21.0%	3.8%	11.4%	9.0%	20.2%	5.2%
Other work-related travel	1.0%	0.8%	§	0.1%	1.0%	5.6%	4.1%		3.0%	17.4%
Attend school or daycare	2.7%	3.9%	1.8%	44.8%	7.4%	4.3%	1.9%	3.8%	1.9%	5.1%
Transport someone	7.3%	2.1%		6.7%	4.2%	4.1%		0.1%	3.6%	
Shopping or errands	20.3%	11.3%	15.3%		11.8%	1.5%	6.9%	13.6%	10.5%	
Medical/dental services	1.5%	0.4%	0.1%		4.6%	6.9%	2.6%	23.6%	0.7%	
Social/recreational	8.8%	38.3%	26.2%	3.4%	6.5%	36.8%	9.3%	3.3%	14.4%	4.9%
Dining	8.3%	7.4%	6.8%	0.0%	4.5%	7.5%	9.8%		5.7%	0.9%
Community/religious	3.3%	1.4%	1.0%	0.3%	1.4%	4.3%	10.8%	6.1%	0.1%	
Other	0.8%	2.9%	2.9%	3.6%	2.8%	6.2%	7.1%	4.7%	3.3%	64.6%
Return home	34.1%	25.3%	39.8%	40.5%	34.8%	19.0%	36.1%	35.8%	36.7%	1.9%
Total annual trips, in thousands	9,466,980	887,175	68,190	324,798	157,103	22,487	63,151	15,302	49,478	19,005
	85.5%	8.0%	0.6%	2.9%	1.4%	0.2%	0.6%	0.1%	0.4%	0.2%
Sample size (unweighted trips)	52,675	4,201	287	1,213	515	141	222	56	289	105

† *Including rental cars.*

‡ *The most common trip purpose for air was to change to a different mode of transportation. This is likely because most air travelers will take a different form of transportation from the airport to their final destination.*

§ *Blank cells indicate combinations that were not found in the dataset (e.g., no participant reported using a school bus to go shopping).*

Table 24. Mode of travel by trip purpose.

Purpose	Privately Operated Vehicle†	Pedestrian (walk or wheelchair)	Bike	School Bus	Public Transit	Other Bus	Taxi, Ridehail, or Limo	Paratransit	Other Ground or Water	Air
Work commute	90.7%	4.5%	0.3%	0.2%	2.7%	0.1%	0.6%	0.1%	0.8%	0.1%
Other work-related travel	84.6%	6.3%	‡	0.3%	1.4%	1.1%	2.2%		1.3%	2.8%
Attend school or daycare	56.3%	7.7%	0.3%	32.2%	2.6%	0.2%	0.3%	0.1%	0.2%	0.2%
Transport someone	93.4%	2.5%		2.9%	0.9%	0.1%		<0.1%	0.2%	
Shopping or errands	93.2%	4.9%	0.5%		0.9%	<0.1%	0.2%	0.1%	0.3%	
Medical/dental services	88.5%	2.5%	<0.1%		4.5%	1.0%	1.0%	2.3%	0.2%	
Social/recreational	67.4%	27.6%	1.4%	0.9%	0.8%	0.7%	0.5%	<0.1%	0.6%	0.1%
Dining	89.9%	7.5%	0.5%	<0.1%	0.8%	0.2%	0.7%		0.3%	0.0%
Community/religious	92.6%	3.7%	0.2%	0.3%	0.7%	0.3%	2.0%	0.3%	0.0%	
Other	55.6%	17.6%	1.4%	8.2%	3.0%	1.0%	3.1%	0.5%	1.1%	8.5%
Return home	86.8%	6.0%	0.7%	3.5%	1.5%	0.1%	0.6%	0.1%	0.5%	<0.1%

† Including rental cars.

‡ Blank cells indicate combinations that were not found in the dataset (e.g., no participant reported using a school bus to go shopping).

POVs account for the majority of trips for every purpose. They account for more than 80 percent of trips for every purpose except attending school or daycare, social and recreational trips, and trips whose purposes could not be classified. Non-POV trips to school were primarily by school bus. A further 8 percent of trips to school were by walking and biking, and 2.6 percent were by transit (table 24).

Aside from home trips, social and recreational trips make up the largest share of nonmotorized modes, with shopping and errands in second place. The largest proportion of transit trips are work trips, followed by shopping and errands.

VEHICLE AVAILABILITY AND USAGE

Vehicle Ownership

Georgia households own an average of 1.92 vehicles. As figure 5 shows, 93 percent of households own at least one vehicle.

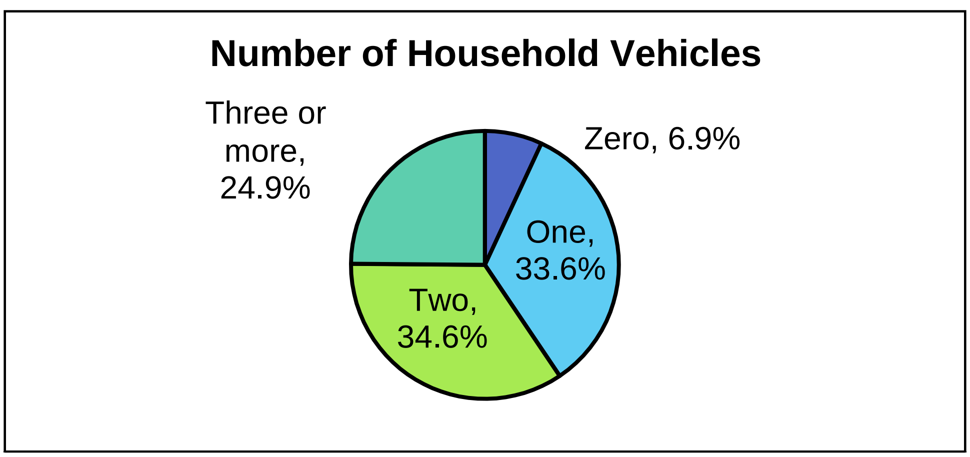

Figure 5. Pie chart. Vehicle ownership among Georgia households.

In addition to raw numbers of vehicles, it is important to consider the number of vehicles available in relationship to the number of potential drivers. As shown in figure 6, 19 percent of Georgia households have at least one vehicle, but not as many vehicles as potential drivers. These households can be described as having a vehicle deficit (Blumenberg et al. 2018). Approximately half of vehicle-deficit households have what this report refers to as a *hard deficit*, where the number of vehicles is smaller than the number of household members listed as drivers. The other half have a *soft deficit*, with enough vehicles available for each listed driver, but not enough for other household members of driving age.[19]

Nondeficit households include vehicle-sufficient households (i.e., an equal number of vehicles as potential drivers), and vehicle-surplus households (i.e., more vehicles than potential drivers). About 5 percent of vehicle-sufficient households have a "soft" surplus because one or more people of driving age is listed as a nondriver.

[19] Some writers, including Blumenberg et al., (2018) calculate vehicle deficit based purely on the number of drivers. This report considers nondriving adults and teenagers for several reasons. First, the NHTS's determination of "driver" is somewhat ambiguous with regard to whether teenagers with learner's permits and elderly people who are licensed to drive but refrain from doing so should be considered drivers. Basing vehicle sufficiency measures on the number of people of driving age provides a more consistent measure. Second, nondriving adults present additional, competing travel needs that must be met with available vehicles. Third, some adults and teenagers may fail to learn to drive if they do not expect to have access to a car; it is more consistent with the purpose of these classifications to consider households with such individuals as being vehicle-deficit rather than vehicle-sufficient.

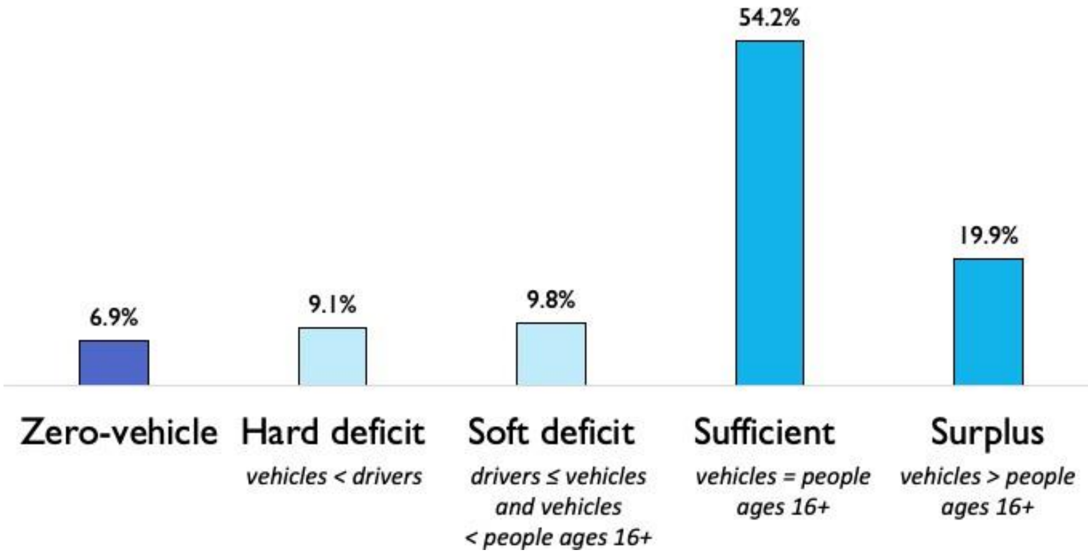

Figure 6. Bar graph. Vehicle sufficiency in Georgia households.

Researchers debate whether households with zero vehicles should be referred to as "carless" or "car free," the latter to suggest that not owning a vehicle is a valid lifestyle choice.[20] However, in Georgia, the demographics of zero-vehicle and vehicle-deficit households suggest that these households have reduced vehicle ownership out of economic necessity (table 25). Nearly one third of households in the lowest income bracket are carless, while less than 1 percent of households earning $75,000 or above are car-free. The proportion of nondeficit households increases steadily at higher income levels. There are also notable racial discrepancies; households with nonwhite members are more likely to have a vehicle deficit or be carless.

Lower-income households were less likely than higher-income households to have purchased a vehicle within the past year (table 26). However, among only vehicle-owning households, the

[20] For the same reason, this research team was reluctant to imply that households with fewer vehicles than driving-age members are "deficient," but use the admittedly similar term "deficit" in keeping with Blumenberg et al. (2018).

lowest-income households are nearly as likely as the wealthiest households to have purchased a vehicle within the past year.

Table 25. Vehicle sufficiency by income, race, and number of household vehicles.

	Zero-Vehicle	Deficit	Nondeficit
All Households	6.9%	18.9%	74.1%
Annual Household Income			
1. <$15,000	32.5%	24.3%	43.2%
2. $15,000 to $24,999	6.9%	30.5%	62.6%
3. $25,000 to $34,999	2.9%	23.8%	73.3%
4. $35,000 to $49,999	1.1%	22.0%	76.8%
5. $50,000 to $74,999	1.1%	17.4%	81.5%
6. $75,000 to $99,999	0.4%	12.9%	86.7%
7. $100,000+	0.1%	9.2%	90.7%
Number of Vehicles in Household			
1	n/a	36.4%	63.6%
2	n/a	14.4%	85.6%
3+	n/a	6.9%	93.1%
Race of Household Members			
White non-Hispanic	2.9%	13.0%	84.1%
Some or all nonwhite	11.6%	25.9%	62.5%

It is likely that low-income households' frequent vehicle purchases are by obligation rather than choice; the average vehicle purchased by the lowest-income households already has 133,973 miles on the odometer, nearly 40,000 more miles than any other income group. Although vehicles nearer the end of their life spans are cheaper to purchase, maintenance costs may become prohibitive, leading to faster turnover. Nearly one quarter of vehicles being driven by the lowest-income households were purchased in the past 12 months (table 26). Table 27 also shows the condition of vehicles that were not recently purchased.

Table 26. Vehicle purchasing behavior by household income.

	Percent of Households that Purchased a Vehicle Recently		Condition of Newly Purchased Vehicles	
Annual Household Income	All Households	Vehicle-Owning Households Only	Mean Age of Vehicle (years)	Mean Mileage of Vehicle†
All income levels	26.1%	28.0%	7.3	69,333
1. <$15,000	20.7%	30.6%	11.4	133,973
2. $15,000 to $24,999	17.4%	18.7%	9.2	86,610
3. $25,000 to $34,999	23.6%	24.3%	8.8	94,393
4. $35,000 to $49,999	25.1%	25.4%	8.3	74,867
5. $50,000 to $74,999	27.0%	27.3%	6.6	61,638
6. $75,000 to $99,999	31.5%	31.7%	6.4	55,073
7. $100,000+	33.8%	33.8%	5.0	43,019

† *Odometer reading at time of survey, 0–11 months after date of purchase.*

Table 27. Characteristics of vehicles owned by households of different income levels.

Annual Household Income	Mean Vehicle Age (years)	Average Vehicle Odometer Reading	Percent of Vehicles that are Newly Purchased	Mean Age of Newly Purchased Vehicles	Mean Mileage of Newly Purchased Vehicles†
<$15,000	14.2	138,001	24.1%	11.4	133,973
$15,000 to $24,999	12.7	124,183	13.2%	9.2	86,610
$25,000 to $34,999	11.8	118,761	17.0%	8.8	94,393
$35,000 to $49,999	11.1	111,126	15.5%	8.3	74,867
$50,000 to $74,999	11.0	110,765	14.5%	6.6	61,638
$75,000 to $99,999	10.4	100,295	15.5%	6.4	55,073
$100,000+	9.1	87,436	15.2%	5.0	43,019

† *Odometer reading at time of survey, 0–11 months after date of purchase.*

Vehicle Usage

On average, each vehicle in a household was driven 11,939 miles over the course of the year. In total, each household used their vehicles to drive an average of 22,472 miles, as shown in figure 7. The median was 18,048 miles. The figure is top-coded at 100,000 miles for clarity; the 99th percentile for miles driven was 102,166 miles.

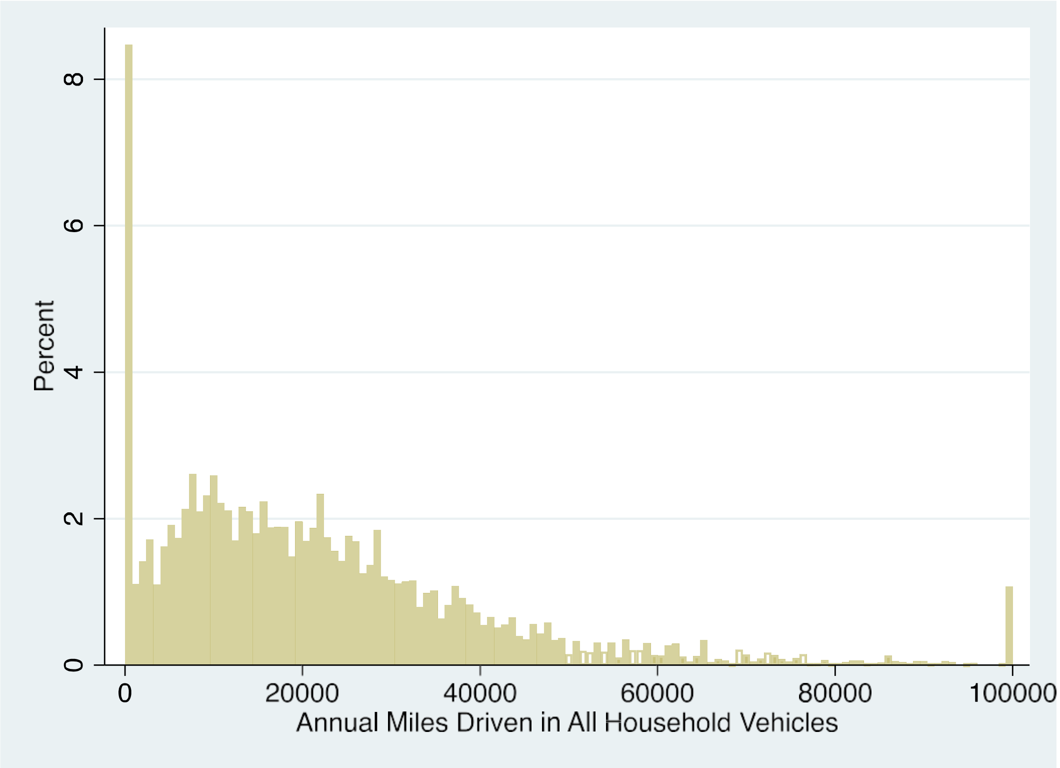

Figure 7. Histogram. Distribution of annual household miles driven.

The relationship between number of vehicles and household VMT is not constant across household type. Vehicle-deficit households, in particular, drive each vehicle more than other households do (table 28).

Table 28. Miles driven per vehicle by household vehicle sufficiency.

Vehicle Ownership Status	Percent of Households	Annual Miles Driven Per Household Vehicle
All vehicle-owning households	93.1%	12,169
Nondeficit, single potential driver	26.4%	11,145
Nondeficit, multiple potential drivers	47.7%	11,889
Vehicle-deficit households	18.9%	14,304

Vehicle Fleet Characteristics

Georgia's fleet of personal occupancy vehicles is diverse and evolving. The median age of vehicles is 10 years, but 5.6 percent are less than 2 years old and 1.3 percent have been on the road for 40 years or more.

Table 29 divides vehicles into cohorts based on the passage of California's Low Emissions Vehicle standards, which serve as a proxy for tightening emissions standards. In addition to differences in age and mileage, body types vary between age cohorts. Contemporary vehicles include a larger proportion of SUVs and fewer pickup trucks and motorcycles. New vans are also somewhat less common than vans from the two preceding decades.

Alternative-fuel vehicles now account for 4.2 percent of contemporary vehicles and 1.8 percent of the overall fleet. Of these, 63 percent are hybrid vehicles, 29 percent are electric, and 5.0 percent are plug-in hybrids. Alternative-fuel Vehicles in chapter 4 further discusses alternative-fuel vehicles.

Table 29. Vehicle characteristics by vehicle age cohort.

	All Vehicles	Pre-LEV (before 1993)	LEV I (1993–2003)	LEV II (2004–2014)	Contemporary (2015–2017)
Number of vehicles	6,997,337	319,663	1,854,254	3,909,762	856,277
Percent of fleet	100%	4.6%	26.5%	55.9%	12.2%
Average age	10.9	34.7	17.3	7.9	1.5
Newly purchased by household (within past 12 months)	15.8%	8.6%	10.2%	11.8%	49.3%
Vehicle Mileage					
Mean odometer reading	105,434	154,431	166,628	94,991	19,453
0–49,999 mi	28.6%	13.0%	6.1%	24.2%	95.1%
50,000–99,999 mi	24.1%	15.8%	10.6%	35.3%	3.9%
100,000–149,999 mi	20.6%	20.6%	23.8%	23.9%	0.4%
150,000–199,999 mi	14.4%	19.9%	28.0%	11.4%	
200,000+ mi	12.3%	30.6%	31.5%	5.3%	0.6%
Vehicle Type					
Auto/wagon	49.5%	42.2%	44.3%	52.7%	49.9%
SUV	23.6%	8.1%	20.2%	24.8%	32.3%
Pickup truck	17.5%	40.1%	24.1%	13.6%	12.0%
Van or minivan	5.4%	2.5%	5.6%	5.8%	3.7%
Motorcycle	2.4%	3.3%	3.1%	2.1%	0.9%
Other	1.6%	3.8%	2.7%	0.9%	1.2%
Alternative fuel (any body type)	1.8%	0.8%	0.2%	2.2%	4.2%

In addition to “normal” vehicles used in day-to-day travel, some residents have seldom-used vehicles. These vehicles are not frequently driven because their owners have primary vehicles that are used for most household trips (as differentiated from owners who have a single vehicle but drive infrequently). These secondary, seldom-used vehicles may be hobby or leisure vehicles (e.g., motorcycles, campers, antique cars, etc.). Others are special-use vehicles, such as a pickup truck kept on hand for occasional freight hauling.

These seldom-used vehicles account for approximately 4 percent of vehicles in Georgia. As shown in table 30, these vehicles tend to be older, and are more likely to include leisure vehicles such as RVs, motorcycles, and miscellaneous vehicles such as campers.

Table 30. Characteristics of seldom-used vehicles.

Type of Vehicle	Regular	Seldom Used†
1. Car/Wagon	50.8%	33.7%
2. Van	5.5%	2.9%
3. SUV	24.6%	9.2%
4. Pickup	17.7%	18.6%
5. Other Truck	0.3%	0.7%
6. RV	0.3%	4.3%
7. Motorcycle	0.8%	27.2%
97. Something Else	0.0%	3.4%
Age		
Mean Age	10.56	16.64
Age Cohort		
0. Pre-LEV (pre-1993)	4.1%	14.2%
1. LEV1 (1993–2003)	25.6%	45.1%
2. LEV2 (2004–2014)	57.4%	36.8%
3. Contemporary (2015–2017)	12.8%	3.9%

† A seldom-used vehicle is defined as a vehicle with fewer than 1,050 annual miles that is driven less than half as many miles as would be expected given the household annual miles driven and number of vehicles.

Seldom-used vehicles are predominantly owned by higher-income households (table 31). Households earning less than $50,000 annually account for half of all households and 33.6 percent of seldom-used vehicles. Those earning more than $100,000 account for 22.4 percent of all households and 34.7 percent of the vehicles.

Table 31. Ownership of seldom-used vehicles by annual household income.

Annual Household Income	Percent of Households	Percent of Regular Vehicles	Percent of Seldom-Used Vehicles
1. <$15,000	16.8%	8.2%	6.3%
2. $15,000 to $24,999	10.4%	7.6%	7.3%
3. $25,000 to $34,999	11.0%	9.4%	7.3%
4. $35,000 to $49,999	12.1%	12.0%	12.7%
5. $50,000 to $74,999	16.4%	18.5%	17.2%
6. $75,000 to $99,999	10.9%	13.7%	14.5%
7. $100,000+	22.4%	30.6%	34.7%

TRANSIT PREFERENCES AND USE

While personal occupancy vehicles are the dominant form of transportation in Georgia, there is a societal interest in promoting the use of public transit. This section summarizes transit availability and then analyzes Georgia workers' preferences about transit quality.

Transit Availability and Use

Table 32 summarizes county-level transit funding within each MPO.[21] Twelve MPOs receive funding to offer fixed-route public transit in at least one county. Four MPOs offer only rural

[21] Data on transit funding generously provided by Garrow et al. (2018). Preliminary report is available at http://garrowlab.ce.gatech.edu/sites/default/files/20191027%20Rural%20Transit%20in%20Georgia.pdf

(on-demand) service. Thirty-day transit usage also varies, from a low of 3.4 percent of the population ages 5+ (Hinesville) to 17.3 percent (Athens).

Transit access can vary considerably within an MPO. Table 33 classifies counties by their level of access to transit. The level of access is based on transit offerings in the county, and in the MPO of which the county is part. The majority of the population resides in counties with a full fixed-route transit system (though this does not take into account quality of the system or proximity to a transit station). The majority of counties, which are home to 36.5 percent of the population, have partial access to transit. Some of these counties are rural counties that provide on-demand service. The remainder are counties in MPOs that do not offer fixed-route service. However, residents of these counties can theoretically access transit in other counties within the MPO. Unsurprisingly, transit use is highest in counties with full access. Nevertheless, 8–9 percent of users in counties with partial access have used transit within the past 30 days.

Transit Service Preferences Among Workers

As part of the NHTS add-on module, workers in Georgia were asked an additional question about transit preferences. From a list of seven possibilities, they were asked to select the "three most important factors that would make [your/their][22] public transit system a good option for [your/their] commute." Participants' selections were not ranked against each other—each was a value of either *yes* or *no*.

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[22] This is one of the few opinion questions in the NHTS that was still asked of subjects whose responses were recorded by a proxy.

Table 32. County transit funding and transit usage by MPO.

MPO	Counties in MPO	Number of Counties in Each Transit Funding Category* None	Rural (On-Demand)	Urban†	Urban & Rural	City Only	Usage Transit Use, Past 30 Days‡
Fixed Route Transit							
Albany	2	0	1	0	1	0	14.7%
Athens	4	3	0	1	0	0	17.3%
Atlanta	18	4	5	6	2	1	15.7%
Augusta	2	0	1	0	1	0	10.3%
Cartersville	1	0	0	0	1	0	7.9%
Chattanooga	3	0	3	0	0	0	11.0%
Columbus	3	2	0	1	0	0	11.4%
Gainesville	2	0	1	0	1	0	8.3%
Hinesville	2	0	1	0	1	0	3.4%
Macon	2	0	1	1	0	0	13.0%
Rome	1	0	0	1	0	0	8.1%
Savannah	3	0	2	0	1	0	10.7%
Rural (On-Demand) Service Only							
Brunswick	1	0	1	0	0	0	4.3%
Dalton	2	0	2	0	0	0	9.2%
Valdosta	1	0	1	0	0	0	12.1%
Warner Robins	2	1	1	0	0	0	8.0%
Non-MPO Counties							
Non-MPO	110	27	78	0	0	5	6.9%

* *As reported by Garrow et al. (2018).*

† *Fixed route service for an entire county (as compared to city, which covers only part of a county).*

‡ *Percent of population ages 5+, weighted.*

Table 33. County demographics and transit usage by transit funding category.

County Information				Transit* Use (past 30 days)					
Transit Funding Status		Demographics		Statewide		MPO Tier 1 (Atlanta)		MPO Tiers 2–4	
County	MPO*	Number of Counties	Percent of Population**	Population Ages 5+	Workers Only	Population Ages 5+	Workers Only	Population Ages 5+	Workers Only
No Access									
None	None	27	4.3%	2.9%	0.3%			2.9%	0.3%
Partial Access									
None	Rural†	1	1.4%	8.5%	6.2%			8.5%	6.2%
None	Fixed-route‡	9	5.3%	8.5%	5.6%	9.5%	6.9%	5.6%	2.4%
Rural	Rural	83	18.1%	8.3%	3.1%			8.3%	3.1%
Rural	Fixed-route	15	11.7%	9.2%	8.5%	11.3%	11.5%	6.5%	4.5%
Full Access§									
Fixed-route	Fixed-route	24	59.2%	15.8%	15.6%	16.9%	17.5%	12.8%	9.4%

* *For counties not in an MPO, county status is used for both columns.*

** *Defined by the NHTS as public or commuter bus, rail (Amtrak, commuter, elevated, light rail), and street car; does not include paratransit/dial-a-ride.*

† *Funding for rural (on-demand) transit only.*

‡ *Funding for fixed-route service in part or all of county jurisdiction, with or without funding for rural on-demand service.*

§ *Indicates access to fixed-route transit service at county level; does not consider individual distance to transit or level of service.*

In general, proximity and cost were the two most common responses, though the relative frequencies varied by geography, vehicle ownership, and current transit access and use (table 34). Proximity and other convenience measures were more highly valued by residents of MPO tiers 1 and 2 and counties with full transit access. Residents of small MPOs and non-MPO counties selected cost more frequently. The most common response for zero-vehicle households was cost; this was the only group for whom proximity was not either the first or second choice.

Occasional transit users were more likely to focus on both proximity and cost than either non-users or moderate/frequent users; these groups' preferences were more heterogeneous. Workers whose "usual commute mode" was transit, paratransit, or some other bus represent 3.4 percent of the workforce. The top concern of this group, by 9 percentage points, was cost. The second- and third-most common concerns for these commuters were proximity and consistent on-time performance. For most other groups, the third-most common concern was compatibility with their schedule. While both characteristics are time-based, nontransit commuters were more likely to focus on frequency, whereas transit commuters were more focused on reliability.

Preferences also varied across demographic groups. Table 35 shows responses by income, sex, age, disability, and race.

Table 34. Perceived most important factors to make transit a good commute option by geography, vehicle ownership, and transit access/use.

	Close to Work and Home	Fits Schedule	Faster than Driving	Reasonable Cost	Consistently on Time	Avoids Travel Stress	Safety
All Workers	55%	45%	38%	48%	36%	29%	27%
MPO Tier							
1. Atlanta	58%	43%	43%	45%	35%	32%	25%
2. Medium MPOs	55%	55%	33%	48%	36%	22%	27%
3. Small MPOs	47%	45%	27%	54%	41%	23%	35%
4. Non-MPO	47%	41%	27%	59%	36%	25%	27%
County Access to Transit							
None	61%	54%	20%	64%	23%	25%	24%
Partial	51%	44%	34%	52%	38%	25%	30%
Full	57%	46%	40%	46%	36%	31%	26%
Household Vehicle Ownership							
Zero-vehicle	42%	32%	21%	51%	45%	19%	28%
Vehicle-deficit	54%	42%	29%	50%	40%	26%	32%
Nondeficit	56%	47%	41%	48%	34%	30%	25%
Actual Transit Usage (past 30 days)							
None	55%	46%	38%	49%	35%	28%	28%
1–5 days	62%	43%	47%	34%	34%	31%	21%
6+ days	54%	41%	39%	47%	41%	37%	22%
Usual Commute Mode							
Public transit, other bus, or paratransit	44%	39%	40%	53%	42%	39%	20%
Something else	56%	46%	37%	48%	37%	27%	26%

Table 35. Transit service quality priorities of Georgia workers by demographic group.

	Close to Work and Home	Fits Schedule	Faster than Driving	Reasonable Cost	Consistently on Time	Avoids Travel Stress	Safety
All workers	55%	45%	38%	48%	36%	29%	27%
Annual Household Income							
<$15,000	41%	37%	19%	55%	42%	30%	37%
$15,000 to $24,999	53%	40%	30%	48%	43%	25%	33%
$25,000 to $34,999	50%	42%	32%	55%	36%	31%	29%
$35,000 to $49,999	53%	38%	32%	52%	39%	32%	29%
$50,000 to $74,999	54%	43%	32%	53%	36%	33%	27%
$75,000 to $99,999	56%	48%	41%	47%	34%	27%	26%
$100,000+	62%	52%	51%	42%	33%	27%	21%
Sex							
Male	56%	46%	40%	48%	36%	30%	22%
Female	54%	44%	36%	49%	36%	28%	32%
Age							
Teens 16–17	52%	68%	22%	67%	12%	6%	49%
Adults 18–64	56%	45%	39%	48%	36%	29%	27%
Seniors 65–79	52%	42%	32%	52%	39%	40%	22%
Elderly 80+	61%	9%	12%	53%	37%	35%	23%
Presence of Mobility Impairment							
Disability	47%	33%	29%	50%	37%	34%	35%
No disability	56%	45%	38%	48%	36%	29%	27%
Race							
White non-Hispanic	59%	50%	43%	47%	34%	28%	21%
Black and Black multiracial	50%	40%	32%	51%	41%	30%	33%
Other race	52%	38%	32%	50%	34%	32%	36%

To isolate the effects of these interrelated factors, responses were modeled using logistic regression, with a separate model estimated for each possible response. Table 36 presents the odds ratios[23] associated with each variable. The models highlight differential priorities that generally conform to the ideas of captive and choice riders. Compared to low-income workers, wealthier workers were more likely to prioritize proximity, schedule, and speed, and less likely to cite cost as an important factor.

A similar split was evident along racial lines, with white, non-Hispanic workers more likely than workers of color to emphasize proximity, schedule, and speed. Black workers were more likely than white workers to emphasize reliability, and all nonwhite workers were more likely to cite safety. It is worth noting that once income is controlled for, there is no evidence of racial differences in the likelihood of prioritizing affordability.

The idea of transit as a means for avoiding travel stress was most popular in the highly congested Atlanta metropolitan area. Workers from households with cars were more likely to express interest in avoiding travel stress than workers from zero-vehicle households. Interestingly, low-income workers were comparatively more likely than other groups to select "avoid travel stress," though it was still one of the least commonly chosen options for these respondents.

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[23] Odds ratios (ORs) are the factors by which the odds of choosing each response differ for people with the associated characteristic (e.g., living in a medium MPO area), compared to the base or reference group (for the continuous variable age, the OR is the factor by which the odds differ with a 1-year increase in age). An OR of 1 means that the characteristic has no impact on the odds of choosing that response. An OR greater than 1 means that people with that characteristic are more likely to choose the associated response than those in the base group, and conversely for an OR less than 1.

Table 36. Logistic regression: Transit service quality priorities of Georgia workers.

	1. Close to Work & Home		2. Fits Schedule		3. Faster than Driving		4. Reasonable Cost		5. Consistently on Time		6. Avoids Travel Stress		7. Safety	
Covariates	**OR†**	**P-Value**	**OR**	**P-Value**	**OR**	**P-Value**	**OR**	**P-Value**	**OR**	**P-Value**	**OR**	**P-Value**	**OR**	**P-Value**
MPO Tier (base: Tier 1 – Atlanta)														
2 - Medium MPOs	0.922	0.375	1.662	<0.001 ***	0.674	<0.001 ***	1.039	0.674	1.056	0.560	0.596	<0.001 ***	1.055	0.618
3 - Small MPOs	0.703	0.002 ***	1.169	0.169	0.538	<0.001 ***	1.304	0.020 **	1.291	0.030 **	0.600	<0.001 ***	1.394	0.011 **
4 - Non-MPO	0.600	0.001 ***	0.847	0.295	0.584	0.002 ***	1.515	0.009 ***	1.198	0.254	0.657	0.018 **	1.103	0.578
Transit use, past 30 days (base: not used)														
1–5 days	1.190	0.457	0.873	0.560	1.208	0.424	0.576	0.020 **	0.972	0.909	1.094	0.702	0.732	0.248
6+ days	0.930	0.600	0.884	0.371	1.004	0.977	0.968	0.814	1.173	0.247	1.666	<0.001 ***	0.724	0.058 *
Annual Household Income (base: <$15,000)														
$15,000 to $24,999	1.569	0.058 *	1.231	0.388	1.649	0.064 *	0.839	0.449	1.048	0.843	0.637	0.081 *	0.842	0.488
$25,000 to $34,999	1.503	0.061 *	1.265	0.279	1.819	0.015 **	1.035	0.871	0.796	0.300	0.852	0.503	0.666	0.087 *
$35,000 to $49,999	1.561	0.032 **	0.982	0.930	1.496	0.090 *	0.935	0.741	0.915	0.677	0.857	0.498	0.785	0.286
$50,000 to $74,999	1.616	0.016 **	1.241	0.284	1.434	0.114	0.993	0.973	0.856	0.444	0.870	0.515	0.756	0.199
$75,000 to $99,999	1.689	0.011 **	1.527	0.038 **	2.075	0.002 ***	0.786	0.231	0.829	0.376	0.587	0.019 **	0.725	0.156
$100,000+	2.051	<0.001 ***	1.732	0.005 ***	2.809	<0.001 ***	0.650	0.023 **	0.845	0.398	0.552	0.005 ***	0.622	0.028 **
Household vehicle ownership (base: zero vehicles)														
Vehicle-deficit	1.144	0.650	1.164	0.633	1.102	0.795	0.956	0.880	1.042	0.894	2.662	0.009 ***	1.383	0.358
Nondeficit	1.019	0.948	1.178	0.602	1.459	0.305	1.175	0.587	0.820	0.523	3.127	0.003 ***	1.393	0.352
Race (base: white non-Hispanic)														
Black or Black multiracial	0.744	0.002 ***	0.764	0.006 ***	0.763	0.007 ***	1.147	0.151	1.283	0.012 **	1.007	0.947	1.572	<0.001 ***
Other race	0.765	0.042 **	0.657	0.002 ***	0.685	0.006 ***	1.075	0.584	1.023	0.869	1.247	0.124	2.032	<0.001 ***
Other														
Female	0.984	0.846	0.981	0.812	0.890	0.162	0.962	0.634	0.958	0.610	0.879	0.150	1.650	<0.001 ***
Age in years	0.998	0.547	0.997	0.293	0.995	0.104	0.996	0.234	1.000	0.870	1.012	<0.001 ***	0.992	0.025
Has mobility impairment	0.855	0.621	0.713	0.270	0.923	0.826	1.014	0.966	0.923	0.809	1.122	0.724	1.395	0.327
Constant	0.977	0.943	0.638	0.198	0.414	0.026 **	1.060	0.860	0.671	0.244	0.139	<0.001 ***	0.295	0.002 ***

Note: Because weighted logistic regression was used, pseudo-R^2 statistics were not provided.

† *Odds ratio.*

Gender was not strongly affiliated with preferences with one notable exception: the odds of women citing safety concerns were 65 percent greater than those of men. This finding echoes many other studies on transit security and gender, and it is worth noting that concerns about safety can depress transit use among women (Keane 1998, Loukaitou-Sideris 2014, Clark et al. 2016).

Once other differences are controlled for, recent transit use has relatively few effects on expressed preferences.[24] Occasional users are less concerned about cost than both frequent users and nonusers. Frequent users are more likely to mention avoiding travel stress. Both types of user may be less concerned about safety than non-users, but the effect is insignificant for occasional users and only borderline significant for frequent users.

SUMMARY OF FINDINGS ON GEOGRAPHICAL DIFFERENCES

The first section of this chapter (see Geographic Divisions for Analysis in Methodological Notes) has described the division of Georgia's counties into MPO tiers used throughout the report.[25] The second section (Overview) provided a basic overview of mobility indicators by MPO size and, where possible, individual MPOs. The third section (Trip Patterns by Location of Travel) analyzed trip location (as opposed to residence of the traveler, which is the classification used for the rest of this report), and the seventh section (Transit Preferences and Use) discussed

[24] In addition to including transit use as a covariate, a series of models fully interacted by transit ridership was estimated. These models were not an improvement over the more parsimonious models presented here. Models fully interacted by Atlanta vs. other MPO tiers were also tried and rejected.

[25] Tier 1 comprises counties that partially or wholly fall within the Atlanta MPO. Tier 2 consists of counties that partially or wholly fall within a medium MPO region, and tier 3 consists of counties in small MPO regions. Tier 4 consists of counties that do not fall within any MPO. See table 1 for classifications of individual counties.

differences in transit availability, use, and preferences among Georgians from different MPOs and MPO tiers.

This section summarizes key findings about geographical differences from subsequent chapters.

Work Travel (Chapter 2–Chapter 3)

At a state level, a plurality of jobs (46 percent) is in the professional/managerial/technical sector, followed by sales and service (27 percent), blue-collar (i.e., manufacturing, construction, maintenance, and farming, 18 percent) and clerical (9 percent) (see chapter 2, Worker Characteristics). There is, however, significant geographic variation. Blue-collar jobs account for 29 percent of total jobs in non-MPO counties (tier 4), which is more than twice the share in Atlanta (tier 1). Tiers 2 and 3 fall somewhere in the middle. The inverse is true of professional jobs, which are most common in tier 1 and least common in tier 4. These industry differences have implications for commuter schedules, since blue-collar workers tend to have more atypical schedules (e.g., working nights, weekends, holidays, or unpredictable hours). Perhaps relatedly, the annual total work journeys per worker is higher in non-MPO counties than elsewhere in the state.

Private occupancy vehicles, whether singly-occupied or carrying passengers, are the dominant commute mode (see chapter 2, Commute Mode by Person). In Atlanta, where transit offerings are comparatively robust, 91 percent of workers usually commute by POV, compared to 94 percent of workers in medium MPO counties and 97 percent of workers in small-MPO and non-MPO counties.

Commute durations are longest in the Atlanta MPO area (see chapter 2, Commute Duration and Burden). The region also has the largest variability in commute duration by time of day; the average PM peak commute is 42.2 minutes, which is 13.6 minutes longer than the average overnight commute. Non-MPO counties have the second-longest commute times, but the least variability by time of day. Small MPO counties have the shortest commute durations on average.

On a typical workday, 12 percent of Georgia commuters spend 2 hours or more traveling to and from work (see chapter 2, Commute Duration and Burden). These heavy commute burdens are not equally distributed; 2-hour commute burdens are more than twice as common in the Atlanta region as elsewhere in the state (16.6 percent in Atlanta versus 6.2–7.1 percent elsewhere).

Complex commutes (those involving at least one stop) are equally common across MPO tiers (see chapter 2, Overview of Commuters). Additional stops typically add distance to commutes. However, idiosyncratic local geography—such as Atlanta's complex highways or the rivers bisecting downtown Macon, Columbus, and Albany—resulted in some commutes being made geographically shorter by adding stops that encouraged the traveler to follow the geographically shortest route rather than the fastest one (see chapter 2, Demographic Differences).

At the time of data collection, 46 percent of Georgia workers had a flexible work schedule, location, or both (see chapter 3, Overview). Both kinds of flexibility are more commonly available to workers in Atlanta, where 54 percent have one or both kinds of work flexibility, compared to 37 percent of workers elsewhere in the state. Flexible work *locations* (including teleworking and home-based work) are most common in Atlanta, where commute durations are greater than in the rest of the state, and in non-MPO counties, where the distance between home and work is, on average, higher than elsewhere in Georgia.

New Technology (Chapter 4)

Adoption of alternative-fuel vehicles, ridehailing services such as Uber and Lyft, and online shopping are all more pronounced in Atlanta compared to the rest of the state (see chapter 4, sections on Alternative-fuel Vehicles, Shared Mobility, and Online Shopping). However, while ridehailing usage is lowest in non-MPO counties, users from these counties make *more* ridehailing trips than users from other types of counties (see chapter 4, Ridehailing). Ridehailing accounts for an estimated 87 percent of all vehicle-for-hire trips in Georgia, with the remainder conducted by traditional taxi and limo services (see chapter 4, Ridehailing and Vehicle-for-Hire Trips). However, in small MPO regions and non-MPO counties, ridehailing accounts for 95 percent of all vehicle-for-hire trips.

Equity (Chapter 5)

Per capita tripmaking is the highest in Atlanta MPO counties and the lowest in non-MPO counties (see chapter 5, Key Equitable Mobility Indicators). Similarly, immobility is lowest in Atlanta and highest in non-MPO counties. However, despite the higher average mobility in Atlanta, the region is still home to a number of mobility-disadvantaged populations, especially low-income and transit-dependent people. Neighborhoods matching the urban category, which in Georgia are found only in Atlanta, appear to confer some mobility benefits, including supporting mobility among people with mobility impairments (see chapter 5, Risk Factors for Immobility among Adults with Mobility Impairments)

After controlling for other factors, Atlanta, Columbus (medium), and Brunswick (small) have the longest transit trips, followed by Savannah and Gainesville (see chapter 5, Key Equitable Mobility Indicators). Non-MPO counties have the shortest transit trips. In all types of counties, captive transit users face significantly longer travel times than choice users (see chapter 5, Vehicle Access).

Nonmotorized Travel and Travel for its Own Sake (Chapter 6–Chapter 7)

While there are some regional differences in nonmotorized travel (NMT), the larger differences are by neighborhood type, which can vary substantially within an MPO (see chapter 6, Overview). Neighborhood type is therefore a more useful way of examining differences in walking and biking. This report examines walking and biking trips as well as nonmotorized legs to access and egress public transit. NMT is most common in the densest urban neighborhood type (which, in Georgia, is only found in Atlanta). On average, residents of urban neighborhoods make more than three times as many NMT trips and transit access/egress legs than residents of second-city and suburban neighborhoods, and more than seven times as many trips/legs as residents of small towns and rural areas (see chapter 6, Travel Day Walking and Biking by Georgia Adults). The average urban resident spends more than 20 minutes per day walking and/or biking, compared to less than 8 minutes in all other neighborhood types. The purpose of NMT also varies by neighborhood type (see chapter 6, Travel Day Walking and Biking by Georgia Adults). The majority of NMT in all neighborhood types is for instrumental purposes. However, leisure travel accounts for more than a third of NMT in small-town and rural neighborhoods versus just 17 percent in urban neighborhoods. Loop trips, which are predominantly NMT and represent a form of travel for its own sake, are most common in Atlanta and non-MPO counties and lower in small and medium MPO regions (see chapter 7, Loop Trips in the 2017 Georgia NHTS Subsample).

Finally, among children ages 5–17, leisure and socialization account for more than half of nonmotorized trips in rural and small-town neighborhoods (51.9 percent and 51.5 percent respectively), as well as in non-MPO counties more generally (51.5 percent) (see chapter 6, Children's Nonmotorized Travel for All Purposes). Elsewhere in the state, these trips for "fun" purposes are outnumbered by instrumental trips.

In the aggregate, 8 percent of children in medium MPO counties typically walk or bike to/from school, followed by Atlanta MPO counties (see chapter 6, Children's School Travel). In non-MPO counties, just 3.5 percent walk or bike to/from school. However, the differences are stronger by neighborhood type; 22 percent of children in urban neighborhoods walk or bike to/from school, more than double the percentage in second-city neighborhoods. Just 0.6 percent of children in rural neighborhoods walk or bike to/from school.

CHAPTER 2.
COMMUTE AND WORK PATTERNS

CHAPTER 2 – SUMMARY

This chapter analyzes work-related travel, particularly commuting.

- **Overview** includes technical and vocabulary notes and provides an overview of work-force and commute characteristics. In addition to mode choice and carpooling behavior, the section describes the prevalence of complex work journeys (i.e., trips to or from work with at least one intermediate stop). Commutes to sites other than a respondent's "official" work location are also discussed. Together, complex commutes and commutes involving a nontraditional work location account for one third of work journeys in Georgia, highlighting the importance of effectively measuring these journeys.
- **Defining the Commute** discusses several methods of dealing with complex work journeys when measuring work travel. The section focuses primarily on the methods used to define commute distances and durations for the purposes of analysis in this chapter. Readers primarily interested in the results of the analysis may choose to quickly advance to the fifth section (Commute Duration and Burden), which summarizes definitions to be used in the third section, Work Travel Distance, and the fourth section, Work Travel Distance by Mode.
- **Work Travel Distance** examines commute distance, person miles traveled, and vehicle miles traveled. Georgia residents travel a total of 26.4 billion miles each year in their journeys to and from work, and 23.6 billion of those miles are as a driver of a private vehicle. Two thirds of commute PMT and VMT occur during weekday peak hours. There

is considerable regional variation. Commute distances are longest in the most and least populous areas of the state (i.e., the Atlanta MPO and non-MPO counties).

- **Work Travel Distance by Mode** focuses on work travel duration. Workers' median "usual" commute duration is 25 minutes. However, some workers must travel much longer. On a typical day, 12.3 percent of active commuters will spend a total of 2 hours or more traveling to and from work. Commute durations are greatest in the Atlanta MPO. The Atlanta MPO also experiences the greatest variability by time of day.

Commute Duration and Burden discusses the amount of time spent on individual commutes and the total amount of time spent on commuting per day (commute burden). Commute durations differ sharply by mode. The average auto commute lasts 31 minutes, versus 17 minutes for nonmotorized commutes. The average public transit commute lasts 70 minutes. However, captive riders' commutes are even slower than those of choice transit riders (i.e., commuters from vehicle-sufficient households). The average transit commute for a captive rider is *20.4 minutes longer* than the average choice transit commute, despite the fact that the average *distance* of captive riders' commutes is 3.1 miles *shorter* than a choice rider's transit commute (14.2 miles vs. 17.3 miles). The data also suggest the presence of "captive" walkers and cyclists: 8.3 percent of nonmotorized commutes by workers without full access to vehicles last an hour or longer, versus just 0.7 percent of choice nonmotorized commutes. These findings suggest that Georgia's current commuting environment constitutes a two-tiered system divided not just by mode, but by the ability to choose between modes.

OVERVIEW

Definitions and Technical Notes

In general, a commute is travel for the purpose of getting to or from work. However, since some commuters make stops in between their home and workplace, more specific vocabulary is needed. A *commuter* is a person who travels from a home location to a different location for the purposes of paid employment. This chapter uses general data about the "usual" habits of commuters, and also travel diary data from a single day of travel. It refers to respondents who reported traveling to a workplace on their travel day as *active commuters*. The phrase "*work journey*" refers to all the trips and intermediate stops a commuter makes between home and work.[26] A work journey is unidirectional (i.e., either from home to work, or from work to home). As a result, most active commuters will have two or more work journeys in a single day. "*Circuit*" refers to the full sequence of trips from home to work and back.

The home and work locations are *anchors* of the work journey, and any destinations between the two are considered *stops*. A *simple work journey* proceeds directly between home and work. A *complex work journey* contains at least one internal stop. For example, a commuter might stop to pick up a child from school, buy coffee, or shop for groceries on the way to or from work. A work journey might also include longer stops, such as a professional who is pursuing an advanced degree by taking classes after work.[27]

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[26] The phrase "work journey" is used rather than "tour" to avoid confusion with the alternate definition used by the NHTS in the tour files it provides to researchers.

[27] In contrast to this classification, the NHTS classifies any stop of 30 minutes or more as an anchor in its own right. The reasons for departing from the NHTS classification are discussed further in chapter 2, Defining the Commute.

A *commute* is the portion of the work journey that should be considered work-related travel. For a direct (simple) work journey, the work journey and the commute are identical. For a complex work journey, it is necessary to determine which portions of the journey should be attributed to the commute, and which should be considered as related to the purposes of the intermediate stops. The next section, Defining the Commute, will compare alternate methods of apportioning person miles traveled, vehicle miles traveled, and travel time between work and nonwork purposes. A technique the research team refers to as the counterfactual method is well-suited for a realistic portrayal of complex commutes. In this technique, the portion of a work journey assigned to the commute is based on what the commute would have looked like had the commuter gone directly from home to work with no intermediate stops.

The NHTS contains two types of data about work-related travel. The first consists of questions asked as part of the general questionnaire, such as “usual” commute mode, industry of employment, and flexibility of work schedule. Questions it also contains about telecommuting will be analyzed in chapter 3.

The second type of data is work trips made by respondents on their travel days. These travel diary data are used to provide more accurate mode shares, distances, and many other measures. Travel diary data are the basis for most analyses in this chapter. It should be noted that travel times are self-reported by survey respondents, but travel distances were calculated by the NHTS as a shortest path distance, rather than based on the route chosen by the traveler. Additionally, travel days ran from 4:00 a.m. through 3:59 a.m., with the result that night shift workers might actually begin or end their day at work. More details about how this report identifies work journeys and commutes within the trip diaries are available in chapter 2, Defining the Commute.

Worker Characteristics

Table 37 shows levels of workforce participation.[28] Statewide, 61.5 percent of adults ages 18 and older are classified as workers by NHTS.[29] Of these, 80.4 percent work full-time. Labor force participation is higher among men than women. Female workers are more likely to work part-time, and are also more likely to hold multiple jobs. Regional variations are also present. Workforce participation is highest in the Atlanta MPO region, and lowest in non-MPO counties.

Workforce participation is highest for members of Generation X (who were 37–52 years old at the time of the survey). However, many Georgians (18.1 percent) continue to work past retirement age; 21.4 percent of younger seniors (ages 65–79) are still working, as are 3.6 percent of Georgians ages 80 and older.

The dominant industry varies by region, gender, race, age, and income (table 38). Professional, managerial, and technical positions are the most common, both among workers overall and among all subpopulations except the lowest-income workers and those without a college degree. Sales and service is the largest sector for low-income and noncollege-educated workers, and the second largest for other groups. For men, the second-most common category is blue-collar jobs such as manufacturing, construction, maintenance, and farming. Blue-collar jobs are most common in non-MPO counties (tier 4), followed by small MPOs (tier 3). They are the least common in Atlanta MPO counties (tier 1).

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[28] For details on sample sizes for this and subsequent tables, see the appendix. As a reminder, unless otherwise stated, all statistics presented are weighted.

[29] NHTS defines a worker as someone who worked for pay or profit, or was temporarily absent from paid employment, in the week before completing the travel survey ("last week"). All references to "workers" in this section refer to NHTS-defined workers.

Table 37. Workforce participation.

	Adults	Workers Only†		
	Percent Workers*	Full-time	Part-time	More Than One Job‡
All adults	61.5%	80.4%	19.6%	9.1%
Gender				
Male	69.0%	85.4%	14.6%	8.4%
Female	54.6%	74.4%	25.6%	9.8%
MPO Tier				
1. Atlanta MPO	65.6%	81.5%	18.5%	8.8%
2. Medium MPOs	60.8%	76.4%	23.6%	8.9%
3. Small MPOs	61.0%	79.3%	20.7%	9.4%
4. Non-MPO	51.0%	80.7%	19.3%	9.9%
Age Cohort				
Millennial and Gen Z (18–36)	68.6%	74.5%	25.5%	8.9%
Generation X (37–52)	79.0%	88.8%	11.2%	9.7%
Pre-retirement age Baby Boomer (53–64)	60.8%	83.4%	16.6%	9.1%
Retirement age (65+)	18.1%	50.2%	49.8%	5.3%
Annual Household Income				
<$35,000	46.9%	68.7%	31.3%	11.3%
$35,000 to $49,999	63.2%	77.6%	22.4%	12.8%
$50,000 to $74,999	66.3%	84.9%	15.1%	9.8%
$75,000 to $99,999	69.1%	87.3%	12.7%	7.1%
$100,000+	75.0%	85.7%	14.3%	6.0%
Race				
White non-Hispanic only	62.5%	80.7%	19.3%	8.2%
Black and Black multiracial	59.5%	79.7%	20.3%	11.7%
Other	61.9%	80.3%	19.7%	6.6%

* *Percentage of all cases in row that work. See the appendix for unweighted sample sizes.*

† *As defined by NHTS, a worker is someone who worked for pay or profit or was temporarily absent from paid employment in the week before completing the travel survey.*

‡ *Both full-time and part-time workers may have more than one job.*

Table 38. Job categories of Georgia workers.

	Occupation*			
	Sales or Service	Clerical or Administrative Support	Manufacturing, Construction, Maintenance, or Farming	Professional, Managerial, or Technical
All workers ages 18+	26.9%	9.3%	17.7%	46.0%
Gender				
Male	24.9%	2.8%	27.7%	44.6%
Female	29.2%	16.9%	6.1%	47.6%
MPO Tier				
1. Atlanta MPO	26.8%	9.6%	14.1%	49.4%
2. Medium-size MPOs	27.9%	9.7%	17.1%	45.0%
3. Small MPOs	27.5%	9.3%	21.6%	41.5%
4. Non-MPO	25.8%	7.9%	28.7%	37.4%
Age Cohort				
Millennial and Gen Z (18–36)	34.8%	8.0%	19.1%	38.1%
Generation X (37–52)	20.5%	9.5%	16.8%	53.1%
Pre-retirement age Baby Boomer (53–64)	22.7%	9.7%	18.0%	49.3%
Retirement age (65+)	30.3%	16.0%	12.9%	40.7%
Annual Household Income				
<$35,000	38.8%	10.6%	27.3%	23.1%
$35,000 to $49,999	30.2%	10.8%	23.8%	34.7%
$50,000 to $74,999	24.5%	12.3%	19.2%	43.9%
$75,000 to $99,999	24.8%	9.1%	12.7%	53.4%
$100,000+	17.9%	5.9%	8.0%	68.2%
Race				
White non-Hispanic only	24.9%	8.5%	15.3%	51.3%
Black and Black multiracial	30.6%	11.5%	20.5%	37.2%
Other	26.7%	7.9%	21.7%	43.7%
Education Level				
High school or less	38.3%	6.7%	38.4%	16.4%
Associates degree or some college	32.1%	14.2%	19.8%	33.7%
Bachelor's degree or higher	16.9%	7.4%	4.9%	70.8%

** All workers were limited to a single self-reported occupation. Of workers, 0.1 percent reported their occupation as "other."*
Note: NHTS defines a worker as someone who worked for pay or profit or was temporarily absent from paid employment in the week before completing the travel survey ("last week").

Workers in professional, technical, and managerial professions tend to be the wealthiest, with a median household income of $75,000–$99,999.[30] Clerical and administrative workers have a median household income of $50,000–$74,999. Workers in the remaining two categories (sales/service and blue-collar) are the least well off, with a median household income of $35,000–$49,999.

Much of the variation in industry across gender, region, and race is related to differences in educational attainment. As shown in figure 8 and table 38, 71 percent of workers in the highest income households hold at least a bachelor's degree, and 68 percent of workers in these households work in the professional sector. In contrast, only 20 percent of workers in the lowest-income households hold a bachelor's degree, and only 23 percent work in the professional sector.

As shown in table 39, differences in occupation category by gender, region, and race are much smaller among college-educated workers. For example, the proportion of college-educated men who work in blue-collar positions is 5 percentage points higher than the proportion of college-educated women who do so. For noncollege graduates, this difference is 32 percentage points. The occupational categories of college graduates are broadly similar across all MPO tiers, though blue-collar professions are slightly less common in Atlanta, and sales and service jobs are more common.

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[30] No individual-level salary data are available, so these figures represent the combined income of all household members. Additionally, income is provided as a categorical variable, so the median is also presented as a category.

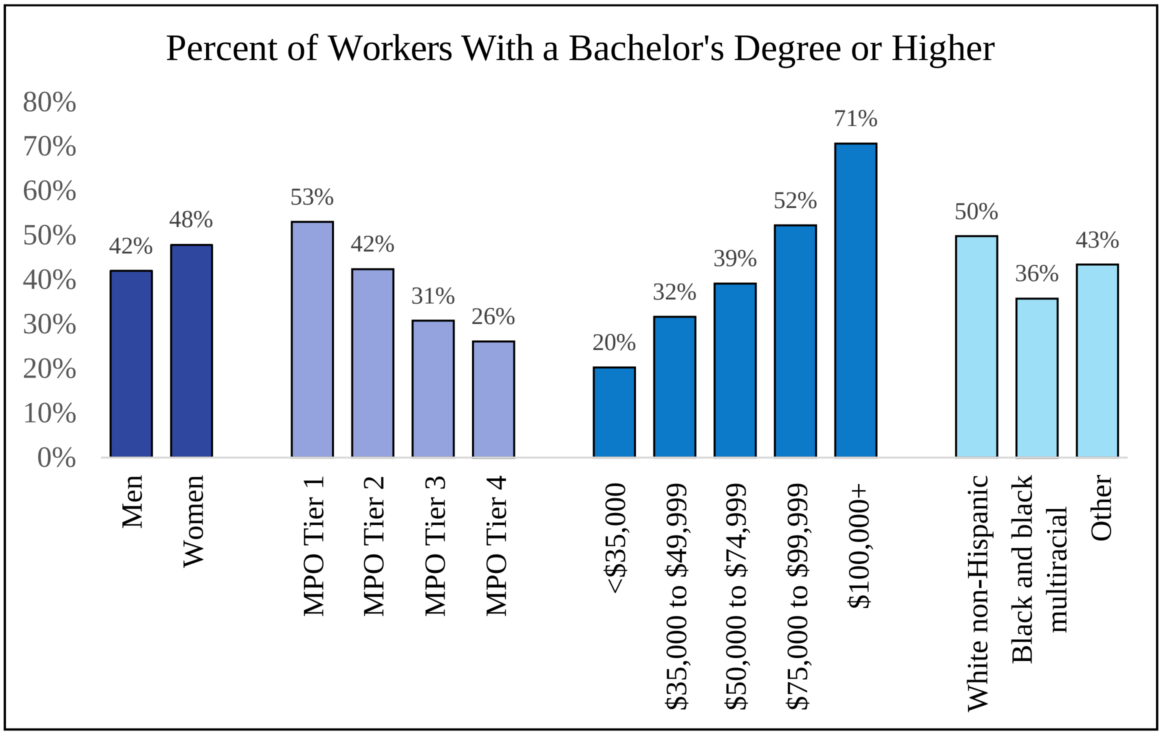

Figure 8. Bar graph. Educational attainment of Georgia workers by gender, MPO tier, household income, and race.

However, a college degree notably fails to erase a racial difference in employment category: the proportion of Black[31] college-educated workers in professional, managerial, and technical positions is 10 percentage points lower than the proportion of white non-Hispanic college educated workers, and 11 percentage points lower than college-educated workers of another race. This difference is larger than the difference between white and Black workers without a college degree.

[31] This report uses “Black” as an umbrella term to include African Americans and Black immigrants.

Table 39. Job categories of Georgia workers by educational attainment.

College Graduate Workers (Bachelor's Degree or Higher)				
	Sales or Service	Clerical or Administrative Support	Manufacturing, Construction, Maintenance, or Farming	Professional, Managerial, or Technical
All college-educated workers	16.9%	7.4%	4.9%	70.8%
Gender				
Male	17.4%	3.6%	7.4%	71.6%
Female	16.4%	11.3%	2.3%	70.0%
MPO Tier				
1. Atlanta MPO	18.2%	7.3%	3.8%	70.7%
2. Medium MPOs	14.4%	7.6%	7.6%	70.3%
3. Small MPOs	11.7%	8.0%	6.0%	74.3%
4. Non-MPO	15.1%	7.4%	7.7%	69.8%
Race				
White non-Hispanic only	16.9%	5.8%	4.0%	73.3%
Black and Black multiracial	18.4%	11.7%	7.1%	62.7%
Other	13.8%	7.1%	5.0%	74.1%
Workers Without 4-Year College Degree				
	Sales or Service	Clerical or Administrative Support	Manufacturing, Construction, Maintenance, or Farming	Professional, Managerial, or Technical
All workers without 4-year college degree	34.8%	10.9%	28.0%	26.1%
Gender				
Male	30.2%	2.2%	42.3%	25.0%
Female	40.7%	22.0%	9.6%	27.5%
MPO Tier				
1. Atlanta MPO	36.3%	12.3%	25.5%	25.7%
2. Medium MPOs	37.9%	11.2%	24.1%	26.3%
3. Small MPOs	34.6%	9.9%	28.7%	26.8%
4. Non-MPO	29.5%	8.0%	35.8%	26.4%
Race				
White non-Hispanic only	32.8%	11.2%	26.5%	29.5%
Black and Black multiracial	37.3%	11.3%	28.0%	22.9%
Other	35.9%	8.6%	33.9%	21.5%

Note: NHTS defines a worker as someone who worked for pay or profit or was temporarily absent from paid employment in the week before completing the travel survey ("last week").

Overview of Commuters

Table 40 shows the percentage of workers who reported at least one work journey on their travel day.[32] This report defines these workers as *active commuters*. On an average weekday, 70 percent of NHTS-defined workers and 44 percent of the total adult population reported making one or more work journeys. The weekday proportion of active commuters for full-time workers was 77 percent, compared to 54 percent of part-time workers.

Approximately one in five workers surveyed on a weekend or holiday commuted on that day. Weekend commuting was more common among service and blue-collar workers than clerical and professional workers, and among groups that are disproportionately employed in the service and blue-collar sectors (e.g., Black and low-income workers). It was also more common among part-time workers. Relatedly, weekend commutes are more common in non-MPO counties, which have a relatively high concentration of blue-collar jobs, than in other parts of the state.

[32] The travel day ran from 4:00 a.m. through 3:59 a.m. the next day. A small number of people who were not classified as workers also reported work journeys; this group made up 1.3 percent of active commuters. Some of these are likely due to temporary employment, and others may represent a change in worker status for the participant between completing the main questionnaire and the travel diary. These journeys are not included in the percentage of workers reporting work journeys, but they will be included in per-capita and per-worker trip generation rates (for example, table 41 and table 42).

Table 40. Active commuter rates.

	All Adults			Workers Only*		
	All Days	Weekdays Only	Weekends & Holidays Only	All Days	Weekdays Only	Weekends & Holidays Only
All adults	34.4%	43.8%	13.0%	55.2%	70.0%	21.0%
Gender						
Male	40.3%	50.4%	16.2%	57.8%	72.1%	23.1%
Female	28.9%	37.5%	10.3%	52.2%	67.6%	18.8%
MPO Tier						
1. Atlanta MPO	36.3%	46.3%	11.6%	54.8%	69.0%	18.3%
2. Medium-size MPOs	32.3%	43.3%	13.7%	52.3%	70.7%	21.6%
3. Small MPOs	33.4%	42.8%	16.7%	53.9%	71.8%	24.7%
4. Non-MPO	31.3%	37.8%	13.7%	60.1%	72.2%	27.0%
Age Cohort						
Millennial and Gen Z (18–36)	40.4%	48.3%	20.4%	58.4%	69.5%	29.7%
Generation X (37–52)	43.0%	58.5%	11.4%	53.9%	72.0%	14.7%
Pre-retirement age Baby Boomer (53–64)	33.4%	43.4%	11.5%	54.1%	70.2%	18.8%
Retirement age (65+)	8.6%	10.6%	3.8%	44.7%	59.3%	17.7%
Annual Household Income						
<$35,000	28.5%	33.8%	15.8%	59.3%	69.5%	33.6%
$35,000 to $49,999	36.9%	46.7%	15.1%	58.1%	75.4%	22.6%
$50,000 to $74,999	38.4%	46.9%	20.1%	57.8%	71.0%	29.9%
$75,000 to $99,999	41.9%	53.9%	8.3%	59.3%	74.8%	12.4%
$100,000+	36.5%	50.8%	6.6%	48.3%	66.8%	8.9%
Race						
White non-Hispanic only	33.3%	44.1%	10.4%	52.7%	69.8%	16.6%
Black and Black multiracial	35.5%	42.1%	18.3%	58.6%	69.3%	30.1%
Other	36.2%	46.3%	13.1%	58.1%	73.0%	21.9%
Occupational Category (Workers Only)*						
Sales or service				57.7%	66.7%	37.0%
Clerical or administrative support				55.6%	74.7%	11.4%
Manufacturing, construction, maintenance, or farming				64.0%	80.5%	23.6%
Professional, managerial, or technical				54.1%	71.9%	14.3%
Worker Type (Workers Only)*						
Full time				60.0%	76.8%	21.0%
Part time				44.6%	53.9%	24.2%

** Excludes the 1.3% of active commuters who were not defined as workers by NHTS. NHTS defines a worker as someone who worked for pay or profit or was temporarily absent from paid employment in the week before completing the travel survey ("last week").*

Table 41 shows the complexity of commutes made by various groups of workers. Overall, 39.6 percent of active commuters made at least one complex commute (with an interim stop). Three quarters of those who made a complex commute also made at least one simple commute, e.g., a simple commute in one direction and a complex commute in the other. Trip chaining is less common on weekends: 68.4 percent of weekend commuters made only simple work journeys, as opposed to 59.4 percent of weekday commuters.[33]

The prevalence of complex commutes is comparable for all MPO tiers, and across income levels. There are some differences across age groups, with younger workers being more likely to make only simple work journeys. Consistent with previous findings about gendered travel patterns (McQuaid and Chen 2012, Loukaitou-Sideris 2016), female commuters are more likely to have trip chained. Black commuters are also more likely to make complex work journeys than commuters of other races.

Of active commuters, 88 percent reported exactly two work journeys (table 42). Close to 7 percent reported one work journey. Participants who reported an odd number of work journeys typically started or ended their travel day away from home; 74 percent of these started or ended at work. The next most common nonhome location to start or end the day was visiting friends/relatives. These "odd" commuters, then, are mainly people who work night shifts or extended shifts, with a minority of people who stay out late after work and the occasional air traveler who is midtrip when the travel day ends.

[33] The sample size of the weekend commuters category was too small to disaggregate further, so that group is not separately cross-tabulated in the tables presented here. For unweighted sample sizes, see the appendix.

Table 41. Work journey complexity among active commuters.

	All Days			Weekdays		
	Simple Only	Complex Only	Both Simple & Complex	Simple Only	Complex Only	Both Simple & Complex
All active commuters	60.4%	10.1%	29.5%	59.4%	10.5%	30.1%
Gender						
Male	65.1%	8.5%	26.4%	64.6%	8.7%	26.7%
Female	54.4%	12.1%	33.5%	52.8%	12.7%	34.5%
MPO Tier						
1. Atlanta MPO	60.5%	10.3%	29.2%	60.0%	10.6%	29.4%
2. Medium-size MPOs	61.1%	9.5%	29.4%	58.5%	10.1%	31.4%
3. Small MPOs	60.7%	8.8%	30.4%	59.5%	10.5%	30.0%
4. Non-MPO	59.5%	10.6%	29.9%	58.1%	10.3%	31.6%
Age Cohort						
Millennial and Gen Z (18–36)	63.7%	9.1%	27.1%	62.5%	10.5%	27.0%
Generation X (37–52)	59.1%	10.6%	30.3%	58.4%	10.2%	31.3%
Pre-retirement age Baby Boomer (53–64)	56.3%	11.1%	32.6%	55.7%	10.6%	33.7%
Retirement age (65+)	59.7%	10.5%	29.8%	57.0%	11.8%	31.2%
Annual Household Income						
<$35,000	60.9%	10.6%	28.6%	61.0%	11.2%	27.9%
$35,000 to $49,999	58.0%	9.0%	33.0%	57.0%	8.8%	34.2%
$50,000 to $74,999	60.9%	10.8%	28.3%	57.4%	11.6%	30.9%
$75,000 to $99,999	60.9%	8.5%	30.6%	59.6%	8.7%	31.7%
$100,000+	60.3%	10.0%	29.7%	59.9%	10.4%	29.7%
Race						
White non-Hispanic only	62.2%	9.0%	28.9%	61.3%	9.5%	29.2%
Black and Black multiracial	55.5%	13.9%	30.5%	54.2%	14.5%	31.3%
Other	65.3%	5.4%	29.3%	63.7%	5.3%	31.1%

Table 42. Number of work journeys per person, active commuters.

	All Days			Weekdays		
	One WJ	Two WJs	More Than Two WJs	One WJ	Two WJs	More Than Two WJs
All adults	6.9%	88.1%	5.0%	6.6%	88.2%	5.3%
Gender						
Male	8.1%	86.3%	5.6%	7.5%	86.6%	5.9%
Female	5.4%	90.4%	4.3%	5.4%	90.1%	4.4%
MPO Tier						
1. Atlanta MPO	5.8%	89.8%	4.3%	5.5%	90.1%	4.4%
2. Medium MPOs	7.3%	85.8%	6.9%	7.1%	85.2%	7.7%
3. Small MPOs	8.3%	85.4%	6.4%	8.3%	84.9%	6.8%
4. Non-MPO	9.0%	85.9%	5.1%	8.8%	86.0%	5.3%
Age Cohort						
Millennial and Gen Z (18–36)	5.9%	88.9%	5.3%	5.7%	88.6%	5.7%
Generation X (37–52)	7.6%	88.5%	3.9%	7.4%	88.6%	4.1%
Pre-retirement age Baby Boomer (53–64)	7.7%	86.2%	6.1%	6.8%	87.1%	6.0%
Retirement age (65+)	6.5%	86.0%	7.4%	6.4%	85.0%	8.5%
Annual Household Income						
<$35,000	8.0%	86.2%	5.8%	8.5%	85.2%	6.2%
$35,000 to $49,999	4.6%	87.7%	7.7%	4.3%	86.9%	8.8%
$50,000 to $74,999	8.8%	86.7%	4.4%	7.6%	88.0%	4.5%
$75,000 to $99,999	5.4%	89.0%	5.6%	4.8%	89.5%	5.7%
$100,000+	6.1%	90.6%	3.3%	5.8%	91.0%	3.2%
Race						
White non-Hispanic only	6.5%	88.7%	4.8%	6.0%	88.9%	5.1%
Black and Black multiracial	8.7%	86.9%	4.4%	8.8%	87.1%	4.1%
Other	4.2%	88.4%	7.4%	3.8%	88.0%	8.3%

Commute Mode by Person

As shown in table 43, personal occupancy vehicles (whether singly-occupied or carrying passengers) are the self-reported *usual commute mode* for 93.2 percent of workers statewide.[34] There is considerable regional variation; "only" 91.1 percent of Atlanta MPO residents commute by car, while in non-MPO counties, the use of private autos is almost universal. Unsurprisingly, transit usage is highest in Atlanta, where there are more robust transit offerings. Transit usage is also higher among women than men, and among low-income and Black workers.

A comparison of these figures with the *modes actually used for work journeys on the travel day* (table 44) suggests that Georgia residents' commute patterns are, unsurprisingly, slightly more complicated than reporting a single "usual" commute mode suggests. For instance, the percent of commuters reporting making a nonmotorized trip as part of a work journey is 1.6 times higher than the percent reporting nonmotorized travel as their "usual" work mode.[35] Interestingly, more men than women reported nonmotorized means as their usual mode, but when trips actually made on the travel day are examined, this apparent gender gap disappears.

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[34] Specifically, participants were asked to report how they "usually" got to their main job last week. If multiple modes were used, they were instructed to select the one that they used for a longer distance. This question was not asked of people who reported that they usually telecommute, though it was asked of workers who telecommute some days. Most periodic telecommuters, like most workers in general, selected private auto as their usual commute mode. This question will be revisited in chapter 3.

[35] Although the "usual" modes were provided by all commuters while the travel day modes were reported only by active commuters, there was no appreciable difference between the "usual" commute mode of active commuters and inactive commuters.

Table 43. Usual commute mode as reported by NHTS-defined workers.

	POV*	Non-motorized (Walking, Biking)	Public Transit or Other Bus or Train	Other Ground or Water	Air
All workers†	93.2%	2.3%	3.8%	0.4%	0.3%
Gender					
Male	93.8%	2.7%	2.6%	0.5%	0.4%
Female	92.5%	1.8%	5.3%	0.3%	0.2%
MPO Tier					
1. Atlanta MPO	91.1%	2.2%	5.9%	0.4%	0.4%
2. Medium MPOs	94.2%	3.4%	1.8%	0.5%	0.2%
3. Small MPOs	96.8%	1.5%	1.4%	0.3%	0.1%
4. Non-MPO	97.0%	2.0%	0.4%	0.3%	0.3%
Age Cohort					
Millennial and Gen Z (18–36)	91.9%	2.8%	4.3%	0.5%	0.3%
Generation X (37–52)	94.2%	2.1%	3.2%	0.3%	0.2%
Pre-retirement age Baby Boomer (53–64)	93.6%	1.5%	4.1%	0.3%	0.5%
Retirement age (65+)	95.3%	2.2%	2.5%		
Annual Household Income					
<$35,000	88.6%	4.1%	7.1%	0.3%	
$35,000 to $49,999	94.2%	2.2%	3.1%	0.5%	
$50,000 to $74,999	96.4%	1.4%	1.5%	0.5%	0.3%
$75,000 to $99,999	95.3%	1.4%	2.9%	0.0%	0.5%
$100,000+	94.3%	1.8%	2.9%	0.3%	0.7%
Race					
White non-Hispanic only	95.3%	2.4%	1.7%	0.2%	0.4%
Black and Black multiracial	90.1%	1.5%	7.8%	0.4%	0.1%
Other	91.8%	3.4%	3.4%	1.0%	0.5%

[*] Including privately owned, rental, and company vehicles.

[†] Includes all workers, whether or not they reported a work journey on their travel day.

Table 44. Travel day commute mode(s) for active commuters.

	POV*	Non-motorized (Walking, Biking)	Public Transit or Other Bus or Train	Other Ground or Water	Air
All active commuters	95.0%	3.7%	3.8%	1.4%	0.2%
Gender					
Male	95.1%	3.6%	2.9%	1.5%	0.2%
Female	94.9%	3.8%	5.0%	1.2%	0.4%
MPO Tier					
1. Atlanta MPO	93.6%	4.4%	6.1%	1.5%	0.4%
2. Medium MPOs	96.4%	4.2%	1.5%	0.9%	
3. Small MPOs	98.3%	2.3%	0.6%	0.6%	0.0%
4. Non-MPO	96.5%	1.8%	0.4%	1.8%	0.2%
Age Cohort					
Millennial and Gen Z (18–36)	94.0%	4.5%	4.8%	1.9%	0.1%
Generation X (37–52)	96.1%	3.1%	2.8%	1.1%	0.5%
Pre-retirement age Baby Boomer (53–64)	95.0%	3.1%	3.9%	1.3%	0.1%
Retirement age (65+)	95.6%	3.6%	3.1%		
Annual Household Income					
<$35,000	90.8%	6.7%	6.2%	2.1%	0.7%
$35,000 to $49,999	96.6%	2.6%	4.0%	1.6%	0.9%
$50,000 to $74,999	97.6%	1.5%	1.5%	1.1%	0.6%
$75,000 to $99,999	96.4%	2.4%	3.2%	0.6%	0.2%
$100,000+	96.4%	3.2%	3.5%	1.0%	0.4%
Race					
White non-Hispanic only	96.6%	3.0%	1.8%	0.8%	0.1%
Black and Black multiracial	92.6%	3.7%	7.4%	2.5%	0.3%
Other	94.8%	6.1%	3.4%	1.2%	0.6%

* *Including privately owned, rental, and company vehicles. Excludes taxis and ridehailing, which are included under Other Ground or Water.*

Note: Of participants, 3.6 percent reported using multiple modes, and are included in totals for all relevant modes.

Table 45 shows rates of driving alone (single-occupancy vehicle [SOV] trips) among active commuters. Of active commuters, 64 percent drove alone for all the trips that made up the work journeys on their travel day. Only 15 percent drove alone for some trips, and the remainder either were in a car with multiple people or used a different mode. Twenty-two percent of active commuters did not spend any portion of their work journeys driving alone. Driving alone is more common among men than women and is most common in small MPOs. Younger workers drive alone less than older ones, as do lower-income and nonwhite workers.

Overview of Work Journeys

In chapter 1, the sections on Trip Patterns by Location of Travel and Household and Personal Mobility provided statistics summarized by *commuter*. This section provides summary statistics about the individual *work journeys*. Georgia residents make nearly 2 billion work journeys each year, or an average of 415 per adult worker.[36] Figure 9 shows the temporal distribution of these work journeys based on the time of arrival at or departure from the work anchor. Seventy percent of all work journeys take place between 6:00–9:59 a.m. or 3:00–6:59 p.m.; this report defines these two time windows as peak periods.

[36] Per-worker statistics are calculated based on total work journeys from all adults divided by total NHTS-defined workers. The numerator includes the 1.2 percent of work journeys that are made by “nonworkers,” likely people who are working short-term or sporadic jobs (for example, some farm work).

Table 45. Use of single-occupancy vehicles, high-occupancy vehicles (HOVs), and alternate modes among active commuters.

	All SOV	Some SOV Trips	No SOV Trips	
	All WJ Segments by SOV	SOV + HOV or SOV + Alt. Mode*	HOV or HOV + Alt. Mode	All Trips by Alt. Mode
All active commuters	63.6%	14.6%	16.6%	5.2%
Gender				
Male	65.7%	12.8%	16.4%	5.0%
Female	60.9%	16.9%	16.7%	5.5%
MPO Tier				
1. Atlanta MPO	61.8%	15.5%	15.9%	6.7%
2. Medium MPOs	63.8%	14.9%	17.7%	3.6%
3. Small MPOs	69.4%	14.2%	14.7%	1.7%
4. Non-MPO	65.9%	11.7%	18.8%	3.7%
Age Cohort				
Millennial and Gen Z (18–36)	61.9%	13.0%	19.1%	6.0%
Generation X (37–52)	62.6%	18.5%	14.5%	4.4%
Pre-retirement age Baby Boomer (53–64)	68.2%	11.0%	15.6%	5.1%
Retirement age (65+)	66.9%	14.1%	14.7%	4.4%
Annual Household Income				
<$35,000	53.2%	14.0%	23.7%	9.2%
$35,000 to $49,999	63.5%	13.1%	20.0%	3.4%
$50,000 to $74,999	71.7%	11.8%	13.5%	2.9%
$75,000 to $99,999	67.4%	14.2%	14.5%	3.9%
$100,000+	66.9%	18.8%	10.3%	4.0%
Race				
White non-Hispanic only	68.3%	14.0%	14.1%	3.6%
Black and Black multiracial	58.0%	14.5%	19.8%	7.7%
Other	58.5%	17.3%	18.5%	5.7%

* *Transit, walking, etc.*

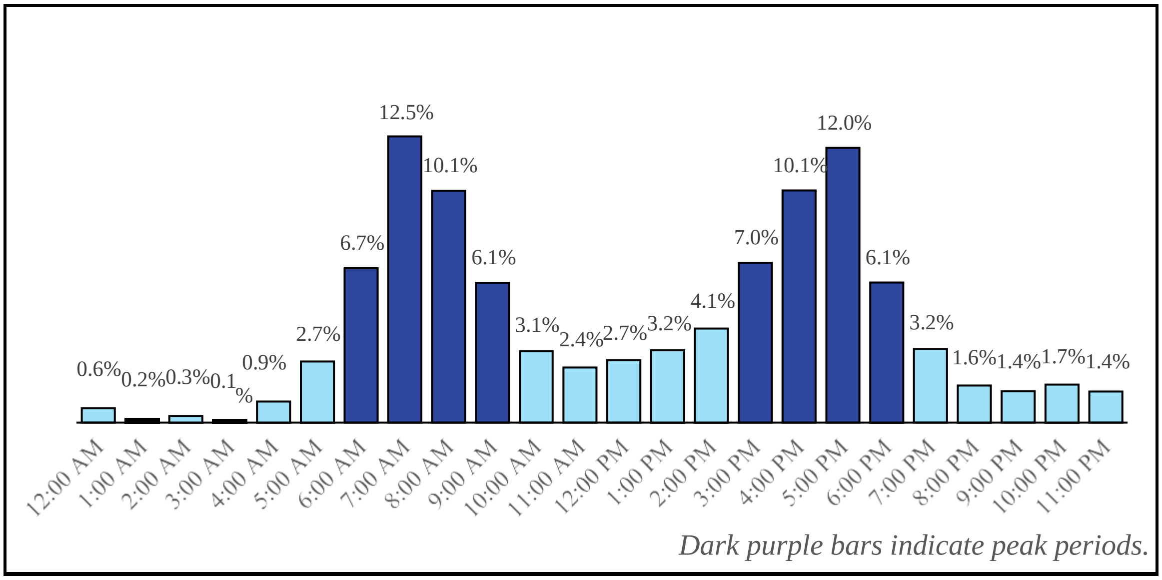

Figure 9. Histogram. Work journeys by time of arrival to or departure from work (weighted).

As table 46 shows, 92.7 percent of work journeys are by POV, and in 68.5 percent of cases, the commuter drove alone for the entire work journey. Table 47, table 48, and table 49 show the same information broken down by MPO tier. Interestingly, the annual number of work journeys per worker is substantially higher in non-MPO counties than in any other region (i.e., 451 work journeys per worker versus 404–410 in tiers 1–3). One likely contributing factor to this difference is that multiple-job holding is highest in non-MPO counties (table 37). Additionally, adults who are *not* workers produce an average of 9.9 work journeys per nonworker in tier 4 counties, versus 7.0 work journeys per nonworker in tiers 1 and 8.6 in tiers 2 and 3 (not tabulated).

Table 46. Total annual work journeys in Georgia.

	All Days			Weekdays Only		
	Total (Millions)	Percent of Total WJs	Per Worker*	Total (Millions)	Percent of Total WJs	Per Worker*
Total work journeys	1,967.3		415.4	1,746.4		368.7
Simple work journeys	1,490.3	75.8%	314.7	1,311.9	75.1%	277.0
Complex work journeys	477.0	24.2%	100.7	434.4	24.9%	91.7
Mode						
POV	1,824.5	92.7%	385.2	1,618.4	92.7%	341.7
Multimodal with POV	16.6	0.8%	3.5	16.5	0.9%	3.5
Other	125.9	6.4%	26.6	111.2	6.4%	23.5
Nonmotorized	45.3	2.3%	9.6	42.2	2.4%	8.9
Public transit or other bus/train	50.7	2.6%	10.7	43.4	2.5%	9.2
Other ground or water	18.4	0.9%	3.9	15.0	0.9%	3.2
Multimodal without POV or air	9.1	0.5%	1.9	8.1	0.5%	1.7
Air or air multimodal	2.4	0.1%	0.5	2.4	0.1%	0.5
Driver Status (POV and Multimodal POV WJs)						
Driver for entire WJ	1,687.8	85.8%	356.4	1,502.1	86.0%	317.2
Driver for part of WJ	22.0	1.1%	4.6	21.1	1.2%	4.5
Passenger	133.8	6.8%	28.3	114.1	6.5%	24.1
Vehicle Occupancy Status (POV and Multimodal POV WJs)						
Drive alone entire WJ†	1,347.6	68.5%	284.5	1,188.7	68.1%	251.0
Family sharing: drive with household passenger for 1+ legs	165.7	8.4%	35.0	158.8	9.1%	33.5
Carpool driver: drive with non-household passenger for 1+ legs	212.8	10.8%	44.9	189.5	10.9%	40.0
Time of Day‡						
AM peak (6 am–9:59 am)	693.0	35.2%	146.3	632.1	36.2%	133.5
Midday (10 am–2:59 pm)	310.3	15.8%	65.5	264.8	15.2%	55.9
PM peak (3 pm–6:59 pm)	690.4	35.1%	145.8	623.3	35.7%	131.6
Overnight (7 pm–6:59 am)	273.6	13.9%	57.8	226.2	13.0%	47.8

* *Based on total population of workers ages 18+.*

† *Excludes multimodal trips.*

‡ *Based on time of arrival at or departure from work anchor.*

Table 47. Work journeys by MPO tier (all days).

	Annual Total, Millions				Per Worker*			
	Tier 1	Tier 2	Tier 3	Tier 4	Tier 1	Tier 2	Tier 3	Tier 4
Total work journeys	1,119.8	299.3	194.5	353.7	409.4	403.5	410.0	450.7
Simple work journeys	845.1	229.8	148.7	266.6	309.0	309.7	313.6	339.8
Complex work journeys	274.6	69.6	45.7	87.1	100.4	93.8	96.4	111.0
Mode								
POV	1,010.9	284.9	189.7	339.1	369.6	384.1	399.9	432.1
Multimodal with POV	12.4	2.9	0.9	0.4	4.6	3.9	1.9	0.5
Other	96.5	11.3	3.9	14.3	35.3	15.2	8.2	18.2
Nonmotorized	28.9	7.2	2.1	7.1	10.6	9.7	4.4	9.1
Public transit or other bus/train	46.4	2.2	0.8	1.3	17.0	2.9	1.7	1.6
Other ground or water	10.5	1.8	0.5	5.6	3.8	2.4	1.1	7.1
Multimodal without POV or air	8.5	0.1	0.4		3.1	0.2	0.9	
Air or air multimodal	2.0			0.3	0.7			0.4
Driver Status (POV and Multimodal POV WJs)								
Driver for entire WJ	945.5	256.3	174.9	311.1	345.7	345.5	368.7	396.4
Driver for part of WJ	12.8	5.8	1.7	1.6	4.7	7.9	3.5	2.0
Passenger	67.0	25.6	14.1	27.0	24.5	34.6	29.7	34.5
Vehicle Occupancy Status (POV and Multimodal POV WJs)								
Drive alone entire WJ†	747.3	203.8	145.4	251.0	273.2	274.7	306.6	319.8
Family sharing: drive with household passenger for 1+ legs	89.8	24.8	16.2	34.8	32.8	33.5	34.2	44.4
Carpool driver: drive with non-household passenger for 1+ legs	127.7	36.6	16.6	32.0	46.7	49.3	34.9	40.7
Time of Day‡								
AM peak (6 am–9:59 am)	406.8	101.4	65.6	119.1	148.7	136.7	138.4	151.8
Midday (10 am–2:59 pm)	170.7	52.6	31.0	56.0	62.4	70.9	65.5	71.4
PM peak (3 pm–6:59 pm)	394.2	102.8	67.1	126.3	144.1	138.5	141.5	161.0
Overnight (7 pm–6:59 am)	148.2	42.5	30.7	52.2	54.2	57.3	64.7	66.6

* *Based on total population of workers ages 18+.*

† *Excludes multimodal trips.*

‡ *Based on time of arrival at or departure from work anchor.*

Table 48. Work journeys by MPO tier (weekdays only).

	Annual Total, Millions				Per Worker*			
	Tier 1	Tier 2	Tier 3	Tier 4	Tier 1	Tier 2	Tier 3	Tier 4
Total work journeys	1,019.5	254.8	159.1	313.0	372.8	343.5	335.4	398.8
Simple work journeys	765.1	191.9	119.4	235.6	279.7	258.7	251.6	300.2
Complex work journeys	254.4	62.9	39.7	77.4	93.0	84.8	83.7	98.7
Mode								
POV	919.9	243.8	154.5	300.3	336.3	328.7	325.7	382.6
Multimodal with POV	12.4	2.8	0.9	0.4	4.6	3.8	1.9	0.5
Other	87.2	7.9	3.7	12.4	31.9	10.6	7.8	15.8
Nonmotorized	28.9	4.3	1.9	7.1	10.6	5.8	4.0	9.1
Public transit or other bus/train	39.1	2.2	0.8	1.3	14.3	2.9	1.7	1.6
Other ground or water	9.6	1.3	0.5	3.6	3.5	1.7	1.1	4.6
Multimodal without POV or air	7.6	0.1	0.4		2.8	0.2	0.9	
Air or air multimodal	2.0		0.0	0.3	0.7			0.4
Driver Status (POV and Multimodal POV WJs)								
Driver for entire WJ	866.0	221.6	140.4	274.1	316.6	298.7	296.0	349.3
Driver for part of WJ	12.8	5.2	1.5	1.6	4.7	7.0	3.2	2.0
Passenger	55.5	19.9	13.5	25.2	20.3	26.9	28.4	32.1
Vehicle Occupancy Status (POV and Multimodal POV WJs)								
Drive alone entire WJ†	679.7	175.3	116.2	217.6	248.5	236.2	244.9	277.2
Family sharing: drive with household passenger for 1+ legs	86.6	22.9	14.4	34.8	31.7	30.8	30.4	44.4
Carpool driver: drive with non-household passenger for 1+ legs	117.8	31.1	12.2	28.4	43.1	42.0	25.7	36.2
Time of Day‡								
AM peak (6 am–9:59 am)	377.4	88.9	56.5	109.3	138.0	119.8	119.2	139.3
Midday (10 am–2:59 pm)	149.7	42.9	24.4	47.7	54.7	57.9	51.5	60.8
PM peak (3 pm–6:59 pm)	364.9	88.5	56.7	113.2	133.4	119.3	119.5	144.2
Overnight (7 pm–6:59 am)	127.5	34.5	21.4	42.8	46.6	46.5	45.2	54.5

* *Based on total population of workers ages 18+.*

† *Excludes multimodal trips.*

‡ *Based on time of arrival at or departure from work anchor.*

Table 49. Work journey mode, vehicle occupancy status, and time of day by MPO tier (percentages).

	All Days				Weekdays Only			
	Tier 1	Tier 2	Tier 3	Tier 4	Tier 1	Tier 2	Tier 3	Tier 4
Total work journeys (millions)	1,119.8	299.3	194.5	353.7	1,019.5	254.8	159.1	313.0
Simple work journeys	75.5%	76.8%	76.5%	75.4%	75.0%	75.3%	75.0%	75.3%
Complex work journeys	24.5%	23.2%	23.5%	24.6%	25.0%	24.7%	25.0%	24.7%
Mode								
POV	90.3%	95.2%	97.5%	95.9%	90.2%	95.7%	97.1%	95.9%
Multimodal with POV	1.1%	1.0%	0.5%	0.1%	1.2%	1.1%	0.6%	0.1%
Other	8.6%	3.8%	2.0%	4.0%	8.6%	3.1%	2.3%	4.0%
Nonmotorized	2.6%	2.4%	1.1%	2.0%	2.8%	1.7%	1.2%	2.3%
Public transit or other bus/train	4.1%	0.7%	0.4%	0.4%	3.8%	0.8%	0.5%	0.4%
Other ground or water	0.9%	0.6%	0.3%	1.6%	0.9%	0.5%	0.3%	1.2%
Multimodal without POV or air	0.8%		0.2%		0.7%	0.1%	0.3%	
Air or air multimodal	0.2%			0.1%	0.2%			0.1%
Driver Status (POV and Multimodal POV WJs)								
Driver for entire WJ	84.4%	85.6%	89.9%	87.9%	84.9%	87.0%	88.3%	87.6%
Driver for part of WJ	1.1%	2.0%	0.9%	0.5%	1.3%	2.0%	1.0%	0.5%
Passenger	6.0%	8.6%	7.2%	7.6%	5.4%	7.8%	8.5%	8.1%
Vehicle Occupancy Status (POV and Multimodal POV WJs)								
Drive alone entire WJ†	66.7%	68.1%	74.8%	71.0%	66.7%	68.8%	73.0%	69.5%
Family sharing: drive with household passenger for 1+ legs	8.0%	8.3%	8.3%	9.9%	8.5%	9.0%	9.1%	11.1%
Carpool driver: drive with non-household passenger for 1+ legs	11.4%	12.2%	8.5%	9.0%	11.5%	12.2%	7.7%	9.1%
Time of Day‡								
AM peak (6 am–9:59 am)	36.3%	33.9%	33.8%	33.7%	37.0%	34.9%	35.5%	34.9%
Midday (10 am–2:59 pm)	15.2%	17.6%	16.0%	15.8%	14.7%	16.8%	15.4%	15.3%
PM peak (3 pm–6:59 pm)	35.2%	34.3%	34.5%	35.7%	35.8%	34.7%	35.6%	36.2%
Overnight (7 pm–6:59 am)	13.2%	14.2%	15.8%	14.8%	12.5%	13.5%	13.5%	13.7%

† Excludes multimodal trips.

‡ Based on time of arrival at or departure from work anchor.

Work travel shares the roads (and sidewalks and rails) with nonwork travel. Figure 10 and figure 11 show the total number of trips and vehicle trips in progress at each hour of the day. A trip from 9:30–10:30 a.m., for example, would be in progress during both the 9:00–9:59 a.m. and the 10:00–10:59 a.m. periods. The figures show that commute trips dominate peak-hour travel while noncommute trips dominate mid-day trips.

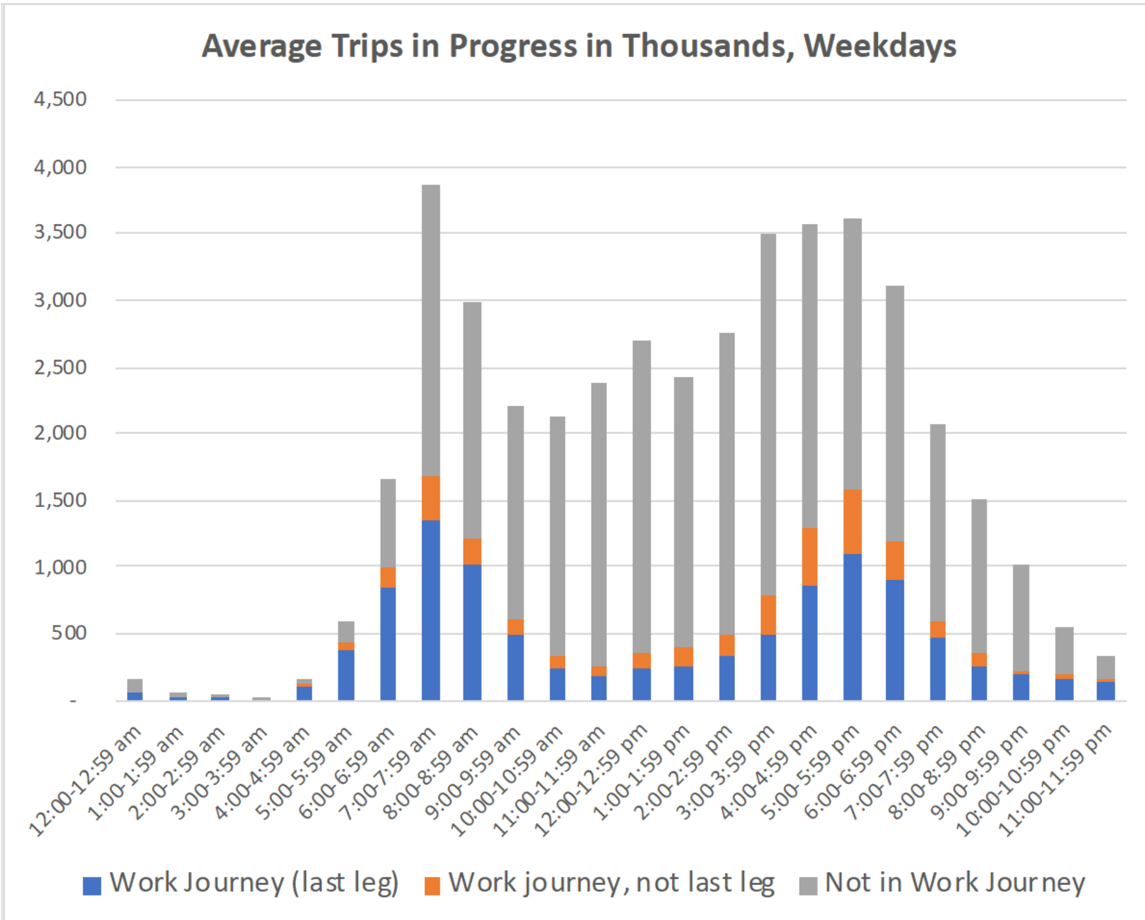

Figure 10. Stacked bar graph. Weekday trips in progress by time of day (all ages, weighted).

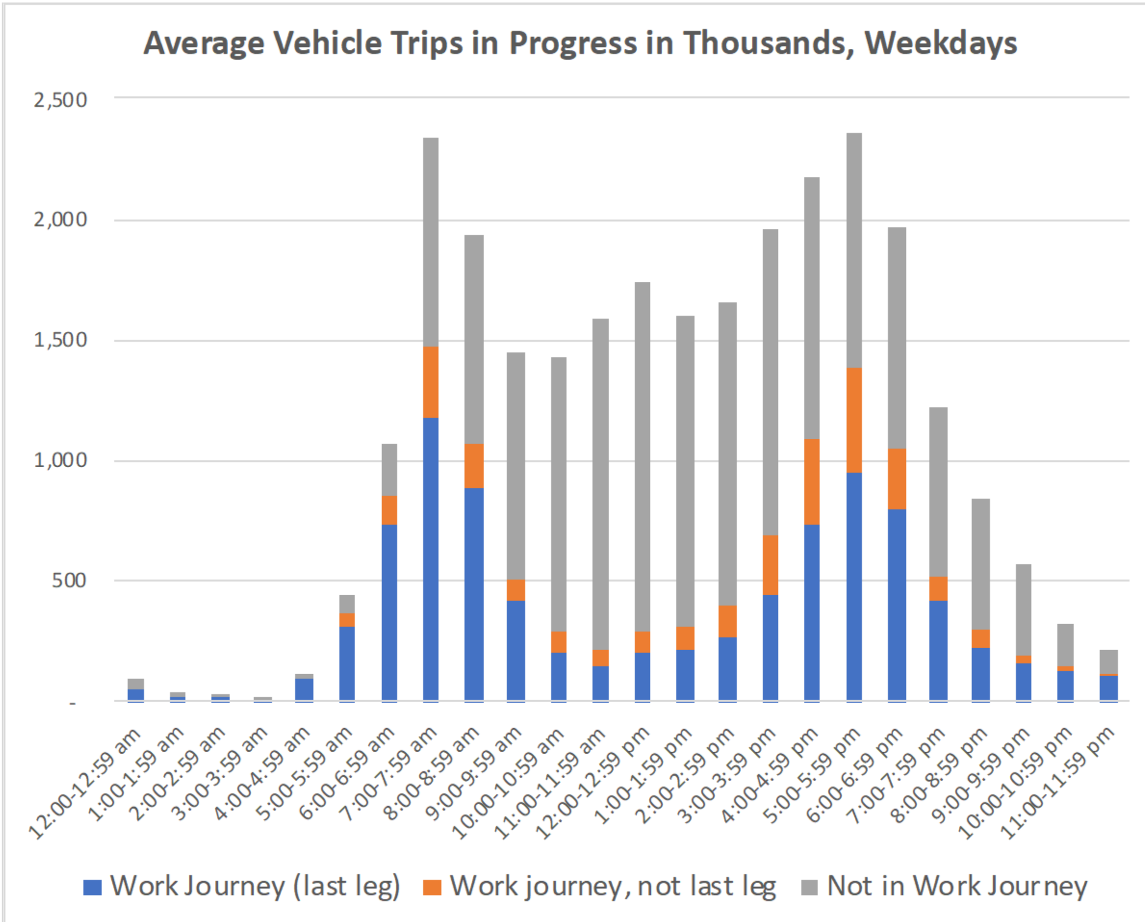

Figure 11. Stacked bar graph. Weekday vehicle trips in progress by time of day (weighted).

DEFINING THE COMMUTE

What is a commute? When the U.S. Department of Transportation (USDOT) began to conduct large national surveys with the 1969 Nationwide Personal Transportation Survey, the answer to this question may have seemed self-evident. More than 50 years later, American's journeys to and from work have become more complicated. An influx of women to the workforce and the growing dominance of the dual-worker family has increased the numbers of workers on the road; many working parents (especially mothers) incorporate dropping children off at school into their daily commute (Gimenez-Nadal and Molina 2016; McGuckin, Zmud, and Nakamoto 2005).

More people work multiple jobs, or balance employment and higher education (McFarland et al. 2019). Less-seismic shifts, such as the so-called "Starbucks effect," have added a morning coffee stop to many commutes (McGuckin, Zmud, and Nakamoto 2005).

These complex journeys to work, sometimes referred to as *chained* or *tour* commutes, have become more common over the past few decades (ibid.). Commute complexity has been analyzed in terms of mode choice, congestion, sustainability, and demographic differences such as gender (Concas and Winters 2007; McGuckin, Zmud, and Nakamoto 2005; Paleti, Bhat, and Pendyala 2013; Zhu et al. 2018).

As commuters' journeys to and from work become more complex, it is important to make sure that the tools used to measure work travel can provide accurate, meaningful data about work journeys that do not fit the traditional mold of a single, uninterrupted trip between the home and the workplace.

However, there is a lack of consensus on how to measure complex commutes. Researchers focusing on complexity often consider the full distance traveled between home and work (Paleti, Bhat, and Pendyala 2013; Zhu et al. 2018). The default measurement of work travel provided by the NHTS, in contrast, defines work travel based on the last trip in the chain (McGuckin and Fucci 2018). Researchers would benefit from having a more systematic measure of what portion of the travel *between* home and work should be considered work-related.

This section identifies some critical definitional and measurement issues associated with commute travel, especially for complex work journeys. It then compares different techniques for resolving these issues, and identifies best practices that will be incorporated into the analysis for the upcoming sections on Work Travel Distance and Work Travel Distance by Mode.

First, we consider the entire work journey, including all intermediate stops. We discuss the importance of defining commute anchors by both purpose and location, rather than just purpose (which is the default for NHTS). Having identified whole work journeys, we then compare two alternate measures for determining what portion of each journey should be counted as commute distance (measured in PMT): (1) using the last leg of the journey, the default method when analyzing the NHTS trip file; and (2) modeling a counterfactual simple commute to estimate the distance that would have been traveled had no stops been made.

Georgians make 2 billion journeys to work each year. As shown in figure 12, two thirds of these follow the pattern of a traditional commute: straight from the respondent's home location to the respondent's work location (or vice versa) with no stops in between.[37] The remaining work journeys include at least one intermediate stop, involve a work or home site that differs from the respondent's home or work address, or both.

[37] This figure does not include trips with the stated purpose of working from home.

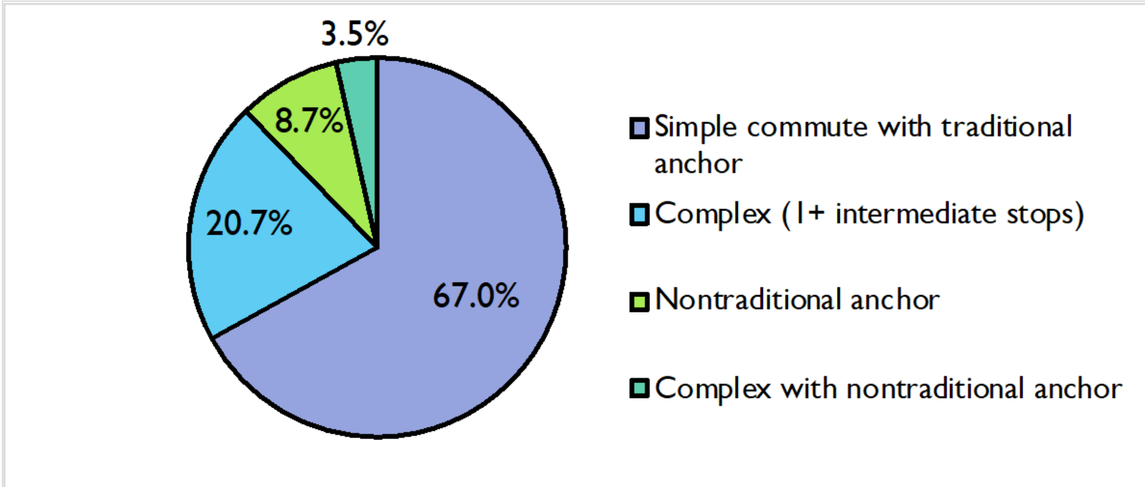

Figure 12. Pie chart. Proportions of traditional and nontraditional commutes in Georgia.

Given the complexity of Georgians' actual work-related travel, the first step in measuring commuting habits is defining what a commute is. If an office worker stops to shop for groceries and pick up a child on the way home from work, what portion of those trips should be considered part of the work commute? If a manager at a construction company travels from her home to a construction site where her employees are working and then proceeds to her company's central office, where did her commute end? If a teleworker goes to a coffee shop or a co-working space, is his trip a commute at all?

These philosophical issues are at the heart of two practical questions that must be answered in order to measure work travel. First, what destinations and purposes should count as "home" and "work" anchors for a commute? Second, when a work journey between a home and work anchor includes intermediate stops, what portion of this travel should be considered as part of the commute? We will argue that the NHTS's traditional answers to both these questions need to be adjusted to more accurately reflect the modern commute. We will first examine alternate methods of identifying the home and work anchors that begin or end a work journey. We will then compare methods for carving out the work-related portion of complex work journeys in order to define a commute.

Purpose-based and Place-based Anchors

Work journey anchors can be identified by type of activity at the location (trip purpose), by the type of location itself, or a combination of the two. A purpose-based approach to anchors has several advantages, including that it:

- Identifies commuting trips to conduct paid employment at locations that differ from the commuter's official work address. Since the NHTS limits each respondent to a single "work" location, this is especially important for people with more than one job or job site.
- Differentiates between a trip *to* work and a weekend trip to use the gym *at* work.
- Correctly identifies commutes by people who spent the night somewhere other than their address of record (e.g., someone working on extended assignment in another city, or those who spent the night with a romantic partner with whom they do not cohabitate full-time).

In short, considering purpose is important because people do not always work or sleep at their official work or home addresses, and some trips to the work address may be for nonwork purposes.

NHTS's method of identifying work trips is based entirely on purpose and *does not consider location*. The tours are also location-blind; a home–work tour is defined by a purpose of "regular home activities" at one end and a purpose of "work," not including working from home, at the other. This location-blind approach, which originated in an era of lower computer processing power, is an efficient way of capturing simple commutes. The approach will also capture most complex work journeys because they will all end, eventually, with a “work” or “home” purpose.[38]

However, by NHTS’s definition, a commute tour is considered to end at home only when the purpose of the final trip is “regular home activities” or “work from home (paid).” When any of several other activities that might take place at the home location (e.g., dropping off or picking up a family member, changing type of transportation, exercise) are conducted there, the location is not recognized as a “home” anchor, and trips following a stop at home for such purposes will be included as part of the tour. Consider the following series of four trips:

Home → Work → Transport Someone → Transport Someone → Home

This sequence of trip purposes can describe multiple scenarios (figure 13):

I. A father went to work and picked up his children from school and daycare on the way home.
II. A father went to work, drove straight home to pick up his daughter and took her to karate class before returning home himself.

In scenario I, the commuter makes one simple work journey and one complex work journey. In scenario II, he makes two simple work journeys, followed by additional trips that are unrelated to

[38] NHTS tours also consider nonwork, nonhome stops to be anchors if they are longer than 30 minutes. However, these can simply be joined back together (i.e., a Home–Other + Other–Work tour constitutes a Home–Work work journey).

work travel. However, a location-blind method cannot distinguish between scenarios I and II. The father's first stop at home in case II would not register as a "home" trip because the purpose was not "regular home activities"; it was to pick up his daughter and transport her somewhere else. Those nonwork trips would erroneously be considered part of his commute.

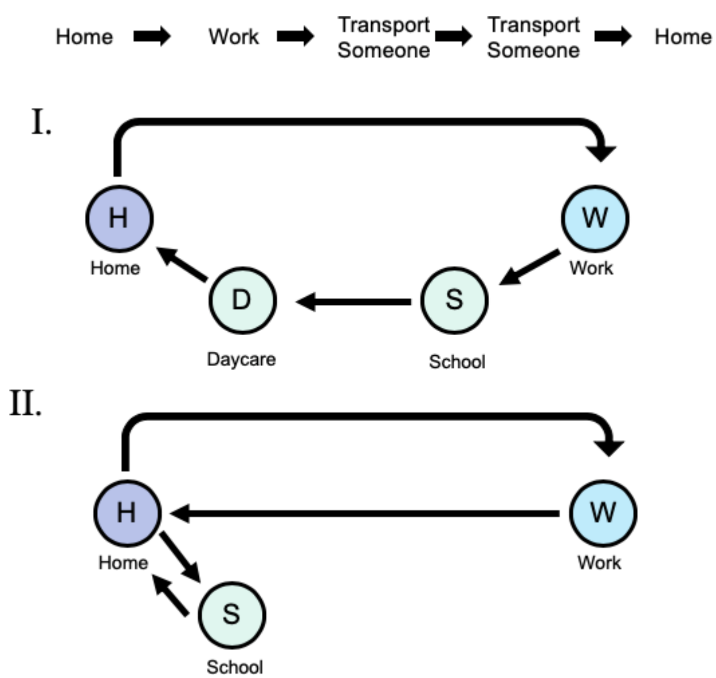

Figure 13. Diagram. Trip sequence with multiple potential commute patterns.

A location-blind approach also makes it difficult to distinguish a trip to the gym on the way to work (a complex work journey) from a walk around the block followed by a drive to work (a simple work journey), since both initial trips depart from home and have a purpose of "fitness." Similarly, a walk to happy hour with coworkers at the end of the work day, followed by a return to the office to change mode of transportation (i.e., pick up the car), would register the two walk trips as part of a complex commute, whether or not the person made further stops on the way home. Conversely, stopping on the way home from work to do housework for an elderly relative would register as a “home” anchor because chores are a regular home activity. The internal stop at a relative’s house would incorrectly be identified as the end of the work journey.

To avoid these errors, the most effective definition of work journey anchors should consider both purpose and place. Unfortunately, the *public use* NHTS dataset does not contain any variables that would allow researchers to incorporate location into work journey identification. We are able to correct for this problem by using variables from the *confidential* version of the data made available to GDOT (and thence to us) by virtue of its commissioning the add-on sample. Analysts using the public-use version would not be able to incorporate location into their definition of anchors; however, the proposed method does not require identifiable data such as specific GIS coordinates. Thus, the anonymized location *categories* (i.e., “home,” “work,” and “other”) and ID numbers used could arguably be released publicly without imperiling confidentiality; doing so would make the public-use dataset more powerful for researchers who are not able to access the confidential data.

Measuring Complex Commutes: The Last-leg and Counterfactual Methods

Once full work journeys are identified, it is necessary to identify which portions of those observed work journeys are considered commutes. If a commuter stops for gas at a filling station that does not require deviation from the shortest route between home and work, it may be best to consider the entire work journey to be the commute. If, in contrast, a commuter goes to night classes at a university in a nearby city after work, less of the distance traveled from workplace to home is actually related to the commute. Methodologically, a uniform rule is needed that can accommodate different scenarios such as these.

Figure 14 shows an example of an observed work journey and two methods of extracting the "real" commute from the larger work journey. In the NHTS data, the most obvious way to apportion work travel is to analyze commutes at the trip level. This report refers to this as the "last-leg" method, because work trips in the trip file are the last leg of the work journey.[39]

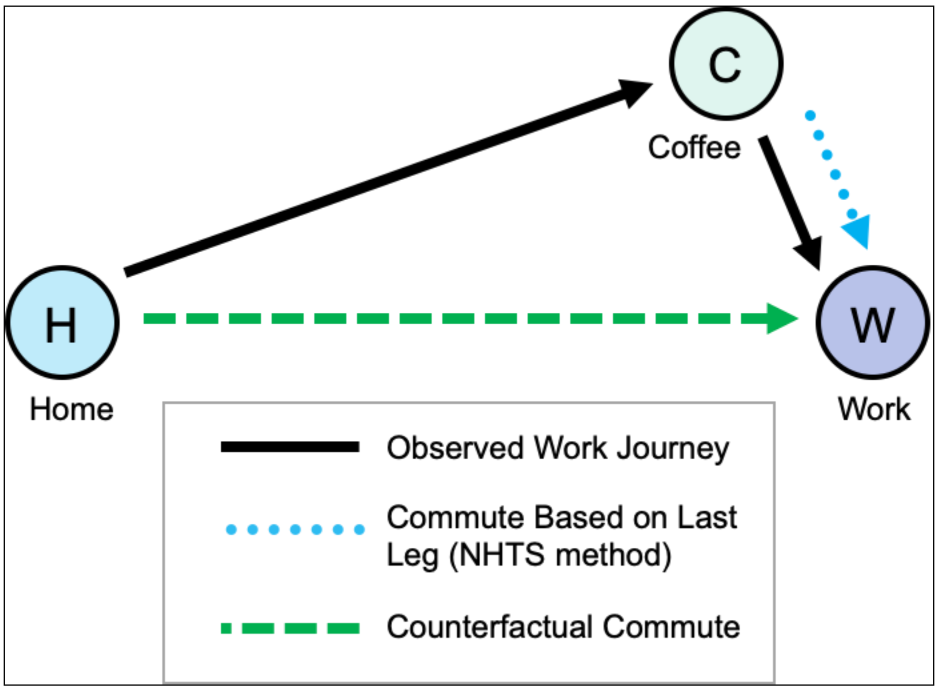

Figure 14. Diagram. Alternate methods for identifying commutes within complex work journeys.

In this example, the commuter has stopped for coffee on the way to her office. The coffee shop is very close to her workplace. As a result, the last-leg method (dotted line) identifies a commute that is much shorter than the distance between home and work. This is a key shortcoming of the last-leg method.

[39] NHTS classifies trips based on purpose at destination, so even when just using the "last-leg" method, commute trips in the "home" direction need to be identified based on the trips that preceded them.

An alternate method is to identify the commute based on a counterfactual work journey: how long *would the trip have been* if the commuter had proceeded directly from home to work (dashed line)? Using the counterfactual distance as the commute distance gives a more accurate picture of what portion of the work journey is work-related, and how much distance was added by the additional stops.

The ideal method of computing the counterfactual distance would be to use the same process the NHTS uses to calculate the distance of reported trips: calculate the shortest-path distance using the Google application programming interface (API). However, this solution is impractical for several reasons. To begin with, it requires exact coordinates of all travel locations, which are unavailable to users of the public dataset. Second, the Google API only provides estimates for current or future conditions; no functionality exists to calculate what conditions were like when the data were collected in 2017.

Many commuters make a simple work journey in one direction and a complex work journey in the other. In these cases, the observed simple commute can be used as a counterfactual for a complex commute between the same two anchors. However, for commuters who made no simple work journeys, no obvious counterfactual is available.[40] As will be described, this study imputes counterfactuals for these commutes by first modeling commute distance for cases where an

[40] NHTS contains a "distance to work" variable, but even when considering only simple commutes between the home location and the normal work location, the "distance to work" variable differed from the observed commute distance by at least 0.2 mile in 34.9 percent of cases (unweighted, N=6,881). In 1 percent of these cases, the difference was 4.3 miles or greater, and the largest observed discrepancy was 111.6 miles. It is likely that the issue is due in part to the fact that distance to work was calculated based on an address provided during an earlier stage of the survey than the travel diary, sometimes by a different person than provided the trip information. In addition, some respondents may have listed the "home office" or human resources (HR) address rather than their actual work site. For these reasons, the distance to work variable is of limited utility as a measure of counterfactual commutes.

observed counterfactual is available, and then using that model to predict the distance for cases where it is not available.

Methods for Definition and Measurement of Commutes

The identification of commutes, and measurement of their key characteristics, was completed through the following steps:

1. Identify valid anchors.
2. Use anchors to group travel day trips into journeys.
3. Validate work journeys by classifying all journeys as either "work" or "other".
4. Calculate distances and times at the work journey level, and identify modes and stop characteristics.
5. Identify potential counterfactual commutes for complex commutes.
6. For complex work journeys with an observed counterfactual, use weighted ordinary least squares (OLS) regression to model the "complexity increment," or the incremental contribution of internal stops to the total work journey PMT.
7. For complex work journeys with no observed counterfactual available, use the model of complexity increments to impute counterfactual distances for unmatched complex work journeys.
8. Use observed and predicted complexity increments to calculate a work journey's commute PMT.

Identifying Anchors

The travel day origin site and all destinations were evaluated for their potential to be anchors to a work journey based on their purpose and location. The purpose of a *location* was defined as the primary activity conducted there, either as the origin of the first trip of the day, or as a destination otherwise.[41]

Location was analyzed using two variables from the confidential dataset. Location *type* classifies all places as home, work, school, or other (regardless of purposes at those locations). For this analysis, school and other were combined into a single category, "other." Location *number* is a unique identifier for each location visited by a household member on the travel day. Location number was used to resolve ambiguities and questions (such as home activity at a nonhome location), and to screen out journey-level loops. Neither of these variables contain any geographic identifiers that would pose a risk to participant confidentiality if released publicly.

Table 50 shows the criteria used in this study to define anchors. In contrast to the current NHTS approach, the home location was always considered to be a home anchor, regardless of trip purpose. This includes a number of trips where respondents, perhaps mistakenly, recorded their purpose at the home location to be "work for pay" rather than "work from home (paid)."[42] The NHTS considers the former purpose (but not the latter) to signify the occurrence of a commute tour, so if using only the purpose indicator, this would cause the home to be mislabeled as a "work" destination. This error is especially important to correct because it tends to create

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[41] From a data management standpoint, it is important to remember that NHTS's file is organized by trips rather than locations. Each trip involves two locations (an origin and a destination). The destination of one trip is the origin of the next. Because the last destination at the end of the day does not form the start of a new trip, the number of locations is one greater than the number of trips. In the data, each location (except the start and end points for the day) will be listed twice in the trip-file: first as the destination of one trip, and then as the origin of the subsequent trip. Using destination characteristics will yield the needed data about all locations except the location where the traveler started the day.

[42] It is possible that some respondents were reporting working from a separate office at their home address, such as a therapist or accountant with an office having its own separate entrance. A smaller number of respondents reported "working from home" at their work location; these were recoded as simply "work."

imaginary commutes if a person leaves home with an origin purpose of "home activities," and then returns home to an erroneously tagged "work" destination.

Except for home, this report considers any destination with a *purpose* of work to be a work anchor, regardless of location. We include "other" location types in this rule because each participant was limited to providing a single work address. This does not match the reality of multiple jobs or job sites; 16 percent of work activity occurred at locations categorized as "other."

Table 50. Initial anchor classifications based on location and primary activity at location.

		PRIMARY ACTIVITY		
		Regular Home Activities	Work for Pay	Other Purpose*
LOCATION TYPE	Home	Home	Home	Home
	Work	Provisional Work	Work	Provisional Work
	Other	Provisional Home	Work	Not an Anchor

* *Including work from home (paid). In only 25 cases out of nearly 60,000, participants reported working from home at a location other than home or work.*

The research team identified two types of provisional anchors (i.e., destinations that needed further examination to determine whether or not they were anchors). *Provisional home anchors* consisted of home activity at a nonhome location; these locations could reflect either a situation such as spending the night at a friend's home or hotel (making the location a legitimate, albeit temporary, home anchor), or one such as helping with housework at another person's home (for which the location would not be a home anchor). In a second pass through the data, provisional home anchors were considered anchors if either of the following two criteria were true: (1) the traveler began or ended the day at that location, or (2) the traveler never visited the "home" location on the travel day. Trips made to a validated provisional home destination were included whether or not that trip specifically was the first or last trip of the day. Provisional home anchors that did not meet either criterion were reclassified as non-anchors.

Provisional work anchors were identified when nonwork purposes occurred at the work location, addressing situations as shown in figure 15. In the example in the figure, the traveler went out for dinner after work, then returned to the office to pick up her car. Trip 3 ends at a provisional work anchor. If the provisional anchor is not identified, the work journey home would appear to include trips 2, 3, and 4, whereas just considering trip 4 to be a simple work journey might be more appropriate. Since the validity of a provisional work anchor depends on the sequence of trips before and after it, these provisional anchors were evaluated during the validation of work journeys.

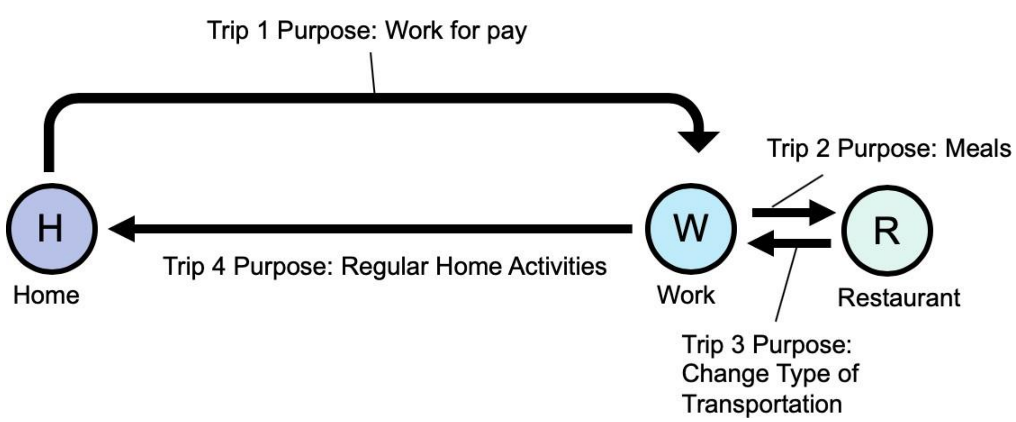

Figure 15. Diagram. Sequence of trips including a provisional work anchor.

Defining Work Journeys

The itineraries of respondents with at least one valid work anchor and one valid home anchor on the travel day were evaluated for the presence of work journeys. The process began by dividing all of the day's trips into journeys, with a new journey beginning each time an anchor was encountered. Figure 16 shows several hypothetical sequences of trips and how they would be parsed as journeys and work journeys.

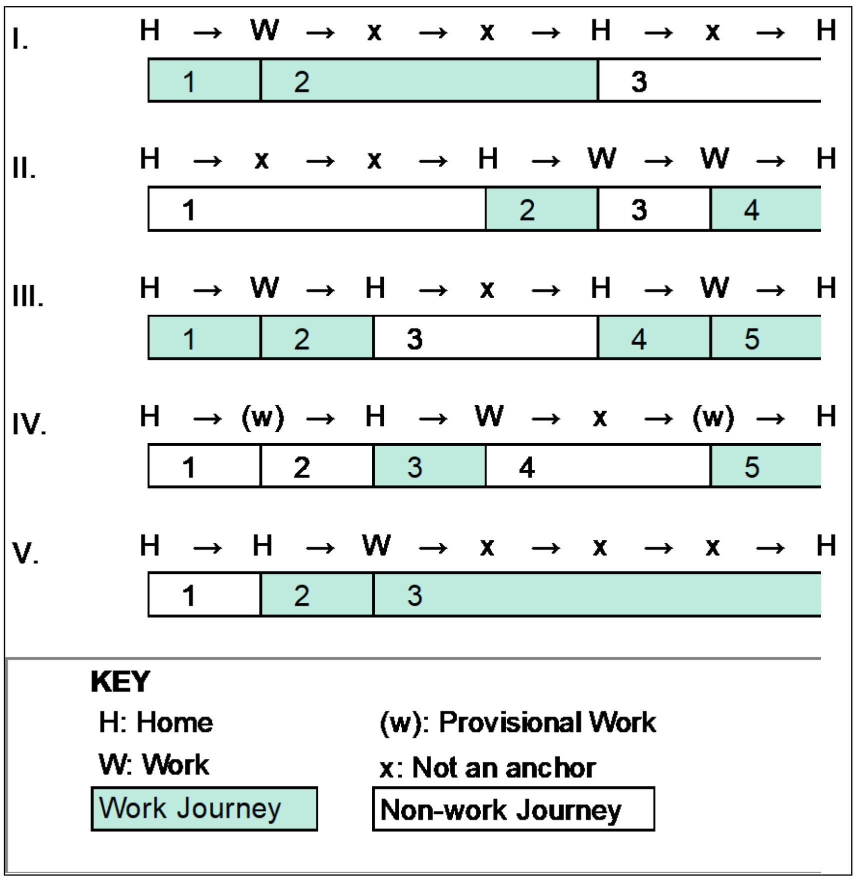

Figure 16. Diagram. Example work journey classifications of trip sequences.

As scenarios I and II show, H→W and W→H journeys were considered work journeys regardless of how many non-anchor destinations were visited over the course of the journey or the duration of those non-anchor stops. H→H and W→W journeys were discarded.[43] Some respondents had more than two work journeys (scenario III). Scenario IV illustrates how provisional work anchors (involving nonwork activity at a work location) were evaluated. The first provisional anchor is not considered part of a work journey because the preceding and following anchors are both home; the traveler was *at* the work location, but *only* there for nonwork activities. The second provisional anchor is considered a work anchor because it follows a definitive work anchor (and thus is a return to the workplace after a "side trip") and precedes a home anchor.

Many commuters made fitness walks at the beginning of the travel day like the one illustrated in scenario V. In the NHTS's location-blind tour file, these loop trips were inappropriately classified as part of the H→W journey.

As table 51 shows, 55 percent of complex work journeys in Georgia involved a single, short stop. The most common purposes were shopping/errands, transporting someone, and dining. Social, recreational, and work-related stops had much longer internal dwell times. As we will see, these longer dwell times were associated with larger complexity increments than stops with shorter dwell times, with the exception of stops to transport someone else.

[43] W→W journeys might have the same beginning and ending destination, such as if the participant went out for a quick afternoon coffee. A W→W journey might also be between two different locations at which the participant worked for pay. Both types of W→W journeys were treated the same when classifying them, and neither are considered to constitute part of a commute. This classification has one potential limitation with respect to multiple job-holders: if the two ends of a W→W journey were jobs with two *different* employers, it might be more accurate to consider that journey part of the participant's commute. Unfortunately, the NHTS does not contain enough detail to differentiate a journey between two locations associated with a single job from a journey between a first and second job.

Table 51. Duration and purposes of stops in work journeys.

Stop Categories	Percent of all WJs (N=10,490)	Percent of Complex WJs (N=2,618)	Mean Internal Dwell Time (Minutes)*
Itinerary (Number and Duration of Stops)			
No stops (simple)	75.8%	–	0.0
Single short stop (<30 min)	13.3%	54.7%	9.3
Single long stop (30+ min)	5.0%	20.5%	97.7
Multiple short	2.5%	10.5%	18.9
Short + long or multiple long	3.5%	14.4%	132.5
Total	100.0%	100.0%	46.1
Purpose of Stop(s)†			
Shopping/errands	10.7%	44.3%	22.0
Transport someone	6.9%	28.3%	9.2
Dining	5.0%	20.6%	26.4
Social/recreational/fitness	2.6%	10.8%	85.9
Work-related	0.7%	3.0%	81.4
Other	3.3%	13.7%	85.9
Multiple purposes	3.9%	16.3%	

* *For itineraries, total dwell time of all internal stops is shown. For the purpose of this report, dwell time shown is the average for a single stop of that type. If a journey contained two 10-minute stops for shopping, the stops would be counted separately rather than as a single, 20-minute stop.*

† *Work journeys with stops for multiple purposes are listed under "Multiple purposes" and also under each relevant individual purpose.*

Identifying Counterfactuals and Complexity Increments

Once work journeys were identified, journey-level statistics were calculated based on the trips included in each journey. These include work journey–level mode(s); total PMT and VMT; the number, duration, and purpose of stops; and total travel time and internal dwell time (duration of all stops).

For complex work journeys, the data were examined for the presence of a trip that could serve as an observed counterfactual, which is defined as a simple work journey made by the participant between the same origin–destination pair[44] at some other point on the travel day. As shown in table 52, matches were identified for 60.5 percent of complex work journeys. Same-direction matches were used where available, but in most cases, the matched simple work journey was in the opposite direction as the complex work journey (e.g., a commuter's evening journey from work that includes a stop is matched with the simple morning journey to work). These matched complex work journeys were used to build a model to predict a counterfactual for the 37.5 percent of unmatched complex work journeys where no observed counterfactual was available.

Table 52. Counterfactual match status of complex work journeys in sample.

Category	Number of Cases (Unweighted)	Percent
Total complex work journeys	2,618	
Matched with opposite-direction simple commute	1,484	56.7%
Matched with same-direction simple commute	101	3.9%
No observed counterfactual	983	37.5%
Excluded from analysis*	50	1.9%

** Reasons for exclusion: supercommute >100 mi (N=35), invalid distance provided (N = 10), commute includes air travel (N = 5).*

The weighted median distance of the complex work journeys was 16.2 miles and the 95th percentile was 52.6 miles. The small number of work journeys longer than 100 miles was found to exert a disproportionate influence in the model; we therefore excluded them to provide more accurate estimates for shorter work journeys.

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[44] Location numbers were used in matching to avoid errors when matching trips of respondents with multiple home or work locations.

Conceptually, we define a *complexity increment* as the incremental distance contributed by the internal stops in a complex work journey (compared to the mileage of a simple commute with the same origin and destination). Mathematically, the complexity increment for a complex work journey that has been matched with an observed counterfactual is the observed total PMT for the complex work journey minus the observed PMT for its simple counterfactual. For the set of matched cases, the weighted median complexity increment was 1.9 miles. The mean was 4.8 miles, with a maximum of 79.7 miles.

For some work journeys, the added stops did not add miles; in 3.8 percent of cases, the complexity increment was zero or near-zero.[45] In 7.8 percent of cases, the complexity increment was below zero. This is likely due to the fact that the recorded distances calculated by the Google API optimize for shortest travel *time* rather than distance, and thus recorded distances (in particular, those for the simple commutes being used for the counterfactual match) tend to favor highways over surface streets. If an added stop causes the commuter to use local roads instead of a more circuitous highway, the stop may actually reduce the *mileage* of the work journey compared to its simple commute counterfactual, such as the example in figure 17.[46]

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[45] The distances for the two directions can vary due to one-way roads, traffic conditions at the time the Google API was queried, etc. To decide what constitutes “near-zero”, the researchers compared opposite-direction matched *simple* commutes from participants *with no complex work journeys*. This report defines near-zero as a complexity increment with an absolute value of less than 0.2 mile.

[46] The median negative complexity increment was −0.85 miles, the 95th percentile was −4.3 miles, and the longest was −8.9 miles. Negative complexity increments were most commonly found in Atlanta, which has a complex highway network, and in smaller cities with rivers running through the downtown (e.g., Macon, Columbus, and Albany).

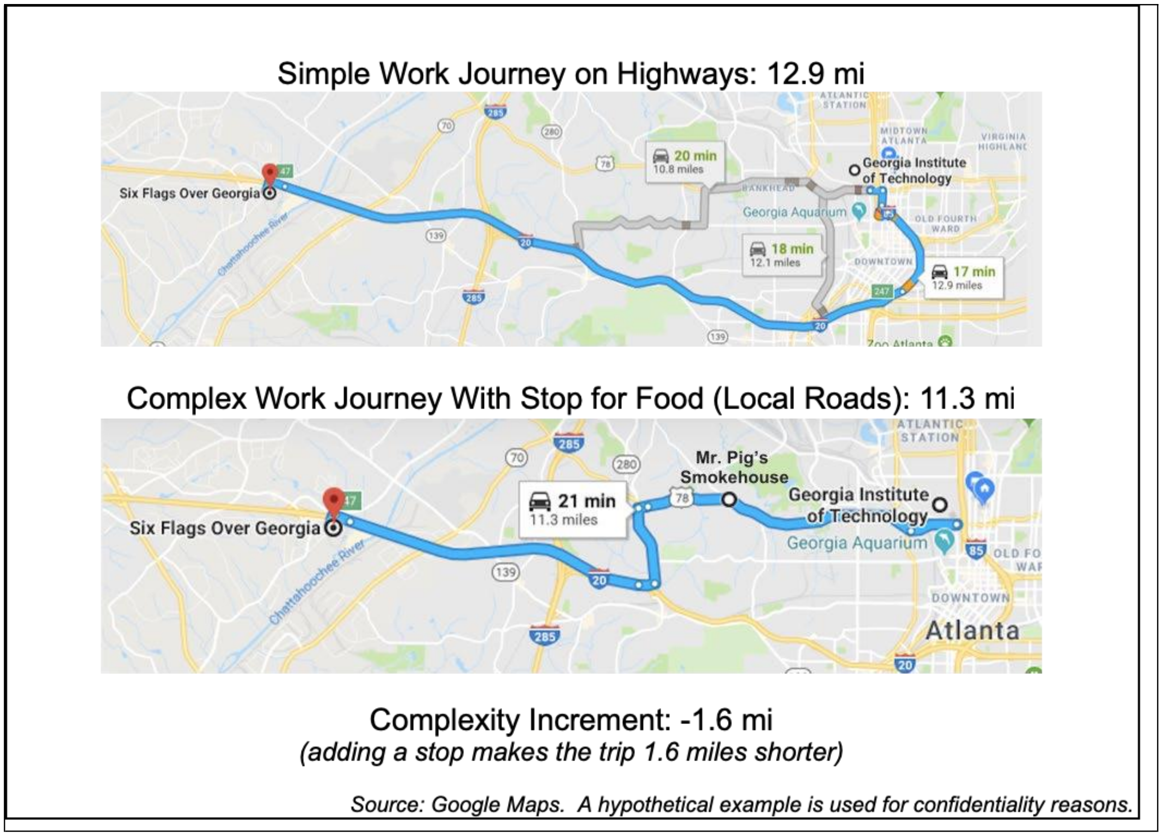

Figure 17. Maps. Example journey with a negative complexity increment.

Using weighted OLS regression on the complex work journeys for which an observed counterfactual was available, the research team modeled the *complexity increment* as a function of the distance of the observed complex work journey, stops made, and other sociodemographic variables. The fitted model was then used to predict complexity increments for the unmatched complex work journeys (i.e., those with no observed counterfactual).

Complexity increments are a measure of *change*; the results of the model tell how many miles stops of various types and lengths would be expected to add to (or sometimes subtract from[47]) a

[47] For unmatched complex work journeys, the predicted complexity increment was near-zero but negative in 1.4 percent of cases, and nonnegligibly negative in 9.0 percent of cases (unweighted).

commute. These data can be used to examine issues like how total commute PMT might change if complex commutes became more common (i.e., replacing some simple commutes with complex commutes).

The model also allows for prediction of the *counterfactual (simple) work journey* distance for unmatched work journeys, defined as complex work journey PMT minus the complexity increment. This reveals how long these commutes would have been without internal stops.

The next step is to calculate the *commute* portion of total *observed* PMT for complex work journeys. Initially we computed this as the observed (where available) or predicted counterfactual distance. However, the *commute PMT* represents the *actual* mileage traveled by the worker that should be attributed to his or her commute. Therefore, the commute PMT is capped at 100 percent of observed work journey PMT. This cap accounts for the minority of cases with a negative complexity increment, making sure that more miles are not allocated to a worker's commute than that worker actually traveled.

The next section presents the results of these estimations and compares them with the results obtained from looking at the entire work journey and using the last-leg method.

Results

Model of Complexity Increments

Table 53 shows the complexity increment distance (in miles) of matched commutes as a function of trip distance, stops, and demographic and environmental information.[48]

The full model explains more than half the variation in complexity increments. Most of this explanatory power comes from characteristics of the work journey itself: a model based only on distance and stops has an R^2 of 0.486; the addition of demographic variables results in a final R^2 of 0.544.

Longer observed work journeys are associated with larger complexity increments; these effects differ between rural and nonrural areas. A stop of any length adds to the complexity increment, but stops of a longer duration are associated with larger increases. Stops to transport someone, which tend to be relatively brief, exert an outsized effect on the complexity increment given their duration. Demographic variables such as gender, age, income, and vehicle ownership are also significant. Mode was insignificant, perhaps due to the high private auto mode share.

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[48] Mode is included in the model, but was not found to be significant either in the single category of "alternate mode" shown here or in more disaggregated forms. This may be because 97 percent of complex work journeys were entirely or partially by personal vehicle.

Table 53. Weighted OLS model of work journey complexity increment distance in miles.

	Full Model		Trip Characteristics Only Model	
Covariate	**Coef**	**P-Value**	**Coef**	**P-Value**
WJ PMT	-0.0673	0.372	0.0198	0.855
WJ PMT^2	0.00674	<0.001 ***	0.00432	0.060 *
Interaction: rural x WJ PMT†	0.175	0.016 **		
Interaction: rural x WJ PMT^2	-0.00615	0.005 ***		
WJ internal dwelltime, minutes	0.0174	0.013 **	0.0207	0.015 **
Number of stops by duration				
Short (<30 minutes)	1.349	<0.001 ***	1.238	<0.001 ***
Medium (30–59 minutes)	2.460	<0.001 ***	2.358	<0.001 ***
Long (60+ minutes)	3.451	<0.001 ***	3.516	0.001 ***
Purpose: transport someone (yes/no)	2.889	<0.001 ***	2.923	<0.001 ***
Alternate mode used for part or all of trip‡	-0.422	0.795		
Household size & vehicle sufficiency (Reference: 1-driver, 1-vehicle households)				
Vehicle-sufficient§ with 2+ drivers	-2.262	<0.001 ***		
Vehicle-deficit‖ or zero-vehicle	-1.557	0.046 **		
Female	-0.993	0.023 **		
Age	-0.271	0.009 ***		
Age^2	0.00290	0.010 **		
Household income (reference: <$35,000)				
$35,000–$49,999	-0.885	0.119		
$50,000–$74.999	0.938	0.101		
$75,000–$99,999	1.238	0.148		
$100,000+	2.190	0.004 ***		
Income missing (dummy variable)	1.176	0.200		
Constant	5.582	0.015 **	-2.042	0.036
Model R^2	0.544		0.486	

† Rural is defined by urbanicity of participant's home address rather than census designation.

‡ Defined as any mode besides personal occupancy vehicle.

§ Vehicle-sufficient is defined as having a number of vehicles equal to or greater than the number of household members ages 16+.

‖ Vehicle-deficit is defined as having at least one vehicle, but fewer vehicles than household members ages 16+.

Table 54 shows predicted complexity increments based on the most common itineraries and average work journey distance. The *average* predicted complexity increment is 5 miles; the median is 3.5 miles. Trips with a single short stop, the most common type of trip, have a predicted complexity increment of 3.2 miles. A single long stop, on average, is associated with a complexity increment of 7.4 miles.

Table 54. Predicted complexity increments.

	Mean Predicted Complexity Increment (miles)	Percent of Complex Work Journeys (N=2,568)
Average total predicted complexity increment*	5.01	
Complexity Increments for Example Itineraries		
Single short stop	3.22	54.7%
Single medium stop	4.86	8.3%
Single long stop	7.37	12.2%
Two short stops	4.73	8.7%
Three short stops	6.23	1.4%
Short stop + medium stop	6.36	3.4%
Short stop + long stop	8.87	3.2%
Medium stop + long stop	10.50	1.0%

** The figure here is the average for all complex WJs under 100 miles in the NHTS GA sample, including WJs with negative complexity increments. For consistency, in this table, predicted values are used for both matched and unmatched WJs. This is different from table 55, where predicted values are used for unmatched WJs and observed values are used for matched WJs.*

Complex Commute Distance

Having discussed how internal stops change commute distance, we now estimate the share of total observed work journey PMT that pertains to the commute (i.e., commute PMT), and compare the estimates with those obtained by the last-leg method, and with total observed work journey PMT (table 55). The average complex work journey is 19.4 miles. Among complex commutes, the average distance assigned to the commute purpose, based on the counterfactual approach (i.e., subtracting the predicted complexity increment from the complex work journey length, where observed counterfactuals are not available), is 14.3 miles. When using the last-leg method, the average distance assigned to the commute purpose would be just 8.8 miles. Across all complex work journeys, about three quarters of the total journey PMT is allocated to the commute under the counterfactual approach, compared to only about two fifths under the last-leg approach. Of course, since 76 percent of work journeys are simple, the differences between the two methods diminish when taking both simple and complex work journeys into consideration. In that case, the commute purpose accounts for more than 90 percent of the distance using the counterfactual method, or more than 80 percent using the last-leg method. Even so, the differences between the two methods remain nontrivial.

Table 55. Comparison between full work journey, counterfactual, and last-leg commute measurements.

WJ Length Category	Percent of Complex WJs	Mean WJ PMT: Full WJ	Mean Commute PMT (Counterfactual Method)*	Mean Commute PMT (Last-Leg Method)†
All complex WJs		19.4	14.3 (73.9%)‡	8.8 (45.1%)
<5 mi	10.2%	3.4	2.3 (69.4%)	1.7 (49.7%)
5–9.99 mi	18.9%	7.5	5.6 (75.1%)	3.4 (45.3%)
10–24.99 mi	44.3%	16.7	12.8 (76.8%)	7.9 (47.1%)
25–49.99 mi	22.6%	33.9	25.9 (76.2%)	14.8 (43.7%)
50–74.99 mi	3.2%	58.0	35.8 (61.7%)	26.8 (46.2%)
75–99.99 mi	0.9%	84.3	43.4 (51.5%)	29.0 (34.4%)
All WJs (simple and complex)		14.8	13.6 (91.8%)	12.3 (82.7%)

* *Defined as the counterfactual (simple) WJ PMT, capped at 100% of observed (complex) WJ PMT. Observed counterfactuals are used where available. When there is no observed counterfactual, the counterfactual is calculated by subtracting the predicted complexity increment from the observed complex WJ PMT.*

† *Defined as the PMT of the final trip in a complex WJ. In a home-to-work WJ, the last leg is the trip that ends at a work anchor; in a work-to-home WJ, the final trip ends at a home anchor.*

‡ *Percent of average row-category WJ PMT in parentheses.*

At the state level, using the last-leg method would underestimate Georgia's commute PMT by 2.6 billion miles per year compared to using the counterfactual method, an amount that constitutes about 10 percent of the total commute PMT. As such, the counterfactual model is a clear improvement over the last-leg technique.

Summary of Methods Implications for Upcoming Report Sections

Which method of measuring work travel is preferable? This depends on the question to be answered. For example, when considering commute *burden* on individual travelers, using the full work journey is likely to be a better proxy for the full amount of travel required of each worker, particularly if the stops involved are household-serving travel such as dropping off children at school. Because women are disproportionately responsible for such trips, looking only at the commute portion of a complex work journey may understate the true toll of commutes that might otherwise appear short (Gimenez-Nadal and Molina 2016). However, this must be balanced with the fact that male commuters are more likely to make nonessential stops such as going for coffee (McGuckin, Zmud, and Nakamoto 2005), in which cases using the full work journey would arguably offer an *inflated* view of the commute burden.

For estimates of PMT and VMT generated by commuting, it might be preferable to isolate the portion of each work journey that should be considered work-related. For this purpose, the counterfactual method is a clear improvement over the last-leg method, which underestimates the true amount of work travel.

To provide data to answer a broad range of questions, this report uses several different measurements of commute distance and duration in its upcoming chapters. Henceforward, the definitions of the measurements are as follows:

- **Work journey PMT:** Full distance *traveled* by the commuter, including all stops.
- **Work journey VMT:** Full distance *driven* by the commuter over the course of the work journey, excluding miles as a passenger in a POV as well as miles traveled by walking, biking, and public transportation.

- **Work journey duration:** Travel time, in minutes, of the whole work journey (excluding dwell time for intermediate activities).
- **Commute PMT:** Work-related portion of the whole work journey, calculated using the counterfactual method as described in this section.
- **Commute VMT:** Work-related VMT of the whole work journey. Commute VMT will be scaled proportionally based on the ratio of commute PMT to whole work journey PMT. For example, if a commuter's commute PMT were 80 percent of the whole work journey PMT, the commute VMT would be considered to comprise 80 percent of the work journey VMT.
- **Commute duration:** Duration, in minutes, of the work-related portion of the whole work journey. Like commute VMT, commute duration will be scaled proportionally to work journey duration.[49]
- **Supercommute:** A work journey in excess of 100 miles. The data included 85 such commutes, or 0.8 percent of all work journeys. Six of these were by air. The ground-based supercommutes ranged between 100 and 447 miles. The longest of these are likely not daily commutes, but rather capture the small percent of the population that will be making longer work-related trips on any given day. Unless otherwise stated, to provide more representative estimates of "typical" work travel, supercommutes are excluded from the analysis. This report provides alternate estimates of total PMT and VMT (with and without the supercommutes). Note: Since commute PMT was not modeled for work

[49] Since traffic speeds may vary at different stages of the commute, this method for estimating commute travel time is likely somewhat noisier than the estimations of VMT. However, it will provide a better measure than other available alternatives, such as using the last-leg travel time.

journeys longer than 100 miles, for complex supercommutes, the commute PMT is defined as the full work journey PMT.

WORK TRAVEL DISTANCE

Table 56 compares workers' distance to work (i.e., the shortest-path distance between their home and work addresses) with the work journeys observed on the travel day. While "distance to work" has the advantage of having been asked of all workers, rather than just those who happened to travel to work on the day they filled out their diary, it is likely that some workers' reported work address does not match the location where they actually conduct their work (see Defining the Commute in this chapter for further discussion). While just 0.8 percent of observed work journeys exceeded 100 miles, 2.3 percent of workers listed a work address more than 100 miles from their home. The supercommutes implied by the "distance to work" variable are, on average, 142 miles longer than the observed travel day supercommutes. Even after excluding supercommutes, the mean distance to work still exceeds the mean commute PMT. For these reasons, the research team suggests caution when analyzing the reported distance to work, and focuses primarily on the observed travel day work journeys.

A few workers reported air as their usual commute mode (0.3 percent), or as their travel day mode (0.1 percent). Travel diary air commutes were nearly twice as long as the average distance to work of commuters who described air as their usual mode of travel, suggesting that the air work journeys reported in the travel diary data largely reflect unusual work travel (i.e., business trips). However, the unweighted sample sizes for both kinds of air commute are very small, and extreme caution should be used when interpreting these findings. Because it is an extreme outlier in terms of distance, air travel will be excluded from further analysis. Ground supercommutes will also be excluded unless otherwise stated.

Table 56. Distance to work, commute PMT, and work journey PMT.

	Workers*	Observed WJs†	
	Distance to Work	Commute PMT‡	Work Journey PMT
Median	11.3	10.3	11.3
95th percentile	46.2	38.5	42.4
Proportion of supercommutes (>100 miles)	2.3%	0.8%	0.8%
Mean Commute Distances			
All modes and distances	25.2	16.2	17.4
Regular commutes (<100 miles)	14.4	13.6	14.8
Supercommutes (>100 miles)	481.1	339.1	339.1
Terrestrial supercommutes§	599.8	191.1	191.1
Air supercommutes¶	660.0	1146.4	1146.4
Mean excluding air	23.5	14.8	16.0

* *This question was asked of all workers; only 6,978 out of 8,363 (unweighted) responded. Weighted N=3.98 million workers (out of a total population of 4.78 million workers).*

† *The sample included 10,463 work journeys made by 5,101 unique commuters (unweighted). Weighted N=1.96 billion WJs by 2.65 million active commuters (annually). Note: These figures should not be used to calculate per-worker rates. Rather, per-worker rates should be calculated using a denominator of all workers, including those who did not work on their travel day. As shown in table 46, Georgians make an average of 415 work journeys per worker annually.*

‡ *Since commute PMT was not calculated for complex work journeys greater than 100 miles, WJ PMT is used for 36 complex supercommutes.*

§ *Personal occupancy vehicle or other form of ground transportation. No commutes by boat were reported. Mode for the "distance to work" column is determined by the usual commute mode.*

¶ *There are an estimated 2.4 million work journeys by air each year and 12,500 regular air commuters (weighted). However, due to extremely low unweighted sample sizes (N=11 for distance to work and N=6 for observed WJs), these estimates should be treated with caution.*

Region

Table 57 shows average work journey and commute distances by MPO tier. Average commute distances are longest in the most and least populous areas of the state, averaging 15.5 miles for residents of non-MPO counties and 14.1 miles for residents of the Atlanta MPO. Commutes are noticeably shorter in small and medium MPO counties (10.9 and 11.2 miles, respectively). In all parts of the state, the average full work journey is 1.0–1.3 miles longer than the average commute.

Table 57. Average work journey and commute distance by MPO tier.

	Percent of WJs	Commute PMT	Commute VMT	WJ PMT	WJ VMT
Supercommutes Excluded* *(weighted N=1.94 billion WJs per year)*					
Statewide	100.0%	13.6	12.1	14.8	13.2
MPO Tier (Worker Residence)					
1. Atlanta MPO	57.1%	14.1	12.3	15.4	13.4
2. Medium MPOs	15.3%	11.2	10.0	12.4	11.1
3. Small MPOs	9.9%	10.9	10.1	11.9	11.1
4. Non-MPO	17.7%	15.5	14.7	16.7	15.8
Terrestrial Supercommutes Included† *(weighted N=1.96 billion WJs per year)*					
Statewide	100.0%	14.8	13.1	16.0	14.2
MPO Tier (Worker Residence)					
1. Atlanta MPO	57.0%	15.2	13.2	16.5	14.3
2. Medium MPOs	15.3%	12.1	10.9	13.3	12.0
3. Small MPOs	9.9%	12.2	11.3	13.2	12.3
4. Non-MPO	17.8%	17.1	15.9	18.2	17.0

* *A supercommute is a one-way work journey longer than 100 miles.*

† *Commutes by air excluded. No supercommutes by water were reported.*

The lengthier commutes in non-MPO areas reflect the lower employment prospects in more rural parts of the state. Whether by necessity or lifestyle choice, 22.9 percent of commutes by residents of non-MPO counties were to a job site in an MPO, requiring the commuter to travel to a different community. In comparison, only 16.2 percent of commutes by residents of small and medium MPOs involved travel to a different MPO or non-MPO county. While Atlanta MPO residents were the least likely to travel outside of their home MPO (2.3 percent of commutes), the PMT of commutes that stay entirely within the Atlanta MPO is higher than commute PMT for commutes within medium and small MPOs (13.4 miles versus 7.9 miles). As a result, average commute distances are longest in the Atlanta MPO.

Table 58 shows the percent of statewide work travel originating from residents of each MPO tier; table 59 shows the total miles on which table 58 is based. In keeping with the longer commutes, residents of non-MPO counties account for 16.7 percent of workers but 20.3 percent of commute PMT. Atlanta also accounts for a slightly disproportionate share of commute mileage, while small- and medium-MPO counties account for a smaller portion of commute mileage than they do of workers.

A comparison of PMT and VMT shows that Atlanta MPO residents, on average, spend a smaller portion of their commutes behind a steering wheel and a larger portion either as a passenger or using alternate modes of transportation. Residents of small-MPO and non-MPO counties spend a higher share of their commute travel driving. Residents of medium-MPO counties have identical shares of commute PMT and VMT, indicating that the average percent of commute mileage as a driver matches the state average.

Table 60 shows annual commute miles per worker. As with the average distance for an individual commute, per-worker mileage is higher in the Atlanta MPO and non-MPO counties than in small and medium MPOs. In non-MPO counties, the higher per-worker total is also influenced by the increased number of work trips per worker, increased levels of multiple job-holding, and a higher number of work trips by people who may be irregularly employed but are not classified as workers (see Overview of Work Journeys in this chapter).

Table 58. Percent of statewide work-related miles traveled by MPO tier.

	Commute PMT	Commute VMT	WJ PMT	WJ VMT	Percent of Workers
Supercommutes Excluded* *(weighted N=1.94 billion WJs per year)*					
Statewide miles (millions)	26,417	23,609	28,777	25,684	100%
MPO Tier					
1. Atlanta MPO	59.2%	57.7%	59.2%	57.8%	57.8%
2. Medium MPOs	12.6%	12.6%	12.8%	12.8%	15.5%
3. Small MPOs	7.9%	8.2%	8.0%	8.3%	10.1%
4. Non-MPO	20.3%	21.4%	20.0%	21.2%	16.7%
Terrestrial Supercommutes Included† *(weighted N=1.96 billion WJs per year)*					
Statewide	28,908	25,717	31,268	27,792	
MPO Tier					
1. Atlanta MPO	58.8%	57.3%	54.9%	57.4%	
2. Medium MPOs	12.5%	12.7%	11.8%	12.9%	
3. Small MPOs	8.2%	8.5%	7.4%	8.6%	
4. Non-MPO	20.5%	21.5%	17.6%	21.2%	

* *A supercommute is a one-way work journey longer than 100 miles.*

† *Commutes by air excluded. No supercommutes by water were reported.*

Table 59. Annual work-related PMT and VMT by MPO tier (millions of miles).

	Commute PMT	Commute VMT	WJ PMT	WJ VMT
Supercommutes Excluded* *(weighted N=1.94 billion WJs per year)*				
Statewide	26,417	23,609	28,777	25,684
MPO Tier (Worker Residence)				
1. Atlanta MPO	15,636	13,633	17,045	14,839
2. Medium MPOs	3,323	2,979	3,679	3,285
3. Small MPOs	2,097	1,942	2,295	2,127
4. Non-MPO	5,361	5,055	5,758	5,433
Terrestrial Supercommutes Included† *(weighted N=1.96 billion WJs per year)*				
Statewide	28,908	25,717	31,268	27,792
MPO Tier (Worker Residence)				
1. Atlanta MPO	16,987	14,736	17,180	15,942
2. Medium MPOs	3,621	3,271	3,696	3,576
3. Small MPOs	2,370	2,193	2,311	2,378
4. Non-MPO	5,930	5,517	5,514	5,896

** A supercommute is a one-way work journey longer than 100 miles.*

† Commutes by air excluded. No supercommutes by water were reported.

Table 60. Annual work-related PMT and VMT per worker by MPO tier (miles).

	Commute PMT	Commute VMT	WJ PMT	WJ VMT
Supercommutes Excluded* *(weighted N=1.94 billion WJs per year)*				
Statewide	5,578	4,985	6,076	5,423
MPO Tier (Worker Residence)				
1. Atlanta MPO	5,717	4,984	6,232	5,425
2. Medium MPOs	4,479	4,016	4,959	4,428
3. Small MPOs	4,421	4,094	4,840	4,484
4. Non-MPO	6,831	6,441	7,337	6,923
Terrestrial Supercommutes Included† *(weighted N=1.96 billion WJs per year)*				
Statewide	6,104	5,430	6,602	5,868
MPO Tier (Worker Residence)				
1. Atlanta MPO	6,211	5,388	6,281	5,829
2. Medium MPOs	4,882	4,409	4,983	4,821
3. Small MPOs	4,996	4,623	4,872	5,013
4. Non-MPO	7,556	7,031	7,027	7,513

** A supercommute is a one-way work journey longer than 100 miles.*

† Commutes by air excluded. No supercommutes by water were reported.

Peak, Off-peak, and Weekend Travel

As shown in table 61, 88.7 percent of work journeys and 88.2 percent of commute PMT and VMT occur on weekdays, and 66.6 percent of PMT occurs specifically during the weekday peak hours. The average commute PMT of off-peak weekday commutes is lower than the average weekday peak commute or weekend commute. This is especially true of mid-day commutes (10.9 miles, as compared to 14.2 miles for average weekday peak and average weekend).

NHTS does not factor in time of day when calculating trip distances, so the observed differences cannot be attributed to congestion.[50] They more likely relate to characteristics of the work or the workers. White-collar workers (clerical/administrative and professional/managerial/technical sectors) make 72.1 percent of their commutes during weekday peak hours, versus 63.4 percent of commutes by blue-collar workers and just 47.4 percent of commutes by service-sector workers (not tabulated). In addition to requiring more off-peak commuting than white-collar jobs, service jobs tend to be more geographically dispersed. Further, service-sector salaries are often lower, and low-income job seekers sometimes have a smaller job search radius due to transportation challenges (Blumenberg and Pierce 2014, Shen and Sanchez 2005).[51]

Parenthood may be an additional contributor to shorter midday commutes. Heterosexual couples have been found to make career and housing decisions that allow one parent (usually the mother) to work close to home in order to be able to pick up children after school (Jun and Kwon 2015, McQuaid and Chen 2012, Craig and van Tienoven 2019). Relatedly, an off-peak commute is

[50] Congestion may, in fact, create differences in the distance of peak versus off-peak commutes, but NHTS does not provide data appropriate for examining the issue.

[51] See also table 63.

more likely to reflect part-time work, and part-time workers' commutes tend to be shorter than those of full-time workers.

Table 62 shows peak and nonpeak work travel miles by MPO tier. The proportion of commute miles that occurs during weekday peak hours is highest in the Atlanta MPO, which also has the highest proportion of white-collar workers (see table 38). Small MPOs, with the lowest proportion of weekday peak miles, have the second-lowest proportion of white-collar workers.[52]

[52] Non-MPO areas have lower white-collar employment. However, the "blue-collar" category, which is especially common in non-MPO counties, contains a wide range of job types. It may be that agricultural work is more likely to have a daytime schedule than other forms of blue-collar work (e.g., maintenance, manufacturing). NHTS only includes the job *category* rather than the more specific occupation.

Table 61. Work travel distance by time of day.

Percent of Statewide Totals	Percent of WJs	Commute PMT	Commute VMT	WJ PMT	WJ VMT
All work journeys (millions of miles)†		26,417	23,609	28,777	25,684
Weekday	88.7%	88.2%	88.2%	88.5%	88.7%
AM peak (6 am–9:59 am)	32.3%	34.2%	33.9%	33.1%	32.9%
Midday (10 am–2:59 pm)	13.2%	10.6%	10.8%	11.6%	11.7%
PM peak (3 pm–6:59 pm)	31.7%	32.4%	32.5%	33.4%	33.6%
Overnight (7 pm–6:59 am)	11.6%	11.0%	11.0%	10.5%	10.5%
Weekend or Holiday	11.3%	11.8%	11.8%	11.5%	11.3%
AM peak (6 am–9:59 am)	3.1%	3.1%	3.0%	2.9%	2.9%
Midday (10 am–2:59 pm)	2.3%	2.4%	2.4%	2.3%	2.4%
PM peak (3 pm–6:59 pm)	3.4%	3.7%	3.9%	3.9%	3.7%
Overnight (7 pm–6:59 am)	2.4%	2.6%	2.5%	2.4%	2.4%
All work journeys†		13.6	12.1	14.8	13.2
Avg. Commute and Work Journey Distance		*Com. PMT*	*Com. VMT*	*WJ PMT*	*WJ VMT*
Weekday	88.7%	13.5	12.1	14.8	13.2
AM peak (6 am–9:59 am)‡	32.3%	14.4	12.8	15.2	13.5
Midday (10 am–2:59 pm)	13.2%	10.9	9.9	13.0	11.7
PM peak (3 pm–6:59 pm)	31.7%	13.9	12.5	15.6	14.0
Overnight (7 pm–6:59 am)	11.6%	12.9	11.6	13.4	12.0
Weekend or Holiday	11.3%	14.2	12.7	15.2	13.3
AM peak (6 am–9:59 am)	3.1%	13.3	11.7	13.6	12.0
Midday (10 am–2:59 pm)	2.3%	14.0	12.8	15.1	13.7
PM peak (3 pm–6:59 pm)	3.4%	14.9	13.8	16.9	14.5
Overnight (7 pm–6:59 am)	2.4%	14.6	12.5	14.9	12.7
Annual Miles Per Worker		*Com. PMT*	*Com. VMT*	*WJ PMT*	*WJ VMT*
All work journeys†		5,528	4,941	6,022	5,375
Weekday	88.7%	4,922	4,397	5,375	4,810
AM peak (6 am–9:59 am)	32.3%	1,909	1,692	2,008	1,782
Midday (10 am–2:59 pm)	13.2%	593	536	702	634
PM peak (3 pm–6:59 pm)	31.7%	1,807	1,619	2,027	1,821
Overnight (7 pm–6:59 am)	11.6%	613	551	637	572
Weekend or holiday	11.3%	656	588	701	614
AM peak (6 am–9:59 am)	3.1%	171	151	175	155
Midday (10 am–2:59 pm)	2.3%	132	120	142	129
PM peak (3 pm–6:59 pm)	3.4%	208	192	235	202
Overnight (7 pm–6:59 am)	2.4%	146	125	149	128

† *Excludes commutes greater than 100 miles. Weighted N=1.96 billion per year.*

‡ *Based on time of arrival at or departure from work anchor.*

Table 62. Work travel distance by time of day and MPO tier.

	Commute VMT (millions)*		Work Journey VMT (millions)*	
Statewide	**23,609**		**25,684**	
Weekdays	**20,824**	(88.2%)	**22,778**	(88.7%)
AM peak (6 am–9:59 am)‡	8,013	(33.9%)	8,439	(32.9%)
Midday (10 am–2:59 pm)	2,538	(10.8%)	3,004	(11.7%)
PM peak (3 pm–6:59 pm)	7,666	(32.5%)	8,626	(33.6%)
Overnight (7 pm–6:59 am)	2,607	(11.0%)	2,709	(10.5%)
Weekend or holiday	**2,785**	(11.8%)	**2,906**	(11.3%)
Tier 1. Atlanta MPO	**13,633**		**14,839**	
Weekdays	**12,387**	(90.9%)	**13,539**	(91.2%)
AM peak (6 am–9:59 am)	4,774	(35.0%)	5,018	(33.8%)
Midday (10 am–2:59 pm)	1,636	(12.0%)	1,920	(12.9%)
PM peak (3 pm–6:59 pm)	4,446	(32.6%)	5,008	(33.7%)
Overnight (7 pm–6:59 am)	1,531	(11.2%)	1,592	(10.7%)
Weekend or holiday	**1,245**	(9.1%)	**1,301**	(8.8%)
Tier 2. Medium MPOs	**2,979**		**3,285**	
Weekdays	2,577	(86.5%)	2,861	(87.1%)
AM peak (6 am–9:59 am)	986	(33.1%)	1,059	(32.2%)
Midday (10 am–2:59 pm)	280	(9.4%)	360	(11.0%)
PM peak (3 pm–6:59 pm)	957	(32.1%)	1,071	(32.6%)
Overnight (7 pm–6:59 am)	355	(11.9%)	370	(11.3%)
Weekend or holiday	**402**	(13.5%)	**424**	(12.9%)
Tier 3. Small MPOs	**1,942**		**2,127**	
Weekdays	1,539	(79.3%)	1,699	(79.9%)
AM peak (6 am–9:59 am)	583	(30.0%)	627	(29.5%)
Midday (10 am–2:59 pm)	167	(8.6%)	203	(9.6%)
PM peak (3 pm–6:59 pm)	583	(30.0%)	652	(30.7%)
Overnight (7 pm–6:59 am)	206	(10.6%)	216	(10.2%)
Weekend or holiday	**403**	(20.7%)	**428**	(20.1%)
Tier 4. Non-MPO	**5,055**		**5,433**	
Weekdays	4,321	(85.5%)	4,680	(86.1%)
AM peak (6 am–9:59 am)	1,670	(33.0%)	1,735	(31.9%)
Midday (10 am–2:59 pm)	456	(9.0%)	521	(9.6%)
PM peak (3 pm–6:59 pm)	1,679	(33.2%)	1,894	(34.9%)
Overnight (7 pm–6:59 am)	515	(10.2%)	531	(9.8%)
Weekend or holiday	**734**	(14.5%)	**753**	(13.9%)

Classifications are based on commuter's home address. Excludes supercommutes (>100 miles).

* *Percent of regional total in parentheses.*

‡ *Based on time of arrival at or departure from work anchor.*

Demographic Differences

Table 63 shows demographic differences in average commute and work journey distance. As noted in the previous section in this chapter on Peak, Off-peak, and Weekend Travel, low-income workers have the shortest commutes, in terms of distance. Upper-middle income households (earning $50,000–$75,000 annually) have the longest commutes. Agewise, Generation X workers have the longest commutes, and workers who are above retirement age have the shortest. This is likely related to the fact that the majority of employed seniors work part-time, and part-time workers' commutes are shorter than those of full-time workers.

Men's commute distances are longer than those of women, but a closer look reveals that this is only actually true among workers without a college degree; the commute distances for college-educated men and women are comparable. As will be presented in the next section in this chapter on Work Travel Distance by Mode, the differences between men's and women's commute *durations* are smaller than the differences in distance.

These same patterns can be observed in annual per-worker miles of work travel (table 64) and percent of miles of work travel (table 65), with some variations. For example, while college-educated women's day-to-day commute distances are on par with those of college-educated men's, their annual commute PMT is lower because a larger share of women work part-time.

Table 63. Average work travel distance by demographic and employment characteristics.

	Percent of WJs*	Commute PMT	Commute VMT	WJ PMT	WJ VMT
All work journeys†		13.6	12.1	14.8	13.2
Gender					
Male	56.1%	14.4	13.0	15.6	14.1
Female	43.9%	12.6	11.1	13.7	12.2
College-educated‡	41.0%	13.2	12.2	14.5	13.4
College-educated men	21.8%	13.1	12.2	14.6	13.6
College-educated women	19.2%	13.3	12.2	14.4	13.1
Without 4-year College Degree	59.0%	13.9	12.1	15.0	13.1
Men without college degree	34.3%	15.2	13.5	16.3	14.3
Women without college degree	24.7%	12.0	10.3	13.3	11.4
Age Cohort					
Millennial and Gen Z (18-36)	40.6%	12.9	11.0	14.1	11.9
Generation X (37-52)	35.3%	14.8	13.7	16.0	14.8
Pre-retirement age Baby Boomer (53-64)	19.8%	13.3	12.3	14.5	13.3
Retirement age (65+)	4.3%	11.4	10.3	12.7	11.5
Annual Household Income					
<$35,000	27.9%	11.5	9.4	12.6	10.3
$35,000 to $49,999	13.3%	14.0	12.2	14.9	12.9
$50,000 to $74,999	18.1%	15.6	14.5	16.8	15.6
$75,000 to $99,999	14.3%	14.3	13.0	15.5	14.2
$100,000+	26.3%	14.0	13.1	15.6	14.5
Race					
White non-Hispanic only	53.5%	13.8	12.8	14.9	13.9
Black and Black multiracial	32.1%	13.9	11.9	15.4	13.1
Other	14.4%	12.1	10.3	13.1	11.0
Occupational Category (NHTS-designated Workers Only)					
Sales or service	27.1%	12.9	11.6	14.1	12.5
Clerical or administrative support	9.1%	12.8	11.4	14.2	12.5
Blue collar §	19.5%	15.3	12.7	16.2	13.4
Professional, managerial, or technical	44.0%	13.7	12.7	15.0	13.9
Worker Type (NHTS-designated Workers Only)					
Part time	15.4%	11.2	9.4	12.4	10.2
Full time	84.6%	14.2	12.8	15.4	13.9

** Percent of non-missing is given for categories with missing values (income, occupational category, and worker type).*

† Excludes commutes greater than 100 miles. Weighted N=1.96 billion per year.

‡ Defined as Bachelor's degree or higher.

§ Blue collar refers to manufacturing, construction, maintenance, or farming.

Table 64. Average annual work travel distance per worker by demographic and employment characteristics.

	Commute PMT	Commute VMT	WJ PMT	WJ VMT
All work journeys†	5,578	4,985	6,076	5,423
Gender				
Male	6,165	5,549	6,694	6,014
Female	4,895	4,328	5,357	4,735
College-educated‡	4,974	4,593	5,474	5,058
College-educated men	5,191	4,830	5,802	5,411
College-educated women	4,752	4,352	5,140	4,698
Without 4-year College Degree	6,063	5,300	6,560	5,717
Men without college degree	6,865	6,066	7,335	6,447
Women without college degree	5,025	4,306	5,556	4,769
Age Cohort				
Millennial and Gen Z (18-36)	5,637	4,782	6,152	5,215
Generation X (37-52)	5,837	5,381	6,317	5,835
Pre-retirement age Baby Boomer (53-64)	5,364	4,965	5,869	5,384
Retirement age (65+)	4,076	3,687	4,543	4,131
Annual Household Income				
<$35,000	5,122	4,185	5,594	4,569
$35,000 to $49,999	6,294	5,475	6,687	5,790
$50,000 to $74,999	6,584	6,105	7,090	6,588
$75,000 to $99,999	6,409	5,806	6,955	6,339
$100,000+	4,920	4,623	5,480	5,108
Race				
White non-Hispanic only	5,398	5,011	5,839	5,423
Black and Black multiracial	5,994	5,106	6,608	5,642
Other	5,381	4,595	5,854	4,918
Occupational Category (NHTS-designated Workers Only)				
Sales or service	5,464	4,895	5,949	5,284
Clerical or administrative support	5,248	4,657	5,808	5,126
Blue collar §	7,052	5,844	7,480	6,198
Professional, managerial, or technical	5,476	5,073	6,010	5,583
Worker Type (NHTS-designated Workers Only)				
Part time	3,073	2,583	3,400	2,807
Full time	6,234	5,621	6,766	6,110

† Excludes commutes greater than 100 miles. Weighted N=1.96 billion per year.

‡ Defined as Bachelor's degree or higher.

§ Blue collar refers to manufacturing, construction, maintenance, or farming.

Table 65. Percent of total work travel distance by demographic and employment characteristics.

	Percent of WJs*	Commute PMT	Commute VMT	WJ PMT	WJ VMT
All work journeys (millions of miles)†		26,417	23,609	28,777	25,684
Gender					
Male	56.1%	59.5%	59.9%	59.3%	59.7%
Female	43.9%	40.5%	40.1%	40.7%	40.3%
College-educated‡	41.0%	39.7%	41.1%	40.1%	41.6%
College-educated men	21.8%	20.9%	21.8%	21.5%	22.4%
College-educated women	19.2%	18.8%	19.3%	18.7%	19.1%
Without 4-year College Degree	59.0%	60.3%	58.9%	59.9%	58.4%
Men without college degree	34.3%	38.5%	38.1%	37.8%	37.2%
Women without college degree	24.7%	21.7%	20.9%	22.1%	21.2%
Age Cohort					
Millennial and Gen Z (18-36)	40.6%	38.5%	36.6%	38.6%	36.6%
Generation X (37-52)	35.3%	38.5%	39.8%	38.3%	39.6%
Pre-retirement age Baby Boomer (53-64)	19.8%	19.3%	20.0%	19.4%	19.9%
Retirement age (65+)	4.3%	3.6%	3.7%	3.7%	3.8%
Annual Household Income					
<$35,000	27.9%	19.4%	21.5%	23.6%	21.6%
$35,000 to $49,999	13.3%	13.7%	13.3%	13.4%	13.0%
$50,000 to $74,999	18.1%	21.4%	21.5%	20.5%	21.3%
$75,000 to $99,999	14.3%	15.9%	15.3%	15.0%	15.3%
$100,000+	26.3%	29.8%	28.4%	27.6%	28.8%
Race					
White non-Hispanic only	53.5%	54.3%	56.4%	54.0%	56.1%
Black and Black multiracial	32.1%	32.9%	31.3%	33.3%	31.8%
Other	14.4%	12.8%	12.2%	12.8%	12.0%
Occupational Category (NHTS-designated Workers Only)					
Sales or service	27.1%	25.6%	25.7%	25.7%	25.5%
Clerical or administrative support	9.1%	8.5%	8.5%	8.7%	8.6%
Blue collar §	19.5%	21.8%	20.2%	21.3%	19.7%
Professional, managerial, or technical	44.0%	44.0%	45.6%	44.4%	46.1%
Worker Type (NHTS-designated Workers Only)					
Part time	15.4%	12.5%	11.8%	12.7%	11.8%
Full time	84.6%	87.5%	88.2%	87.3%	88.2%

** Percent of non-missing is given for categories with missing values (income, occupational category, worker type).*

† Excludes commutes greater than 100 miles. Weighted N=1.96 billion per year.

‡ Defined as Bachelor's degree or higher.

§ Blue collar refers to manufacturing, construction, maintenance, or farming.

WORK TRAVEL DISTANCE BY MODE

Table 66 shows differences in commute length by mode. Including multimodal commutes (but excluding supercommutes), 95 percent of commute PMT comes from POVs (as driver or passenger), 89 percent as a driver, and 75 percent as a driver with no passengers in the vehicle. Table 66 is a reminder that PMT may overstate the prominence of some modes and understate others. Nonmotorized travel, for instance, represents just 0.3 percent of annual commute and work journey *miles*, but its mode share in terms of *number of journeys* is more than 10 times higher (3.2 percent).

At the opposite end of the spectrum, if supercommutes were included, air travel would account for 0.1 percent of all work journeys but 8.1 percent of total work journey PMT.[53] Ground supercommutes would comprise 0.7 percent of work journeys and 7.3 percent of total work journey PMT (not tabulated).

The average distance for an individual commute is 13.6 miles (or 14.8 miles for the full work journey). Excluding supercommutes, the mode with the longest average commute distance is transit, followed by multimodal commutes. For full work journeys, multimodal work journeys are the longest.

[53] This is the reason for generally excluding supercommutes from the analysis.

Table 66. Work travel distance by mode.

	Percent of WJs*	Work Journey Distance: Annual Miles (Millions)†		Work Journey Distance: Average Distance (Miles)‡	Work Journey Distance: Annual Miles Per Worker†	Commute Distance: Annual Miles (Millions)†		Commute Distance: Average Distance (Miles)‡	Commute Distance: Annual Miles Per Worker†
Commutes (0–100 mi)									
All commutes 0–100 mi	100.0%	28,777	(100.0%)	14.8	6,076	26,417	(100.0%)	13.6	5,578
Mode									
POV	92.5%	27,377	(95.1%)	15.1	5,781	25,175	(95.3%)	13.9	5,316
Nonmotorized	3.2%	95	(0.3%)	1.5	20	87	(0.3%)	1.5	18
Public transit or other bus/train	3.3%	1,124	(3.9%)	16.3	237	986	(3.7%)	15.9	208
Other ground or water	1.0%	181	(0.6%)	6.7	38	169	(0.6%)	6.6	36
Multiple modes	1.3%	544	(1.9%)	21.4	115	361	(1.4%)	14.2	76
Driver Status (POV Commutes)									
As driver (with or without passengers)§	86.2%	25,684	(89.3%)	–	5,423	23,609	(89.4%)	–	4,985
Driving alone	75.0%	21,549	(74.9%)	–	4,550	20,135	(76.2%)	–	4,251
As passenger	6.9%	1,693	(5.9%)	–	358	1,566	(5.9%)	–	331
Supercommutes (>100 mi)									
All supercommutes	100.0%	5,229	(100%)	339	1,104	–		–	–
Air or air multimodal	15.5%	2,739	(52.4%)	1,146	578	–		–	–
Ground (POV, transit, other)	84.5%	2,490	(47.6%)	191	526	–		–	–
As driver	72.9%	2,108	(40.3%)	–	445	–		–	–
Not as driver	14.5%	382	(7.3%)	–	81	–		–	–

* *Percent of total for WJs 0–100 miles is shown for regular commutes, and percent of supercommutes is shown for categories of supercommute.*

† *Multimodal WJs are included under each individual mode and in the "Multiple modes" row.*

‡ *Mode averages are for unimodal WJs only. Multimodal WJs are included in the "Multiple modes" row.*

§ *In 0.6 percent of POV work journeys, the commuter traveled as both a driver and passenger on different legs.*

The average commute and work journey distances for a nonmotorized work journey are both 1.5 miles, making it the only mode for which full work journeys are not longer than commutes. However, this is not because nonmotorized commuters do not make stops. Auto users are the most likely to make stops on their commutes (24.2 percent of unimodal commutes by auto are complex). While nonmotorized complex work journeys are less common, nonmotorized commutes are slightly *more* likely to include a stop than transit work journeys (3.7 percent versus 3.3 percent). What this does suggest, however, is that nonmotorized commuters who make stops are likely to visit destinations that are directly along their normal route rather than making detours.

COMMUTE DURATION AND BURDEN

Having discussed the *distance* of work travel, we turn now to the *duration*. Both distance and duration are measurements of a commute's length, but because speeds vary by mode and region, distances do not, by themselves, indicate how much of a worker's day is devoted to traveling to and from the job.

This report presents three measures of commute duration.

1. Self-reported "usual" commute duration, asked of all workers.
2. Travel day *commute* duration: The duration of commutes observed on the travel day. For complex commutes (those containing one or more stops), the commute duration is calculated using the methods described previously in Defining the Commute.
3. Travel day *work journey* duration: The full travel duration of all trips involved in the work journey (as opposed to the commute-only portion presented for measure 2).

Time spent at stops is not included in commute or work journey duration. Supercommutes (longer than 100 miles) are excluded unless otherwise stated.

As shown in table 67, reported "usual" commute times were slightly shorter than observed travel day commute times. The average "usual" commute was 30.9 minutes, the average travel day commute was 32.5 minutes, and the average travel day work journey lasted 35.9 minutes. Depending on which indicator is consulted, 10–13 percent of work travel lasts at least 1 hour. This figure excludes supercommutes, which last an average of 4 hours and 11 minutes.

The bottom half of table 67 shows the difference between an individual commuter's reported usual commute duration and that commuter's travel day commute and work journey durations. In a plurality of cases, the "usual" and travel day commute times differ by less than 5 minutes. In 16.8 percent of cases, the travel day commute is shorter than the "usual" commute, and in 37.6 percent of cases, the travel day commute is longer. The fact that observed commutes are more likely to be longer than the "usual" duration suggests that respondents report their "usual" commute times under good traffic conditions.

With respect to supercommutes, 92.3 percent are longer than the corresponding "usual" times, and 82.5 percent exceed the duration of the usual commute by at least 30 minutes. This suggests that most supercommutes are unusual work travel or business trips and do not reflect that person's typical commute times. For this reason, supercommutes are excluded from further analysis in this chapter.

Table 67. Work-related travel duration in minutes.

	Workers*	Observed Work Journeys		
	"Usual" Commute Duration	Travel Day: Commute†	Travel Day: WJ†	Travel Day: Supercommute‡
Mean (minutes)	30.9	32.5	35.9	250.4
Percentiles (minutes)				
5th	5	5	5	106
50th	25	26	30	222
95th	75	81	90	490
Percent lasting 60+ minutes	11.9%	10.3%	13.1%	100%
Compared to the "usual" commute, the travel day duration was…				
Shorter by at least 5 minutes§		16.8%	13.7%	6.4%
The same (0–4 minutes difference)¶		45.6%	42.9%	1.3%
Longer by at least 5 minutes◊		37.6%	43.4%	92.3%

** This question was asked of all workers; 6,961 out of 8,363 (unweighted) responded. Weighted N=3.97 million workers.*

† Based on all work journeys 0–100 miles reported in travel diaries. The sample included 10,378 work journeys made by 5,067 unique commuters (unweighted). Weighted N=1.94 billion WJs by 2.61 million active commuters.

‡ Based on all work journeys greater than 100 miles reported in travel diaries. The sample included 85 supercommutes made by 67 unique commuters (unweighted). Weighted N=15.42 million supercommutes by 36,366 active commuters.

§ (Travel day duration minus usual duration) ≤ −5.

¶ −5 < (Travel day duration minus usual duration) < 5.

◊ (Travel day duration minus usual duration) ≥ 5.

Commute Times by Time of Day and MPO Tier

Commute times are longest during weekday evening peak hours (table 68). The Atlanta MPO has the longest commute times and the most variability; the average weekday PM peak commute is 42.2 minutes, which is 13.6 minutes longer than the average overnight commute. Non-MPO counties have the second-longest commute times, but the least variability by time of day. Small MPO counties have the shortest commute durations on average.

Table 68. Travel day commute and work journey duration by time of day and MPO tier.

	Commute Duration			Work Journey Duration		
	Mean (Minutes)	Median (Minutes)	Percent ≥ 1 Hour	Mean (Minutes)	Median (Minutes)	Percent ≥ 1 Hour
Statewide						
Weekdays	32.4	27	13.6%	35.8	30	17.1%
AM peak (6 am–9:59 am)‡	32.1	27	13.3%	33.9	30	15.1%
Midday (10 am–2:59 pm)	27.3	20	10.1%	33.1	24	15.3%
PM peak (3 pm–6:59 pm)	36.7	30	18.1%	41.4	33	23.1%
Overnight (7 pm–6:59 am)	27.1	24	6.4%	28.9	25	8.2%
Weekend or holiday	32.7	25	13.3%	35.9	26	16.4%
Tier 1. Atlanta MPO						
Weekdays	36.4	30	17.4%	39.9	31	21.1%
AM peak (6 am–9:59 am)	35.9	30	16.4%	37.7	30	18.2%
Midday (10 am–2:59 pm)	29.9	24	12.5%	36.1	29	17.3%
PM peak (3 pm–6:59 pm)	42.2	35	24.2%	47.2	40	29.7%
Overnight (7 pm–6:59 am)	28.6	25	6.8%	30.2	25	9.6%
Weekend or holiday	38.6	28	19.9%	42.4	30	23.3%
Tier 2. Medium MPOs						
Weekdays	26.8	21	6.7%	30.7	25	10.1%
AM peak (6 am–9:59 am)	25.9	20	6.4%	28.0	23	9.0%
Midday (10 am–2:59 pm)	23.6	20	5.5%	31.1	20	11.2%
PM peak (3 pm–6:59 pm)	29.5	25	8.0%	33.5	29	11.9%
Overnight (7 pm–6:59 am)	26.4	20	5.8%	29.7	20	6.6%
Weekend or holiday	28.4	20	9.0%	32.7	21	12.6%
Tier 3. Small MPOs						
Weekdays	24.6	20	8.0%	27.6	20	10.9%
AM peak (6 am–9:59 am)	24.0	20	7.5%	25.8	20	8.8%
Midday (10 am–2:59 pm)	21.3	15	6.8%	26.3	16	12.0%
PM peak (3 pm–6:59 pm)	27.6	23	10.8%	31.6	25	14.8%
Overnight (7 pm–6:59 am)	21.9	20	3.3%	23.3	20	4.7%
Weekend or holiday	24.7	20	4.5%	27.3	22	7.0%
Tier 4. Non-MPO						
Weekdays	27.9	20	9.7%	30.5	25	12.9%
AM peak (6 am–9:59 am)	28.4	20	11.4%	29.6	20	12.9%
Midday (10 am–2:59 pm)	25.2	18	8.4%	28.6	20	14.5%
PM peak (3 pm–6:59 pm)	29.2	22	9.8%	33.4	28	14.4%
Overnight (7 pm–6:59 am)	25.8	24	7.0%	27.3	25	7.0%
Weekend or holiday	30.0	25	9.7%	31.1	27	11.9%

Classifications are based on commuter's home address. Excludes supercommutes (>100 miles one way).

‡ *Based on time of arrival at or departure from work anchor.*

Commute Times by Mode and Vehicle Ownership

As shown in table 69, nonmotorized commutes are the shortest in terms of time, and public transit commutes are the longest. However, table 69 suggests a two-tiered commuting system divided not just by mode, but by the ability to choose between modes. Unsurprisingly, "choice" commuters from vehicle-sufficient households (i.e., those with vehicles available for every potential driver) are more likely to commute by POV. However, choice commuters enjoy commutes of a shorter duration *even when they choose an alternative mode.*

The average transit commute for a captive rider[54] is *20.4 minutes longer* than the average choice transit commute (table 69), despite the fact that the average *distance* of captive riders' commutes is 3.1 miles *shorter* than a choice rider's transit commute (14.2 miles versus 17.3 miles) (not tabulated). In other words, on average, commuters who use transit out of necessity receive worse service than commuters who take transit by choice.

There are many potential explanations for this inequality. Choice riders can opt out of the transit system if the available routes do not align with their needs, while captive riders may have to use transit regardless of travel times. Service jobs, a prominent source of low-income employment, may be more geographically dispersed than white-collar jobs, rather than being concentrated in higher-density employment nodes that can be more efficiently served by transit. It is possible

[54] A "captive" rider is a commuter from a zero-vehicle or vehicle-deficit household (i.e., a household which owns at least one car, but has fewer cars than potential drivers). The transit mode share for commutes made by residents of low-income vehicle-deficit households (<$35,000 per year) is more than double the rate of transit use by vehicle-sufficient households at the same income level (5.0 percent versus 2.0 percent). This suggests that when residents of vehicle-deficit households use transit, they are likely to be doing so because they were not able to drive or get a ride from a household member.

that choice riders may be more likely to complain to transit operators, increasing the likelihood that their issues will be addressed.

Table 69. Work travel duration by mode and vehicle ownership.

	Commute Duration			Work Journey Duration		
	Mean (Minutes)	Median (Minutes)	Percent ≥ 1 Hour	Mean (Minutes)	Median (Minutes)	Percent ≥ 1 Hour
All Work Journeys 0–100 Miles						
Household Vehicle Ownership*						
Zero-vehicle	39.2	25	24.4%	42.5	30	27.8%
Vehicle-deficit	32.8	25	13.3%	35.2	27	15.3%
Vehicle-sufficient	32.1	27	13.3%	35.7	30	17.2%
Mode						
POV	31.6	26	12.3%	34.8	30	15.7%
Nonmotorized	17.0	15	5.1%	17.7	15	5.7%
Public transit or other bus/train	69.5	63	58.0%	70.8	63	58.0%
Other ground or water†	17.5	15	0.9%	17.6	15	0.9%
Multiple modes	56.5	52	42.3%	81.0	79	62.4%
Vehicle-sufficient Household Work Travel ("Choice" Commuters)						
POV	31.9	27	12.8%	35.3	30	16.5%
Nonmotorized	12.5	5	0.7%	13.6	5	2.1%
Public transit or other bus/train	58.2	60	50.7%	58.2	60	50.7%
Multiple modes	43.1	38	27.8%	77.2	61	57.3%
Vehicle-deficit and Zero-vehicle Household Work Travel						
POV	30.5	25	10.5%	33.0	26	12.8%
Nonmotorized	20.2	15	8.3%	20.7	15	8.3%
Public transit or other bus/train	78.6	72	63.8%	80.9	72	63.8%
Multiple modes	71.6	79	58.8%	85.3	85	68.2%

** Vehicle-sufficient households have at least one vehicle for each potential driver. Vehicle-deficit households have at least one vehicle, but fewer vehicles than potential drivers.*
† Due to inadequate sample size, trips with the mode "other" are not subdivided by vehicle ownership.

Whatever the causes, the effect is that transit-dependent commuters are experiencing worse transit service than their choice-rider neighbors. To reduce this inequality, it is therefore important to examine potential discrepancies in vehicle frequency and route density, and to examine whether current transit routings match the needs of low-income commuters.

Vehicle ownership also affects nonmotorized commutes; 8.3 percent of nonmotorized commutes by captive pedestrians and cyclists lasted an hour or more, versus just 0.7 percent of nonmotorized choice commutes. Inspiring more commuters to *choose* walking and cycling is a laudable goal, but this finding suggests that *captive* pedestrians and cyclists need a different kind of assistance. In addition to facilitating access to other transportation options, it is critical to ensure that the locations where these obligatory nonmotorized commuters walk and bike have adequate and safe infrastructure.

Transit service improvements and subsidies for obligatory nonmotorized commuters could help improve transportation for commuters without vehicle access. However, it should be noted that the time discrepancy between commuters in vehicle-sufficient and vehicle-insufficient households vanishes when examining commutes made by cars (as either driver or passenger). Helping all these workers acquire cars could have serious consequences for sustainability and congestion, but there is no denying that it would be a substantial quality of life improvement for many, not just in terms of shortening an existing commute but also in terms of expanding future employment opportunities (O'Regan and Quigley 1998, Shen and Sanchez 2005, Blumenberg and Pierce 2014, Blumenberg 2016, Loukaitou-Sideris 2016, Smart and Klein 2018). It may be beneficial to explore ways of promoting community carpooling or carsharing and providing microtransit service to a wider variety of routes.

Demographic Differences in Commute Duration

Table 70 and table 71 show work travel duration broken down by demographic characteristics. The usual commute, travel day commute, and travel day work journey are shown. As mentioned in the section on Work Travel Distance, in terms of *distance,* men's commutes are, on average, longer than women's by 1.8 miles. One notable finding here is that this difference does not extend to work travel *duration* (table 70). While men's median "usual" commute time is 5 minutes longer than that of women, the difference for observed commutes on the travel day is only 2 minutes. When the full work journey is considered, men's and women's commute times differ by just 30 seconds on average (and the medians are identical). In other words, while female workers do not produce as much VMT as male workers do, from a quality of life standpoint, female workers spend just as much time commuting as their male colleagues do.

Similarly, while Black commuters' commute distance was almost identical to that of white workers, Black workers' commutes last, on average, 7.4 minutes longer than the commutes of white workers (table 71). This was the largest intergroup difference observed. It may relate to racial differences in mode choice and residential patterns (e.g., work journey durations are longer in Atlanta and when using transit). In terms of economic and occupational characteristics, the longest commutes were found among blue-collar workers.

Total Daily Commute Burden

To understand the cumulative effects of work travel on Georgians' time use, in addition to examining the duration of *individual one-way commutes*, it is worth examining the *total amount of time spent commuting per day* (i.e., the commute burden). Table 72 and table 73 show the total amount of time spent traveling to and from work on a typical work day, broken down by various demographic characteristics. As a point of comparison, total daily commute distance is also shown.

Table 70. Work travel duration by MPO tier, gender, education, and age.

	"Usual" Commute			Travel Day Commute			Travel Day Work Journey		
	Mean (Minutes)	Median (Minutes)	Percent ≥ 1 Hour	Mean (Minutes)	Median (Minutes)	Percent ≥ 1 Hour	Mean (Minutes)	Median (Minutes)	Percent ≥ 1 Hour
Statewide*	30.9	25	11.9%	32.5	26	10.3%	35.9	30	13.1%
MPO Tier (Worker Residence)									
1. Atlanta MPO	34.6	30	15.7%	36.6	30	17.6%	40.2	30	21.3%
2. Medium MPOs	23.4	20	5.0%	27.0	20	7.0%	31.0	25	10.4%
3. Small MPOs	23.0	20	5.9%	24.6	20	7.4%	27.5	20	10.2%
4. Non-MPO	27.3	20	10.9%	28.1	21	9.7%	30.6	25	12.8%
Gender									
Male	31.4	25	13.0%	32.8	27	14.1%	36.0	30	17.4%
Female	29.2	20	11.3%	32.0	25	13.0%	35.5	30	16.6%
College-educated†	29.7	25	11.5%	32.0	28	12.2%	35.6	30	16.2%
College-educated men	29.5	25	11.5%	31.7	27	12.0%	35.6	30	16.2%
College-educated women	29.8	25	11.4%	32.4	28	12.5%	35.7	30	16.1%
Without 4-year College Degree	31.0	25	12.8%	32.7	25	14.6%	35.9	30	17.6%
Men without college degree	32.6	25	14.0%	33.5	28	15.4%	36.4	30	18.1%
Women without college degree	28.8	20	11.2%	31.6	25	13.4%	35.3	28	17.0%
Age Cohort									
Millennial and Gen Z (18–36)	28.8	20	10.7%	31.8	25	13.1%	35.1	28	16.2%
Generation X (37–52)	32.2	25	13.4%	33.6	30	13.8%	36.8	30	17.0%
Pre-retirement age Baby Boomer (53–64)	31.2	25	13.2%	32.6	27	15.1%	36.3	30	18.8%
Retirement age (65+)	27.9	20	13.2%	27.9	21	9.9%	32.0	25	17.1%

** Excludes commutes greater than 100 miles one way. Weighted N=1.96 billion per year.*

† Defined as bachelor's degree or higher.

Table 71. Work travel duration by income, race, occupation, and worker type.

	"Usual" Commute			Travel Day Commute			Travel Day Work Journey		
	Mean (Minutes)	Median (Minutes)	Percent ≥ 1 Hour	Mean (Minutes)	Median (Minutes)	Percent ≥ 1 Hour	Mean (Minutes)	Median (Minutes)	Percent ≥ 1 Hour
Statewide*	30.9	25	11.9%	32.5	26	10.3%	35.9	30	13.1%
Annual Household Income									
<$35,000	30.0	20	13.4%	32.3	25	14.6%	35.9	27	17.7%
$35,000 to $49,999	28.2	20	9.0%	30.0	25	11.3%	32.4	25	13.8%
$50,000 to $74,999	31.5	25	12.5%	33.5	28	13.6%	36.3	30	16.7%
$75,000 to $99,999	31.3	25	12.2%	33.0	27	14.3%	36.1	30	17.8%
$100,000+	30.5	25	11.9%	32.5	30	13.2%	36.6	30	17.7%
Race									
White non-Hispanic only	28.0	20	10.5%	30.5	25	11.5%	33.3	28	14.5%
Black and Black multiracial	35.4	30	15.8%	36.6	30	17.6%	40.8	30	22.2%
Other	28.7	25	11.0%	30.5	25	12.5%	33.6	28	15.0%
Occupational Category (NHTS-designated Workers Only)									
Sales or service	28.8	20	11.8%	31.0	25	12.5%	34.5	27	15.8%
Clerical or administrative support	30.9	25	13.9%	33.1	28	14.0%	36.9	30	16.6%
Blue collar†	34.6	25	15.4%	34.5	30	16.8%	36.8	30	18.6%
Professional, managerial, or technical	29.6	25	10.8%	32.7	27	13.0%	36.1	30	17.2%
Worker Type (NHTS-designated Workers Only)									
Part-time	28.6	20	11.2%	30.4	20	12.0%	34.0	25	16.1%
Full-time	30.8	25	12.5%	32.9	28	14.0%	36.2	30	17.2%

* *Excludes commutes greater than 100 miles one way. Weighted N=1.96 billion per year.*

† *Blue collar refers to manufacturing, construction, maintenance, or farming.*

The median daily commute duration is 55 minutes (or 60 minutes if the full work journey is included). However, 12.3 percent of commuters spend 2 hours or more traveling to and from work. These heavy commute burdens are not equally distributed; 2-hour commute burdens are more than twice as common in the Atlanta MPO as elsewhere in the state (16.6 percent in Atlanta versus 6.2–7.1 percent elsewhere). If the whole work journey is included, more than one in five Atlanta-MPO employees has a commute burden of 2 or more hours.

As with individual commute durations, Black residents also have the longest total average commute burden (73.6 minutes, versus 62.1 and 64.5 for white non-Hispanic and other race, respectively). Retirement-age commuters generally have somewhat smaller median commute burdens than other age groups. They also have a lower proportion of 2-hour commute burdens. As a result, the age difference in *average* commute burden is larger than the difference in *median* commute burden.

CONCLUSION

This chapter has considered Georgians' travel to and from job sites. As telecommuting becomes more common, many Georgia workers "travel" to work without leaving their houses. Some workers also benefit from flexible work schedules, enabling them to avoid peak-hour work travel, and/or better balance work and life demands. The next chapter will focus on patterns associated with telecommuting and work schedule flexibility.

Table 72. Total daily commute burden by MPO tier, gender, education, and age.

	Daily Commute Totals				Daily Work Journey Totals			
	Minutes (Mean)	Minutes (Median)	Percent ≥ 2 Hours	Miles (Mean)	Minutes (Mean)	Minutes (Median)	Percent ≥ 2 Hours	Miles (Mean)
Statewide*	66.2	55	12.3%	27.8	73.0	60	16.3%	30.2
MPO Tier (Worker Residence)								
1. Atlanta MPO	74.4	63	16.6%	28.6	81.7	70	21.0%	31.2
2. Medium MPOs	56.5	47	7.1%	23.4	64.7	53	10.8%	25.9
3. Small MPOs	50.6	42	6.2%	22.4	56.6	45	9.3%	24.5
4. Non-MPO	56.5	45	6.4%	31.5	61.4	50	9.9%	33.8
Gender								
Male	66.9	56	12.9%	29.5	73.5	60	16.9%	32.0
Female	65.3	54	11.6%	25.6	72.4	60	15.5%	28.0
College-educated†	66.1	58	11.7%	27.2	73.4	65	16.1%	29.9
College-educated men	65.8	57	12.2%	27.2	73.9	65	17.3%	30.4
College-educated women	66.3	60	11.0%	27.2	72.9	65	14.9%	29.4
Without 4-year College Degree	66.2	53	12.7%	28.1	72.7	60	16.4%	30.5
Men without college degree	67.5	55	13.3%	30.9	73.3	60	16.6%	33.0
Women without college degree	64.4	50	12.0%	24.4	71.9	59	16.0%	26.9
Age Cohort								
Millennial and Gen Z (18–36)	65.4	55	11.6%	26.5	72.1	60	15.0%	29.0
Generation X (37–52)	67.5	57	12.9%	29.8	74.0	63	16.7%	32.2
Pre-retirement age Baby Boomer (53–64)	66.9	52	13.8%	27.4	74.4	60	18.0%	30.0
Retirement age (65+)	58.2	50	7.7%	23.7	66.8	54	17.4%	26.4

* *Includes all active commuters with no supercommutes on travel day (weighted N=2.6 million).*

† *Defined as bachelor's degree or higher.*

Table 73. Total daily commute burden by income, race, occupation, and worker type.

	Daily Commute Totals				Daily Work Journey Totals			
	Minutes (Mean)	Minutes (Median)	Percent ≥ 2 Hours	Miles (Mean)	Minutes (Mean)	Minutes (Median)	Percent ≥ 2 Hours	Miles (Mean)
Statewide*	66.2	55	12.3%	27.8	73.0	60	16.3%	30.2
Annual Household Income								
<$35,000	65.9	52	12.4%	23.5	73.3	60	16.8%	25.6
$35,000 to $49,999	63.5	53	10.4%	29.6	68.5	58	12.9%	31.5
$50,000 to $74,999	67.4	55	12.9%	31.4	73.1	60	15.9%	33.8
$75,000 to $99,999	67.8	57	13.2%	29.4	74.2	63	16.4%	31.9
$100,000+	65.7	60	12.2%	28.2	74.0	65	17.8%	31.4
Race								
White non-Hispanic only	62.1	52	10.0%	28.1	68.0	60	13.4%	30.4
Black and Black multiracial	73.6	60	16.4%	28.1	82.2	65	21.4%	31.0
Other	64.5	52	11.5%	25.5	71.0	60	15.3%	27.7
Occupational Category (NHTS-designated Workers Only)								
Sales or service	63.2	52	10.6%	26.3	70.4	59	15.0%	28.7
Clerical or administrative support	66.7	53	14.2%	25.8	74.4	60	17.4%	28.6
Blue collar†	69.4	55	14.3%	31.0	74.1	60	16.8%	32.9
Professional, managerial, or technical	67.1	59	12.5%	28.1	74.2	65	16.8%	30.8
Worker Type (NHTS-designated Workers Only)								
Part-time	61.7	49	9.4%	22.8	69.5	52	15.1%	25.3
Full-time	67.3	57	13.0%	28.9	73.8	60	16.6%	31.4

* *Includes all active commuters with no supercommutes on travel day (weighted N=2.6 million).*

† *Blue collar refers to manufacturing, construction, maintenance, or farming.*

CHAPTER 3.
TELEWORKING AND WORKER SCHEDULE FLEXIBILITY

CHAPTER 3 – SUMMARY

This chapter analyzes workplace forces that afford workers more choice in how, when, or if they travel to work. In particular, its focus is on teleworking and schedule flexibility.

- **Overview** includes technical and vocabulary notes and provides an overview of schedule flexibility and teleworking as an overall proportion of worker activity in Georgia. It also provides summary statistics about the number of telecommuters each day by MPO tier.
- **Work Flexibility for Whom?** examines access to flexible work conditions. It considers demographic differences between Georgians who have the ability to flex their schedule or work location and those whose job is less flexible. Some of the differences in work flexibility are related to job function or prestige; workers in high-income households and with college degrees are more likely to have a flexible worksite or schedule. However, using regression analysis, we document that workers' likelihood of being allowed to telework or set their own schedule is also influenced by where they live and demographic factors that are not related to the nature of the work in which they engage.
- **The Effects of Flexible Scheduling** examines the effects of schedule flexibility on arrival times to and departure times from work. In general, workers with flexible schedules tend to arrive at and depart from work later than workers with inflexible schedules. While schedule flexibility influences departure and arrival times, it was not found to have a significant effect on commute duration.

- **Frequency of Teleworking** examines the incidence of teleworking by looking at: (1) the monthly frequency of teleworking by telecommute-eligible workers, and (2) commuting and telecommuting on the travel day. In particular, we focus on differences by region, gender and caregiver status, mobility impairment, and distance between the home and work location.

Work flexibility, particularly teleworking, has taken on new significance with the onset of the coronavirus disease 2019 (COVID-19) pandemic in 2020. The data analyzed in this report obviously reflect pre-COVID-19 conditions. With respect to teleworking *prevalence* (i.e., adoption and frequency; Frequency of Teleworking), it remains to be seen what the post-COVID-19 “new normals” will be; the 2017 NHTS data will provide an important benchmark against which to gauge future levels of teleworking. With respect to telework *eligibility* (see sections on Descriptive Statistics on Access to Flexible Schedule and Work Location and Logistic Regression Analysis of Eligibility for Flexible Work Location), changes may be more uneven. The pandemic has made it clear that many kinds of essential work cannot be accomplished remotely. On the other hand, the pandemic may also expand the number and types of job functions that are considered possible to accomplish remotely, and in many instances transform teleworking from a perk to a public health measure seen to be in the interests of employers as well as employees.

OVERVIEW

Types of Work Flexibility

Employers provide Georgia workers with two kinds of flexibility: *scheduling* flexibility, or the ability to adjust start and end times, and *location* flexibility, or the ability to work from home or a “third place” such as a coffee shop or coworking space (Oldenburg 1989).[55] As shown in table 74, 40.9 percent of Georgia workers have work schedule flexibility. Twenty-seven percent have flexible work locations (either telecommuting periodically[56] or working from home on a regular basis). There is substantial overlap between workers with schedule flexibility and those with location flexibility; 22.3 percent of workers have both schedule *and* location flexibility, while 18.7 percent have schedule flexibility only. Most workers who have work location flexibility also have schedule flexibility; just 4.9 percent of workers have location flexibility without schedule flexibility.

Table 74. Eligibility for job flexibility among Georgia workers.

	Flexibility Type				Totals	
	Schedule Only	Location Only*	Schedule and Location*	No Flexibility	Schedule *With or Without Location*	Location* *With or Without Schedule*
All workers	18.7%	4.9%	22.3%	54.2%	40.9%	27.1%
MPO Tier						
1. Atlanta MPO	19.2%	5.7%	27.2%	47.9%	46.4%	32.9%
2. Medium MPOs	18.2%	4.0%	15.1%	62.7%	33.3%	19.1%
3. Small MPOs	18.5%	3.1%	15.1%	63.2%	33.6%	18.2%
4. Non-MPO counties	17.4%	3.9%	15.9%	62.8%	33.3%	19.8%

* *Includes home-based workers and telecommute-eligible workers.*

A slight majority of workers in the Atlanta MPO area have flexibility with regard to schedule, location, or both. Elsewhere in the state, 63 percent of workers have neither schedule nor location flexibility.

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[55] Flexible scheduling, or flextime, is assessed by asking participants, “At your primary job, do you have the ability to set or change your own start time?” If the response is yes, then for simplicity of exposition, workers are considered to have a flexible schedule (or “schedule flexibility”), whether or not they choose to take advantage of the option to vary their work schedule. Location flexibility is assessed with a series of questions; see Worker Telework Eligibility Categories.

[56] Table 74 and the accompanying text include the 3 percent of workers, shown in figure 18, who are eligible to telecommute but have not done so in the past 30 days.

Definitions and Technical Notes

Teleworking refers to working and interacting remotely with an employer, colleagues, and clients using the internet and/or telephone. Typically, a teleworker works from home. However, some may work out of nearby coffee shops, coworking spaces, or similar facilities—a type of "third place," to use the term popularized by Oldenburg (1989) and often applied in teleworking contexts (e.g., Venolia et al. 2014).

Teleworking and telecommuting are often used interchangeably. In this report, however, *telecommuting* refers to a specific case of teleworking, in which workers whose primary workplace is outside the home substitute teleworking for their usual conventional commute. *Teleworking* is an umbrella term that comprises telecommuting, but also employment where home is the "usual" work site (i.e., home-based work).

Worker Telework Eligibility Categories

For the purposes of this report, with respect to teleworking, there are three types of workers:

- *Home-based workers,* or workers who usually or always work from home. Home-based workers include people who work for remote employers (such as online tutoring companies) and self-employed people who operate a business out of their home office.
- *Telecommute-eligible workers*, or workers whose primary workplace is outside the home, but "have the option of working from home or an alternate location."[57] In other words, with telecommuting, teleworking is substituting for a conventional commute. Although being an eligible telecommuter does not require taking advantage of this option, most

[57] This is the wording used in the NHTS questionnaire; see p. 44 of the Retrieval Questionnaire found at https://nhts.ornl.gov/assets/2016/NHTS_Retrieval_Instrument_20180228.pdf.

(78 percent) telecommute-eligible workers report telecommuting at least once in the past 30 days (figure 18).

- *Telecommute-ineligible workers,* or nonhome-based workers who do *not* have the option of telecommuting.

Home-based workers and telecommute-eligible workers are considered to have a flexible work location. These categories are measured by the NHTS with a series of questions. Workers are first asked if they "usually" work from home. If so, they are considered home-based workers. Nonhome-based workers are asked a follow-up question about whether they "have the option of working from home or an alternate location instead of going into your/their primary workplace." Workers who answer "yes" to this second question are considered telecommute-eligible; those who answered "no" are considered telecommute-ineligible.[58] Telecommute-eligible workers are asked about the number of days they worked from home over the past 30 days; this information is not asked of home-based or telecommute-ineligible workers. However, the travel day telework categories used in this report (see Travel Day Work and Telework Categories) do cover teleworking by all workers, regardless of their official telework status.

[58] This question wording may result in the self-misclassification as "telecommute-eligible" of some self-employed workers whose jobs routinely take them to "alternate locations" (e.g., plumbers, electricians, etc.), because they do not "usually" work from home (which would have classified them as a "home-based worker").

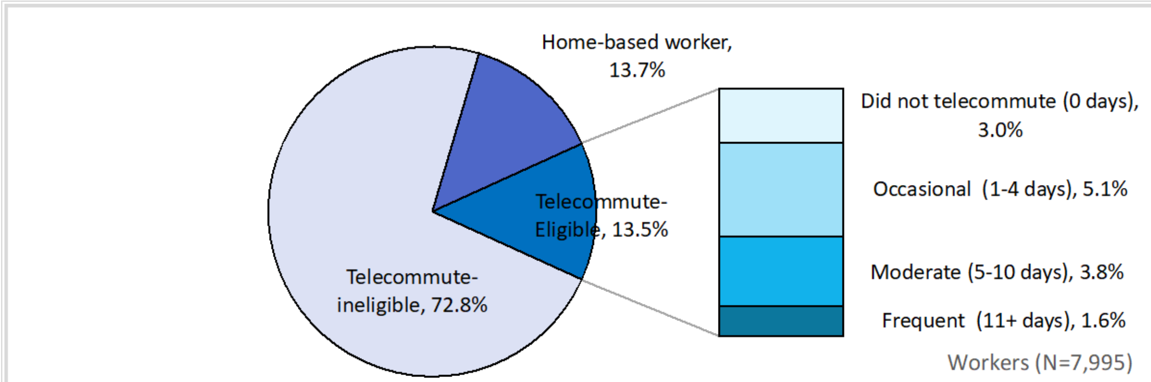

Figure 18. Pie chart. Telework category of Georgia workers and telecommuting frequency, past 30 days.

Travel Day Work and Telework Categories

In addition to ascertaining the telework eligibility status of individuals, it is also of interest to analyze whether they actually teleworked on the day the travel diary was completed. We define an *active worker* as someone who reported working at a home or nonhome location on the travel diary day. Because respondents are not asked directly about travel day teleworking, that classification was made based on respondents' stated trip purposes (or, if no trips were made, stated reason for not making any trips).

Specifically, respondents have engaged in a *conventional commute* if they meet either of the following criteria:

- Reported working for pay, engaging in work-related business, or working "from home" at their work address.
- Reported working for pay or engaging in work-related business at any location besides their home and work addresses.

This definition diverges from the definition used in chapter 2 on commuting, by including trips for the purposes of off-site work-related meetings. The reason for this methodological difference is that the most relevant question for the present analysis is whether or not the worker leaves the house (versus accomplishing the same work from home), whereas for previous analysis the focus was on travel to and from the workplace. For the purposes of analyzing teleworking, the relevant distinction is whether or not work causes a worker to leave the home.

Participants have *teleworked* on the travel day if they meet any of the following criteria:

- Reported no trips on the travel day with the stated reason that they worked from home.
- Described primary activity at any location visited on the travel day as "work from home (paid)."[59]
- Reported working for pay or engaging in a work-related meeting at their home address.[60]

Travel day teleworking is subdivided into *exclusive telework* (i.e., the participant did not work or conduct work business outside of the home on the travel day), and *mixed telework*, where the participant reported both a conventional commute and teleworking.[61] Across the 7-day week, on average, 5.2 percent of Georgia adults, or 13.1 percent of active workers, report teleworking on a given day (figure 19).

[59] Twenty-two participants reported working specifically "from home" at a location other than home or work; since these may reflect telecommuting from a friend or relative's house or a secondary address, this report defers to the participant's judgment and classifies them as travel-day telecommuters. The exception to this rule is that if respondents reported working from "home" at their work location, it was recoded as working outside the home.

[60] Unfortunately, the data do not provide a way to distinguish between off-site work meetings and telework at a "third place" (such as a café), so this definition of telework does not include third-place teleworking.

[61] These two categories are sometimes described as "full day" and "partial day" telecommuting; this report generally avoids that terminology because its classification does not depend on the number of hours worked.

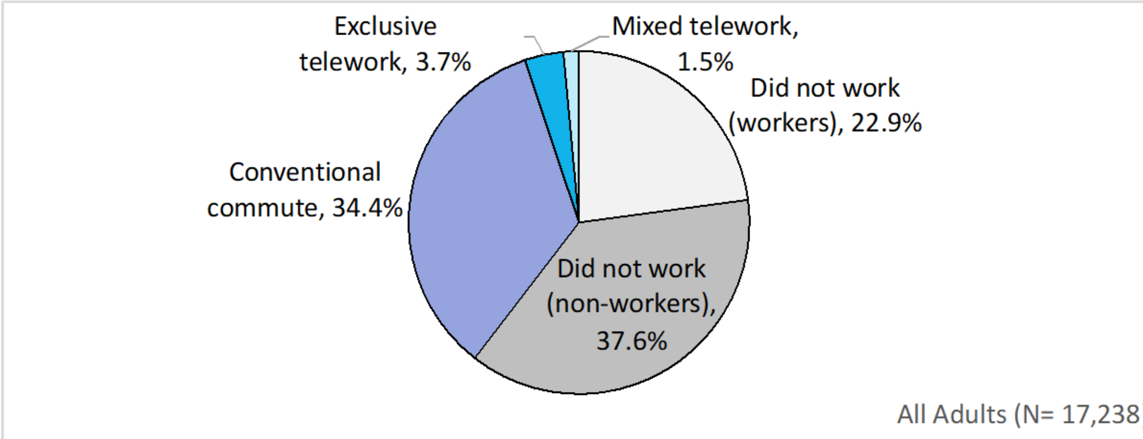

Figure 19. Pie chart. Travel day working and teleworking among Georgia adults.

It should be noted that participants can report teleworking on the travel day even if their job does not usually allow telecommuting. This may reflect a second job, or an exception granted by an employer in the case of an illness, weather emergency, or other circumstance.[62] While these data were collected before the outbreak of COVID-19, recent events have illustrated that some workers who are not normally considered telework-eligible can sometimes be given the option of working from home in extraordinary circumstances.

The travel diary data unfortunately does not allow for distinguishing between nonhome teleworking sites (such as coworking spaces) and other work locations (such as a second job, alternate office address, or visit to a client). To be conservative, therefore, in this analysis travel day telecommuting refers only to working from home, or to reporting a nonhome activity as such; any other work-related nonhome activity is not assumed to be teleworking. In that respect, this analysis will underestimate the amount of teleworking occurring.

[62] In addition, a small percentage of respondents not designated as workers by the NHTS reported teleworking on the travel day. They are included in figure 19 for completeness. See Overview of Travel Day Telecommuting for further discussion.

In addition, the travel day telecommuting metric likely (even further) underestimates the true incidence of telecommuting because it is based on the reported *primary* activity at a location, and each location is limited to a single listed activity. If individuals are working from home for an extended period of time, it is likely that they conduct a mix of work and regular home activities, and which purpose participants choose to list may be somewhat idiosyncratic. Even with this caveat, however, measuring travel day telecommuting provides valuable information to this analysis.

Overview of Travel Day Telecommuting

As shown in table 75, on a typical weekday, nearly 498,000 Georgia adults will telecommute, representing 6.5 percent of the total adult population. This is equivalent to 13 percent of people who worked on the travel day ("active workers") (not tabulated). There are clear regional differences, with telecommuting being most common in Atlanta.

As with the analysis of commuting travel in chapter 2, both commuting and telecommuting are observed by Georgians who are not officially categorized as workers.[63] These "nonworkers" are included in table 75 for completeness. They represent a comparatively small group (just 151 respondents). Because the other survey items analyzed for this chapter were only asked of NHTS-defined workers, for consistency, throughout the remainder of the chapter, the researchers restrict the sample to NHTS-defined workers. Specifically, telecommuting by "nonworkers" is excluded from all analysis in this chapter aside from table 75 and figure 19.

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[63] The NHTS defines workers based on their workforce participation in the week leading up to the survey; economic activity on the travel day by "nonworkers" might reflect a change in employment status, irregular work, or an error.

Table 75. Travel day working and teleworking by MPO tier.

	Total Population	Active Workers *(Worked for Pay on Travel Day)*		Teleworked on Travel Day *(Exclusively or Partially)*	
Weekdays					
All adults* ages 18+	7,704,068	3,854,775	(50.0%)	497,627	(6.5%)
MPO Tier					
1. Atlanta MPO	4,167,843	2,290,234	(55.0%)	354,766	(8.5%)
2. Medium MPOs	1,219,439	577,655	(47.4%)	48,334	(4.0%)
3. Small MPOs	777,264	351,886	(45.3%)	25,024	(3.2%)
4. Non-MPO	1,539,522	630,659	(41.0%)	64,090	(4.2%)
All workers* ages 18+	4,736,051	3,761,714	(79.4%)	471,779	(10.0%)
MPO Tier					
1. Atlanta MPO	2,735,122	2,222,401	(81.3%)	335,322	(12.3%)
2. Medium MPOs	741,844	567,367	(76.5%)	44,741	(6.0%)
3. Small MPOs	474,303	358,100	(75.5%)	23,874	(5.0%)
4. Non-MPO	784,782	608,566	(77.5%)	60,964	(7.8%)
Weekends and Holidays					
All adults ages 18+	7,704,068	1,201,200	(15.6%)	169,268	(2.2%)
All workers ages 18+	4,736,051	1,155,736	(24.4%)	139,343	(2.9%)
All Days					
All adults ages 18+	7,704,068	3,044,842	(39.5%)	397,404	(5.2%)
MPO Tier					
1. Atlanta MPO	4,167,843	1,811,751	(43.5%)	285,910	(6.9%)
2. Medium MPOs	1,219,439	430,139	(35.3%)	37,264	(3.1%)
3. Small MPOs	777,264	278,552	(35.8%)	20,105	(2.6%)
4. Non-MPO	1,539,522	524,399	(34.1%)	54,126	(3.5%)
All workers ages 18+	4,736,051	2,972,715	(62.8%)	371,129	(7.8%)
MPO Tier					
1. Atlanta MPO	2,735,122	1,772,912	(64.8%)	268,167	(9.8%)
2. Medium MPOs	741,844	418,858	(56.5%)	34,295	(4.6%)
3. Small MPOs	474,303	273,055	(57.6%)	18,368	(3.9%)
4. Non-MPO	784,782	507,891	(64.7%)	50,299	(6.4%)

** NHTS defines a worker as someone who worked for pay or profit or was temporarily absent from paid employment in the week before completing their travel survey ("last week"). Of adults who were not classified as workers, 2.4 percent reported working on the travel day, including 0.9 percent who reported teleworking. These "nonworker" workers are included in totals for all adults, but not totals for workers.*

Note: Percents shown are percent of row subpopulation (adults or workers).

However, it is worth noting that more than one third of these irregular workers—36 percent—reported teleworking. This is a much higher rate than was observed among regular workers. This suggests that teleworking may be more common among people whose employment situations are not easily captured by the standard worker/nonworker binary measure. The issue of teleworking among irregular workers may therefore merit further study.

As table 75 shows, on a typical weekday, approximately 80 percent of workers will be actively working for pay. On weekends, this figure is 24 percent, and there is some variation across MPO tiers. Table 76 shows teleworking among these active workers.

Table 76. Travel day teleworking and conventional commuting among active workers.

	Exclusive Telework *(Worked from Home Only)*	**Mixed Telework** *(Worked from Home & Outside of Home)*	**Conventional Commute** *(Worked Outside of Home Only)*	**All Teleworking** *(Exclusive + Mixed)*
Weekdays				
All workers* ages 18+	9.0%	3.6%	87.5%	12.5%
MPO Tier				
1. Atlanta MPO	11.5%	3.6%	84.9%	15.1%
2. Medium MPOs	5.1%	2.8%	92.1%	7.9%
3. Small MPOs	3.0%	3.6%	93.3%	6.7%
4. Non-MPO	5.8%	4.2%	90.0%	10.0%
Weekends and Holidays				
All workers ages 18+	7.9%	4.1%	87.9%	12.1%
All Days				
All workers ages 18+	8.8%	3.7%	87.5%	12.5%
MPO Tier				
1. Atlanta MPO	11.3%	3.8%	84.9%	15.1%
2. Medium MPOs	5.1%	3.1%	91.8%	8.2%
3. Small MPOs	3.6%	3.1%	93.3%	6.7%
4. Non-MPO	6.2%	3.7%	90.1%	9.9%

Note: Percentages shown are row percentages based on the population of active workers (workers who reported working for pay or working from home for pay on the travel day).

* *NHTS defines a worker as someone who worked for pay or profit or was temporarily absent from paid employment in the week before completing their travel survey ("last week").*

As table 76 shows, at least 12.5 percent of active workers on a typical day will be working from home for some or all of their work day. Teleworking, particularly exclusive teleworking, is much more common in the Atlanta region than it is in the rest of the state. The area with the second-highest rate of teleworking is non-MPO counties, where nearby work opportunities may be less available. Rates of teleworking are similar on weekdays and weekends (12.5 percent and 12.1 percent, respectively).

Due to sample size concerns, weekend telecommuting is not disaggregated by MPO tier.

WORK FLEXIBILITY FOR WHOM?

The opportunity to work from home or have a flexible schedule is not evenly distributed among Georgia workers. This section examines differences by region, employment characteristics, and demographic characteristics in who has the ability to choose their own work location or schedule.

Workers are considered to have a flexible schedule if they have some leeway over what time they start and stop their work day. For this study, the category of flexible location includes: (1) workers who usually work outside the home but have the ability to telecommute (even if they have not done so within the past 30 days), and (2) home-based workers. Workers who fit neither category do not have location flexibility.

Descriptive Statistics on Access to Flexible Schedule and Work Location

As shown in table 77, 45.9 percent of workers have access to some form of flexibility, whether that be schedule (18.7 percent), location (4.9 percent), or both (22.3 percent). Work flexibility is more common in the Atlanta MPO region, where a slight majority of workers have some form of flexibility, than in the rest of the state. Workers with higher education levels and incomes are more likely to have flexible schedules and locations. Work flexibility is also more common among professional, managerial, and technical jobs than other occupation categories.

Table 77. Employment flexibility by MPO, job characteristics, educational attainment, and income.

	Flexibility Type				Totals	
	Schedule Only	Location* Only	Schedule & Location*	No Flexibility	Flexible Schedule *With or Without Location*	Flexible Location* *With or Without Schedule*
All workers	18.7%	4.9%	22.3%	54.2%	40.9%	27.1%
MPO Tier						
1. Atlanta MPO	19.2%	5.7%	27.2%	47.9%	46.4%	32.9%
2. Medium MPOs	18.2%	4.0%	15.1%	62.7%	33.3%	19.1%
3. Small MPOs	18.5%	3.1%	15.1%	63.2%	33.6%	18.2%
4. Non-MPO counties	17.4%	3.9%	15.9%	62.8%	33.3%	19.8%
Worker Type						
Full-time	16.9%	4.4%	19.8%	58.9%	36.7%	24.2%
Part-time	19.1%	5.0%	22.9%	53.1%	41.9%	27.8%
Occupational Category						
Sales or service	13.1%	6.1%	19.5%	61.4%	32.6%	25.5%
Clerical or administrative support	21.4%	4.7%	12.4%	61.5%	33.8%	17.0%
Blue collar†	18.0%	3.7%	9.4%	68.9%	27.4%	13.1%
Professional, managerial, or technical	21.7%	4.6%	30.8%	42.9%	52.5%	35.4%
Educational Attainment						
High school or less	16.2%	5.7%	8.8%	69.2%	25.0%	14.6%
Some college or associate degree	17.7%	4.4%	14.6%	63.3%	32.3%	19.0%
Bachelor's (4-year) degree	19.7%	5.9%	33.1%	41.3%	52.8%	39.0%
Postgraduate or professional degree	21.8%	3.2%	37.5%	37.5%	59.3%	40.6%
Annual Household Income						
<$35,000	15.2%	6.1%	10.5%	68.2%	25.6%	16.6%
$35,000 to $49,999	15.8%	3.3%	12.3%	68.6%	28.1%	15.6%
$50,000 to $74,999	18.7%	4.8%	17.6%	59.0%	36.2%	22.3%
$75,000 to $99,999	23.2%	4.3%	23.1%	49.4%	46.3%	27.4%
$100,000+	21.3%	4.7%	37.8%	36.2%	59.1%	42.5%

* *Includes home-based workers and telecommute-eligible workers.*

† *Blue collar refers to manufacturing, construction, maintenance, or farming.*

However, access to employment flexibility is also correlated with a number of demographic characteristics that are not directly related to job type or function (table 78). White workers are more likely to have flexible jobs than workers of other races. Workers with a mobility impairment are slightly more likely than nondisabled workers to have a flexible schedule, and much more likely to have a flexible location (38.5 percent versus 26.9 percent). It is unclear whether this is an accommodation offered by employers to workers with disabilities, or if mobility-impaired workers unable to find flexible employment simply exit the labor market.

Men are more likely to have a flexible schedule and location than women. This gap is more pronounced among caregivers for children under the age of 16 than it is among noncaregivers (table 79), despite the fact that the burden of childcare falls disproportionately on women (McQuaid and Chen 2012, Loukaitou-Sideris 2016). As the next section (Logistic Regression Analysis of Eligibility for Flexible Work Schedule) will show, many of these demographic differences in employment flexibility persist after controlling for other factors.

Table 78. Employment flexibility by sex, caregiver status, age, race, and mobility impairment.

	Flexibility Type				Totals	
	Schedule Only	Location* Only	Schedule & Location	No Flexibility	Flexible Schedule *With or Without Location*	Flexible Location* *With or Without Schedule*
All workers	18.7%	4.9%	22.3%	54.2%	40.9%	27.1%
Sex						
Male	19.9%	4.4%	23.7%	52.0%	43.6%	28.1%
Female	17.2%	5.4%	20.6%	56.8%	37.8%	26.0%
Caregiver Status§						
Noncaregiver	18.4%	5.3%	21.2%	55.1%	39.6%	26.5%
Caregiver, youngest child ages 0–15	19.1%	4.1%	24.0%	52.7%	43.1%	28.2%
Age Cohort						
Millennial and Gen Z (18–36)	15.5%	4.9%	16.6%	63.0%	32.2%	21.5%
Generation X (37–52)	19.7%	4.6%	25.4%	50.2%	45.1%	30.0%
Pre-retirement age Baby Boomer (53–64)	20.9%	5.9%	24.5%	48.7%	45.3%	30.4%
Retirement age (65+)	25.5%	1.9%	33.4%	39.1%	58.9%	35.4%
Race						
White non-Hispanic only	20.9%	3.5%	26.0%	49.6%	46.9%	29.4%
Black and Black multiracial	14.4%	7.5%	17.0%	61.1%	31.3%	24.5%
Other	18.8%	4.6%	18.8%	57.8%	37.6%	23.4%
Mobility Impairment						
Absent	18.8%	4.9%	22.0%	54.2%	40.9%	26.9%
Present	7.8%	2.5%	36.0%	53.6%	43.8%	38.5%

* *Includes home-based workers and telecommute-eligible workers.*

§ *A caregiver is defined as any adult age 18+ in a household with a child of less than 5 years old, and any adult age 22+ in a household with a child 5–15 years old.*

Table 79. Employment flexibility by caregiver status.

	Flexibility Type				Totals	
	Schedule Only	Location* Only	Schedule & Location	No Flexibility	Flexible Schedule *With or Without Location*	Flexible Location* *With or Without Schedule*
Male noncaregiver	18.9%	5.0%	22.4%	53.8%	41.3%	27.3%
Female noncaregiver	17.8%	5.6%	19.9%	56.7%	37.7%	25.5%
Male caregiver§	21.6%	3.4%	26.0%	49.1%	47.6%	29.4%
Female caregiver	16.2%	5.1%	21.7%	57.1%	37.9%	26.8%
By Age of Youngest Child						
Youngest, ages 0–4	18.7%	4.1%	23.5%	53.7%	42.2%	27.6%
Youngest, ages 5–15	19.5%	4.1%	24.5%	51.9%	44.0%	28.7%
Household Type						
Male co-caregiver	21.6%	3.4%	26.1%	48.8%	47.7%	29.6%
Female co-caregiver	16.3%	4.7%	22.9%	56.1%	39.2%	27.6%
Male single caregiver	21.6%	0.0%	20.0%	58.4%	41.6%	20.0%
Female single caregiver	15.7%	6.5%	17.1%	60.7%	32.8%	23.6%
Household Type and Age of Youngest Child‡						
Male co-caregiver, youngest ages 0–4	21.4%	3.4%	24.8%	50.5%	46.1%	28.2%
Female co-caregiver, youngest ages 0–4	14.2%	5.5%	23.3%	57.1%	37.4%	28.8%
Female single caregiver, youngest ages 0–4	22.1%	2.7%	12.0%	63.2%	34.1%	14.6%
Male co-caregiver, youngest ages 5–15	21.8%	3.5%	27.5%	47.2%	49.3%	31.0%
Female co-caregiver, youngest ages 5–15	18.3%	4.0%	22.5%	55.3%	40.7%	26.4%
Male single caregiver, youngest ages 5–15	23.1%	0.0%	16.0%	60.9%	39.1%	16.0%
Female single caregiver, youngest ages 5–15	12.5%	8.4%	19.7%	59.4%	32.1%	28.1%

* *Includes home-based workers and telecommute-eligible workers.*

§ *A caregiver is defined as any adult age 18+ in a household with a child of less than 5 years old, and any adult age 22+ in a household with a child 5–15 years old.*

‡ *Male single caregivers with youngest child ages 0–4 are omitted due to small sample size (5 individuals).*

Sixty percent of college-educated workers have a flexible schedule, location, or both (table 80), whereas only 34 percent of workers without a 4-year college degree have location or schedule flexibility (table 81).

In addition to the direct difference in flexibility between workers with and without a college degree, the relationship between some other demographic / employment characteristics and flexibility differs between those two groups. For example, for low-education workers, sales and service jobs are among the least likely to have flexibility (along with blue-collar jobs), whereas for high-education workers, sales and service jobs are among the *most* likely to have flexibility (along with professional, managerial, and technical jobs). Similarly, the gender gap in flexibility is much larger among college-educated workers. Among high-education workers, there is a 14 percentage-point difference between genders: 67 percent of college-educated male workers have some form of flexibility, versus 53 percent of similarly educated women (table 82). Approximately one third of low-education workers have some kind of employment flexibility, regardless of gender (table 83).

A number of demographic and employment characteristics are correlated with each other quite apart from flexibility considerations, and thus, in addition to examining the relationship to flexibility of one or two other variables at a time, it is desirable to be able to assess the relationship of one variable to flexibility while simultaneously controlling for as many other variables as possible. In the next two subsections, we use logistic regression to isolate the effects of different demographic variables and job characteristics on work schedule and location flexibility, respectively.

Table 80. Employment flexibility for workers with a 4-year college degree by location and job characteristics.

	Flexibility Type				Totals	
	Schedule Only	Location* Only	Schedule & Location	No Flexibility	Flexible Schedule *With or Without Location*	Flexible Location* *With or Without Schedule*
All workers with a 4-year college degree	20.6%	4.7%	35.0%	39.7%	55.6%	39.7%
MPO Tier						
1. Atlanta MPO	19.8%	5.3%	40.2%	34.7%	60.0%	45.5%
2. Medium MPOs	23.4%	4.3%	21.5%	50.7%	45.0%	25.8%
3. Small MPOs	26.4%	3.8%	28.6%	41.1%	55.0%	32.5%
4. Non-MPO counties	17.5%	1.7%	23.0%	57.8%	40.5%	24.6%
Worker Type						
Full-time	21.6%	4.6%	34.9%	38.9%	56.6%	39.5%
Part-time	20.4%	4.7%	35.0%	39.8%	55.4%	39.7%
Occupational Category						
Sales or service	14.7%	5.2%	41.2%	38.9%	55.9%	46.4%
Clerical or administrative support	23.3%	7.5%	13.3%	55.9%	36.6%	20.8%
Blue collar†	19.3%	1.6%	20.8%	58.3%	40.0%	22.4%
Professional, managerial, or technical	21.8%	4.5%	36.7%	36.9%	58.6%	41.2%
Annual Household Income						
<$35,000	17.1%	6.3%	19.6%	57.0%	36.6%	25.9%
$35,000 to $49,999	25.2%	3.0%	18.2%	53.6%	43.4%	21.2%
$50,000 to $74,999	15.4%	4.6%	28.0%	52.1%	43.3%	32.6%
$75,000 to $99,999	22.8%	4.4%	31.6%	41.2%	54.4%	36.0%
$100,000+	21.6%	4.7%	44.7%	29.0%	66.3%	49.4%

* *Includes home-based workers and telecommute-eligible workers.*

† *Blue collar refers to manufacturing, construction, maintenance, or farming.*

Table 81. Employment flexibility for workers without a 4-year college degree by location and job characteristics.

	Flexibility Type				Totals	
	Schedule Only	Location* Only	Schedule & Location	No Flexibility	Flexible Schedule *With or Without*	Flexible Location* *With or Without*
All workers without a 4-year college degree	17.0%	5.0%	12.1%	65.9%	29.1%	17.1%
MPO Tier						
1. Atlanta MPO	18.3%	6.1%	12.8%	62.8%	31.1%	18.9%
2. Medium MPOs	14.3%	3.7%	10.4%	71.7%	24.6%	14.1%
3. Small MPOs	15.0%	2.8%	9.1%	73.1%	24.0%	11.9%
4. Non-MPO counties	17.3%	4.7%	13.5%	64.5%	30.8%	18.2%
Worker Type						
Full-time	14.6%	4.3%	12.5%	68.6%	27.1%	16.8%
Part-time	17.8%	5.2%	11.9%	65.1%	29.7%	17.2%
Occupational Category						
Sales or service	12.5%	6.4%	11.1%	70.0%	23.6%	17.5%
Clerical or administrative support	20.4%	3.1%	11.9%	64.6%	32.3%	15.0%
Blue collar†	17.6%	4.0%	7.8%	70.6%	25.4%	11.9%
Professional, managerial, or technical	21.2%	4.8%	17.9%	56.0%	39.2%	22.8%
Annual Household Income						
<$35,000	14.5%	6.1%	8.3%	71.1%	22.8%	14.4%
$35,000 to $49,999	11.5%	3.5%	9.5%	75.4%	21.1%	13.0%
$50,000 to $74,999	20.7%	4.9%	11.0%	63.4%	31.7%	15.8%
$75,000 to $99,999	23.6%	4.1%	13.9%	58.4%	37.5%	18.1%
$100,000+	20.5%	4.8%	21.3%	53.4%	41.8%	26.1%

* *Includes home-based workers and telecommute-eligible workers.*

† *Blue collar refers to manufacturing, construction, maintenance, or farming.*

Table 82. Employment flexibility among workers with a 4-year college degree by sex, caregiver status, age, race, and mobility impairment.

	Flexibility Type				Totals	
	Schedule Only	Location* Only	Schedule & Location	No Flexibility	Flexible Schedule *With or Without*	Flexible Location* *With or Without*
All workers with a 4-year college degree	20.6%	4.7%	35.0%	39.7%	55.6%	39.7%
Sex						
Male	23.1%	4.0%	39.9%	33.0%	63.0%	43.9%
Female	18.0%	5.5%	29.9%	46.6%	47.9%	35.4%
Caregiver Status§						
Noncaregiver	20.4%	5.0%	33.6%	40.9%	54.1%	38.7%
Caregiver, youngest child ages 0–15	20.9%	4.2%	37.0%	37.9%	57.9%	41.2%
Age Cohort						
Millennial and Gen Z (18–36)	17.3%	5.5%	32.5%	44.7%	49.8%	37.9%
Generation X (37–52)	21.5%	3.9%	35.9%	38.6%	57.5%	39.9%
Pre-retirement age Baby Boomer (53–64)	23.6%	5.5%	34.9%	36.0%	58.5%	40.4%
Retirement age (65+)	23.4%	2.8%	45.1%	28.7%	68.5%	47.9%
Race						
White non-Hispanic only	21.0%	3.9%	36.9%	38.1%	58.0%	40.9%
Black and Black multiracial	16.5%	6.1%	30.7%	46.6%	47.3%	36.9%
Other	26.7%	5.9%	33.6%	33.9%	60.2%	39.4%
Mobility Impairment						
Absent	20.8%	4.8%	34.7%	39.8%	55.4%	39.4%
Present	10.0%	1.5%	55.5%	33.0%	65.5%	57.0%

* *Includes home-based workers and telecommute-eligible workers.*

§ *A caregiver is defined as any adult age 18+ in a household with a child of less than 5 years old, and any adult age 22+ in a household with a child of 5–15 years old.*

Table 83. Employment flexibility among workers without a 4-year college degree by sex, caregiver status, age, race, and mobility impairment.

	Flexibility Type				Totals	
	Schedule Only	Location* Only	Schedule & Location	No Flexibility	Flexible Schedule *With or Without*	Flexible Location* *With or Without*
All workers without a 4-year college degree	17.0%	5.0%	12.1%	65.9%	29.1%	17.1%
Sex						
Male	17.5%	4.7%	12.0%	65.8%	29.5%	16.7%
Female	16.5%	5.4%	12.2%	66.0%	28.6%	17.5%
Caregiver Status§						
Noncaregiver	16.8%	5.5%	12.0%	65.8%	28.8%	17.5%
Caregiver, youngest child ages 0–15	17.5%	4.1%	12.2%	66.2%	29.7%	16.3%
Age Cohort						
Millennial and Gen Z (18–36)	14.3%	4.5%	6.2%	75.0%	20.5%	10.7%
Generation X (37–52)	17.8%	5.4%	14.9%	62.0%	32.6%	20.2%
Pre-retirement age Baby Boomer (53–64)	18.9%	6.3%	16.5%	58.4%	35.4%	22.8%
Retirement age (65+)	27.1%	1.3%	24.3%	47.3%	51.4%	25.6%
Race						
White non-Hispanic only	20.9%	3.0%	15.1%	61.0%	35.9%	18.1%
Black and Black multiracial	13.2%	8.3%	9.3%	69.2%	22.4%	17.6%
Other	12.6%	3.8%	8.0%	75.6%	20.6%	11.8%
Mobility Impairment						
Absent	17.2%	5.0%	11.8%	65.9%	29.1%	16.9%
Present	6.4%	3.3%	22.7%	67.6%	29.1%	26.0%

* *Includes home-based workers and telecommute-eligible workers.*

§ *A caregiver is defined as any adult age 18+ in a household with a child of less than 5 years old, and any adult age 22+ in a household with a child of 5–15 years old.*

Logistic Regression Analysis of Eligibility for Flexible Work Schedule

Some of the demographic differences discussed in the previous section (Descriptive Statistics on Access to Flexible Schedule and Work Location) are likely attributable to intergroup differences in education attainment and job type. However, using logistic regression analysis, the research team found that even after controlling for relevant characteristics of the jobs themselves, eligibility for a flexible work schedule is associated with characteristics unrelated to the employee's qualifications or work function (table 84).

Being female and nonwhite are both associated with a statistically significant reduction in the likelihood of having a flexible work schedule among both home-based and nonhome-based workers. Among nonhome-based workers, being a caregiver for a child is associated with an increased likelihood of having a flexible schedule, but this effect only applies to male caregivers once the children reach school age.

The likelihood of having schedule flexibility increases with age. Where a worker lives impacts the likelihood that she will have a flexible schedule, but only for nonhome-based workers. For those who work primarily from home, MPO tier does not have a significant effect.

An additional set of models incorporating interaction terms with education level was estimated. The models are not shown because they did not represent an improvement to the overall goodness of fit. However, a few key insights are worth noting. In line with patterns in the descriptive statistics in the previous section, the gender gap in schedule flexibility is greater among college-educated workers as compared to the gap between men and women without a four-year college degree. Conversely, race-based inequality in schedule flexibility is smaller among college-educated workers than for workers without a four-year degree.

Table 84. Logistic regressions: Eligibility for flexible work schedule among Georgia workers.

	All Workers	Nonhome-based Workers Only	Home-based Workers Only
Female	-0.3593 ***	-0.3420 ***	-0.4727 **
Caregiver,[§] youngest child 0–4 years old	0.2418 **	0.2446 **	0.0464
Caregiver, youngest child 5–15 years old	0.3126 ***	0.3011 ***	0.4706
Female x caregiver, youngest 0–4 years old	-0.0380	-0.1008	0.5872
Female x caregiver, youngest 5–15 years old	-0.3925 ***	-0.4863 ***	0.3251
Education level (reference: high school or less)			
Some college or associate degree	0.2901 ***	0.2274 ***	0.7466 ***
Bachelor's (4-year) degree	0.7758 ***	0.7343 ***	1.0166 ***
Postgraduate or professional degree	0.8919 ***	0.8300 ***	1.4035 ***
Race (reference: white non-Hispanic)			
Black and Black multiracial	-0.5917 ***	-0.5136 ***	-1.1412 ***
Other	-0.1898 **	-0.1274	-0.7870 ***
MPO Tier (reference: Atlanta)			
2. Medium MPOs	-0.3350 ***	-0.3611 ***	-0.0684
3. Small MPOs	-0.3247 ***	-0.3253 ***	-0.4075
4. Non-MPO	-0.3421 ***	-0.3653 ***	-0.1077
Age	0.0209 ***	0.0200 ***	0.0272 ***
Mobility impairment	0.0025	-0.0968	0.5338
Occupational Category (reference: sales and service)			
Clerical or administrative support	0.0275	0.0634	-0.2739
Blue collar[†]	-0.1324	-0.1506	0.1720
Professional, managerial, or technical	0.3304 ***	0.3705 ***	0.0327
Full-time worker	0.0498	0.0942	-0.1484
Home-based worker	1.9913 ***		
Constant	-1.6710 ***	-1.6515 ***	0.0482
Model Indicators			
Number of cases, N	7960	6890	1070
Final log likelihood, LL(β)	-4692.4	-4239.9	-432.7
Market share log likelihood, LL(MS)	-5463.5	-4582.6	-494.2
McFadden's pseudo-R^2: 1-LL(β)/LL(MS) α	α 0.141	α 0.075	0.125

*Coefficients shown. *** denotes significance for =.01, ** for =.05, and * for =.10.*

[§] A caregiver is defined as any adult age 18+ in a household with a child of less than 5 years old, and any adult age 22+ in a household with a child of 5–15 years old.

[†] Blue collar refers to manufacturing, construction, maintenance, or farming.

Logistic Regression Analysis of Eligibility for Flexible Work Location

So far, this report has treated location flexibility as a binary variable. However, flexible work location is actually subdivided between *home-based workers*, who usually work from home, and *telecommute-eligible workers*, who work outside the home but have the option to telework sometimes instead of going to their usual work location. The remaining workers, *telecommute-ineligible workers*, are nonhome-based workers without the opportunity to telecommute.

Table 85 shows the distribution of telecommute eligibility and home-based work by various demographic characteristics. We constructed a multinomial logistic regression to model the likelihood of being a telecommute-eligible or home-based worker, as compared to the base category of telecommute-ineligible worker (table 86).

As with schedule flexibility, being female reduces the likelihood of being telecommute-eligible and home-based. Being a caregiver influences telecommute eligibility and being a home-based worker differently. Being a caregiver of children ages 5–15 is associated with an increased likelihood of being telecommute-eligible, but only for men. However, for home-based work, female caregivers are *more* likely to be home-based; there is no effect for male caregivers.

People of color are less likely to be telecommute-eligible; race does not have a significant effect on home-based work.

Having a mobility impairment does not have a significant effect on the likelihood of being telecommute-eligible, but it does increase the likelihood of being a home-based worker. This suggests that many disabled workers are selecting home-based work rather than being offered accommodations by employers. Workers in Atlanta are more likely to have the option to telecommute *and* to be home-based workers. While being a full-time worker did not have a significant effect on schedule flexibility, it is associated with an increased likelihood of being telecommute-eligible and a decreased likelihood of being a home-based worker.

Table 85. Teleworking status of Georgia workers (descriptive statistics).

	Home-based	Telecommute-eligible	Telecommute-ineligible
All workers	13.7%	13.5%	72.8%
MPO Tier			
1. Atlanta MPO	16.0%	17.0%	67.1%
2. Medium MPOs	8.8%	10.3%	80.8%
3. Small MPOs	8.8%	9.5%	81.7%
4. Non-MPO	13.0%	6.9%	80.2%
Sex			
Male	12.2%	15.9%	71.9%
Female	15.4%	10.7%	74.0%
Age Cohort			
Millennial and Gen Z (18–36)	10.3%	11.2%	78.5%
Generation X (37–52)	14.0%	16.1%	69.9%
Pre-retirement age Baby Boomer (53–64)	17.2%	13.1%	69.6%
Retirement age (65+)	22.6%	12.9%	64.5%
Race			
White non-Hispanic only	13.7%	15.8%	70.5%
Black and Black multiracial	13.6%	10.8%	75.5%
Other	13.4%	10.0%	76.6%
Medical Condition			
Absent	13.5%	13.5%	73.1%
Present	23.7%	15.0%	61.3%
Occupation Category			
Sales or service	16.4%	9.2%	74.4%
Clerical or administrative support	9.8%	7.4%	82.8%
Blue collar§	6.9%	6.3%	86.8%
Professional, managerial, or technical	15.4%	20.1%	64.6%
Education			
HS or less	9.3%	5.3%	85.4%
Some college or associate degree	10.6%	8.4%	81.0%
Bachelor's degree or higher	18.2%	21.5%	60.2%
Work Schedule			
Part-time	19.1%	5.3%	75.7%
Full-time	12.3%	15.5%	72.2%
Annual Household Income			
<$35,000	11.6%	5.0%	83.4%
$35,000 to $49,999	10.7%	4.9%	84.4%
$50,000 to $74,999	12.9%	9.5%	77.6%
$75,000 to $99,999	9.5%	17.9%	72.6%
$100,000+	18.6%	23.9%	57.5%
Schedule Flexibility (Flextime)			
Flexible	25.7%	28.7%	45.6%
Not flexible	5.2%	3.0%	91.8%

§ *Blue collar refers to manufacturing, construction, maintenance, or farming.*

Table 86. Multinomial logistic regression: Teleworking status of Georgia workers.

Base Category: Telecommute-ineligible workers

	Telecommute-eligible Worker†		Home-based Worker†	
	Odds Ratio	P-value	Odds Ratio	P-Value
Female	0.746	0.001 ***	0.768	0.002 ***
Caregiver,§ youngest child 0–4 years old	1.133	0.345	0.754	0.102
Caregiver, youngest child 5–15 years old	1.379	0.008 ***	0.883	0.397
Female x caregiver, youngest 0–4	0.969	0.878	2.302	0.000 ***
Female x caregiver, youngest 5–15	0.625	0.014 **	1.527	0.030 **
Education level (reference: high school or less)				
Some college or associate degree	1.531	0.002 ***	1.408	0.003 ***
Bachelor's (4-year) degree	3.394	0.000 ***	2.780	0.000 ***
Postgraduate or professional degree	3.437	0.000 ***	2.506	0.000 ***
Race (reference: white non-Hispanic)				
Black and Black multiracial	0.690	0.000 ***	0.876	0.136
Other	0.656	0.002 ***	0.810	0.120
MPO Tier (reference: Atlanta)				
2. Medium MPOs	0.553	0.000 ***	0.554	0.000 ***
3. Small MPOs	0.469	0.000 ***	0.503	0.000 ***
4. Non-MPO	0.492	0.000 ***	0.686	0.004 ***
Age	1.009	0.002 ***	1.027	0.000 ***
Mobility impairment	1.478	0.175	1.681	0.023 **
Occupational Category (reference: sales and service)				
Clerical or administrative support	0.731	0.053 *	0.461	0.000 ***
Blue collar‡	0.630	0.002 ***	0.502	0.000 ***
Professional, managerial, or technical	1.181	0.088 *	0.656	0.000 ***
Full-time worker	1.797	0.000 ***	0.492	0.000 ***
Constant	0.058	0.000 ***	0.112	0.000 ***
Model Indicators				
Number of cases, N	7,972			
Final log likelihood, LL(β)	-5617.21			
Market share log likelihood, LL(MS)	-6140.95			
McFadden's pseudo-R^2: 1-LL(β)/LL(MS)	0.085			

Base category: Telecommute-ineligible workers (those who work outside the home without the option of teleworking).

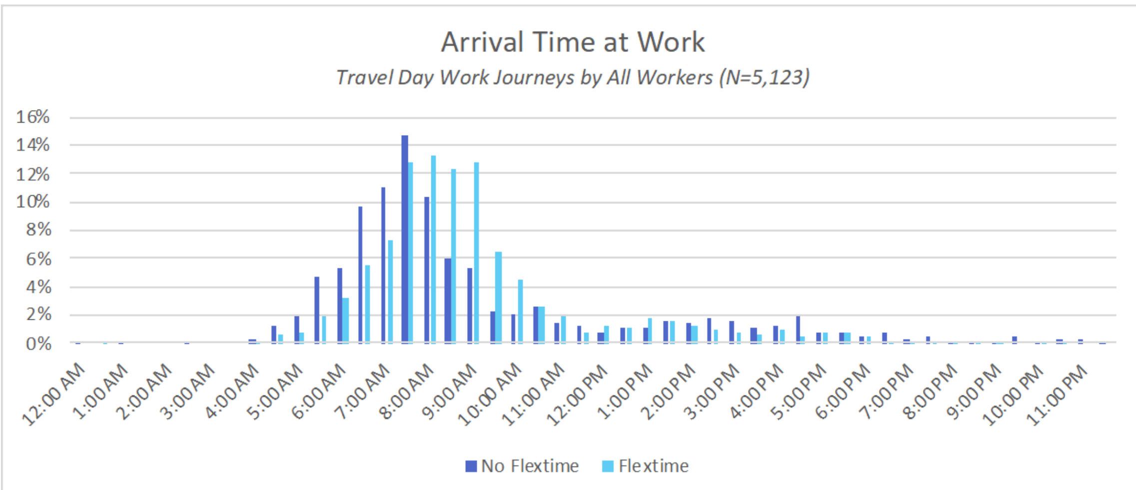
§ A caregiver is defined as any adult age 18+ in a household with a child of less than 5 years old, and any adult age 22+ in a household with a child of 5–15 years old.

† Telecommute-eligible workers usually work outside of the home but have the option of telecommuting. Home-based workers usually work from home.

‡ Blue collar refers to manufacturing, construction, maintenance, or farming.

THE EFFECTS OF FLEXIBLE SCHEDULING

Having examined which workers are *allowed* a degree of flexibility with regard to their work starting time and location in the previous section, this section discusses the effects of that flexibility on workers' *behavior*. Figure 20 shows weighted histograms of the time of arrival at and departure from work for workers' travel-day commutes. Workers with flexible schedules tend to both arrive at and depart from work later than those with inflexible schedules.



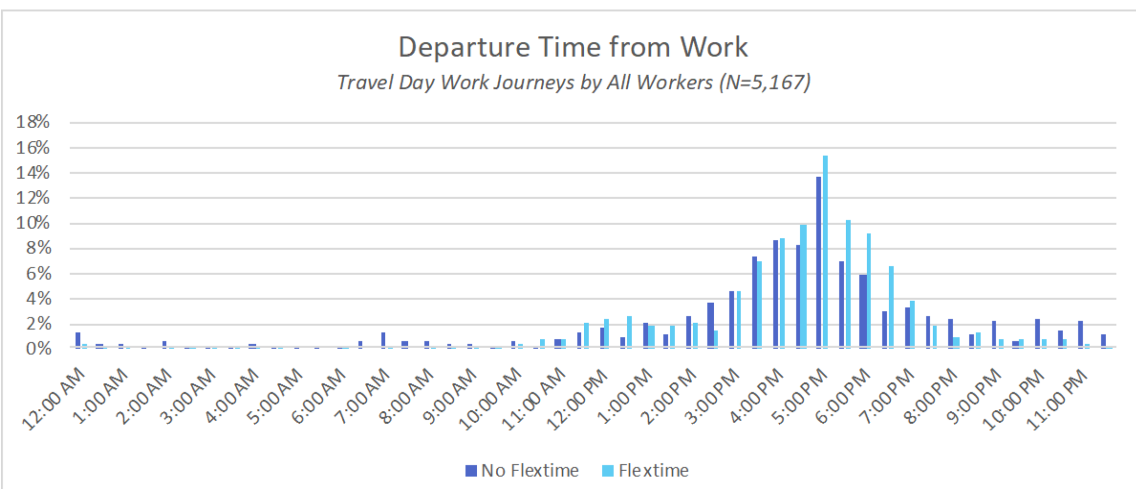


Figure 20. Bar graphs. Commute schedules of workers with and without flexible working times.

The difference is most pronounced with respect to arrival times at work. The median arrival time for a worker with a flexible schedule is 8:34 a.m., 34 minutes later than the median arrival time for workers with inflexible schedules (table 87). For departure from work, the difference is just 15 minutes (5:00 p.m. vs. 4:45 p.m.). Figure 20 also shows a small secondary peak in the departure times of workers with flexible schedules during the afternoon, though it is unknown if these early departures are followed by teleworking after the worker arrives at home.

Flexible work scheduling is also associated with less dispersion of arrival and departure times. The interquartile range of work arrival times for workers with inflexible schedules is 200 minutes (7:00–10:20 a.m.) (not included in table). For workers with flexible schedules, it is just 125 minutes (7:40–9:45 a.m.), a time period that is more than an hour shorter. For departures, the difference is again somewhat smaller. Workers with inflexible schedules have an interquartile range of 180 minutes (3:00–6:00 p.m.), versus 150 minutes for workers with flexible schedules (3:30–6:00 p.m.).

Table 87 also shows information about arrival and departure times disaggregated by MPO tier, occupational category, educational attainment, and worker type. Flexible scheduling is associated with wider differences in arrival times in small MPO areas and non-MPO counties. However, for departure times, the differences are larger in Atlanta and medium MPOs. Contrary to the general trend, part-time workers with flexible schedules tend to arrive at and depart from work *earlier* than those with inflexible schedules.

Table 87. Median work arrival and departure times by schedule flexibility, MPO tier, education, and employment characteristics.

	Median Work Arrival Time (am)			Median Work Departure Time (pm)		
	Inflexible Schedule	Flexible Schedule	Difference (minutes)	Inflexible Schedule	Flexible Schedule	Difference (minutes)
All workers	8:00	8:34	34	4:45	5:00	15
MPO Tier						
1. Atlanta MPO	8:05	8:38	33	4:45	5:00	15
2. Medium MPOs	7:55	8:20	25	4:30	4:50	20
3. Small MPOs	8:00	9:00	60	4:55	4:45	-10
4. Non-MPO	7:40	8:28	48	5:00	5:00	0
Occupational Category						
Sales or service	9:06	9:10	4	5:00	5:00	0
Clerical or administrative support	7:55	8:30	35	4:41	4:30	-11
Blue collar*	7:01	8:00	59	4:05	5:00	55
Professional, managerial, or technical	7:54	8:30	36	4:55	5:00	5
Educational Attainment						
High school or less	8:00	8:26	26	4:30	5:00	30
Some college or associate degree	8:00	8:37	37	4:45	5:00	15
Bachelor's (4-year) degree	7:57	8:40	43	5:00	5:00	0
Postgraduate or professional degree	7:55	8:40	45	5:00	5:00	0
Worker Type						
Part-time	10:03	9:35	-28	4:30	3:50	-40
Full-time	7:50	8:30	40	4:50	5:00	10

* *Blue collar refers to manufacturing, construction, maintenance, or farming.*

The difference in median arrival times between workers with and without flexible scheduling is largest among blue-collar workers (59 minutes) and smallest among sales and service workers (4 minutes). The difference in median departure times between workers with and without flexible schedules is also largest among blue-collar workers (55 minutes). Clerical and administrative workers with flexible schedules are the only occupation category to leave work earlier than their counterparts with nonflexible schedules (a difference of 11 minutes).

However, as visualized in figure 21 and figure 22, while flexible scheduling is not associated with substantial changes in *median* arrival and departure times for sales and service jobs, it is associated with a dramatic reduction in the interquartile range. For example, the interquartile range of arrival times for service jobs with inflexible schedules stretches across 6 hours (7:30 a.m.–1:25 p.m.), more than double the interquartile range for service jobs with flexible schedules (8:15–11:00 a.m.). However, the NHTS occupation categories are broad, and one possible interpretation of this finding is that, since jobs that allow for flexible schedules tend to be higher status, the difference in schedules may more accurately reflect a difference between higher-status service jobs (e.g., call center manager) versus lower-status jobs (e.g., retail employee).

Figure 21. Histograms. Arrival times at work for service and nonservice workers by schedule flexibility.

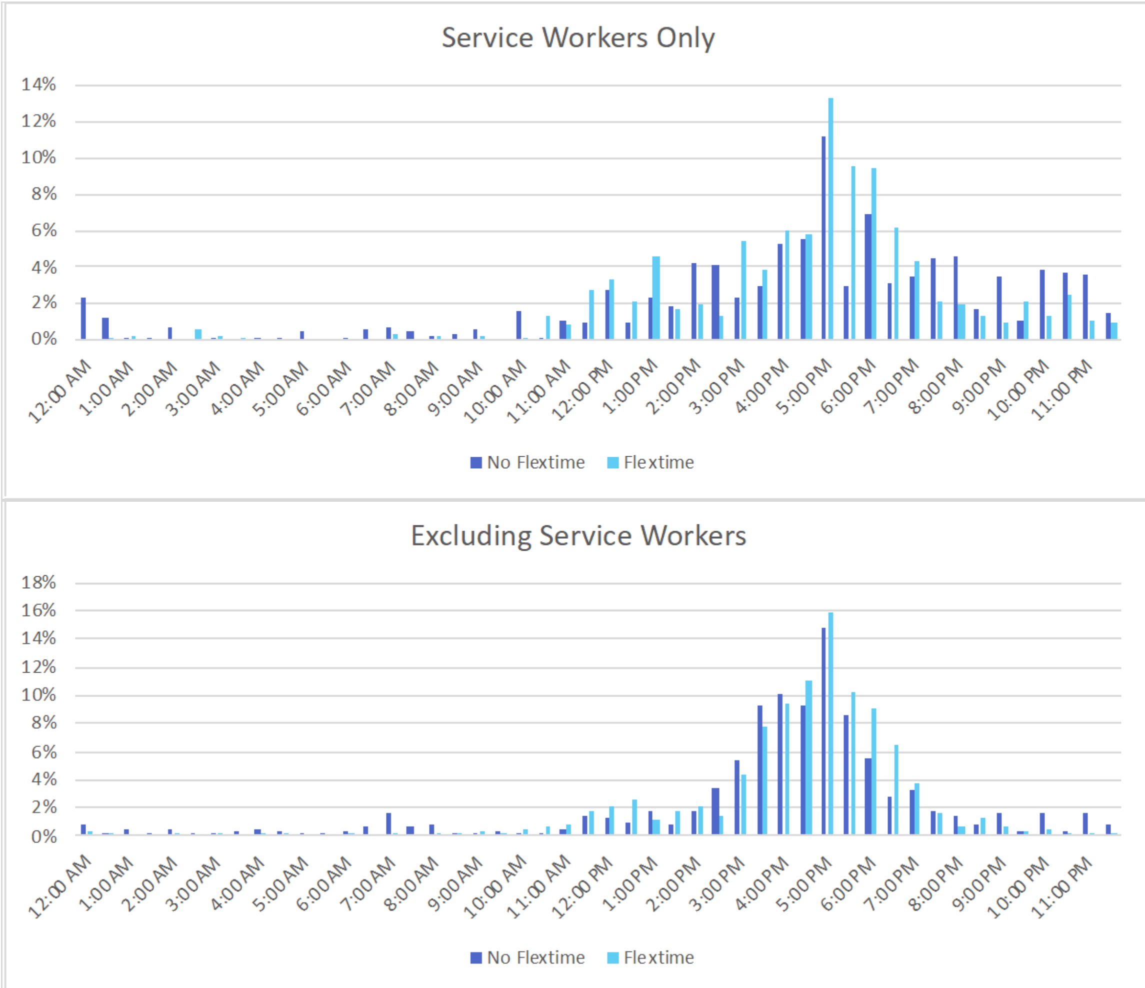


Figure 22. Histograms. Departure times from work for service and nonservice workers by schedule flexibility.

Table 88 shows median work arrival and departure times by schedule flexibility, disaggregated by demographic characteristics. Schedule flexibility is associated with larger differences between median arrival times and between median departure times for women and older workers. The differences between the median arrival times of flexible and inflexible workers are similar for caregivers and childless adults. However, caregivers show a larger difference in departures at the end of the work day. Flex time is associated with a larger difference in schedule among caregivers for older children (ages 5–15) than among those caring for younger children.

Figure 23 and figure 24 visually depict the variability of schedules among caregivers for young children by gender.

Table 88. Median work arrival and departure times by schedule flexibility, demographic characteristics, and caregiver status.

	Median Work Arrival Time (am)			Median Work Departure Time (pm)		
	Inflexible Schedule	Flexible Schedule	Difference (minutes)	Inflexible Schedule	Flexible Schedule	Difference (minutes)
All workers	8:00	8:34	34	4:45	5:00	15
Sex						
Male	7:55	8:20	25	5:00	5:00	0
Female	8:00	8:55	55	4:35	5:00	25
Caregiver Status						
Noncaregiver	8:00	8:40	40	5:00	5:00	0
Caregiver, youngest child ages 0–15	7:55	8:30	35	4:30	5:00	30
Age Cohort						
Millennial and Gen Z (18–36)	8:20	8:50	30	5:00	5:00	0
Generation X (37–52)	7:45	8:30	45	4:30	5:00	30
Pre-retirement age Baby Boomer(53–64)	7:50	8:30	40	4:30	5:00	30
Retirement age (65+)	8:00	9:00	60	5:00	4:15	-45
Annual Household Income						
<$35,000	8:00	9:00	60	4:30	5:00	30
$35,000 to $49,999	8:00	8:30	30	4:45	4:30	-15
$50,000 to $74,999	8:00	8:30	30	4:45	4:30	-15
$75,000 to $99,999	8:00	8:45	45	5:00	5:00	0
$100,000+	7:53	8:30	37	5:00	5:00	0
Race						
White non-Hispanic only	7:55	8:30	35	5:00	4:55	-5
Black and Black multiracial	8:00	8:30	30	4:30	5:00	30
Other	8:15	9:00	45	4:30	5:30	60
Mobility Impairment						
Absent	8:00	8:35	35	4:45	5:00	15
Present	10:45	8:10	-155	3:30	3:10	-20
Caregiver Status by Gender						
Male noncaregiver	8:00	8:25	25	5:00	5:00	0
Male caregiver	7:46	8:17	31	4:40	5:00	20
Female noncaregiver	8:03	8:55	52	5:00	5:00	0
Female caregiver	7:58	8:53	55	4:25	4:45	20
Caregiver Status by Age of Youngest Child						
Youngest child 0–4 years	8:00	8:30	30	4:50	5:00	10
Youngest child 5–15 years	7:45	8:30	45	4:25	5:00	35

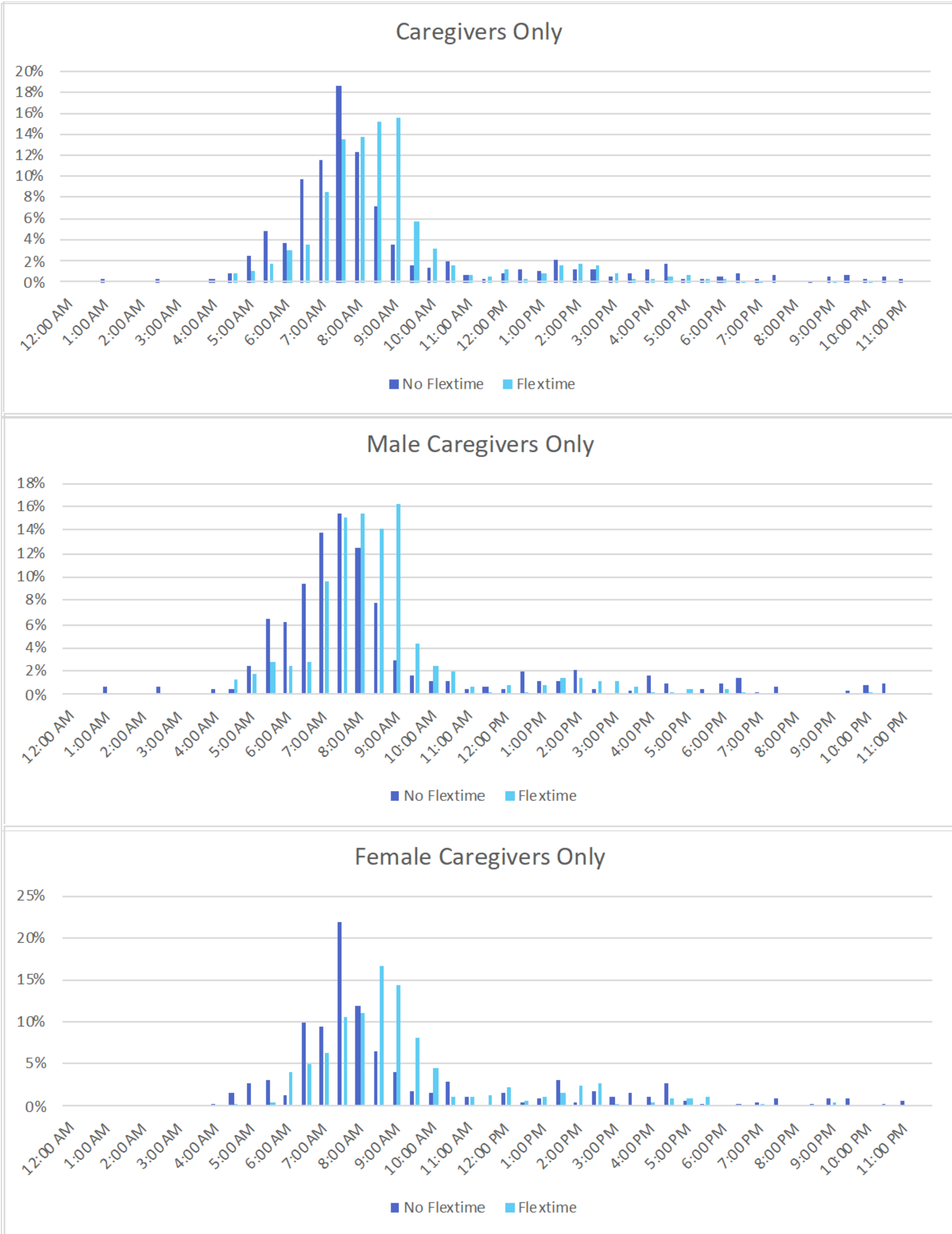


Figure 23. Histograms. Arrival times at work for caregivers by schedule flexibility and gender.

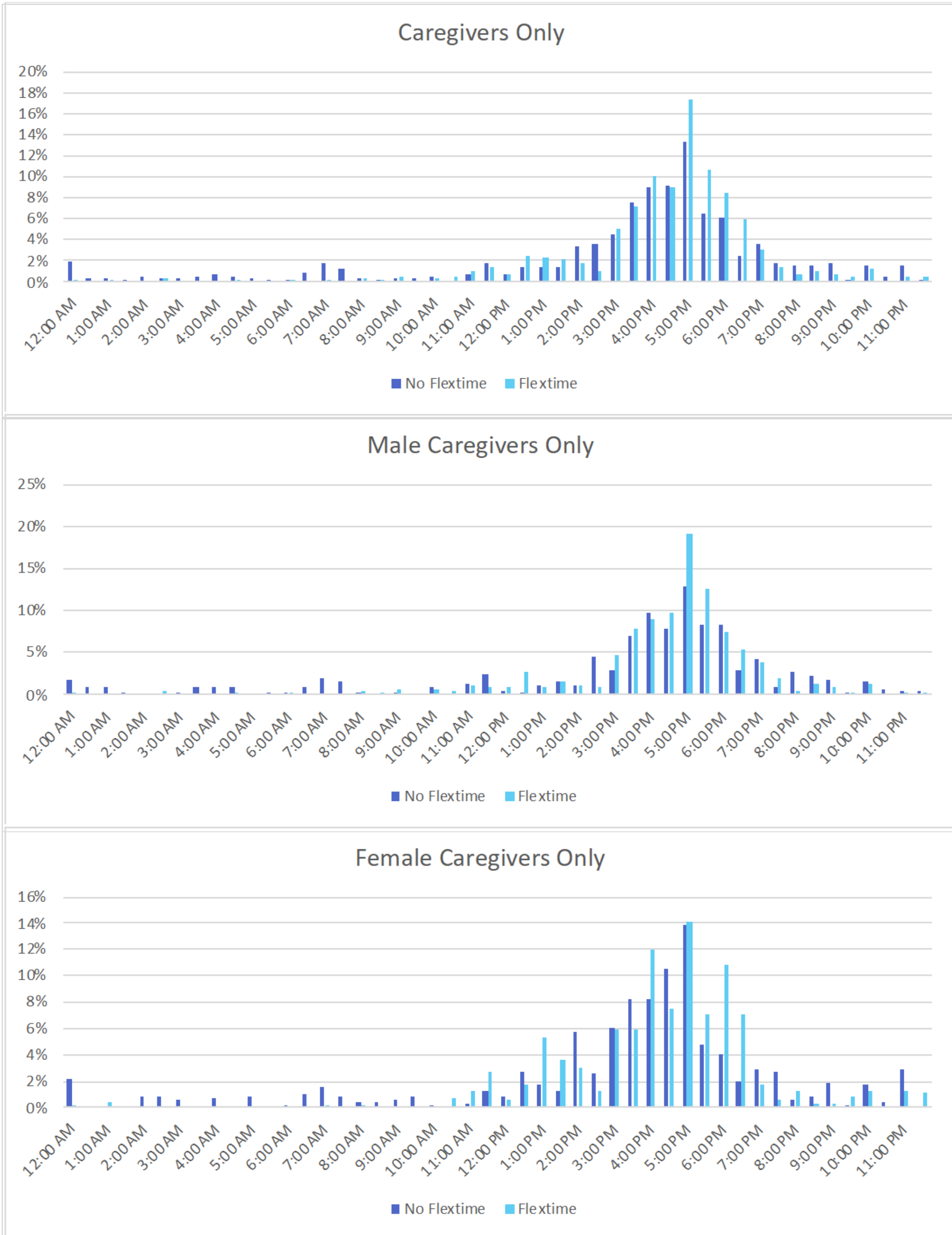


Figure 24. Histograms. Departure times from work for caregivers by schedule flexibility and gender.

Models of Work Arrival and Departure Times

Linear regression was used to isolate the relationship between flexible scheduling and work arrival and departure times (table 89). All else held equal, a worker with a flexible schedule will arrive at work an average of 22 minutes later than a comparable worker with an inflexible schedule, and they will depart from work an average of 6 minutes later. Unsurprisingly, occupation category and full-time status exert a strong influence on work arrival and departure times. Once other factors are accounted for, MPO tier is not associated with significant differences in either departure or arrival time. As measured by R^2, the goodness of fit is not high for either model (especially the departure time model), signifying that arrival and departure times are largely determined by factors unavailable in the data.

The researchers also modeled commute *duration* as a function of schedule flexibility and found no practically significant effect.[64]

[64] When the model was estimated, the flexibility coefficient was small in magnitude, statistically significant, but with a counterintuitive positive sign (indicating that, after controlling for commute distance and other factors, those with schedule flexibility had commutes that were 0.96 minutes longer on average). This result likely reflects the opposite direction of causality (if the commute is longer duration—which, after controlling for distance and mode, means that it is more congested—the respondent is more likely to seek schedule flexibility). In consideration of all these factors the research team concludes that flexibility is not a good predictor of commute duration, perhaps because of counteracting effects reflecting *both* directions of causality.

Table 89. Linear regression: Work arrival and departure times for travel day commutes.

	Arrival Time at Work†		Departure Time from Work†	
	Coefficient‡	P-value	Coefficient‡	P-value
Flexible schedule	22.017	0.000 ***	5.915	0.000 ***
Log commute distance (miles)	-18.129	0.000 ***	8.429	0.000 ***
Work Journey Mode (reference: private auto)				
Nonmotorized (pedestrian or cyclist)	-23.472	0.207	4.270	0.207
Public transit or other bus/rail	-10.483	0.607	2.922	0.607
Multimodal and other	52.761	0.028 **	-12.146	0.028 **
Full-time worker	-81.372	0.000 ***	27.561	0.000 ***
Occupational Category (reference: sales and service)				
Clerical or administrative support	-49.854	0.000 ***	-11.491	0.000 ***
Blue collar§	-49.265	0.000 ***	-49.278	0.000 ***
Professional, managerial, or technical	-39.647	0.000 ***	-18.382	0.000 ***
Education level (reference: high school or less)				
Some college or associate degree	7.599	0.364	2.835	0.364
Bachelor's (4-year) degree	2.334	0.787	13.220	0.787
Postgraduate or professional degree	4.074	0.653	23.422	0.653
MPO Tier (reference: Atlanta)				
2. Medium MPOs	-7.804	0.197	-11.103	0.197
3. Small MPOs	-2.388	0.739	-8.073	0.739
4. Non-MPO	-9.447	0.362	-16.550	0.362
Race (reference: white non-Hispanic)				
Black and Black multiracial	21.122	0.004 ***	-20.785	0.004 ***
Other	8.301	0.346	17.582	0.346
Age	-5.692	0.000 ***	2.162	0.000 ***
Age^2	0.053	0.001 ***	-0.030	0.001 ***
Female	5.017	0.361	-4.937	0.361
Caregiver, youngest child 0–4 years old	-8.206	0.328	-34.201	0.328
Caregiver, youngest child 5–15 years old	-2.367	0.749	-23.706	0.749
Day of week (reference: Sunday)				
Monday	-104.764	0.000 ***	-5.575	0.000 ***
Tuesday	-107.431	0.000 ***	-18.079	0.000 ***
Wednesday	-109.528	0.000 ***	-18.085	0.000 ***
Thursday	-115.699	0.000 ***	-6.525	0.000 ***
Friday	-105.665	0.000 ***	-32.719	0.000 ***
Saturday	-70.653	0.023 **	-4.919	0.023 **
Constant	912.744	0.000 ***	947.020	0.000 ***
R^2	0.089		0.024	
Number of cases, N	5,061		5,091	

† Departure and arrival times are given in minutes past midnight.

‡ Coefficients are in minutes.

§ Blue collar refers to manufacturing, construction, maintenance, or farming.

FREQUENCY OF TELEWORKING

How often do workers who have the option of working from home or a third place do so? This report approaches this question using two types of data. First, it examines the frequency of telecommuting among telecommute-eligible workers. Second, it looks at travel-day teleworking among Georgia workers, regardless of their stated eligibility for telework.

Telecommuting Frequency among Eligible Workers

When workers have the ability to telecommute, the overwhelming majority choose to do so; 78 percent of telecommute-eligible workers reported telecommuting at least once in the past 30 days (table 90). Telecommuting is least common in small MPO areas, where nevertheless 62 percent of eligible workers telecommuted.

Workers in rural non-MPO counties are no more likely than average to telecommute. However, those who do telecommute do so for a higher number of days; the average telecommuter from a non-MPO area telecommutes 9.3 days per month, compared to the state average of 6.7 days. Pre-retirement age Baby Boomers and Generation X workers are the most likely to telework; the Baby Boomers do so for more days on average.

While white workers are more likely to telecommute than Black workers, among those who do telecommute, Black workers do so for more days on average.

Workers with disabilities are slightly less likely than average to take advantage of the ability to telecommute, but among those who did so, the mean days telecommuted for disabled workers (11.7) is the highest of any subgroup studied.

For a finer-grained breakdown, table 91 presents the distribution across telecommuting frequency categories for the same variables as in table 90.

There are not strong differences in the percentage of workers in different occupation categories who telecommute at least once (table 92, table 93), but among those who telecommute at least once, blue-collar workers telecommute the most days.[65] Part-time workers and low-income workers are less likely to telecommute but do so for more days.

[65] One possible explanation for this phenomenon is that there is a larger difference in job function between telecommute-eligible and -ineligible blue-collar jobs than in other industries. Some portion of this finding may also reflect a misclassification as telecommuters of self-employed workers such as movers, plumbers, and other professions that are based primarily on house calls.

Table 90. Average number of days telecommuted in the past 30 days among eligible workers by MPO tier, sex, caregiver status, age, race, and medical condition.

	Percent of Eligible Workers who Telecommuted	Mean Days, All Eligible Workers	Mean Days, Workers who Telecommuted
All workers	77.5%	5.2	6.7
MPO Tier			
1. Atlanta MPO	79.9%	5.0	6.2
2. Medium MPOs	72.8%	5.7	7.8
3. Small MPOs	62.3%	4.3	7.0
4. Non-MPO	76.1%	7.1	9.3
Sex			
Male	76.7%	5.3	6.9
Female	79.0%	5.1	6.4
Caregiver Status§			
Noncaregiver	75.0%	4.6	6.1
Caregiver, youngest child ages 0–15	81.1%	6.1	7.5
Age Cohort			
Millennial and Gen Z (18–36)	73.5%	4.7	6.5
Generation X (37–52)	79.7%	4.9	6.1
Pre-retirement age Baby Boomer (53–64)	80.8%	6.7	8.3
Retirement age (65+)	70.6%	5.1	7.2
Race			
White non-Hispanic only	80.1%	5.1	6.3
Black and Black multiracial	71.0%	5.8	8.1
Other	76.6%	4.6	6.1
Medical Condition			
Absent	77.5%	5.1	6.6
Present	74.0%	8.6	11.7

Based on telecommute-eligible workers. Excludes home-based workers.

§ A caregiver is defined as any adult age 18+ in a household with a child of less than 5 years old, and any adult age 22+ in a household with a child of 5–15 years old.

Table 91. Telecommuting 30-day frequency among eligible workers by MPO tier, sex, caregiver status, age, race, and medical condition.

	Did Not Telecommute (0 Days)	Occasional (1–4 Days)	Moderate (5–10 Days)	Frequent (11+ Days)
All workers	22.5%	37.7%	27.9%	11.9%
MPO Tier				
1. Atlanta MPO	20.1%	39.6%	31.1%	9.3%
2. Medium MPOs	27.2%	33.1%	21.2%	18.5%
3. Small MPOs	37.7%	34.4%	17.3%	10.5%
4. Non-MPO	23.9%	31.0%	19.0%	26.1%
Sex				
Male	23.3%	38.4%	25.9%	12.4%
Female	21.0%	36.5%	31.4%	11.1%
Caregiver Status§				
Noncaregiver	25.0%	37.8%	27.9%	9.3%
Caregiver, youngest child ages 0–15	18.9%	37.5%	28.0%	15.7%
Age Cohort				
Millennial and Gen Z (18–36)	26.5%	36.7%	26.7%	10.1%
Generation X (37–52)	20.3%	39.7%	30.8%	9.2%
Pre-retirement age Baby Boomer (53–64)	19.2%	37.3%	22.5%	21.0%
Retirement age (65+)	29.4%	27.6%	31.4%	11.5%
Race				
White non-Hispanic only	19.9%	39.8%	29.3%	11.0%
Black and Black multiracial	29.0%	30.9%	25.4%	14.7%
Other	23.4%	40.7%	24.9%	11.0%
Medical Condition				
Absent	22.5%	38.3%	27.6%	11.6%
Present	26.0%	8.8%	49.2%	16.0%

Based on telecommute-eligible workers. Excludes home-based workers.

§ A caregiver is defined as any adult age 18+ in a household with a child of less than 5 years old, and any adult age 22+ in a household with a child of 5–15 years old.

Table 92. Average days telecommuted in the past 30 days among eligible workers by employment characteristics.

	Percent of Eligible Workers who Telecommuted	Mean Days, All Eligible Workers	Mean Days, Workers who Telecommuted
All workers	77.5%	5.2	6.7
Occupation Category			
Sales or service	75.6%	7.4	9.8
Clerical or administrative support	74.6%	3.9	5.2
Blue collar§	72.5%	8.0	11.1
Professional, managerial, or technical	78.8%	4.4	5.5
Education			
HS or less	68.9%	7.3	10.7
Some college or associate degree	72.2%	6.3	8.7
Bachelor's degree or higher	80.1%	4.6	5.7
Work Schedule			
Part-time	66.8%	6.9	10.3
Full-time	78.4%	5.1	6.4
Annual Household Income			
<$35,000	64.3%	6.7	10.4
$35,000 to $49,999	69.4%	5.2	7.4
$50,000 to $74,999	77.0%	5.5	7.2
$75,000 to $99,999	78.3%	4.6	5.9
$100,000+	79.6%	4.7	5.9
Schedule Flexibility (Flextime)			
Not flexible	78.1%	5.2	6.6
Flexible	73.9%	4.9	6.7

Based on telecommute-eligible workers. Excludes home-based workers.

§ Blue collar refers to manufacturing, construction, maintenance, or farming.

Table 93. Telecommuting 30-day frequency among eligible workers by employment characteristics.

	Did Not Telecommute (0 Days)	Occasional (1–4 Days)	Moderate (5–10 Days)	Frequent (11+ Days)
All workers	22.5%	37.7%	27.9%	11.9%
Occupation Category				
Sales or service	24.4%	28.2%	23.1%	24.4%
Clerical or administrative support	25.4%	41.2%	25.6%	7.7%
Blue collar§	27.5%	30.4%	14.9%	27.2%
Professional, managerial, or technical	21.2%	40.8%	31.0%	7.0%
Education				
HS or less	31.1%	26.1%	18.1%	24.8%
Some college or associate degree	27.8%	29.6%	25.5%	17.1%
Bachelor's degree or higher	19.9%	41.5%	29.9%	8.7%
Work Schedule				
Part-time	33.2%	19.1%	22.5%	25.3%
Full-time	21.6%	39.2%	28.4%	10.8%
Annual Household Income				
<$35,000	35.7%	22.5%	21.8%	19.9%
$35,000 to $49,999	30.6%	23.8%	35.9%	9.7%
$50,000 to $74,999	23.0%	30.4%	31.2%	15.4%
$75,000 to $99,999	21.7%	45.4%	22.5%	10.5%
$100,000+	20.4%	41.5%	29.4%	8.7%
Schedule Flexibility (Flextime)				
Not flexible	21.9%	38.3%	27.7%	12.1%
Flexible	26.1%	33.9%	29.3%	10.7%

Based on telecommute-eligible workers. Excludes home-based workers.
§ Blue collar refers to manufacturing, construction, maintenance, or farming.

The ability to telecommute can be of particular benefit to caregivers. As shown in table 94 and table 95, when caregivers are eligible for telecommuting, they are more likely than noncaregivers to take advantage of the option. The difference between caregivers and noncaregivers is greater for women than for men. Caregivers for young children (ages 0–4) are more likely to use the option to telecommute than caregivers for older children.

Table 94. Average days telecommuted in the past 30 days among eligible workers by caregiver status.

	Percent of Eligible Workers who Telecommuted	Mean Days, All Eligible Workers	Mean Days, Workers who Telecommuted
All workers	77.5%	5.2	6.7
Caregiver Status§			
Noncaregiver	75.0%	4.6	6.1
Caregiver, youngest child ages 0–15 years	81.1%	6.1	7.5
Caregiver Status by Sex			
Male noncaregiver	74.3%	4.5	6.0
Female noncaregiver	79.7%	6.2	7.8
Male caregiver	76.1%	4.7	6.2
Female caregiver	84.5%	5.9	6.9
By Age of Youngest Child			
Youngest ages 0–4 years	84.2%	6.4	7.6
Youngest ages 5–15 years	78.4%	5.9	7.5
Household Type			
Male co-caregiver	79.8%	6.3	7.9
Female co-caregiver	86.2%	5.9	6.8
Male single caregiver	69.5%	2.4	3.5
Female single caregiver	77.3%	5.8	7.5

Based on telecommute-eligible workers. Excludes home-based workers.

§ A caregiver is defined as any adult age 18+ in a household with a child of less than 5 years old, and any adult age 22+ in a household with a child of 5–15 years old.

Table 95. Telecommuting 30-day frequency among eligible workers by caregiver status.

	Did Not Telecommute (0 Days)	Occasional (1–4 Days)	Moderate (5–10 Days)	Frequent (11+ Days)
All workers	22.5%	37.7%	27.9%	11.9%
Caregiver Status§				
Noncaregiver	25.0%	37.8%	27.9%	9.3%
Caregiver, youngest child ages 0–15 years	18.9%	37.5%	28.0%	15.7%
Caregiver Status by Sex				
Male noncaregiver	25.7%	38.2%	26.8%	9.3%
Female noncaregiver	20.3%	38.6%	24.9%	16.2%
Male caregiver	23.9%	37.3%	29.4%	9.3%
Female caregiver	15.5%	34.8%	35.3%	14.5%
By Age of Youngest Child				
Youngest ages 0–4 years	15.8%	42.1%	26.8%	15.2%
Youngest ages 5–15 years	21.6%	33.4%	29.0%	16.0%
Household Type				
Male co-caregiver	20.2%	38.2%	25.2%	16.5%
Female co-caregiver	13.8%	36.9%	36.0%	13.3%
Male single caregiver	30.5%	63.2%	6.3%	0.0%
Female single caregiver	22.7%	25.8%	32.3%	19.2%

Based on telecommute-eligible workers. Excludes home-based workers.

§ A caregiver is defined as any adult age 18+ in a household with a child of less than 5 years old, and any adult age 22+ in a household with a child of 5–15 years old.

Telecommuting Frequency and Distance to Work

To analyze the relationship between distance to work and telecommuting frequency, the researchers began by examining key percentiles for distance to work by MPO tier (table 96). Then, after trying several alternate specifications, they divided respondents into five categories based on round-number distances nearest to these key percentiles.

Table 96. Distance to work in miles by MPO tier.

	25th Percentile	50th Percentile	75th Percentile	95th Percentile
All Workers	5.1	11.4	21.1	46.3
MPO Tier				
1. Atlanta MPO	5.9	12.8	22.3	42.0
2. Medium MPOs	4.3	9.3	15.7	46.7
3. Small MPOs	3.9	7.9	13.9	48.0
4. Non-MPO	4.5	12.9	25.2	75.2
Excluding Atlanta (Tiers 2–4)	4.3	9.5	18.7	60.7

Unsurprisingly, workers who live the farthest away are the most likely to telecommute and do so for more days (table 97 and table 98). Workers who live more than 45 miles from their workplace telecommute an average of 10.3 days, versus the state average of 6.7 days.

Somewhat more surprisingly, the group who telecommutes the second-highest number of days is workers who live the *closest* to work (5 miles or less). This pattern holds for counties in MPOs of all sizes. The sole exception to this pattern is non-MPO counties, where in general workers who live more than 10 miles from work telecommute more often than workers who live 10 miles or fewer from their workplace.

Table 97. Average days telecommuted in the past 30 days among eligible workers by distance to work and MPO tier.

	Percent of Eligible Workers who Telecommuted	Mean Days, All Eligible Workers	Mean Days, Workers who Telecommuted
All Workers	77.5%	5.2	6.7
By Distance to Work			
0–5 miles	72.2%	5.8	8.0
5.1–10 mi	70.5%	3.9	5.6
10.1–20 mi	82.2%	4.4	5.3
20.1–45 mi	80.0%	5.6	7.0
>45 mi	86.9%	8.9	10.3
Tier 1: Atlanta MPO Only			
0–5 miles	74.7%	6.0	8.1
5.1–10 mi	72.2%	4.0	5.5
10.1–20 mi	83.2%	4.3	5.1
20.1–45 mi	84.0%	5.3	6.3
>45 mi	79.5%	7.5	9.5
Tier 2: Medium MPOs Only			
0–5 miles	58.2%	5.0	8.6
5.1–10 mi	80.7%	5.2	6.4
10.1–20 mi	78.5%	5.3	6.7
20.1–45 mi	77.1%	6.1	7.9
>45 mi	91.6%	9.7	10.6
Tier 3: Small MPOs Only			
0–5 miles	72.1%	6.0	8.3
5.1–10 mi	52.2%	3.1	6.0
10.1–20 mi	75.6%	3.1	4.2
20.1–45 mi	32.3%	1.9	6.0
>45 mi	85.2%	10.0	11.7
Tier 4: Non-MPO Counties			
0–5 miles	84.1%	5.7	6.8
5.1–10 mi	68.0%	2.6	3.9
10.1–20 mi	71.9%	7.3	10.1
20.1–45 mi	66.9%	9.3	13.9
>45 mi	98.3%	10.8	11.0
All Workers Excluding Atlanta (Tiers 2–4)			
0–5 miles	68.1%	5.4	8.0
5.1–10 mi	67.5%	3.8	5.6
10.1–20 mi	76.6%	5.1	6.7
20.1–45 mi	62.3%	7.2	11.5
>45 mi	93.2%	10.1	10.9

Table 98. Telecommuting 30-day frequency among eligible workers by distance to work and MPO tier.

	Did Not Telecommute (0 Days)	Occasional (1–4 Days)	Moderate (5–10 Days)	Frequent (11+ Days)
All workers	22.5%	37.7%	27.9%	11.9%
By Distance to Work				
0–5 miles	27.8%	31.7%	24.8%	15.7%
5.1–10 mi	29.5%	32.0%	32.4%	6.1%
10.1–20 mi	17.8%	48.4%	27.1%	6.7%
20.1–45 mi	20.0%	38.1%	28.8%	13.2%
>45 mi	13.1%	22.7%	28.6%	35.5%
Tier 1: Atlanta MPO Only				
0–5 miles	25.3%	29.5%	29.8%	15.3%
5.1–10 mi	27.8%	31.6%	35.3%	5.4%
10.1–20 mi	16.8%	49.5%	28.8%	4.9%
20.1–45 mi	16.0%	41.3%	32.7%	10.0%
>45 mi	20.5%	23.4%	28.3%	27.8%
Tier 2: Medium MPOs Only				
0–5 miles	41.8%	20.3%	23.1%	14.8%
5.1–10 mi	19.3%	40.0%	28.1%	12.7%
10.1–20 mi	21.5%	45.7%	17.2%	15.5%
20.1–45 mi	22.9%	40.9%	19.2%	17.0%
>45 mi	8.4%	31.5%	11.9%	48.2%
Tier 3: Small MPOs Only				
0–5 miles	27.9%	46.0%	8.6%	17.5%
5.1–10 mi	47.8%	26.5%	18.9%	6.9%
10.1–20 mi	24.4%	51.7%	18.5%	5.3%
20.1–45 mi	67.7%	7.0%	23.2%	2.1%
>45 mi	14.8%	18.3%	42.9%	24.0%
Tier 4: Non-MPO Counties				
0–5 miles	15.9%	54.6%	10.8%	18.7%
5.1–10 mi	32.0%	30.1%	37.9%	0.0%
10.1–20 mi	28.1%	20.0%	18.4%	33.5%
20.1–45 mi	33.1%	23.2%	4.2%	39.4%
>45 mi	1.7%	12.1%	44.6%	41.7%
All Workers Excluding Atlanta (Tiers 2–4)				
0–5 miles	31.9%	35.4%	16.3%	16.4%
5.1–10 mi	32.5%	32.7%	27.4%	7.4%
10.1–20 mi	23.4%	42.6%	17.7%	16.3%
20.1–45 mi	37.7%	23.8%	11.2%	27.3%
>45 mi	6.8%	22.2%	28.9%	42.1%

Travel Day Telecommuting

In addition to looking at behavior over the course of a month, it is useful to examine telecommuting on the travel day itself. This analysis takes as its base all workers ages 18+, regardless of whether they report being eligible for telework. It includes telework-ineligible workers because sometimes employees who are usually ineligible for teleworking are granted exceptions due to illness, inclement weather, natural disasters, or, more recently, pandemics.

On an average day, 8.8 percent of people who work will exclusively telework, and a further 3.7 percent will work both from home and outside the home (mixed telework) (table 99). In other words, 12.5 percent of workers will telework for at least part of their work day.[66]

Teleworking is most common in the Atlanta MPO, and second-most common in non-MPO counties. Women are more likely to exclusively telework than men, though a higher percentage of men engage in mixed telework.

One in five people with mobility impairments who are working on any given day will do so exclusively from home, which is more than double the statewide average.

[66] As discussed in Overview in this chapter, the true total is likely higher because this figure only includes the primary activity at each location.

Table 99. Travel day commuting and telecommuting among workers ages 18+ by MPO tier, sex, caregiver status, age, race, and medical condition.

	Exclusive Telework *(Worked from Home Only)*	Mixed Telework *(Worked from Home & Outside of Home)*	Conventional Commute *(Worked Outside of Home Only)*	Total Teleworking *(Exclusive and Mixed)*
All workers	8.8%	3.7%	87.5%	12.5%
MPO Tier				
1. Atlanta MPO	11.3%	3.9%	84.9%	15.1%
2. Medium MPOs	5.1%	3.1%	91.8%	8.2%
3. Small MPOs	3.0%	3.1%	93.9%	6.1%
4. Non-MPO	6.3%	3.7%	90.0%	10.0%
Sex				
Male	7.9%	4.1%	88.0%	12.0%
Female	9.9%	3.1%	87.0%	13.0%
Caregiver Status§				
Noncaregiver	8.3%	3.3%	88.5%	11.5%
Caregiver, youngest child ages 0–15 years	9.6%	4.4%	85.9%	14.1%
Age Cohort				
Millennial and Gen Z (18–36)	7.4%	3.6%	89.0%	11.0%
Generation X (37–52)	8.5%	3.4%	88.1%	11.9%
Pre-retirement age Baby Boomer (53–64)	10.2%	4.1%	85.6%	14.4%
Retirement age (65+)	16.8%	5.2%	78.1%	21.9%
Race				
White non-Hispanic only	10.2%	3.7%	86.1%	13.9%
Black and Black multiracial	7.3%	3.1%	89.5%	10.5%
Other	6.5%	4.9%	88.6%	11.4%
Medical Condition				
Absent	8.6%	3.6%	87.7%	12.3%
Present	20.4%	6.1%	73.6%	26.4%

Based on workers who reported working outside the home or working from home for pay on the travel day.

§ *A caregiver is defined as any adult age 18+ in a household with a child of less than 5 years old, and any adult age 22+ in a household with a child of 5–15 years old.*

Workers with a college degree and from high-income households are more likely to telework on the travel day (table 100). A strong relationship also exists with time flexibility: of workers who can set their own schedule, one in four work from home for at least part of the day, versus just 4 percent of workers with inflexible schedules.

Caregivers, especially female caregivers, are more likely than noncaregivers to work from home (table 101). The group most likely to telework is female co-caregivers (those living in a household with multiple caregivers). Single caregivers are less likely to work from home than noncaregivers, likely reflecting not a difference in preferences, but a difference in access to teleworking. In particular, single caregivers are often in lower education or lower income groups that have less access to teleworking.

The relationship between distance to work and travel-day teleworking appears to be different when measuring monthly frequency versus daily behavior. In the monthly data, those with the smallest and largest distances to work were more likely to telecommute (table 97). When looking at travel-day telecommuting (table 102), aside from Atlanta, any elevation in telecommuting among workers who live 5 miles or less from their workplace is decidedly less pronounced.

Table 100. Travel day commuting and telecommuting among workers ages 18+ by employment characteristics.

	Exclusive Telework *(Worked from Home Only)*	**Mixed Telework** *(Worked from Home & Outside of Home)*	**Conventional Commute** *(Worked Outside of Home Only)*	**Total Teleworking** *(Exclusive and Mixed)*
All workers	8.8%	3.7%	87.5%	12.5%
Occupation Category				
Sales or service	7.0%	3.9%	89.1%	10.9%
Clerical or administrative support	5.3%	1.8%	92.8%	7.2%
Blue collar[§]	2.4%	3.0%	94.6%	5.4%
Professional, managerial, or technical	13.0%	4.2%	82.8%	17.2%
Education				
HS or less	2.8%	2.7%	94.5%	5.5%
Some college or associate	6.9%	2.4%	90.6%	9.4%
Bachelor's or higher	13.5%	5.1%	81.4%	18.6%
Work Schedule				
Part-time	10.0%	4.1%	85.9%	14.1%
Full-time	8.5%	3.6%	87.9%	12.1%
Annual Household Income				
<$35,000	5.3%	3.5%	91.2%	8.8%
$35,000 to $49,999	5.2%	3.0%	91.8%	8.2%
$50,000 to $74,999	7.5%	2.6%	89.9%	10.1%
$75,000 to $99,999	7.1%	4.1%	88.9%	11.1%
$100,000+	14.7%	4.6%	80.6%	19.4%
Schedule Flexibility (Flextime)				
Not flexible	2.0%	2.4%	95.7%	4.3%
Flexible	19.0%	5.7%	75.4%	24.6%

Based on workers who reported working outside the home or working from home for pay on the travel day.

Table 101. Travel day commuting and telecommuting among workers ages 18+ by caregiver status

	Exclusive Telework *(Worked from Home Only)*	**Mixed Telework** *(Worked from Home & Outside of Home)*	**Conventional Commute** *(Worked Outside of Home Only)*	**Total Teleworking** *(Exclusive and Mixedl)*
All workers	8.8%	3.7%	87.5%	12.5%
Caregiver Status§				
Noncaregiver	8.3%	3.3%	88.5%	11.5%
Caregiver, youngest child ages 0–15	9.6%	4.4%	85.9%	14.1%
Caregiver Status by Sex				
Male noncaregiver	7.6%	3.5%	88.9%	11.1%
Female noncaregiver	8.5%	5.3%	86.2%	13.8%
Male caregiver	9.2%	3.0%	87.8%	12.2%
Female caregiver	11.1%	3.3%	85.6%	14.4%
By Age of Youngest Child				
Youngest ages 0–4	9.3%	5.6%	85.1%	14.9%
Youngest ages 5–15	9.9%	3.4%	86.6%	13.4%
Household Type				
Male co-caregiver	8.5%	5.4%	86.1%	13.9%
Female co-caregiver	12.0%	3.8%	84.3%	15.7%
Male single caregiver	5.8%	0.0%	94.2%	5.8%
Female single caregiver	7.9%	1.9%	90.2%	9.8%

Based on workers who reported working outside the home or working from home for pay on the travel day.

§ A caregiver is defined as any adult age 18+ in a household with a child of less than 5 years old, and any adult age 22+ in a household with a child of 5–15 years old.

Table 102. Travel day commuting and telecommuting among workers ages 18+ by distance to work and MPO tier.

	Exclusive Telework *(Worked from Home Only)*	**Mixed Telework** *(Worked from Home & Outside of Home)*	**Conventional Commute** *(Worked Outside of Home Only)*	**Teleworking on Travel Day** *(Exclusive and Mixed)*
All workers				
By Distance to Work				
0–5 miles	1.8%	2.4%	95.9%	4.1%
5.1–10 mi	1.6%	1.9%	96.6%	3.4%
10.1–20 mi	1.8%	1.9%	96.3%	3.7%
20.1–45 mi	2.3%	4.5%	93.2%	6.8%
>45 mi	2.8%	3.9%	93.3%	6.7%
Tier 1: Atlanta MPO Only				
0–5 miles	2.2%	2.4%	95.4%	4.6%
5.1–10 mi	1.7%	2.0%	96.3%	3.7%
10.1–20 mi	2.6%	1.6%	95.9%	4.1%
20.1–45 mi	3.1%	3.9%	93.0%	7.0%
>45 mi	3.6%	6.8%	89.7%	10.3%
Tier 2: Medium MPOs Only				
0–5 miles	0.3%	0.9%	98.8%	1.2%
5.1–10 mi	0.5%	1.9%	97.6%	2.4%
10.1–20 mi	0.3%	2.6%	97.1%	2.9%
20.1–45 mi	2.1%	4.7%	93.2%	6.8%
>45 mi	8.7%	3.1%	88.1%	11.9%
Tier 3: Small MPOs Only				
0–5 miles	0.7%	4.3%	95.0%	5.0%
5.1–10 mi	1.1%	3.4%	95.6%	4.4%
10.1–20 mi	0.9%	0.9%	98.2%	1.8%
20.1–45 mi	1.1%	0.8%	98.1%	1.9%
>45 mi	1.9%	2.5%	95.6%	4.4%
Tier 4: Non-MPO Counties				
0–5 miles	2.5%	2.1%	95.4%	4.6%
5.1–10 mi	3.0%	0.0%	97.0%	3.0%
10.1–20 mi	0.0%	3.2%	96.8%	3.2%
20.1–45 mi	0.0%	7.5%	92.5%	7.5%
>45 mi	0.0%	2.1%	97.9%	2.1%
Atlanta (Tiers 2-4)				
0–5 miles	1.3%	2.3%	96.4%	3.6%
5.1–10 mi	1.4%	1.7%	96.9%	3.1%
10.1–20 mi	0.3%	2.5%	97.2%	2.8%
20.1–45 mi	0.7%	5.7%	93.6%	6.4%
>45 mi	2.4%	2.4%	95.2%	4.8%
Based on workers who reported working outside the home or working from home for pay on the travel day.				

CHAPTER 4.
NEW TECHNOLOGIES AND SERVICES

CHAPTER 4 – SUMMARY

This chapter examines three emerging trends shaping Georgians' mobility in the following sections:

- **Alternative-fuel Vehicles** describes characteristics of the 130,000 alternative-fuel vehicles owned by Georgians. Hybrid cars are the most common AFV, followed by electric vehicles (EVs). AFVs are disproportionately owned by Atlanta households and high-income households. AFVs are driven somewhat fewer miles than other vehicles of a similar age.
- **Shared Mobility** discusses shared mobility, focusing on carsharing, bikesharing, and ridehailing. The section compares demographic characteristics of the users of these services to those of the general public. It also estimates the total monthly trips using these modes. While carsharing and bikesharing use are still relatively uncommon, 1 in 10 Georgians has used a ridehailing app in the past 30 days. This analysis estimates that ridehailing now accounts for 87 percent of all vehicle-for-hire trips, with the remainder comprising trips in conventional taxi and limo services. Ridehailing accounts for an even higher percentage of VFH trips in small MPOs and non-MPO counties.
- **Online Shopping** discusses online shopping. In an average month, more than half of Georgians ages 16+, and more than two thirds of Georgia households, place at least one online order for delivery. This section discusses demographic differences in who is shopping online and how frequently. Although online shopping is most common among

adults ages 18–52, two in five seniors (65–79) and one in five elderly adults (80+) have placed an order in the past 30 days. Online shopping is much more common among the wealthy and white, and uncommon among low-income people and carless households that could presumably benefit from the convenience of having goods delivered.

ALTERNATIVE-FUEL VEHICLES

As shown in table 103, in 2017, 1.9 percent of Georgia's vehicle fleet was composed of vehicles using alternative-fuel sources. These alternative-fuel vehicles comprise a larger percentage (2.5 percent) of the vehicle fleet in Atlanta than elsewhere in the state.

Table 103. Number of alternative-fuel vehicles by MPO tier.

	All Vehicles* *(N=16,921)*	**Alternative-fuel Vehicles (AFVs)†** *(N=313)*
Statewide	6,982,773	130,216 (1.9%)
MPO Tier		
1. Atlanta MPO	3,679,778	92,511 (2.5%)
2. Medium MPOs	1,120,485	18,619 (1.7%)
3. Small MPOs	707,626	7,001 (1.0%)
4. Non-MPO counties	1,474,885	12,085 (0.8%)

* *Includes gas, diesel, and AFVs.*

† *AFVs include hybrids, electric, plug-in hybrids, flex fuel, ethanol, and bifuel engines.*

As shown in table 104, AFVs were dominated by hybrid vehicles, which accounted for 61.7 percent of the fleet. Electric vehicles were the second-most common, accounting for 29.5 percent of the fleet. Plug-in hybrids comprised only 4.9 percent of the fleet, but national sales of plug-in hybrids increased substantially in 2018 and 2019, after the close of survey data collection.[67] Conventional-fuel vehicles are dominated by gasoline vehicles, with a small percentage of diesel engines.

Table 104. Fuel type of alternative- and conventional-fuel vehicles.

	Weighted Percent	Unweighted Sample Size	Unweighted Percent
All Vehicles		16,546	
All Alternative-Fuel Vehicles (AFVs)*		313	
Hybrid	61.71%	228	72.84%
Electric	29.48%	64	20.45%
Plug-in hybrid	4.89%	11	3.51%
Flex fuel or E85	3.16%	8	2.56%
Other AFV (bifuel and unspecified)	0.75%	2	0.64%
All Conventional-Fuel Vehicles (CFVs)†		16,606	
Gas	97.79%	16,233	97.75%
Diesel	2.19%	367	2.21%
Other CFV‡	0.02%	6	0.04%

Note: Percentages shown are percent of category (AFV or CFV).

** All vehicle years (1987–2016). When the sample of AFVs is limited to recent vehicles (2004 or later), it contains 222 hybrids (61.8% weighted), 58 electric (29.5% weighted), 10 plug-in hybrid (5.0%), 7 flex fuel/E85 (3.2%), and 1 other (0.5%). Electric and plug-in hybrids are more common among recent vehicles, which correlates with a decrease in hybrid vehicles as a percentage of the overall fleet.*

† All vehicle years (1900-2017). When the sample of CFVs is limited to recent vehicles (2004 or later), it contains 11,052 gas vehicles (98.1% weighted), 232 diesel vehicles (1.9%), and 1 "high tech" (.003%).

‡ Other CFV includes three "high-tech" and one each of nitro burner, C16 racing fuel, and unspecified mixture.

Table 105 shows more details on AFVs, in comparison with all vehicles in Georgia. Because 96 percent of AFVs are from 2004 or later, this report provides statistics for all recent vehicles (from 2004 onward) to control for vintage when comparing AFVs to the fleet at large.

[67] See https://afdc.energy.gov/data/10567.

The median age of AFVs is 4 years, compared to 10 years for all vehicles in Georgia. AFVs are also slightly newer than the typical recent vehicle. More than 80 percent of AFVs are cars or wagons, versus around half of all vehicles and recent vehicles. The complete lack of certain body types among AFVs, notably vans, indicates that some body types are more readily available as AFVs. Mean annual miles driven is lower for AFVs (11,778) than the state average (11,940), and also lower than the average for recent vehicles (13,109).

Table 105. Vehicle characteristics: AFVs, all vehicles, and recent vehicles.

Vehicle Characteristics	Alternative-fuel Vehicles (AFV)	All Vehicles	Recent Vehicles (2004–2017)
Vehicle Age (Years)			
Mean	5.5	10.9	6.7
Median	4	10	6
Annual Miles Driven in Vehicle			
Mean	11,778	11,940	13,109
Median	10,915	9,585	10,913
Odometer Mileage			
Mean	57,725	105,440	80,804
Median	39,000	94,214	68,932
Vehicle Type (Column Percentage)			
Car/wagon	81.7%	49.5%	52.2%
Van	0.0%	5.4%	5.5%
SUV	6.5%	23.6%	26.2%
Pickup	4.3%	17.5%	13.3%
Other truck	0.0%	0.6%	0.4%
RV	0.6%	0.7%	0.3%
Motorcycle	0.0%	2.4%	1.9%
Something else	6.9%	0.3%	0.3%
Vehicle Age Cohort* (Column Percentage)			
Pre-LEV (pre-1993)	1.9%	4.6%	0.0%
LEV1 (1993–2003)	2.5%	26.7%	0.0%
LEV2 (2004–2014)	67.7%	56.3%	82.0%
New vehicles (2015–2017)	27.9%	12.3%	18.0%
Newly-purchased (Past 12 Months)			
Not newly purchased	81.3%	84.2%	81.5%
Newly purchased	18.7%	15.8%	18.5%

* *Cohorts are based on the passage of California's Low Emissions Vehicle (LEV) standards, which serve as a proxy for tightening emissions standards.*

Figure 25 shows the weighted distribution of annual miles driven. Compared to all vehicles or all recent vehicles, the AFV distribution has a thicker left tail (more vehicles driven less than a thousand miles per year) and a thinner right tail. This dynamic illustrates why AFVs have a higher median and lower mean mileage compared to all vehicles (table 105).

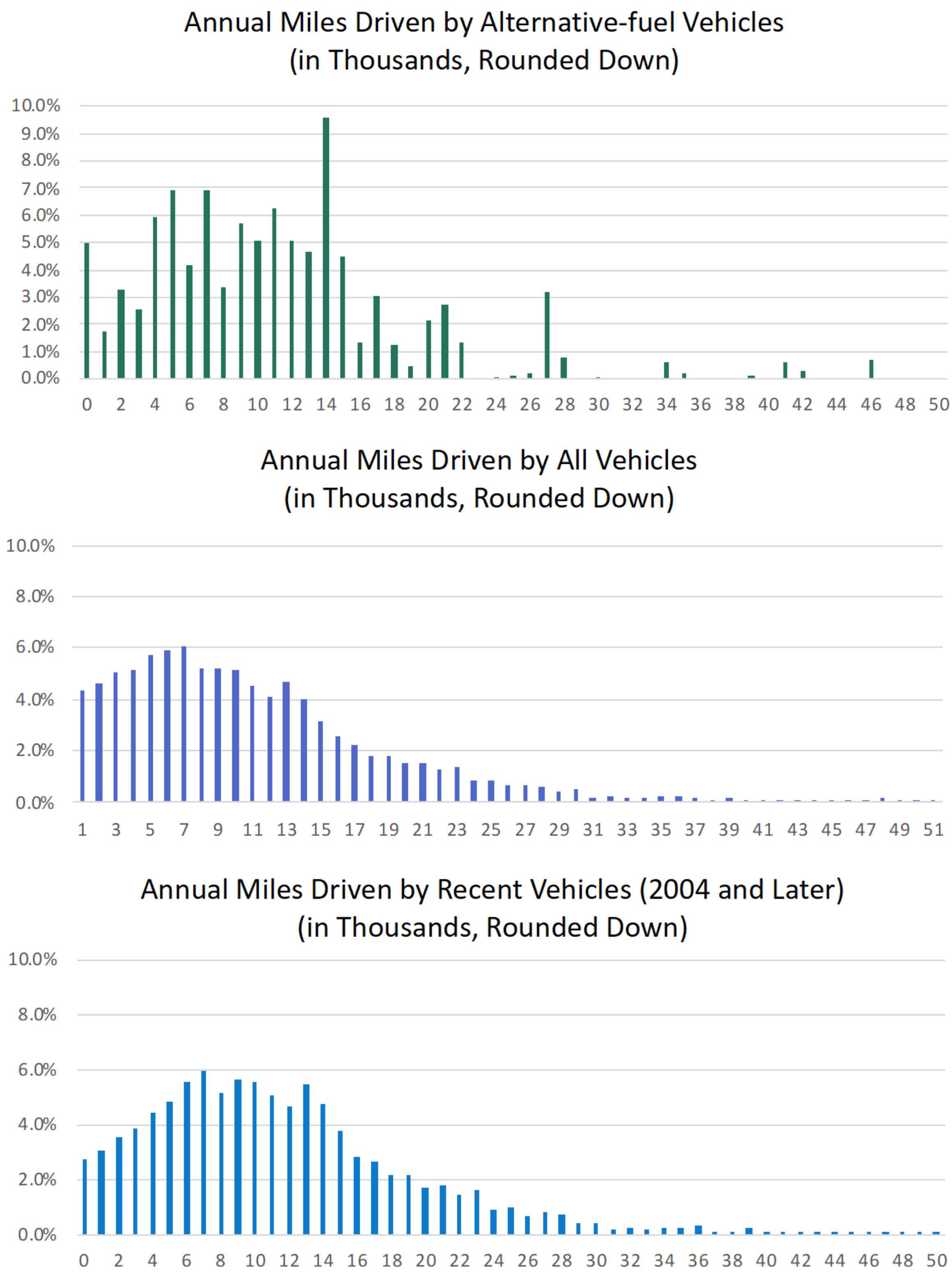


Figure 25. Histograms. Annual miles driven by AFVs, all vehicles, and recent vehicles.

Table 106 provides greater details on the average annual miles driven by fuel type for all vehicle years and for recent vehicles (from 2004 onward). On average, AFVs are driven fewer miles than CFVs (11,778 miles versus 11,943 miles). As shown by the lower standard deviation, there is also less variation in how far AFVs are driven. The distribution of AFVs shown in figure 25 is not as strongly right-skewed as the distribution of vehicles in general; 1.1 percent of CFVs are driven more than 50,000 miles annually, versus just 0.05 percent of AFVs.

Table 106. Annual miles driven by fuel type.

	Mean Annual Miles Driven in Vehicle	Standard Deviation*
All vehicles	**11,940**	**12,388**
All conventional-fuel vehicles (CFV)†	**11,943**	**12,455**
Gas	11,900	12,301
Diesel	14,004	18,177
All alternative-fuel vehicles (AFV)‡	**11,778**	**8,079**
Hybrid and plug-in hybrid	12,315	7,930
Electric	9,652	7,529
All recent vehicles (2004 or later)	**13,109**	**12,841**
All recent CFV†	**13,134**	**12,942**
Gas	13,076	12,717
Diesel	16,277	21,720
All recent AFV‡	**12,131**	**8,071**
Hybrid and plug-in hybrid	12,580	7,971
Electric	10,124	7,442

** Based on an estimate of simple random sampling (SRS) variance within each subpopulation.*

† Includes gas, diesel, and other CFV.

‡ Includes hybrid, plug-in hybrid, electric, flex fuel/E85, and other.

Table 106 also shows heterogeneity within AFVs and CFVs. Among CFVs, diesel vehicles have a higher mean annual miles driven than gasoline vehicles. Among AFVs, hybrids and plug-in hybrids have a larger mean annual miles driven than fully electric vehicles. It is likely this difference is due in part to technological limitations on the range of the electric vehicles available in 2016 (the most recent model year of EVs in the sample) and before.

The difference in annual miles driven between AFVs and CFVs cannot be assumed to be a product of the vehicles themselves; they may reflect differences in the lifestyles and preferences of the people who chose to purchase AFVs versus CFVs. This section turns now to the demographic characteristics of the households and main drivers of AFVs as compared to vehicle owners in general.

Table 107 shows the distribution of AFVs and other vehicles among different types of households. Of AFVs, 71 percent are owned by households in Atlanta, compared to 56 percent of recent vehicles and 53 percent of all vehicles. AFVs are mostly owned by wealthier households that own, on average, 2.7 vehicles. One-driver households are less common than the average among AFVs.

Table 106 showed that AFVs are driven less than CFVs on average. Table 107 shows that this is still the case when annual miles are normalized by total household vehicles, household drivers, or household members of driving age.

Table 107. Household characteristics for AFVs, all vehicles, and recent vehicles.

Household Characteristics	Alternative-fuel Vehicles (AFV)	All Vehicles	Recent Vehicles (2004–2017)
MPO Tier			
1. Atlanta MPO	71.0%	52.7%	55.9%
2. Medium MPOs	14.3%	16.0%	16.1%
3. Small MPOs	5.4%	10.1%	9.6%
4. Non-MPO counties	9.3%	21.1%	18.3%
Annual Household Income			
<$35,000	9.4%	25.3%	20.1%
$35,000 to $49,999	6.1%	12.0%	11.6%
$50,000 to $74,999	10.2%	18.4%	18.7%
$75,000 to $99,999	17.6%	13.7%	14.3%
$100,000+	56.7%	30.6%	35.3%
Number of Household Vehicles			
Mean	2.74	2.66	2.54
Median	2	2	2
Number of Household Drivers (Ages 16+)*			
Mean	2.23	2.10	2.10
One driver	14.3%	22.3%	20.9%
Two drivers	57.4%	53.4%	55.6%
Three or more drivers	28.3%	24.1%	23.3%
Annual Miles Driven in All Household Vehicles (Mean)†			
Total	30,476	29,743	29,908
Per vehicle	11,314	11,743	12,356
Per household driver‡	13,589	14,621	14,693
Per household member ages 16+	13,271	13,766	13,945

** 45 vehicles (unweighted) were in households that reported having zero drivers, representing 0.2 percent of all vehicles (weighted) and 0.1 percent of recent vehicles (weighted). No AFVs were owned by zero-driver households.*

† The sum of all miles driven in all household vehicles, whether by a household driver or someone else. Does not include miles driven by household drivers in rental cars or other non-household vehicles.

‡ Households with zero drivers recoded as one driver for the purposes of this statistic.

Table 108 shows driver characteristics for AFVs, all vehicles, and recent vehicles. The main driver for an AFV is more likely to be male, white, highly educated, and a worker. These demographic factors may correlate with AFV ownership due to demographic differences in attitudes, disposable income, and travel needs, or a combination of these factors.

Table 108. Main driver characteristics for AFVs, all vehicles, and recent vehicles.

Driver Characteristics	Alternative-fuel Vehicles (AFV)	All Vehicles	Recent Vehicles (2004–2017)
Sex			
Male	53.0%	50.2%	44.4%
Female	47.0%	49.8%	55.6%
Age Cohort			
Under 18	2.8%	1.3%	1.2%
Millennial and Gen Z (16–36)	16.9%	22.9%	23.7%
Gen X (37–52)	37.4%	31.5%	33.4%
Pre-retirement age Boomer (53–64)	27.8%	25.4%	24.0%
Seniors (65–79)	13.6%	16.6%	15.6%
Elderly (80+)	1.5%	2.5%	2.0%
Race			
White non-Hispanic only	78.3%	64.3%	65.0%
Black, Black multiracial, and Black Hispanic	10.8%	24.7%	23.8%
Other	10.9%	10.9%	11.2%
Employment Status			
Nonworker	27.4%	33.8%	31.4%
Worker	72.6%	66.2%	68.6%
Educational Attainment			
High school or less	8.8%	25.9%	21.0%
Some college or associate degree	21.3%	32.0%	30.8%
Bachelor's degree	35.9%	23.2%	26.3%
Graduate or professional degree	34.0%	18.9%	21.9%

SHARED MOBILITY

Shared mobility, as defined by the Shared Use Mobility Center, broadly encompasses “transportation services and resources that are shared among users, either concurrently or one after another."[68] Some forms of shared mobility, such as carpooling and public transit, are not reliant on emerging technologies. However, the proliferation of location-enabled smartphones and other new technologies have facilitated the evolution of several forms of shared mobility. These include bike- and carsharing systems, as well as the rise of ridehailing apps such as Uber and Lyft. More recently, scooter sharing has become a part of the transportation landscape, particularly in the Atlanta region. However, this recent development is not reflected in the 2017 NHTS data.

This section focuses on bikesharing, carsharing, and ridehailing, the latter of which is sometimes referred to as ridesharing.[69] It provides a portrait of shared mobility use from when the data were collected in 2016–2017. With the increased availability of many types of shared mobility, it is likely that usage of all of these services has risen in the intervening years.

Methods

NHTS assesses use of shared mobility services with the questions shown in table 109.

As table 109 shows, 10.2 percent of Georgians ages 16 and up report having used a ridehailing app at least once in the past 30 days, and 1.0 percent report using a carsharing app. Because the question about bikesharing was only asked of respondents who had bicycled within the past *7 days* but asked about bikesharing use within the past *30 days*, it is not possible to get a precise estimate of bikesharing use among the general population.[70] However, 8 percent of recent

[68] https://sharedusemobilitycenter.org/what-is-shared-mobility/.

[69] The NHTS uses the word "ridesharing." The researchers prefer to use "ridehailing" in this report because it avoids ambiguity and confusion with other forms of shared rides, such as carpooling.

[70] For example, someone who used a bikesharing service 14 days previously and had not biked since would not have been asked whether she had used a bikesharing service.

cyclists (those who rode a bike within the past 7 days) reported having used a bikesharing service at some point in the past 30 days.

Table 109. Shared mobility questions in the NHTS.

Mobility Type	Question Wording	Who Was Asked?	Affirmative Responses (Ages 16+)	
			Weighted	*Unweighted*
Ridehailing	In the past 30 days, how many times have you purchased a ride with a smartphone rideshare app (e.g., Uber, Lyft, Sidecar)?	All respondents ages 16+	10.2%	1,176 (7.54%)
Carsharing	In the past 30 days, how many times did you use a carsharing service where a car can be rented by the hour (e.g., Zipcar or Car2Go)?	All respondents ages 16+	1.0%	104 (0.67%)
Bikesharing	In the past 30 days, how many times did you use a bikeshare program (e.g., Bikeshare, Zagster, or CycleHop)?	All recent cyclists* ages 5+	8.0%	51 (5.70%)

** Reported at least one cycling trip in the past 7 days. Recent cyclists represent 5.8 percent of respondents (unweighted).*

In addition to these questions, when respondents filled out their travel diary, one of the choices of mode for trips was "Taxi/limo (including Uber/Lyft)." Because ridehailing services are combined with more traditional vehicle-for-hire services, travel diaries do not provide a precise estimate of ridehailing usage. However, those data are included here to provide a baseline for future analysis. To provide an exploratory estimation of what proportion of these trips are using a ridehailing app, we also compare them with estimates of total trips based on the question in table 109.

As table 109 also shows, because bikeshare and carshare services are utilized by a small fraction of the population, the sample sizes for users of these services are quite small. Survey weights are unreliable with small sample sizes; thus, the analysis of these two user groups will be based on unweighted data and may not be representative. The results should therefore be interpreted with caution.

In addition to the 51 adults who reported using bikeshare systems, 26 children between ages 5 and 15 were recorded as bikeshare users. Ten of these were under the age of 10. Bikesharing apps require a smart phone and a credit card. Most, including Relay and Zagster, two services available in Georgia, require riders to be at least 18 years of age. Some require a government-issued ID for verification. Further, the available bicycles are sized for adult riders.

One potential explanation for this finding is that some children were riding bicycles that had been unlocked on their behalf by adults. Relay, for example, allows members to unlock up to four bicycles at a time (though they still legally require all riders to be ages 18+). Another potential explanation is that parents filling out the survey on their child's behalf interpreted the question differently than intended, for example including borrowing a bicycle from a neighbor or some other kind of bicycle-sharing program. More targeted data collection would provide better information about this finding, and about bikesharing in general.

Shared Vehicles: Bikesharing and Carsharing

Table 110 shows demographic breakdowns of bikeshare users, recent cyclists who have not used a bikeshare, and carshare users. Weighted statistics for the population as a whole are included for comparison. Results should be interpreted with caution due to small sample sizes (included in the table).

Table 110. Demographics of bikeshare and carshare users ages 16+.

	Bikeshare Users *Past 30 Days (Unweighted)*		**Other Recent Cyclists*** *(Unweighted)*		**Carshare Users** *Past 30 Days (Unweighted)*		**All Persons Ages 16+** *(Weighted)*
Total	51	(100%)	842	(100%)	104	(100%)	
MPO Tier							
1. Atlanta MPO	13	(25%)	230	(27%)	38	(37%)	54.4%
2. Medium MPOs	23	(45%)	348	(41%)	38	(37%)	15.8%
3. Small MPOs	12	(24%)	191	(23%)	19	(18%)	10.1%
4. Non-MPO counties	3	(6%)	73	(9%)	9	(9%)	19.8%
Sex							
Male	27	(53%)	503	(60%)	42	(40%)	47.9%
Female	24	(47%)	339	(40%)	62	(60%)	52.1%
Age Cohort							
Millennial and Gen Z (16–36)	23	(45%)	237	(28%)	35	(34%)	36.7%
Gen X (37–52)	10	(20%)	237	(28%)	22	(21%)	27.6%
Pre-retirement age Boomer (53–64)	8	(16%)	222	(26%)	27	(26%)	19.5%
Retirement age (65+)	10	(20%)	146	(17%)	20	(19%)	16.2%
Race							
White non-Hispanic only	18	(35%)	634	(75%)	41	(39%)	54.8%
Black and Black multiracial	23	(45%)	146	(17%)	51	(49%)	32.1%
Other	10	(20%)	62	(7%)	12	(12%)	13.1%
Driver Status							
Nondriver	9	(18%)	69	(8%)	11	(11%)	12.6%
Driver	42	(82%)	773	(92%)	93	(89%)	87.4%
Mobility Impairment							
Absent	45	(88%)	811	(96%)	88	(85%)	90.7%
Present	5	(10%)	31	(4%)	15	(14%)	9.3%
Annual Household Income							
<$15,000	12	(24%)	104	(12%)	23	(22%)	14.5%
$15,000 to $34,999	15	(29%)	86	(10%)	21	(20%)	19.6%
$35,000 to $74,999	9	(18%)	207	(25%)	28	(27%)	28.4%
$75,000+	13	(25%)	421	(50%)	28	(27%)	37.4%
Vehicle Deficit Category of Household							
Zero-vehicle	6	(12%)	44	(5%)	13	(13%)	5.0%
Deficit (hard or soft)	18	(35%)	133	(16%)	22	(21%)	27.0%
Nondeficit (sufficient/surplus)	27	(53%)	665	(79%)	69	(66%)	68.0%
Transit Use, Past 30 Days							
No	36	(71%)	714	(85%)	66	(63%)	88.9%
Yes	15	(29%)	127	(15%)	38	(37%)	11.1%
Walking, Past 30 Days							
No	4	(8%)	79	(9%)	18	(17%)	28.0%
Yes	47	(92%)	763	(91%)	86	(83%)	72.0%

Note: Because survey weights may not produce accurate estimates for small subsamples, unweighted percentages are shown for carshare and bikeshare users, as well as other recent cyclists.

** Respondents who reported at least one cycling trip within the past 7 days but did not report using a bikeshare within the past 30 days.*

While the majority of Georgia's population is in Atlanta, the plurality of bikeshare users, as well as of other recent cyclists, live in medium MPO areas. Carshare users are divided evenly between Atlanta and medium MPO areas, with a smaller proportion of users in small MPO areas and non-MPO counties.

There is a well-documented gender gap in cycling (Emond et al. 2009). Men dominate among recent cyclists who are not bikeshare users, but bikeshare users are more evenly divided by gender. The majority of carshare users surveyed are female.

Compared to bikeshare nonusers and the general population, a larger proportion of bikeshare users are Black. Black residents also make up a larger proportion of carshare users than the general population. Low-income people make up a larger share of carshare users than of the general population. They are also disproportionately represented among bikeshare users compared to other recent cyclists.

About half of bikeshare users live in vehicle-deficit or zero-vehicle households, compared to just one third of the general population. Interestingly, the percent of carshare users from vehicle-nondeficit households is approximately equal to that of the general population.

With respect to walking and transit use, compared to the general population, a higher proportion of bikeshare and carshare users have used these modes. In the case of walking, there is little difference between bikeshare users and other recent cyclists. However, bikeshare users are more likely to be transit users than other recent cyclists are.

As shown in table 111, Georgians who had used a bikeshare at least once in the past 30 days reported an average of 5.6 uses, versus 3.8 carshare uses among users. This is equivalent to

497,000 carshare uses per month (±258,000) and 165,000 bikeshare uses (±77,000). The bikeshare estimate should be taken with further caution because it does not include users who rode a bike within the past 30 days but not within the past 7 days.

Table 111. Frequency of carshare and bikeshare use among users ages 16+, past 30 days.

	Bikeshare Users	Carshare Users
All Users	5.6	3.8
MPO Tier		
1. Atlanta MPO	5.3	3.8
2. Medium MPOs	6.5	2.9
3–4. Small MPOs and non-MPO counties	4.5	5.1
Sex		
Male	5.7	3.0
Female	5.5	4.4
Age Cohort		
16–52 (Gen X, Millennial, and Gen Z)	5.0	4.4
53+ (Baby Boomer and retirement age)	6.7	3.1
Race		
White non-Hispanic only	7.1	2.6
Black and other	4.8	4.6
Annual Household Income		
<$35,000	5.4	4.5
$35,000+	5.9	3.3
Vehicle Deficit Category of Household		
Deficit or zero-vehicle	5.1	3.8
Nondeficit (sufficient/surplus)	6.0	3.8

Even after accounting for the small sample size, there were statistical differences in frequency of bikeshare use by race, income, and vehicle-deficit category (α=.01).[71] Although, as shown in table 110, Blacks are more likely to have used bikesharing *at all* in the previous 30 days, table 111 shows that the *amount* of bikeshare use during that time is greater among users who are

[71] Calculated by a t-test for two-group categories and chi-squared test for categories with 3+ groups.

white non-Hispanic than among users of color. It is lower among the lowest-income users (those in households with an annual income of less than $35,000) than among moderate- and high-income users. It is higher among users in vehicle-nondeficit households than those from zero-vehicle or vehicle-deficit households. Taken together, table 110 and table 111 suggest that although bikeshare *adoption* is associated, to some extent, with markers of necessity such as lack of transportation alternatives or financial resources, bikeshare *usage* is not.

Among carshare users, there were marginally-significant differences by race (α=.10), with people of color reporting two more usage occasions in the past 30 days (4.6), on average, than non-Hispanic whites (2.6).

Ridehailing

As shown in table 112, 10.2 percent of Georgians ages 16 and older reported using a ridehailing app within the past 30 days. This is comparable with the national figure of 9.8 percent found by Conway, Salon, and King (2018). Ridehailing *adoption* was most common in Atlanta and least common in non-MPO counties. However, users in non-MPO counties made substantially *more trips* by ridehailing in that timeframe. There were not pronounced differences in the percent of people who used ridehailing by gender or race. However, among ridehailing users, Black riders made more trips than white riders and people of other races. Millennials and members of Gen Z were more likely to use ridehailing apps and made more trips than older users.

Two groups with elevated transportation needs, nondrivers and people with mobility impairments, were less likely to use ridehailing. However, those nondrivers and people with mobility impairments who did use a ridehailing app made more trips than drivers and people without mobility impairments.

The percentage of people who use ridehailing is highest among people living in households with an annual income of $75,000 or more per year. However, among ridehailing users, the lowest-income users made more trips per person. These results contrast with those for bikesharing (see Shared Vehicles: Bikesharing and Carsharing), in which adoption was higher for lower-income people, but trip frequency was lower.

Georgians who had used transit were also more likely to report using a ridehailing app (31.6 percent versus 7.5 percent) and made more trips (5.3 versus 4.7). Georgians who had reported one or more walking trips were also more likely to report using ridehailing but reported fewer ridehailing trips than those who had not made any pedestrian trips.

Table 113 presents similar information as table 112. However, instead of showing the percentage of, for example, Atlanta residents who use ridehailing, it shows the percentage of ridehailing users who are from Atlanta.

Table 112. Ridehailing use among Georgians ages 16+.

	Percent Who Have Used Ridehailing *(past 30 days)*	Mean Trips Among Ridehailing Users
All persons ages 16+	10.2%	4.9
MPO Tier		
1. Atlanta MPO	14.6%	4.6
2. Medium MPOs	7.6%	4.1
3. Small MPOs	4.3%	2.6
4. Non-MPO counties	3.0%	13.0
Sex		
Male	10.9%	4.9
Female	9.5%	5.0
Age Cohort		
Millennial and Gen Z (16–36)	15.3%	5.4
Gen X (37–52)	12.2%	4.6
Pre-retirement age Boomer (53–64)	4.9%	3.6
Retirement age (65+)	1.5%	2.7
Race		
White non-Hispanic only	10.3%	3.9
Black and Black multiracial (incl. Black Hispanic)	10.1%	7.1
Other	9.7%	3.6
Driver Status		
Nondriver	8.9%	6.2
Driver	10.4%	4.8
Mobility Impairment		
Absent	10.8%	4.8
Present	4.4%	7.8
Annual Household Income		
<$15,000	7.2%	11.1
$15,000 to $24,999	6.6%	6.1
$25,000 to $34,999	5.2%	4.9
$35,000 to $49,999	7.8%	3.7
$50,000 to $74,999	7.8%	3.7
$75,000 to $99,999	11.0%	5.2
$100,000+	17.8%	3.9
Vehicle Deficit Category of Household		
Zero-vehicle	15.6%	8.5
Deficit (hard or soft)	7.2%	4.2
Nondeficit (sufficient/surplus)	11.0%	4.7
Transit Use, Past 30 Days		
No	7.5%	4.7
Yes	31.6%	5.3
Walking, Past 30 Days		
No	7.0%	7.6
Yes	11.4%	4.3

Table 113. Demographics of ridehailing users (column percentages).

	Ridehailing Users (Past 30 Days)	All Georgians Ages 16+
MPO Tier		
1. Atlanta MPO	78.2%	54.4%
2. Medium MPOs	11.8%	15.8%
3. Small MPOs	4.3%	10.1%
4. Non-MPO counties	5.8%	19.8%
Sex		
Male	51.5%	47.9%
Female	48.5%	52.1%
Age Cohort (adults only)		
Millennial and Gen Z (16–36)	55.0%	36.7%
Gen X (37–52)	33.2%	27.6%
Pre-retirement age Boomer (53–64)	9.4%	19.5%
Retirement age (65+)	2.5%	16.2%
Race		
White non-Hispanic only	55.5%	54.8%
Black and Black multiracial (incl. Black Hispanic)	32.0%	32.1%
Other	12.5%	13.1%
Driver Status		
Nondriver	11.0%	12.6%
Driver	89.0%	87.4%
Mobility Impairment		
Absent	96.0%	90.7%
Present	4.0%	9.3%
Annual Household Income		
<$15,000	10.2%	14.5%
$15,000 to $24,999	6.1%	9.5%
$25,000 to $34,999	5.2%	10.1%
$35,000 to $49,999	9.0%	11.9%
$50,000 to $74,999	12.5%	16.6%
$75,000 to $99,999	12.6%	11.7%
$100,000+	44.4%	25.7%
Vehicle Deficit Category of Household		
Zero-vehicle	7.7%	5.0%
Deficit (hard or soft)	19.0%	27.0%
Nondeficit (sufficient/surplus)	73.3%	68.0%
Transit Use, Past 30 Days		
No	65.6%	88.9%
Yes	34.4%	11.1%
Walking, Past 30 Days		
No	19.4%	28.0%
Yes	80.6%	72.0%

Ridehailing and Vehicle-for-Hire Trips

This section estimates total annual ridehailing trips and compares them with the estimated total of trips by vehicle-for-hire. VFH trips include ridehailing trips, as well as more traditional taxi and limo services. This is done by comparing responses to the ridehailing question analyzed in the previous section (Ridehailing) with reported trips by VFH on the travel day (table 114).

Table 114. Unweighted sample sizes for ridehailing and vehicle-for-hire trips by Georgians ages 16+

	Rideshare (Past 30 Days)*		All Vehicle-for-Hire Trips (Travel Day†)	
	Users	Times Used	Users	Trips
All Georgia	1176	4741	109	205
MPO Tier				
1. Atlanta MPO	689	2920	62	111
2. Medium MPOs	349	1209	25	45
3. Small MPOs	108	326	18	38
4. Non-MPO counties	35	286	4	11

* *Based on the following question: "In the past 30 days, how many times have you purchased a ride with a smartphone rideshare app (e.g., Uber, Lyft, Sidecar)?"*

† *Based on trips on the travel day with mode recorded as "Taxi/Limo (including Uber/Lyft)."*

While 10 percent of Georgians (ages 16 and older) reported using a ridehailing app within the past 30 days (table 112), VFH trips only accounted for 0.6 percent of reported trips on the travel day itself (weighted), or 165 total trips (unweighted). Because of the small sample sizes, the researchers combine MPO tiers in two different ways: (1) the Atlanta region versus tiers 2–4 combined, and (2) tiers 1 (Atlanta), 2, and 3+4 combined.

As shown in table 115, Georgians ages 16+ take an estimated 56 million trips by taxi, limo, and ridehailing per year (based on the travel diaries), and 49 million trips by ridehailing alone (based on the ridehailing question). Therefore, an estimated 87.0 percent of vehicle-for-hire trips took place by ridehailing, and the remaining 13.0 percent by traditional taxis and limos.[72]

Table 115. Monthly and annualized estimates of ridehailing and vehicle-for-hire trips by Georgians ages 16+.

	Ridehailing Trips*		All Vehicle-for-Hire (VFH) Trips†		Percent Ridehailing
	Per 30 Days	Annual	Per 30 Days	Annual	Ridehailing ÷ All VFH
All Georgia	4,001,029	48,679,186	4,597,320	55,934,059	87.0%
Region					
Atlanta MPO	2,903,628	35,327,474	3,324,791	40,451,620	87.3%
Rest of Georgia	1,097,400	13,351,705	1,272,529	15,482,439	86.2%
MPO Tier					
Atlanta MPO	2,903,628	35,327,474	3,324,791	40,451,620	87.3%
Medium MPOs	388,362	4,725,070	525,472	6,393,238	73.9%
Small MPOs & non-MPO counties	709,039	8,626,635	747,058	9,089,201	94.9%

** Based on the following question: "In the past 30 days, how many times have you purchased a ride with a smartphone rideshare app (e.g., Uber, Lyft, Sidecar)?" Thirty-day estimates are converted to annual estimates by multiplying by*

† Based on trips on the travel day with mode recorded as "Taxi/Limo (including Uber/Lyft)." By default, trip weights produce annual estimates, which have been converted to 30-day estimates by multiplying by 30/365.

Ridehailing accounts for a larger percentage of VFH trips in Atlanta (87.3 percent) compared to the rest of Georgia (86.2 percent). However, when the data are further disaggregated, ridehailing appears to make up a larger portion of VFH trips in small MPOs and non-MPO counties (94.9 percent) compared to medium MPOs (73.9 percent). While this may be an artifact of small sample sizes, one possible explanation is that traditional taxi services are not as widely available in small towns and rural communities.

[72] Due to the small sample of VFH trips in the travel diary, the 95 percent confidence interval of VFH trips is between 52.2 million and 74.1 million. This would mean that the percentage of ridehailing trips might range between 66 and 93 percent, before accounting for additional uncertainty in the number of ridehailing trips.

ONLINE SHOPPING

As online shopping becomes more prominent, it may change travel behavior in the form of fewer or shorter shopping trips, and may lead to longer-term changes by remaking the kinds and quantity of retail businesses in Georgia communities. Online shopping has become more prominent during the COVID-19 pandemic, but in 2017, it was already common. The NHTS asks respondents ages 16+ how many times in the past 30 days they "purchase[d] something online and had it delivered." As shown in table 116, 52 percent of Georgians reported placing at least one online order, and 66 percent of households contained at least one person who placed an online order.

Table 116. Online orders by MPO tier, past 30 days.

	Percent Placing 1+ Orders		Number of Orders†	
	Persons Ages 16+	Households	Total Orders	Per Household
All	51.9%	66.0%	12,332,000 – 16,725,000	3.4 – 4.6
MPO Tier				
1. Atlanta MPO	57.1%	72.4%	7,297,000 – 9,805,000	3.7 – 5.0
2. Medium MPOs	51.1%	64.4%	2,047,000 – 2,828,000	3.4 – 4.8
3. Small MPOs	47.6%	62.3%	1,111,000 – 1,547,000	3.0 – 4.1
4. Non-MPO counties	40.4%	52.3%	1,878,000 – 2,546,000	2.6 – 3.5

Note: An order consists of instances when a household member "order[ed] something online and had it delivered" in the past 30 days. Because orders may be split into multiple shipments by the companies fulfilling them, the number of deliveries may exceed the number of orders.

† Number of household orders is derived from responses of individual household members. In some cases, multiple household members may have listed the same order (such as a kitchen item to be used by household members generally). Therefore, the estimated number of orders is reported as a range. The high estimate assumes no overlap between household members' purchases, and the low estimate assumes total overlap.

The number of orders was asked of individual household members, and there is some possibility that multiple household members may have taken "credit" for the same purchase, for instance a piece of furniture that will be used by the entire family. The researchers therefore report total orders as a range. Per table 116, we estimate that Georgians placed between 12.3 and 16.7 million orders per year, or 3.4–4.6 per household (including those with zero orders).[73] Online shopping was most common in Atlanta, where 72.4 percent of households placed one or more orders, and least common in non-MPO counties, where just 52.3 percent of households placed an online order.

The average Georgia household has precisely one online shopper. However, when households with zero online purchases are excluded, the average is 1.6 online shoppers per household. Figure 26 shows the number of online shoppers in Georgia households.

[73] There is not a 1:1 correlation between orders and resulting deliveries. A single order may contain multiple items, and companies that fulfill those orders may divide them into multiple shipments.

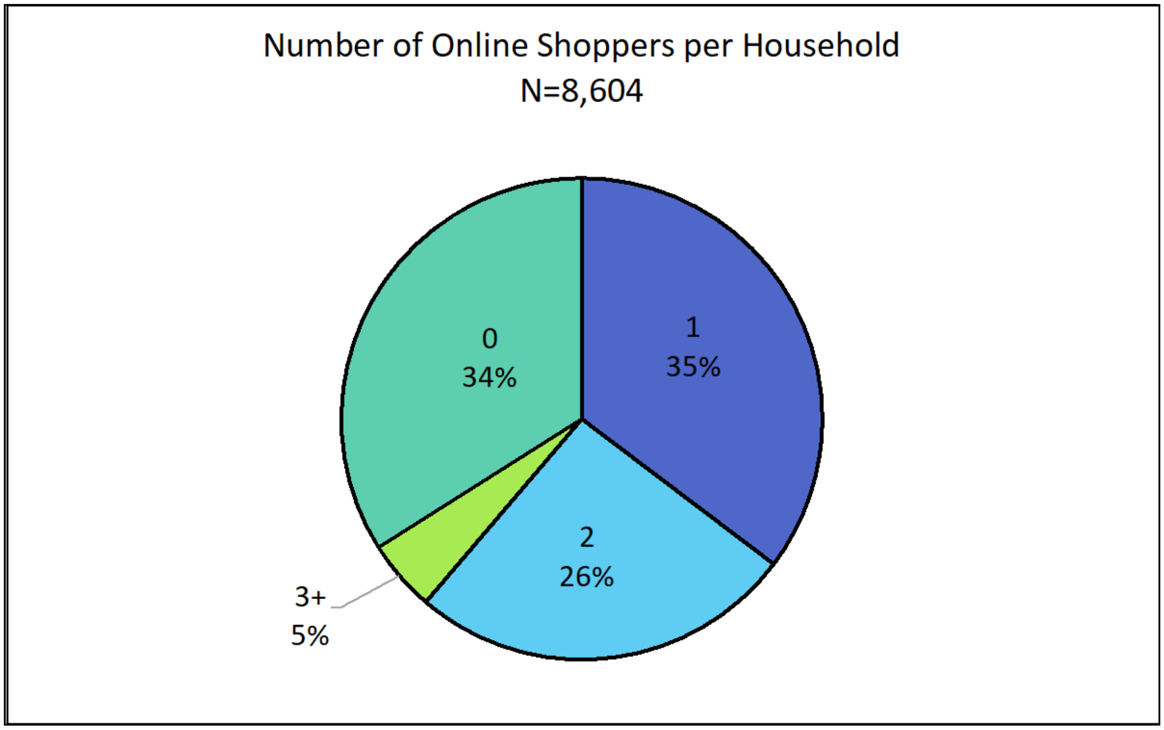


Figure 26. Pie chart. Number of online shoppers per household, past 30 days.

As shown in table 117, online shopping is nearly universal among high-income Georgians, with 94 percent of households that earn more than $100,000 a year making at least one online purchase. It is substantially less common among low-income households (32 percent of those earning less than $15,000). Among online shopping households, households earning $100,000 or more place an average of 7–10 online orders per month, compared to approximately 3–4 for all income categories below $35,000.

Table 117. Household online shopping by MPO tier, annual household income, vehicle ownership, and race, past 30 days.

		Orders per Household†	
	Percent of Households with 1+ Online Order(s)	All Households	Households with 1+ Order(s)
All households	66.0%	3.4 – 4.6	5.1 – 6.9
MPO Tier			
1. Atlanta MPO	72.4%	3.7 – 5.0	5.2 – 6.9
2. Medium MPOs	64.4%	3.4 – 4.8	5.4 – 7.4
3. Small MPOs	62.3%	3.0 – 4.1	4.8 – 6.6
4. Non-MPO counties	52.3%	2.6 – 3.5	4.9 – 6.7
Annual Household Income			
<$15,000	31.5%	1.1 – 1.3	3.4 – 4.2
$15,000 to $24,999	47.0%	1.7 – 2.0	3.7 – 4.3
$25,000 to $34,999	56.9%	2.0 – 2.5	3.6 – 4.4
$35,000 to $49,999	66.0%	2.7 – 3.5	4.1 – 5.3
$50,000 to $74,999	76.6%	3.4 – 4.6	4.5 – 6.0
$75,000 to $99,999	80.6%	4.4 – 5.9	5.4 – 7.4
$100,000+	93.8%	6.6 – 9.5	7.0 – 10.1
Vehicle Deficit Category of Household			
Zero-vehicle	25.2%	0.9 – 1.0	3.5 – 4.0
Deficit (hard or soft)	63.1%	2.6 – 3.8	4.1 – 6.0
Nondeficit (sufficient/surplus)	70.6%	3.8 – 5.1	5.4 – 7.2
Household Race			
All white non-Hispanic	72.2%	4.0 – 5.5	5.6 – 7.7
Nonwhite/mixed race (some or all household members are nonwhite and/or Hispanic)	58.9%	2.6 – 3.5	4.4 – 5.9

Note: An order consists of an instance when a household member "order[ed] something online and had it delivered" in the past 30 days.

† Number of household orders is derived from responses of individual household members. In some cases, multiple household members may have listed the same order (such as a kitchen item to be used by household members generally). Therefore, the estimated number of orders is reported as a range. The high estimate assumes no overlap between household members' purchases, and the low estimate assumes total overlap.

Similarly, white households are more likely to be online shoppers than nonwhite/mixed race households, and among online shopping households make more purchases on average. Vehicle-sufficient households are more likely to be online shoppers and place more orders than households with fewer available vehicles.

Table 118 shows online orders by household composition. Households with children are more likely to place online orders. The average number of orders is also larger for online shopping households with children compared to those without children, and largest for households with children ages five or younger. However, when this is disaggregated by number of adults in the household, it is clear that this increase in online ordering is limited to households with two or more adults. Just 41.5 percent of single-caregiver households with children ages five or younger placed an online order, versus 57.3 percent of single adults without children and 75.9 percent of households with a young child and two or more adults. This is likely related to income; single-parent households face elevated economic challenges compared to other types of households.

Whether or not a household is an online shopping household is strongly correlated with the number of members ages 16 or older. More than three quarters of households with three or more people ages 16+ made at least one online purchase, compared to half of households with one person age 16+. Residents of larger households are therefore more likely to live in an online shopping household, regardless of whether they personally make a purchase. Figure 27 shows the proportion of households where none, some, or all members ages 16+ placed an online order, subdivided by household size.

Table 118. Household online shopping by household composition.

	Percent of Households with 1+ Online Order(s)	Orders per Household†	
		All Households	Households with 1+ Order(s)
All households	66.0%	3.4 – 4.6	5.1 – 6.9
Number of Household Members Ages 16+			
1	50.0%	1.9 – 1.9	3.8 – 3.8
2	71.3%	4.0 – 5.5	5.6 – 7.7
3+	78.0%	4.1 – 6.5	5.2 – 8.3
Household Composition (Categories)			
Working-age adult(s), no children under 16	69.0%	3.4 – 4.5	4.9 – 6.5
Youngest child 0–5	72.5%	5.0 – 7.0	6.8 – 9.7
Youngest child 6–15	73.9%	4.2 – 5.8	5.7 – 7.9
Retired, no children under 16	52.0%	2.0 – 2.6	3.9 – 5.0
Household Composition (Detailed)			
One adult, no children	57.3%	2.3 – 2.3	4.0 – 4.0
2+ adults, no children	75.9%	4.0 – 5.8	5.3 – 7.6
One adult, youngest child 0–5	41.5%	1.8 – 1.8	4.3 – 4.3
2+ adults, youngest child 0–5	78.3%	5.6 – 8.0	7.1 – 10.3
One adult, youngest child 6-15	57.1%	2.4 – 2.7	4.3 – 4.6
2+ adults, youngest child 6–15	79.2%	4.8 – 6.9	6.0 – 8.7
One adult, youngest child 16–21	62.4%	3.3 – 4.4	5.2 – 7.1
2+ adults, youngest child 16–21	85.0%	4.7 – 7.3	5.6 – 8.6
One adult, retired, no children	34.1%	1.0 – 1.0	2.9 – 2.9
2+ adults, retired, no children	61.1%	2.5 – 3.4	4.1 – 5.6

Note: An order consists of an instance when a household member "order[ed] something online and had it delivered" in the past 30 days.

† Number of household orders is derived from responses of individual household members. In some cases, multiple household members may have listed the same order (such as a kitchen item to be used by household members generally). Therefore, the estimated number of orders are reported as a range. The high estimate assumes no overlap between household members' purchases, and the low estimate assumes total overlap.

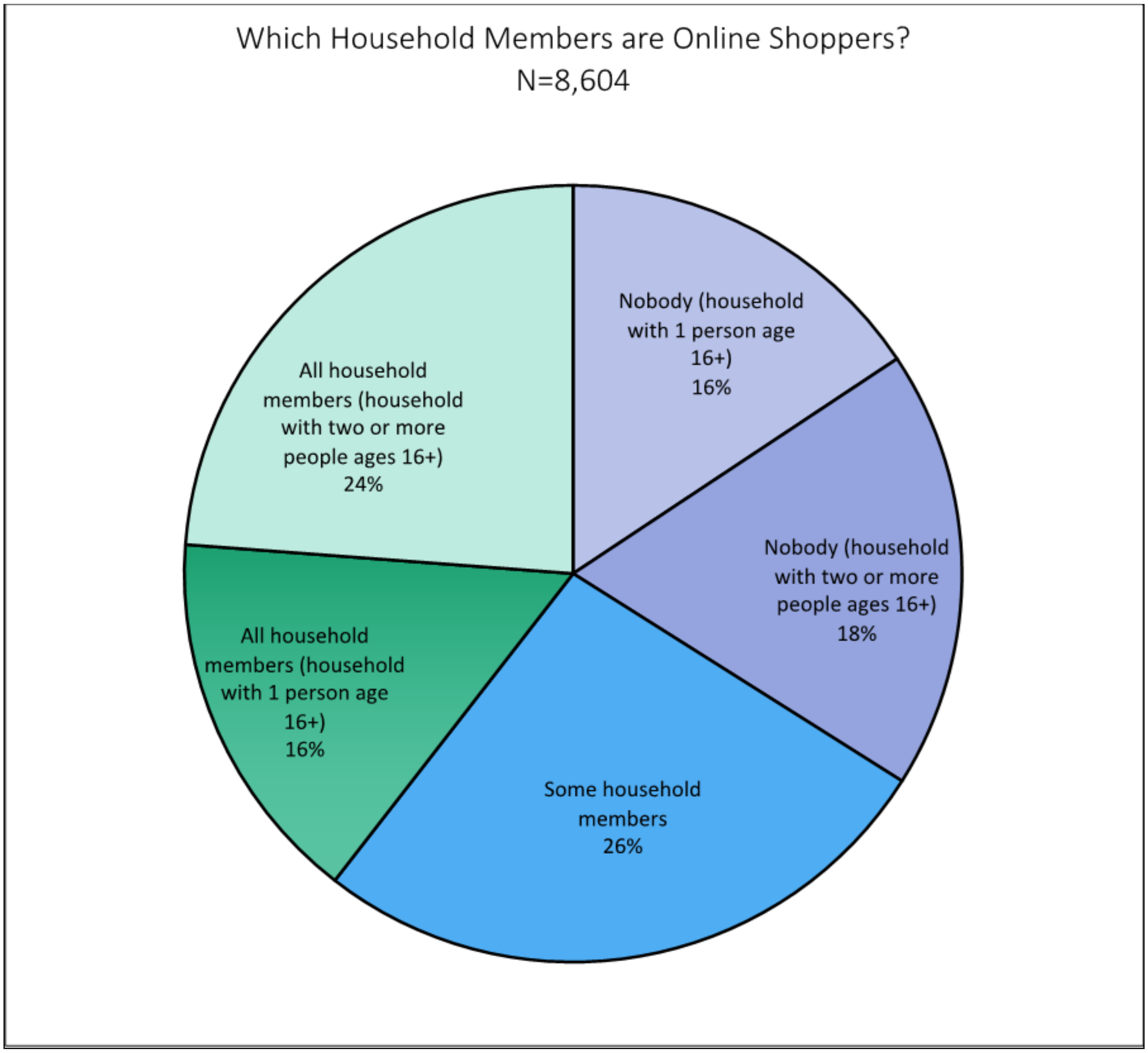


Figure 27. Pie chart. Household online shopping by household size, past 30 days.

This report now turns from examining households to examining the individuals who live in those households (table 119). Just over half of people ages 16+ personally placed an online order, but 71 percent live in an online shopping household (whether or not they personally placed an order).[74]

[74] This is higher than the 66 percent *of households* that placed at least one order because larger households, which represent a higher share of the population than of households, are more likely to contain one or more online shoppers.

As shown in table 119, elderly Georgians are the least likely to personally place an online order (20.4 percent) and also the least likely to live in an online shopping household (42.5 percent). Teens ages 16–17 have the second-lowest percentage of online shoppers (29.5 percent), perhaps because of limited economic autonomy. However, unlike elderly Georgians, teens are about as likely as adults ages 18–52 to live in an online shopping *household.* Groups with mobility challenges (i.e., nondrivers, people with mobility impairments, and residents of zero-vehicle and vehicle-deficit households) are all less likely to personally place online orders and to live in online shopping households than their nondisadvantaged counterparts.

Table 120 provides more detail about which household members are making purchases. For example, 45 percent of teens (ages 16–17) live in an online shopping household without having personally placed an order, more than twice the rate for any other group.

Table 119. Online shopping by persons ages 16+, past 30 days.

	Online Shoppers		Orders/Person	
	Online Shopper *(Personally Placed 1+ Order)*	In Online Shopping Household *(1+ Order was Placed in HH)*	All Persons 16+	Online Shoppers Only
All	51.9%	70.8%	2.3	4.5
MPO Tier				
1. Atlanta MPO	57.1%	75.5%	2.5	4.4
2. Medium MPOs	51.1%	71.4%	2.4	4.8
3. Small MPOs	47.6%	68.2%	2.1	4.4
4. Non-MPO counties	40.4%	58.8%	1.8	4.4
Sex				
Male	49.2%	72.5%	2.1	4.3
Female	54.4%	69.3%	2.5	4.6
Age Cohort				
Teens (16–17)	29.5%	74.5%	0.8	2.7
Millennial and Gen Z (18–36)	55.1%	75.9%	2.6	4.6
Gen X (37–52)	61.0%	76.4%	3.1	5.0
Pre-retirement age Boomer (53–64)	50.6%	66.9%	2.0	4.0
Senior (65–79)	40.3%	57.8%	1.4	3.6
Elderly (80+)	20.4%	42.5%	0.5	2.4
Race				
White non-Hispanic only	59.6%	77.5%	2.9	4.9
Black and Black multiracial	39.1%	58.2%	1.4	3.5
Other	51.0%	73.8%	2.2	4.4
Driver Status				
Nondriver	23.8%	50.8%	0.9	3.6
Driver	55.9%	73.7%	2.5	4.5
Mobility Impairment				
Absent	53.9%	72.6%	2.4	4.5
Present	32.1%	53.5%	1.3	4.1
Annual Household Income				
<$15,000	24.8%	38.3%	0.8	3.3
$15,000 to $24,999	32.7%	52.6%	1.1	3.5
$25,000 to $34,999	42.5%	59.5%	1.4	3.4
$35,000 to $49,999	50.8%	69.5%	1.8	3.6
$50,000 to $74,999	55.9%	78.2%	2.3	4.1
$75,000 to $99,999	60.3%	80.2%	2.8	4.6
$100,000+	74.4%	94.3%	4.1	5.6
Vehicle Deficit Category of Household				
Zero-vehicle	23.1%	29.9%	0.8	3.3
Deficit (hard or soft)	37.9%	66.1%	1.4	3.6
Nondeficit (sufficient/surplus)	59.6%	75.7%	2.8	4.7

Note: An order consists of an instance when a household member "order[ed] something online and had it delivered" in the past 30 days.

Table 120. Which household members placed online orders in the last 30 days for people ages 16+.

	Self Only	Other Household Member(s) Only	Self and Other Household Member(s)	Nobody in Household
All	17.4%	18.9%	34.5%	29.2%
MPO Tier				
1. Atlanta MPO	18.7%	18.4%	38.4%	24.5%
2. Medium MPOs	16.7%	20.3%	34.4%	28.6%
3. Small MPOs	16.9%	20.6%	30.7%	31.8%
4. Non-MPO counties	14.7%	18.4%	25.7%	41.2%
Sex				
Male	12.6%	23.3%	36.6%	27.5%
Female	21.8%	15.0%	32.6%	30.7%
Age Cohort				
Teens (16–17)	4.0%	45.0%	25.5%	25.5%
Millennial and Gen Z (18–36)	15.7%	20.7%	39.5%	24.1%
Gen X (37–52)	20.1%	15.4%	40.9%	23.6%
Pre-retirement age Boomer (53–64)	18.5%	16.4%	32.1%	33.1%
Senior (65–79)	19.8%	17.5%	20.5%	42.2%
Elderly (80+)	10.5%	22.2%	9.8%	57.5%
Race				
White non-Hispanic only	17.2%	17.9%	42.4%	22.5%
Black and Black multiracial	19.1%	19.1%	20.0%	41.8%
Other	14.0%	22.8%	36.9%	26.2%
Driver Status				
Nondriver	7.3%	27.0%	16.5%	49.2%
Driver	18.8%	17.8%	37.1%	26.3%
Mobility Impairment				
Absent	17.6%	18.7%	36.4%	27.4%
Present	15.7%	21.5%	16.3%	46.5%
Annual Household Income				
<$15,000	14.4%	13.5%	10.4%	61.7%
$15,000 to $24,999	20.2%	19.8%	12.5%	47.4%
$25,000 to $34,999	21.9%	17.0%	20.6%	40.5%
$35,000 to $49,999	21.1%	18.7%	29.7%	30.5%
$50,000 to $74,999	22.2%	22.4%	33.6%	21.8%
$75,000 to $99,999	16.8%	19.9%	43.5%	19.8%
$100,000+	12.3%	19.9%	62.1%	5.7%
Vehicle Deficit Category of Household				
Zero-vehicle	15.3%	6.9%	7.8%	70.1%
Deficit (hard or soft)	11.2%	28.1%	26.7%	33.9%
Nondeficit (sufficient/surplus)	20.0%	16.2%	39.5%	24.3%

Note: An order consists of an instance when a household member "order[ed] something online and had it delivered" in the past 30 days.

Online Shopping and Travel Behavior

Aside from online shopping during stay-at-home orders, such as during the COVID-19 pandemic, the extent to which online shopping replaces in-person shopping trips is an open question. Compared to Georgians who had not placed an online order within the past 30 days, a larger percentage of online shoppers made a trip to buy goods on the travel day (35.5 percent versus 29.7 percent) (table 121).

Table 121. Percent of persons ages 16+ who made a trip to buy goods on the travel day.

	Online shoppers*	Others
All persons ages 16+	35.5%	29.7%
MPO Tier		
1. Atlanta MPO	35.0%	27.8%
2. Medium MPOs	37.2%	31.4%
3. Small MPOs	37.6%	29.7%
4. Non-MPO counties	34.3%	32.2%

** Ordered something online and had it delivered within the past 30 days.*

This may be partially explained by the fact that online shoppers tend to have higher incomes and be more mobile; thus, they tend to make more trips, in general, and to shop more at baseline, in particular. However, the NHTS data have a number of limitations for examining the links between online shopping and travel behavior. First, the NHTS provides a snapshot of a single day of travel behavior; shopping trips might be more accurately measured over a longer time span. Second, it is important to consider shopping trips at the household level. For example, a household may make one trip to the grocery store per week, so whether an individual household member visited the grocery store is dependent on whether or not another household member did so. Third, the type of goods purchased and amount being spent should be considered. To what extent are online shoppers shifting their purchases of staple goods to the internet versus making specialty purchases that they might otherwise have foregone?

CHAPTER 5.
SOCIAL INCLUSION AND EQUITY

CHAPTER 5 – SUMMARY

Throughout, this report has drawn attention to intergroup differences in Georgians' travel behavior and access to transportation. This chapter will focus specifically on those differences that can result in reduced opportunity or quality of life for Georgians. Many underlying sources of social exclusion and economic inequality are not solely caused by the transportation system. However, a failure to consider the equity implications of transportation investment, policy, and planning decisions can exacerbate the negative impacts of poverty and prejudice.

In this chapter, the researchers use key mobility indicators to examine transportation disadvantage based on economic and social exclusion. We devote particular attention to the needs of two groups not covered in depth elsewhere in the report: immigrants and people with mobility impairments. We also examine gendered inequalities stemming from intrahousehold decisions about how to allocate resources and tasks.

- **Overview** introduces the topic of social inclusion and discusses key findings from other chapters in this report as they relate to equity. This section also discusses the research team's choice of indicators for measuring equity.
- **Key Equitable Mobility Indicators** examines mobility disparities using key indicators such as travel day and chronic immobility, number of trips, and access to vehicles. We consider the travel patterns of immigrant Georgians, finding that they are less mobile and less likely to be drivers than nonimmigrants. They also own fewer vehicles. Ethnic and

transportation differences exist between immigrant Georgians of different education levels, but these travel patterns are extant among immigrants of all educational levels.

- **Vehicle Access** examines intrahousehold vehicle allocation and travel differences between vehicle-sufficient households and households that are not vehicle-sufficient. We find that captive transit users pay a time penalty for taking transit, not just in comparison to Georgians who use private autos, but also in comparison to choice transit users. Captive nonmotorized trips are also longer than choice nonmotorized trips, although (unlike the case with transit) the difference is based on different purposes for captive and choice trips rather than quality of service.

  Turning to intra-household vehicle allocation, we find that when there is a shortage of vehicles, women are less likely to be the primary driver of a vehicle. The exception to this is for female caregivers of young children, perhaps because the vehicle is needed for child-serving trips. Women are also less likely to be the recipients of newly purchased vehicles, but somewhat counterintuitively more likely to have the newest vehicle by model year. Among teen drivers, girls are more likely than boys to be given the newest household vehicle, whether because they are considered more trustworthy drivers, or because of greater concern about their safety in case of mechanical difficulties, or both.

- **How Much and What For: The Interrelated Effects of Gender and Age on Mobility and Trip Purpose** examines the interrelated effects of gender and age on travel behavior and immobility. This section shows that older women are at an elevated risk of becoming housebound, but because younger women are slightly *more* mobile than younger men, this risk may not be apparent in averages by gender alone. These results also draw attention to the need to apply an *intersectional* lens to analysis of transportation needs (considering the interaction between multiple sources of social exclusion).

- **Health and Disability** examines equity concerns related to disability status and health. Mobility and physical activity are compared between Georgians with and without mobility impairments, and between different subgroups of Georgians with disabilities. The researchers identify a strong correlation between low income and poor health among both disabled and nondisabled Georgians. Furthermore, this health disparity persists even when comparing Georgians at similar levels of physical activity. We also discuss the ways in which elderly Georgians and those with mobility impairments adapt their travel behavior, and use logistic regression to examine risk factors for immobility among Georgians with mobility impairments.

OVERVIEW

Unequal mobility and transportation access can diminish Georgians' capability of participating fully in economic, social, and political life (Nussbaum 2003, World Bank 2013). Transportation policymakers and planners can mitigate inequality through *social inclusion,* or "the process of improving the ability, opportunity, and dignity of people, disadvantaged on the basis of their identity, to take part in society" (World Bank 2013, p. 4). Improved transportation can increase Georgians' employment prospects and educational opportunity, and reduce social isolation (Suzuki, Cervero, and Iuchi 2013; Vasconcellos 2001; World Bank 2013).

Transportation disadvantage stems from two interconnected sources: (1) *social exclusion*, or barriers based on membership in a stigmatized or stereotyped group, and (2) *poverty*. The cumulative effect of social exclusion is often poverty. For example, 24 percent of Georgians make less than $25,000 per year. However, as shown in figure 28, while just 14.7 percent of white men fall into this income category, 40.1 percent of Black women have a household income of less than $25,000.

The effects of mobility impairments are even more striking: more than half of people with mobility impairments live in low-income households,[75] and more than 70 percent of Black people with mobility impairments. It should be noted that the NHTS asks specifically about mobility impairments (a “condition or handicap that makes it difficult to travel outside of the home”).[76]

While mobility impairments can *also* impede the ability to work, the need for a mobility aid such as a wheelchair in and of itself has no bearing on someone’s capacity to engage in paid employment. However, a lack of high-quality, accessible, affordable transportation can pose a barrier to employment and education, regardless of the person’s capacity to work or study (Bezyak et al. 2019, National Council on Disability 2015). In addition to physical barriers, people with mobility impairments also face social stigma (Papadimitriou 2008).

[75] The rate is even higher for mobility-impaired people of working age than for people of retirement age (60 percent versus 46 percent), suggesting that this is not a result of higher rates of disability among the old and infirm.

[76] Other disabilities, including intellectual and psychiatric disabilities, can also impact mobility (Bezyak et al. 2019). Based on the NHTS’s question wording, it is unclear whether individuals with these conditions would have responded affirmatively to this question.

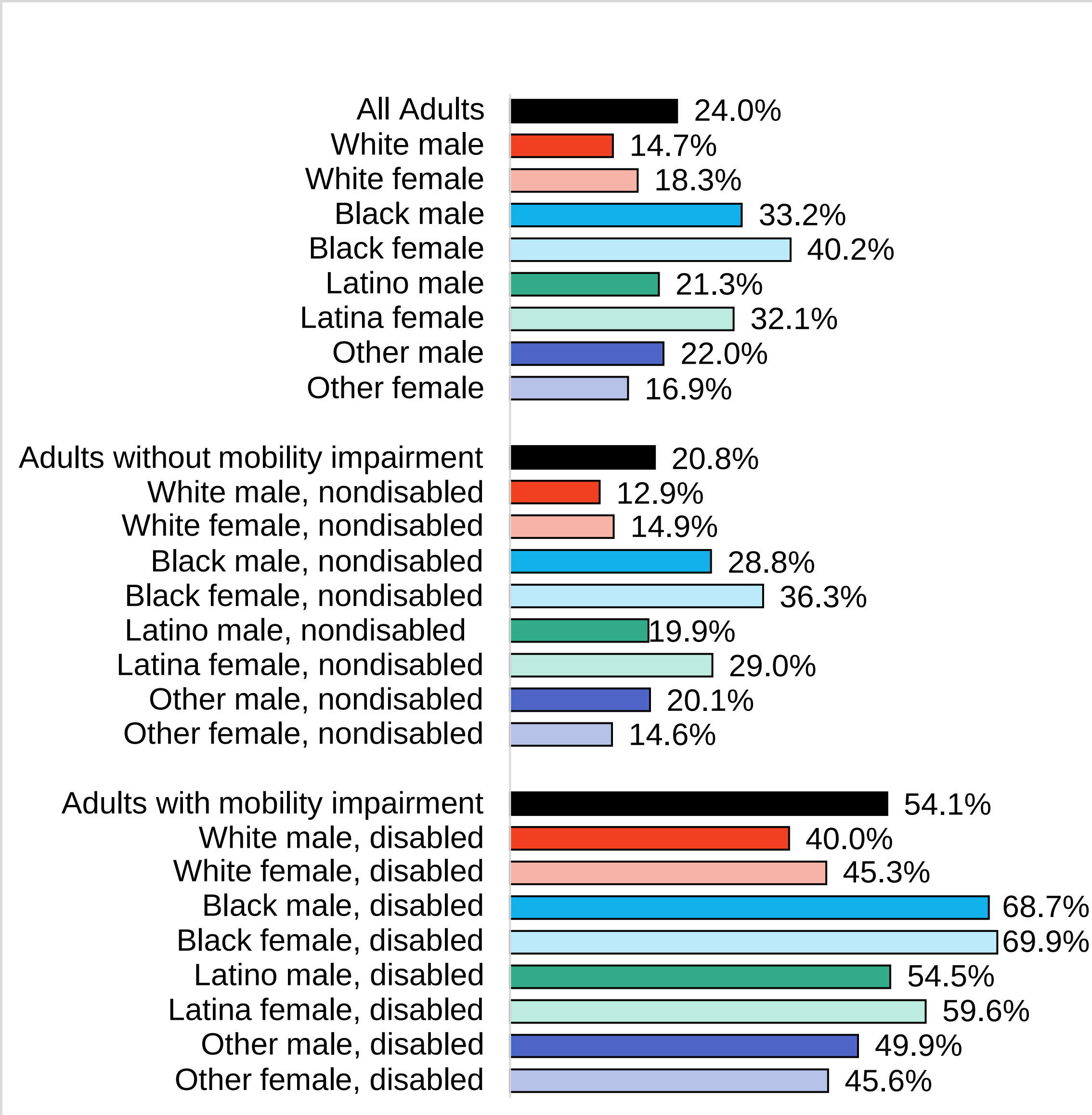


Figure 28. Bar graph. Percent of adults with annual household income less than $25,000, by race, gender, and mobility impairment.

Figure 28 also illustrates how the effects of multiple forms of oppression overlap. Women of color are doubly disadvantaged by their gender and race. The gender gap in low-income incidence is greatest among Latinos; 21.3 percent of men and 32.1 percent of women live in households earning less than $25,000 per year. Black Georgians are the most likely to be in low-income households, and the gender gap is narrower than for Latinos. White Georgians have the smallest percentage of low-income households and also the smallest gender gap. Disability is associated with a wider gendered low-income incidence gap among whites compared to the gap among nondisabled whites, but a narrower gap among Blacks and Latinos. To account for such *intersectionality,* it is important to consider the joint effect of multiple sources of disadvantage.

In addition, the effects of social exclusion can persist long after officially sanctioned discrimination has been addressed. For example, while redlining and race-based exclusions from mortgage financing have been banned for 50 years, the assistance provided to white families half a century ago provided them with a “head start” on building wealth. African Americans facing housing and employment discrimination had fewer assets to pass on to their children, contributing to a racial wealth gap. Today, the median net worth of whites is 1,000 percent of that of Blacks (Jan 2017).

Mainstreaming Equity

One promising template for addressing inequality is what is known as *gender mainstreaming,* or “the process of assessing the implications for women and men of any planned action.... so that women and men benefit equally and inequality is not perpetuated” (United Nations Economic and Social Council 1997).

Gender mainstreaming has two key features. First, gender mainstreaming recognizes that, because of pre-existing inequalities, gender-blind planning (sometimes referred to as gender “neutral” planning) tends to result in unequal outcomes. To achieve equitable *outcomes*, it is necessary to have a gender-aware *process.*

Second, under a gender mainstreaming approach, women's needs should not be thought of as a "special issue." Rather, transportation professionals should incorporate gender considerations into standard planning and analysis practices, for example by providing gender-disaggregated data and examining policies' differential impacts on men and women. To address a longstanding "gender data gap" (Criado-Perez 2019), studies focused specifically on gender are sometimes needed. However, in addition to such focused analysis, everyday policy and planning processes should also consider whether gender might affect the equity or efficacy of a proposed action.

The idea of mainstreaming can be applied to other sources of inequality. As engineers and planners evaluate the effects of proposed projects on congestion mitigation or transit ridership, they should also examine whether the benefits of those projects will mitigate or exacerbate inequality based on gender, race, disability, and other sources of social exclusion.

This report has followed an equity mainstreaming approach by incorporating analysis of equity into discussion of general travel and commuting patterns. The researchers will provide a centralized summary of key equity findings from elsewhere in the report before proceeding with more in-depth analyses.

Key Equity Findings

Race

White non-Hispanic Georgians make more trips than Georgians of other races, and are less likely to be immobile on the travel day (see chapter 1, Household and Personal Mobility). Trips made by nonwhite Georgians are shorter in distance, and overall PMT per capita for nonwhite Georgians is lower than PMT per capita for white Georgians. White Georgians' trips are more likely to be by personal occupancy vehicle, and their VMT per capita is higher. There are also racial differences in trip purpose. Whites make more discretionary trips and fewer trips to transport someone else (see chapter 1, Trip Purpose).

Focusing on work travel, Black Georgians are more likely to make complex commutes than white Georgians and Georgians of other races (see chapter 2, Overview of Commuters). Black Georgians' commute distances and overall commute PMT are similar to those of whites, but their commute *times* are longer (see chapter 2, Demographic Differences and Demographic Differences in Commute Duration). Part of this difference in commute duration is due to Black commuters' higher usage of slower modes, such as transit and nonmotorized travel (see chapter 2, Commute Mode by Person). Black Georgians are more likely than Georgians of other races to spend 2 or more hours on their daily commute (see chapter 2, Total Daily Commute Burden). Black Georgians are also more likely to say that transit safety is a concern (see chapter 1, Transit Service Preferences Among Workers). Additionally, white Georgians are more likely to have the flexibility to set their own schedule or work from home than are Black Georgians and Georgians of other races (see chapter 3, Work Flexibility for Whom?).

There are also racial differences in the uptake of new services and technologies. White Georgians are more likely to purchase alternate-fuel vehicles than are Georgians of other races, qualifying them for tax credits and other benefits of owning an expensive but efficient vehicle (see chapter 4, Alternative-fuel Vehicles). Similarly, white households are more likely to be online shoppers than nonwhite/mixed race households, and among online shopping households make more purchases on average (see chapter 4, Online Shopping). The users of carsharing and bikesharing, in contrast, are disproportionately Black (see chapter 4, Shared Vehicles: Bikesharing and Carsharing). There were not pronounced differences in the percent of people who used ridehailing by gender or race. However, among ridehailing users, Black riders made more trips than whites and people of other races” (see chapter 4, Ridehailing).

Black Georgians walk more than white Georgians and those of other races (e.g., Latino, Asian, Native American), but bike slightly less (see chapter 6, Travel Day Walking and Biking by Georgia Adults). Leisure accounts for 15 percent of Black Georgians’ nonmotorized travel trips and legs, less than half the share for whites and Georgians of other races. NMT is more prominent as a mode of transit access/egress travel for Black Georgians. Among children, white children make fewer NMT trips than Blacks and children of other races (see chapter 6, Frequency of Nonmotorized Travel by Children). Among children who *did* walk or bike, average minutes of NMT is much higher for Black children (38.8) versus other races (25.7) and whites (21.4).

In this chapter, the researchers will discuss racial differences in immobility and travel time and compare the mobility of immigrant and nonimmigrant Georgians (see chapter 5, Key Equitable Mobility Indicators).

Income and Vehicle Ownership

Low-income Georgians make fewer trips and are more likely to be immobile on the travel day (see chapter 1, Household and Personal Mobility). Trips, PMT, and VMT all increase with income (see chapter 1, Household and Personal Mobility). High-income people make more discretionary trips, though discretionary trips also make up a comparatively high *share* of trips by very low-income people (see chapter 1, Trip Purpose). It is possible that this latter spike is related to unemployment or underemployment: removal of commute and work-related trips from the “pie” will necessarily increase the share (of a smaller total number) of trips pertaining to some other purposes.

Nearly one third of the lowest-income households (those making less than $15,000 per year) own no vehicle (see chapter 1, Vehicle Ownership). This share decreases dramatically among the next-lowest income group; 6.9 percent of households making $15,000–24,999 own zero vehicles. Just 0.1 percent of the highest-income households own zero vehicles. Low- and moderate-income households are also more likely to have a vehicle deficit (at least one vehicle, but fewer vehicles than potential drivers). Because zero-vehicle households are so uncommon outside of the lowest income bracket, these households are best thought of as carless by necessity rather than “car-free” by choice.

Among vehicle-owning households, the lowest and highest income households are more likely to have purchased at least one vehicle in the past 12 months (see chapter 1, Vehicle Ownership). However, while the average age of a vehicle purchased by a household earning at least $100,000 (the top 22 percent) is 5 years, the average vehicle purchased by a household earning less than $15,000 per year (the bottom 17 percent) is more than 11 years old and has more than 130,000 miles on the odometer.[77] Vehicles near the end of their useful lives are financially more accessible to low-income households, but higher maintenance costs, high-interest auto loans, and predatory sales practices for used vehicles mean that the poor pay a premium for basic mobility (Karger 2003). It also means that low-income drivers must replace their vehicles more frequently.

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[77] The difference in median age is even larger. The median age of a vehicle purchased by a high-income household is 2 years, while the median age for low-income households is 12 years.

The highest-income households (earning at least $100,000 per year) are substantially more likely to have hybrid or electric vehicles (see chapter 4, Alternative-fuel Vehicles). More than 9 percent of these households have at least one hybrid or electric vehicle, versus 6 percent of households making $75,000–99,999 per year and fewer than 1 percent of vehicle-owning households making less than $25,000 per year. The income-based differences in vehicle age and quality are indicative of a de facto tax on poverty, where the poor pay more (Caplovitz 1967, Karger 2003).

Trips for the purpose of transporting someone else spike among lower-middle income households ($35,000–$44,999 annual income) (see chapter 1, Trip Purpose). These households are more likely to own a vehicle than lower-income households, but more likely to have a vehicle deficit than higher-income households. An adult in one of these lower-middle income households will make 73 more person trips per year than someone in the next income category down, but 22 of those trips, or 30 percent, will be to transport someone else. Vehicle-deficit households are more mobile than carless households, but the disproportionate spike in trips to transport others suggest that the increase in the utility derived from travel is somewhat smaller.

Turning to work travel, commute times are longest for zero-vehicle households, and approximately equivalent in vehicle-deficit and nondeficit households (see chapter 2, Commute Times by Mode and Vehicle Ownership). By distance, in contrast, low-income workers have the shortest commutes and upper-middle income workers have the longest (see chapter 2, Demographic Differences). High-income workers are more likely to have the ability to set their own work schedules or work from home and are more likely to take advantage of that opportunity (see chapter 3, Descriptive Statistics on Access to Flexible Schedule and Work Location, and Travel Day Telecommuting).

Mode choice has a U-shaped relationship with income, with walking, biking, and transit being most common among low-income commuters, least common among middle-income commuters, and somewhat more common among high-income commuters (see chapter 2, Commute Mode by Person). Low- and high-income commuters' views of what makes transit a "good option" for commutes differ, with higher-income Georgians more likely to prioritize convenience (schedule and location of stops) and lower-income Georgians more likely to prioritize cost and safety (see chapter 1, Transit Service Preferences Among Workers). High-income commuters are more concerned about speed, but there were no significant differences by income in preferences for consistent travel times.

However, there is a notable difference in level of service between captive and choice transit commuters: the average transit commute for a captive rider is 20.4 minutes longer than the average choice transit commute, despite the fact that the average distance of captive riders' commutes is 3.1 miles shorter than a choice rider's transit commute (see chapter 2, Commute Times by Mode and Vehicle Ownership). Commuters who, by necessity, use nonmotorized modes likewise walk or bike longer than commuters who have chosen these modes, suggesting that the "captive" pedestrians and cyclists documented in other countries (Pendakur 2011) also exist in Georgia. In chapter 5, Captive Travel will document that this difference between captive and choice travelers also applies to nonwork travel, and that the time penalty for captive transit users persists even after controlling for purpose, distance, and other variables.

Turning to new technologies and services, bikeshare and carshare users come disproportionately from vehicle-deficit and zero-vehicle households (see chapter 4, Shared Vehicles: Bikesharing and Carsharing). However, among users, residents of vehicle-deficit and zero-vehicle households use the service *less* than users from nondeficit households. The pattern for ridehailing usage is the opposite: adoption is higher among high-income people, but among users, low-income people use the service more frequently.

Walking and biking are most common among residents of the lowest income (less than $15,000 per year) and highest income ($100,000 or more per year) households, compared to their incidence among other income groups (see chapter 6, Access and Egress Travel). However, low-income pedestrians and cyclists are more likely to walk/bike to access transit or desired destinations (instrumental travel), whereas higher income Georgians are more likely to walk and bike for leisure. Captive pedestrians' and cyclists' instrumental trips are longer than those of choice pedestrians and cyclists, even after controlling for other factors (see chapter 6, Captive and Choice Nonmotorized Travel). Among children, the percent who walk or bike on the travel day is similar across income brackets. However, the amount of *time* spent walking or biking varies substantially: an average of 52 minutes for children in the lowest-income households (< $15,000 per year) versus 22–26 minutes for children in other income brackets (see chapter 6, Frequency of Nonmotorized Travel by Children).

In this chapter, the researchers will discuss the different conditions confronting captive and choice transit users (see chapter 5, Vehicle Access), the relationship between income and vehicle ownership and mobility (see chapter 5, Key Equitable Mobility Indicators), the association between disability and poverty (see chapter 5, Health and Disability), and how vehicle-deficit households allocate family vehicles (see chapter 5, Intra-Household Vehicle Allocation: Who Gets the Family Car?).

Gender

On average, men and women make a similar number of person trips. However, men make more vehicle trips (see chapter 1, Household and Personal Mobility). The average distance for men's trips is greater, and men generate more PMT and VMT. Additionally, a higher percentage of women are immobile on the travel day. More detailed analysis of the relationship between gender, age, and immobility appears in chapter 5, How Much and What For: The Interrelated Effects of Gender and Age on Mobility and Trip Purpose.

Women are more likely to make complex commutes than men, making it critical to accurately measure full work journeys rather than basing estimates on a single leg of the trip (see chapter 2, Overview of Commuters and Summary of Methods Implications for Upcoming Report Sections). Women's commute *distances* are shorter, but their commute *times* are not (see chapter 2, Demographic Differences in Commute Duration). Further, when commute distance is disaggregated by education level, it becomes apparent that the gender gap in distance only applies to workers without a college degree (see chapter 2, Demographic Differences).

Women's complex commutes are at least in part a reflection of their elevated "second shift" responsibilities in maintaining the household and providing childcare. However, they have less access to work accommodations, such as teleworking and flexible scheduling, that would make it easier to meet these commitments (see chapter 3, Work Flexibility for Whom?).

Women are more likely than men to commute by transit (see chapter 2, Commute Mode by Person), and more likely to list safety as an important aspect of transit service (see chapter 1, Transit Service Preferences Among Workers). Fewer women report walking and biking to be their "usual" commute mode, but when observed work journeys on the travel day are examined, there is no meaningful gender difference in the rate of nonmotorized commuting (see chapter 2, Commute Mode by Person).

Women are more likely to walk than men, but less likely to bike (see chapter 6, Overview). However, bikeshare users are more evenly divided by gender than cyclists as a whole (see chapter 4, Shared Mobility). Women are more likely than men to be discouraged from walking and biking by safety issues such as lack of sidewalks, heavy traffic, and inadequate night lighting (see chapter 6, Barriers to Walking and Biking More Frequently).

Men are more likely to own AFVs than women (see chapter 4, Alternative-fuel Vehicles). Multi-caregiver families with children are more likely than single adults to take advantage of online shopping. However, single-parent households, which are predominantly female-headed, are less likely to have placed orders online (see chapter 4, Online Shopping).

In this chapter, the researchers will discuss how gender shapes women's mobility differently among different age groups: young women tend to be more mobile than average, while older women are substantially more likely to be immobile than older men and younger Georgians of all ages (see chapter 5, Key Equitable Mobility Indicators). This chapter will also discuss gender differences in vehicle allocation (see chapter 5, Intra-Household Vehicle Allocation: Who Gets the Family Car?) and the interaction between disability and gender (see chapter 5, Risk Factors for Immobility among Adults with Mobility Impairments).

Age and Disability

Travel day immobility is very high among the elderly and those with a mobility impairment (see chapter 1, Household and Personal Mobility). In addition to making *fewer* trips, trips by elderly people and those with mobility impairments cover shorter distances. People with mobility impairments report very few work trips (see chapter 1, Trip Purpose).

Younger adults—millennials and members of Gen Z—were more likely to use ridehailing apps and made more trips than older users; thus, ridehailing services may be underused as tools for improving seniors' mobility (see chapter 4, Ridehailing). Similarly, elderly Georgians are the least likely to take advantage of online shopping (see chapter 4, Online Shopping).

Walking has a higher mode share for Georgians *with* mobility impairments than for those *without*; this counterintuitive finding is likely related to the fact that people with mobility impairments disproportionately find themselves in groups that walk more by necessity (low-income, nondrivers, etc.) (see chapter 6, Travel Day Walking and Biking by Georgia Adults). Otherwise, walking and biking tend to decrease with age, though older adults make more leisure and loop trips than younger adults (see chapter 6, Travel Day Walking and Biking by Georgia Adults, and Model Structure).

In this chapter, the researchers provide more in-depth analysis of the travel patterns and immobility of people with mobility impairments (see chapter 5, Health and Disability) and consider how they intersect with gender differences (see chapter 5, How Much and What For: The Interrelated Effects of Gender and Age on Mobility and Trip Purpose). We find that among Georgians with mobility impairments, groups who are already marginalized for other reasons—the poor, elderly, and women—are more likely to be immobile than Georgians with disabilities from other backgrounds. We further find that existing mobility services for these populations are inadequate.

Choice of Equity Indicators

The ultimate goal of increasing the equity of transportation is to improve Georgians' quality of life. Therefore, this report focuses on indicators that can best serve as proxies for quality of life in terms of access to destinations and time expended in order to access those destinations. From a utility perspective, the *distance* of each trip is less important than the existence of the trip and the time the traveler expends on it. As an equity indicator, travel distance (i.e., PMT and VMT) is less directly connected to the utility of that trip.

Accordingly, this report's key equity indicators are:

1. **Travel day trips per capita**, or the total number of trips divided by the total adults in the population or subpopulation.
2. **Travel day trips per capita, active travelers only.** This measurement, which is based only on adults with at least one trip on the travel day, indicates how many trips are made on days when members of a given group do not stay in the same place all day. Together, indicators 1 and 2 document the total average mobility, and differentiate between mobility differences based on a reduced number of trips on a typical travel day and those stemming from a reduced number of travel days.
3. **Travel day immobility (zero trips on the travel day).** This indicator captures differences in how often members of different groups stay at home for an entire day.
4. **Chronic immobility (zero trips in the past 7 days).** This indicator helps differentiate between respondents who happened to stay home on the travel day and those whose travel is severely restricted.

The report also considers vehicle sufficiency (having enough vehicles for each potential driver in the household). Chapter 1, Vehicle Ownership has described demographic patterns in vehicle sufficiency at the household level. This chapter provides similar analysis for immigrants, who were not considered as a separate subpopulation in that section. The researchers then consider vehicle access within the household (identified by the primary driver for each vehicle), and vehicle access as a predictor of travel time. We are particularly interested in “captive” transit users, pedestrians, and cyclists.

KEY EQUITABLE MOBILITY INDICATORS

On an average day, 18.5 percent of Georgians make zero trips. However, over the course of a typical week, 97.6 percent of Georgia adults will leave home at least once. Not having made a single trip in the past 7 days, then, is an indicator of more chronic immobility. Georgians with mobility impairments are more than twice as likely as Georgians without mobility impairments to stay home on the travel day, but they are also six times as likely to be more chronically immobile.

While Georgians with mobility impairments are the most likely to have been immobile for the past 7 days, 7-day immobility is also comparatively high among low-income people, residents of carless and vehicle-deficit households, Georgians with low educational attainment, and women. Seven-day immobility is lower among white non-Hispanic and Latino Georgians, and higher among Georgians who identify as Black, Asian, or some other race. In chapter 5, How Much and What For: The Interrelated Effects of Gender and Age on Mobility and Trip Purpose, the researchers use logistic regression to examine the interrelated effects of gender, age, and various demographic characteristics on the risk of chronic immobility. For example, after controlling for other factors, being female is associated with an increased likelihood of being housebound, specifically among older adults.

Table 122 shows summary demographic statistics for Georgians, and for two subpopulations of interest: (1) Georgians with mobility impairments, and (2) immigrants. According to the U.S. Census Bureau, Georgia's median household income is $55,679. Since the NHTS income data are categorical, the closest boundary marker available is at $50,000. Based on the NHTS data analyzed in this report, 46 percent of Georgians live in households earning less than $50,000 per year. However, 74 percent of Georgians with disabilities live in households earning less than $50,000. Educational attainment and workforce participation are also lower. As a reminder, participants were asked about *mobility* impairments and not impairments that directly affect academic or professional functioning. It should therefore not be assumed that these differences stem from impaired scholastic or professional abilities.

Immigrants are *less* likely to reside in households earning less than $50,000 per year than nonimmigrants. As shown in table 123, this pattern is true for all immigrants without a 4-year college degree. Immigrants with a bachelor's degree or higher are somewhat likelier than nonimmigrants of the same education level to live in a lower-income household. There are several potential explanations for this. Some immigrants with professional certifications that are not recognized in the U.S. may find themselves working in a lower-paid industry. Additionally, many international students come to Georgia to study for advanced degrees, during which period they likely have lower incomes than their nonimmigrant counterparts with bachelor's or higher degrees, since many of the latter are already in regular employment whereas F-1 visa holders (the category of visa held by most international students) have restrictions on such employment.[78] In view of F-2 visa restrictions preventing the spouses of international students from working, nonimmigrants in graduate school are also more likely than immigrant graduate students to live in households with at least one regularly employed worker. Low-education and high-education immigrants also hail from different parts of the world. The majority of immigrants with a high school education or less are Latino, while a plurality of higher education immigrants identify as Asian or some other race.

Table 124 shows differences in mobility by various demographic factors. On a typical day (averaging weekdays and weekends), 18.5 percent of Georgia adults stay home.[79] This travel-day immobility is lowest in Atlanta and highest in non-MPO counties. Immobility decreases as education level increases. In terms of household income, immobility is highest among low-income Georgians and lowest among those living in households earning $75,000–99,999 per year. Vehicle-sufficient households have the lowest travel-day immobility. Interestingly, travel-day immobility is higher among people in vehicle-deficit households than people in zero-vehicle houses. This may signify a pattern of consolidating trips into a smaller number of days for the former group: on active travel days, Georgians from vehicle-deficit households make *more* trips than Georgians from zero-vehicle households.

On an average day, 18.5 percent of Georgians make zero trips. However, over the course of a typical week, 97.6 percent of Georgia adults will leave home at least once. Not having made a single trip in the past 7 days, then, is an indicator of more chronic immobility. Georgians with

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[78] https://www.uscis.gov/working-united-states/students-and-exchange-visitors/students-and-employment.
[79] For weekdays only, this figure is 16.1 percent.

mobility impairments are more than twice as likely as Georgians without mobility impairments to stay home on the travel day, but they are also six times as likely to be more chronically immobile.

While Georgians with mobility impairments are the most likely to have been immobile for the past 7 days, 7-day immobility is also comparatively high among low-income people, residents of carless and vehicle-deficit households, Georgians with low educational attainment, and women. Seven-day immobility is lower among white non-Hispanic and Latino Georgians, and higher among Georgians who identify as Black, Asian, or some other race. In chapter 5, How Much and What For: The Interrelated Effects of Gender and Age on Mobility and Trip Purpose, the researchers use logistic regression to examine the interrelated effects of gender, age, and various demographic characteristics on the risk of chronic immobility. For example, after controlling for other factors, being female is associated with an increased likelihood of being housebound, specifically among older adults.

Table 122. Demographic characteristics by disability and national origin.

		Mobility Impairment		National Origin	
	All Adults	Absent	Present	Nonimmigrant	Immigrant
Population (thousands)*	7,704	6,967	732	6,771	927
MPO Tier					
1. Atlanta MPO	54.1%	55.1%	44.6%	52.0%	73.5%
2. Medium MPOs	15.8%	15.9%	16.9%	16.3%	13.5%
3. Small MPOs	10.1%	10.3%	9.2%	10.7%	5.9%
4. Non-MPO	20.0%	18.7%	29.3%	21.0%	7.1%
Race					
White non-Hispanic only	55.2%	53.6%	51.4%	57.9%	15.2%
Black and Black multiracial†	30.8%	31.5%	37.2%	33.6%	18.1%
Hispanic (any race)	8.5%	9.2%	7.0%	5.8%	36.1%
Asian or other	5.5%	5.7%	4.5%	2.7%	30.6%
Education Level					
High school or less	31.8%	34.6%	57.5%	37.3%	31.5%
Some college or associate degree	30.5%	28.7%	25.5%	29.3%	21.0%
Bachelor's degree or higher	37.7%	36.7%	17.0%	33.3%	47.4%
Annual Household Income					
<$15,000	14.6%	12.3%	36.8%	15.0%	8.4%
$15,000 to $24,999	9.4%	9.3%	16.6%	10.0%	8.4%
$25,000 to $34,999	10.1%	10.1%	11.5%	9.7%	13.9%
$35,000 to $49,999	12.0%	12.0%	9.1%	11.7%	12.2%
$50,000 to $74,999	16.6%	16.6%	12.7%	16.4%	15.4%
$75,000 to $99,999	11.8%	12.2%	6.5%	11.4%	15.1%
$100,000+	25.5%	27.6%	6.8%	25.8%	26.7%
Household Vehicle Ownership‡					
Zero-vehicle	4.9%	4.0%	16.0%	5.1%	3.9%
Vehicle-deficit	25.9%	25.3%	38.8%	25.1%	37.0%
Vehicle-sufficient	69.2%	70.7%	45.2%	69.8%	59.2%
Gender					
Male	47.9%	49.2%	41.2%	48.9%	45.8%
Female	52.1%	50.8%	58.8%	51.1%	54.2%
Mobility Impairment					
Absent	90.5%	–	–	89.9%	95.2%
Present	9.5%	–	–	10.1%	4.8%
National Origin					
Nonimmigrant	88.0%	87.3%	94.0%	–	–
Immigrant	12.0%	12.7%	6.0%	–	–

** Unweighted sample size: 15,222. Mobility impairment is unknown for 8 respondents (weighted to represent 4,400 Georgians) and national origin is unknown for 7 respondents (weighted to represent 6,000 Georgians).*

† Excluding Black Hispanic.

‡ Vehicle-deficit households have at least one vehicle, but fewer vehicles than potential drivers. Vehicle-sufficient households have at least one vehicle for every potential driver.

Table 123. Demographics of nonimmigrant and immigrant Georgians by level of education.

Category	Nonimmigrant			Immigrant		
	Low *HS or Less*	**Medium** *Some College or Associate*	**High** *Bachelor's or Greater*	**Low** *HS or Less*	**Medium** *Some College or Associate*	**High** *Bachelor's or Greater*
Race						
White non-Hispanic only	52.6%	57.3%	69.6%	8.3%	13.6%	19.6%
Black and Black multiracial†	39.5%	34.7%	24.7%	15.2%	28.0%	16.6%
Hispanic (any race)	5.5%	5.5%	3.8%	58.4%	35.6%	22.5%
Asian or other	2.5%	2.5%	2.0%	18.1%	22.8%	41.3%
Annual Household Income						
<$15,000	27.3%	12.5%	3.6%	16.0%	5.7%	5.0%
$15,000 to $24,999	13.6%	11.1%	4.0%	14.2%	8.5%	5.0%
$25,000 to $34,999	13.1%	9.8%	6.0%	19.1%	15.4%	7.5%
$35,000 to $49,999	11.2%	15.3%	9.4%	14.0%	15.9%	9.7%
$50,000 to $74,999	15.2%	19.3%	16.5%	12.9%	19.1%	15.0%
$75,000 to $99,999	7.0%	12.2%	15.0%	11.0%	14.6%	18.2%
$100,000+	12.5%	19.8%	45.7%	12.7%	20.6%	39.7%
Household Vehicle Ownership‡						
Zero-vehicle	10.2%	3.4%	0.8%	4.8%	1.5%	4.1%
Vehicle-deficit	36.3%	24.5%	14.6%	48.0%	36.6%	30.2%
Vehicle-sufficient	53.6%	72.1%	84.5%	47.2%	62.0%	65.8%
MPO Tier						
1. Atlanta MPO	43.3%	49.3%	64.0%	66.0%	73.0%	77.9%
2. Medium MPOs	15.8%	17.4%	15.5%	11.5%	10.9%	15.9%
3. Small MPOs	12.0%	12.1%	7.9%	9.9%	6.8%	3.1%
4. Non-MPO	28.9%	21.3%	12.7%	12.6%	9.3%	3.0%
Gender						
Male	50.7%	47.2%	46.8%	47.1%	40.7%	44.8%
Female	49.3%	52.8%	53.2%	52.9%	59.3%	55.2%

† Excluding Black Hispanic.

‡ Vehicle-deficit households have at least one vehicle, but fewer vehicles than potential drivers. Vehicle-sufficient households have at least one vehicle for every potential driver.

Table 124. Key mobility indicators for Georgia adults by geography, race, education, income, vehicle ownership, gender, and disability.

	Daily Trips		Immobility	
	Per Capita	Active* Travelers Only	Travel Day	Past Seven Days
All adults	1.86	2.27	18.5%	2.4%
MPO Tier				
1. Atlanta MPO	3.45	4.17	17.1%	2.2%
2. Medium MPOs	3.30	4.08	19.2%	2.5%
3. Small MPOs	3.36	4.11	18.0%	2.4%
4. Non-MPO	3.10	3.99	21.9%	2.7%
Race				
White non-Hispanic only	3.38	4.10	17.4%	1.5%
Black and Black multiracial†	3.34	4.17	19.7%	3.6%
Hispanic (any race)	3.39	4.14	18.0%	1.6%
Asian or other	2.95	3.90	24.1%	6.2%
Education Level				
High school or less	2.84	3.82	25.2%	3.7%
Some college or associate	3.30	4.05	18.6%	2.4%
Bachelor's degree or higher	3.81	4.38	12.8%	1.2%
Annual Household Income				
<$15,000	2.94	4.04	27.0%	3.9%
$15,000 to $24,999	3.04	3.90	22.1%	3.2%
$25,000 to $34,999	3.35	4.13	18.7%	2.0%
$35,000 to $49,999	3.55	4.27	16.7%	3.1%
$50,000 to $74,999	3.37	4.10	17.8%	2.9%
$75,000 to $99,999	3.56	4.11	13.4%	2.5%
$100,000+	3.55	4.20	15.3%	0.6%
Household Vehicle Ownership‡				
Zero-vehicle	2.82	3.70	22.9%	5.0%
Vehicle-deficit	3.03	4.10	26.1%	4.8%
Vehicle-sufficient	3.50	4.14	15.4%	1.3%
Gender				
Male	3.33	3.99	16.5%	1.8%
Female	3.36	4.23	20.3%	2.9%
Mobility Impairment				
Absent	3.45	4.13	16.3%	1.6%
Present	2.32	3.84	39.5%	10.0%

** Reporting at least one trip on the travel day.*

† Excluding Black Hispanic.

‡ Vehicle-deficit households have at least one vehicle, but fewer vehicles than potential drivers. Vehicle-sufficient households have at least one vehicle for every potential driver.

Table 125 compares mobility by educational attainment between immigrant and nonimmigrant Georgians. Table 126 shows what portion of Georgians are drivers and how many vehicles their household owns, subdivided by national origin, race, and other demographic variables. This report classifies vehicle ownership status based on the ratio between household vehicles and potential drivers (household members ages 16+). A vehicle-deficit household has at least one vehicle, but fewer vehicles than potential drivers. A nondeficit (or vehicle-sufficient) household has at least one vehicle for each potential driver.

Table 125. Mobility indicators by national origin and educational attainment among Georgia adults.

	Daily Trips		Immobility	
	Per Capita	Active* Travelers Only	Travel Day	Past Seven Days
All adults	1.86	2.27	18.5%	2.4%
All Education Levels				
Nonimmigrant	3.37	4.12	18.1%	2.0%
Immigrant	3.16	4.05	21.7%	5.0%
Low-education (High School or Less)				
Nonimmigrant	2.87	3.82	24.6%	3.4%
Immigrant	2.65	3.80	30.0%	6.6%
Medium-education (Some College or Associate's Degree)				
Nonimmigrant	3.31	4.07	18.6%	2.1%
Immigrant	3.16	3.92	19.2%	5.7%
High-education (Bachelor's Degree or Higher)				
Nonimmigrant	3.88	4.41	11.9%	0.7%
Immigrant	3.46	4.24	18.1%	3.8%

** Made 1+ trips on the travel day*

Taken together, the two tables show that immigrant Georgians are somewhat less mobile than nonimmigrant Georgians at all educational levels. Immigrants of all education levels are less likely to be drivers than nonimmigrants. They are also less likely to live in vehicle-sufficient households and more likely to live in vehicle-deficit households. Because vehicle-deficit households are especially common among immigrants, low-education immigrants are also less likely than low-education nonimmigrants to live in carless households. High-education immigrants, in contrast, are slightly more likely to be carless than their nonimmigrant counterparts.

Table 126. Driver status and vehicle ownership by Georgia adults of different demographic characteristics.

		Vehicle Sufficiency*		
	Driver Status *"Does this person drive?"†*	**Nondeficit** *At least one household vehicle for each potential driver*	**Deficit** *At least one household vehicle, but fewer vehicles than potential drivers*	**Zero-Vehicle** *Carless household*
All Adults	89.0%	69.2%	25.9%	4.9%
Mobility Impairment				
Absent	95.1%	82.2%	15.1%	2.7%
Present	67.2%	59.3%	28.2%	12.5%
National Origin				
Nonimmigrant	92.5%	80.7%	15.5%	3.8%
Immigrant	87.8%	69.6%	27.2%	3.2%
Nonimmigrants by Education Level				
High school or less	81.8%	66.4%	24.3%	9.3%
Some college or associate degree	95.2%	81.4%	15.9%	2.7%
Bachelor's or higher	97.9%	89.7%	9.4%	0.9%
Immigrants by Education Level				
High school or less	73.6%	52.8%	41.3%	5.9%
Some college or associate degree	90.8%	76.4%	20.8%	2.8%
Bachelor's or higher	92.7%	74.2%	23.5%	2.3%
Race				
White non-Hispanic only	94.9%	85.6%	12.9%	1.5%
Black and Black multiracial	84.6%	65.4%	23.9%	10.8%
Hispanic (any race)	89.1%	67.2%	28.5%	4.4%
Asian or other	88.4%	68.6%	27.1%	4.3%
Annual Household Income				
<$35,000	82.4%	61.1%	26.9%	12.0%
$35,000 to $49,999	92.7%	77.1%	22.3%	0.5%
$50,000 to $74,999	95.3%	85.5%	13.9%	0.6%
$75,000 to $99,999	96.7%	88.1%	11.7%	0.1%
$100,000+	98.3%	93.2%	6.8%	0.1%
Sex				
Male	93.4%	80.5%	16.2%	3.3%
Female	91.1%	79.1%	16.7%	4.1%

** Like income, vehicle sufficiency is calculated at the household level. The figures here summarize the status of adults within those households. They do not indicate whether an individual is the main driver for any of the household vehicles.*

† This is the question wording used by NHTS. NHTS does not ask about driver's licensing.

VEHICLE ACCESS

In chapter 5, Key Equitable Mobility Indicators, this report documented demographic differences in vehicle availability. This section examines the effects of vehicle access (or the lack thereof) on the travel time of "captive travelers" who take transit, walk, or bike. The researchers find that captive travelers are doubly penalized. First, transit and walking are, in most cases, slower than driving. Second, captive transit users receive an additional time penalty in comparison to similar trips by choice riders. Finally, we consider how households allocate vehicles among their members. In vehicle-deficit households, we find that women are less likely to be the main driver of a household vehicle than are men. This effect is reversed, however, for female caregivers of young children.

Captive Travel

Conceptually, transit users, cyclists, or pedestrians are "captive" when they are traveling by that mode out of necessity because a private automobile is not available. A choice traveler, in contrast, has the option of taking a private auto, but opts not to do so. In this analysis, a captive transit or nonmotorized trip meets the following criteria:

1. The traveler is from a carless or vehicle-deficit household. The researchers include vehicle-deficit households in the definition of captive travel because, while a car is available to some household members for some trips, for other trips, household members will have more limited options.[80]

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[80] Additionally, in Georgia, vehicle-sufficient households are the norm. The overwhelming majority of Georgia households (74 percent) have a vehicle for every potential driver. Zero-vehicle households are very uncommon (7 percent). In a state or country where zero-vehicle and vehicle-deficit households are more common, it might make sense to subdivide captive travel from travelers in each of those types of households.

2. The household earns less than $50,000 per year.[81] The income criterion is designed to screen out travel by people who are "car-free" by choice versus those who are financially unable to afford vehicles for every potential driver in the household.

Table 127 presents the distribution of trip purposes by mode, distinguishing between choice and captive trips for the transit and NMT modes. Table 127 also presents the unweighted sample sizes for the trips on which all descriptive and statistical analyses in this section are based.

As table 127 shows, the purposes of choice transit and NMT trips differ from the purposes of captive trips. A plurality of choice NMT trips are for recreation or fitness, or travel for its own sake. Captive pedestrians and cyclists, in contrast, are usually walking or biking because they are trying to reach a destination. On the transit side, trips to work account for nearly a third of choice trips, compared to just 22 percent of captive trips. Medical and dental trips account for 8 percent of captive transit trips versus just 1 percent of choice transit trips.

[81] We chose this value because it is the closest approximation of Georgia's median income ($55,679) achievable with NHTS data. We conducted sensitivity analysis using different income cutoffs, and the models presented here were found to be robust.

Table 127. Purpose by mode for captive, choice, and POV trips (weighted percent and unweighted sample sizes).

Purpose for Captive*, Choice, and POV Trips (weighted)							
	NMT *(walk or bike)*		Transit				
Purpose	Choice	Captive	Choice	Captive	POV	Other Mode	All
Work or school	13.4%	6.4%	31.7%	22.1%	15.9%	20.0%	15.7%
Household-serving travel	9.3%	25.7%	24.0%	23.0%	29.0%	12.2%	27.6%
Recreation or fitness	40.9%	21.1%	5.7%	1.6%	4.4%	6.6%	6.9%
Other discretionary trip	12.1%	13.4%	4.1%	8.4%	14.5%	12.7%	14.2%
Medical or dental	0.3%	1.0%	1.0%	7.9%	1.6%	5.8%	1.6%
Return home	21.9%	31.0%	29.2%	35.5%	33.9%	36.8%	33.2%
Other purpose	2.1%	1.4%	4.2%	1.5%	0.7%	5.8%	0.9%
Unweighted Sample Sizes†							
	NMT *(walk or bike)*		Transit				
	Choice	Captive	Choice	Captive	POV	Other Mode	Total
Work or school	306	55	106	65	6,736	89	7,357
Household-serving travel	270	247	48	85	13,214	53	13,917
Recreation or fitness	1,197	185	12	7	1,950	39	3,390
Other discretionary trip	300	122	17	31	6,591	37	7,098
Medical or dental	11	15	5	24	982	30	1,067
Return home	530	283	79	113	14,845	132	15,982
Other purpose	58	18	11	5	311	19	422
Total	2,672	925	278	330	44,629	399	

** Transit and nonmotorized trips are considered captive if the traveler is from a vehicle-deficit or zero-vehicle household with an annual household income <$50,000. Trips by travelers that do not meet these criteria are categorized as choice.*

† Based on sample of trips by Georgia residents that take place entirely within Georgia. Excludes 1,270 POV trips and 131 non-POV trips for which income is unknown, as well as 77 POV and 13 non-POV trips for which duration, purpose, or disability status are unknown.

Mean trip duration differs not just by mode, but between captive and choice users of the same mode (table 128). The difference is especially notable among transit users, where the mean travel time for a captive transit trip is 20 minutes longer than that of choice users. The average durations of captive and choice NMT trips are similar, largely because a preponderance of lengthy recreation trips by choice pedestrians and cyclists counterbalances the fact that captive pedestrians' and cyclists' nonrecreational trips are longer than those of choice walkers and bikers.

Table 128. Mean duration and distance of captive, choice, and POV trips.

		Mean Duration in Minutes			Mean Distance (Miles)
Mode	Percent of Trips	All Purposes	Recreation and Fitness Trips	Nonrec. Only	Nonrec. Trips Only*
Choice† NMT (walk or bike)	5.5%	18.3	26.4	12.7	0.7
Captive NMT (walk or bike)	2.9%	19.2	23.3	18.1	0.8
Choice transit	1.1%	43.0	78.2	40.8	11.2
Captive transit	1.1%	63.4	60.6	63.4	9.7
POV incl. rental car	88.5%	21.9	26.4	21.7	9.1
Other mode	1.0%	31.8	21.7	32.5	12.6

** Recreational trips and fitness trips are excluded from distance because the NHTS's "shortest path" method of calculating distance is expected to be less accurate for trips where the traveler is likely to choose a circuitous route. The distance column also excludes 3 POV trips, 29 NMT trips, 3 transit trips, and 3 other trips for which distance is missing.*

† Transit and nonmotorized trips are considered captive if the traveler is from a vehicle-deficit or zero-vehicle household with an annual household income <$50,000. Trips by travelers that do not meet these criteria are categorized as choice.

Because differences in duration between choice and captive travelers are confounded with differences in trip purpose and other factors, we used linear regression to isolate the effect of captivity on trip duration for transit and NMT trips (table 129). We find that captive transit users face a time penalty of 15.7 minutes per trip compared to choice transit users, after controlling for trip purpose, MPO, and demographic factors. Captive pedestrians and cyclists do not face the same captivity time penalty as captive transit users. Rather, the longer average duration of captive NMT trips is better explained by the dominance of purposes that are associated with longer walk or cycle trips.

Table 129. Linear regressions: Effect of captive travel on duration of transit and nonmotorized trips.

	Transit Trips			Nonmotorized Trips		
	Coef	P-Value		Coef	P-Value	
Captive traveler †	15.696	0.004	***	-1.302	0.738	
Purpose (reference: return home)						
Work or school	-2.135	0.572		-2.163	0.076	*
Household-serving travel	-15.538	0.000	***	-2.711	0.018	**
Recreation or fitness	12.073	0.121		14.738	0.000	***
Other discretionary trip	1.493	0.783		-2.936	0.015	**
Medical or dental	-1.055	0.871		4.515	0.270	
Other	-14.455	0.073	*	-2.096	0.405	
Bike (versus pedestrian, NMT only)	--	--		5.804	0.033	**
Annual household income (reference: <$35,000)						
$35,000-$49,999	-19.600	0.001	***	-6.710	0.039	**
$50,000 to $74,999	0.236	0.972		-7.308	0.061	*
$75,000 to $99,999	11.309	0.127		-3.901	0.399	
$100,000+	4.147	0.501		-5.851	0.169	
Female	3.199	0.377		-1.775	0.124	
Race (reference: white non-Hispanic only)						
Black and black multiracial	6.498	0.168		3.167	0.064	*
Other	4.901	0.464		7.253	0.268	
Mobility impairment	-0.065	0.992		-2.553	0.196	
Age	0.216	0.778		0.0019	0.993	
Age squared	-0.0047	0.537		-0.00003	0.990	
Child 0-5 years old in house	-10.710	0.109		-4.577	0.016	**
Weekend or federal holiday	10.572	0.134		4.328	0.252	
MPO‡ (reference: Atlanta)						
Medium-sized MPOs						
Athens	-29.639	0.000	***	--	--	
Augusta	-23.991	0.014	**	--	--	
Columbus	6.032	0.788		--	--	
Gainesville	-19.545	0.056	*	--	--	
Savannah	-13.602	0.044	**	--	--	
Any medium-sized MPO	--	--		2.518	0.217	
Small MPOs						
Albany	-2.772	0.801		--	--	
Brunswick	2.169	0.805		--	--	
Dalton	-33.531	0.003	***	--	--	
Hinesville	-31.926	0.151		--	--	
Macon	-24.122	0.001	***	--	--	
Rome	-24.701	0.002	***	--	--	
Any small MPO	--	--		1.426	0.374	
Non-MPO county	-40.339	0.000	***	0.371	0.862	
Cross-MPO trip ‡	58.111	0.000	***	--	--	
Constant	48.130	0.008	***	16.675	0.006	***
N	608			3,597		
R2	0.272			0.061		

** denotes significance for $\alpha = .10$ ** denotes significance for $\alpha = .05$ *** denotes significance for $\alpha = .01$*

† From household with fewer vehicles than potential drivers (incl. zero vehicles) and annual household income

‡ Based on county of trip origin. Trips where the origin and destination MPOs differ are given a value of one for both the origin county and the "cross-MPO trip" variable.

Table 130 shows an alternate estimation of the time penalty on captive transit trips in comparison not just with choice transit trips, but also with trips by POV. The model controls for the same purpose and demographic variables, and additionally controls for trip distance.

This model estimates that a trip by public transit will take approximately 10 minutes longer than a comparable trip by POV (or 17.7 minutes in Atlanta). The time penalty for captive transit trips is an additional 20.2 minutes. In other words, the full time penalty for a captive transit user instead of using a POV if it had been available is 38 minutes per trip in Atlanta and 30 minutes per trip elsewhere in the state.

A traveler who *chooses* transit for two trips a day is accepting an average increase of 20–35 minutes in travel time, perhaps in exchange for increased convenience, lower cost, or other benefits (see chapter 1, Transit Service Preferences Among Workers). *Captive* transit users, on the other hand, lose more than an hour of their day, regardless of their mode preferences.

Table 130. Linear regression: Duration in minutes of trips by POV and transit.

	Coefficient	Robust SE	P-value	
Public Transit *(vs private auto)*	9.94	3.50	0.005	***
Transit x Atlanta †	7.78	4.12	0.059	*
Captive Transit User ‡	20.22	4.32	0.000	***
Trip distance (miles)§	1.26	0.04	0.000	***
Purpose *(reference: return home)*				
Work or school	0.14	0.23	0.558	
Household-serving travel	-1.72	0.20	0.000	***
Recreation or fitness	3.91	1.14	0.001	***
Other discretionary trip	-0.81	0.25	0.001	***
Medical or dental	1.48	0.47	0.002	***
Other	-2.47	0.95	0.009	***
Annual household income *(reference: <$35,000)*				
$35,000-$49,999	-0.99	0.43	0.020	**
$50,000 to $74,999	-1.08	0.31	0.001	***
$75,000 to $99,999	-1.52	0.34	0.000	***
$100,000+	-1.28	0.31	0.000	***
Female	-0.41	0.19	0.028	**
Race *(reference: white non-Hispanic only)*				
Black and black multiracial	2.20	0.28	0.000	***
Other	0.93	0.38	0.015	**
Mobility impairment	1.02	0.37	0.006	***
Age	-0.110	0.042	0.008	***
Age squared	0.0011	0.0004	0.005	***
Weekend or federal holiday	-0.28	0.35	0.430	
MPO Category ¶ *(reference: Atlanta)*				
2. Medium-size MPOs	-1.93	0.24	0.000	***
3. Small MPOs	-2.44	0.27	0.000	***
4. Non-MPO county	-3.21	0.47	0.000	***
Cross-MPO trip ¶	-2.50	1.15	0.030	**
Constant	14.86	1.07	0.000	***
R^2	0.51			
N (trips) ††	45,231			

** denotes significance for $\alpha = .10$ ** denotes significance for $\alpha = .05$ *** denotes significance for $\alpha = .01$*

† Transit trip originating in the Atlanta MPO

‡ Transit user from household with fewer vehicles than potential drivers (incl. zero vehicles) and annual household income <$50,000

§ Shortest path distance between origin and destination as calculated by the Google API, retrieved by NHTS

¶ Based on county of trip origin. Trips where the origin and destination MPOs differ are given a value of one for both the origin county and the "cross-MPO trip" variable.

†† 45,231 trips were made by 11,805 unique individuals

Intra-Household Vehicle Allocation: Who Gets the Family Car?

Not every household member has equal access to the family car. As shown in table 133, overall, 90 percent of Georgia drivers (ages 16+) are listed as the main driver for at least one family vehicle (in other words, it is "their") car. In vehicle-deficit households, only 70 percent of drivers have their own car, versus 97.5 percent of drivers in nondeficit households.

When vehicles are scarce, to whom do households allocate them? We examine this question by using logistic regression to model the probability that a driver ages 16+ will be the main driver of a household vehicle in three circumstances:

1. Among households with a vehicle deficit (where multiple drivers must compete for a limited number of vehicles), we model the probability that a driver is listed as the main driver for *any* household vehicle.
2. Among households that acquired a vehicle in the past 12 months, we model the probability that a household member will be listed as the main driver for a *newly purchased* vehicle (whether that vehicle was new or used at the time of purchase).
3. Among households with at least two vehicles, we model the probability of being the main driver for the vehicle with the most recent model year (i.e., the newest vehicle chronologically).

Table 131 and table 132 present the weighted and unweighted sample distributions on which these models are based. While the researchers do not present a model based on drivers in all households with 2+ vehicles (deficit and nondeficit combined), we present descriptive statistics about this population. Accordingly, we also provide a sample distribution for this group.

Table 131. Weighted sample characteristics of drivers by household vehicle ownership.

Driver Characteristics	Household Type			
	2+ Potential Drivers†	Vehicle-Deficit‡	2+ Household Vehicles	Newly Purchased Vehicle(s)§
All drivers ages 16+	100.0%	100.0%	100.0%	100.0%
Male	51.1%	47.3%	52.4%	50.9%
Female	48.9%	52.7%	47.6%	49.1%
By Caregiver Status¶				
Male noncaregiver	33.5%	31.7%	33.9%	32.4%
Female noncaregiver	30.5%	33.3%	29.6%	28.7%
Male caregiver, youngest 0–4	9.1%	8.4%	9.3%	9.5%
Female caregiver, youngest 0–4	9.1%	9.1%	9.1%	10.6%
Male caregiver, youngest 5–15	8.5%	7.2%	9.2%	9.0%
Female caregiver, youngest 5–15	9.2%	10.4%	8.9%	9.8%
Age				
Teen (16–17)	2.4%	3.0%	1.9%	3.9%
Working-age adult (18–64)	84.1%	84.3%	85.3%	87.3%
Senior (65–79)	11.9%	10.7%	11.5%	8.0%
Elderly (80+)	1.6%	1.9%	1.3%	0.8%
Worker Status				
Nonworker	34.4%	43.5%	30.4%	33.9%
Worker	65.6%	56.5%	69.6%	66.1%
Mobility Impairment				
Absent	94.2%	90.8%	90.8%	95.1%
Present	5.8%	9.2%	9.2%	4.9%
Vehicle Sufficiency				
Nondeficit, 2+ potential drivers	73.6%	0.0%	87.8%	78.3%
Deficit of 1+ vehicles	26.4%	100.0%	12.2%	21.7%
Deficit of exactly 1 vehicle	19.6%	74.3%	9.6%	15.3%
Deficit of 2+ vehicles	6.8%	25.7%	2.6%	6.4%
Number of Household Vehicles				
1	13.8%	52.3%	0.0%	54.6%
2	43.6%	31.4%	54.8%	54.1%
3+	42.6%	16.3%	41.5%	43.4%
Unweighted sample size	11,042	1,954	9,513	3,532

Note: Weighted column percentages shown. For consistency between models and descriptive tables, 348 observations with missing household income have been excluded from this table.

† Based on drivers in households with two or more members of driving age (16+).

‡ Vehicle-deficit households have at least one vehicle, but fewer vehicles than potential drivers.

§ Household has purchased a new or used vehicle within past 12 months.

¶ A caregiver is defined as any adult age 18+ in a household with a child of less than 5 years old, and any adult age 22+ in a household with a child of 5–15 years old.

Table 132. Unweighted sample characteristics of drivers by household vehicle ownership.

Driver Characteristics	Household Type			
	2+ Potential Drivers†	Vehicle-Deficit‡	2+ Household Vehicles	Newly-Purchased Vehicle(s)§
All drivers ages 16+	11,042	1,954	9,513	3,532
Male	48.3%	45.1%	49.5%	47.9%
Female	51.7%	54.9%	50.5%	52.1%
By Caregiver Status¶				
Male noncaregiver	36.5%	33.7%	37.1%	35.0%
Female noncaregiver	38.1%	39.4%	36.8%	36.3%
Male caregiver, youngest 0–4	5.8%	5.5%	6.0%	6.5%
Female caregiver, youngest 0–4	6.6%	6.9%	6.7%	7.8%
Male caregiver, youngest 5–15	6.0%	5.8%	6.4%	6.5%
Female caregiver, youngest5–15	7.1%	8.6%	7.0%	8.0%
Age				
Teen (16–17)	1.9%	3.0%	1.5%	3.3%
Working-age adult (18–64)	73.3%	73.6%	74.7%	78.6%
Senior (65–79)	21.7%	18.9%	21.2%	16.3%
Elderly (80+)	3.2%	4.5%	2.6%	1.8%
Worker Status				
Nonworker	41.3%	51.9%	37.9%	37.4%
Worker	58.7%	48.1%	62.2%	62.6%
Mobility Impairment				
Absent	93.6%	88.4%	95.1%	94.3%
Present	6.4%	11.6%	4.9%	5.8%
Vehicle Sufficiency				
Nondeficit, 2+ potential drivers	82.3%	0.0%	93.1%	85.6%
Deficit of 1+ vehicles	17.7%	100.0%	6.9%	14.4%
Deficit of exactly 1 vehicle	14.6%	82.6%	5.7%	11.4%
Deficit of 2+ vehicles	3.1%	17.4%	1.2%	3.0%
Number of Household Vehicles	0.0%	0.0%	0.0%	0.0%
1	10.3%	58.0%	0.0%	5.8%
2	48.4%	29.4%	53.4%	38.8%
3+	41.4%	12.5%	46.6%	55.4%

Note: Unweighted column percentages shown. For consistency between models and descriptive tables, 348 observations with missing household income have been excluded from this table.

† Based on drivers in households with two or more members of driving age (16+).

‡ Vehicle-deficit households have at least one vehicle, but fewer vehicles than potential drivers.

§ Household has purchased a new or used vehicle within past 12 months.

¶ A caregiver is defined as any adult age 18+ in a household with a child of less than 5 years old, and any adult age 22+ in a household with a child of 5–15 years old.

To understand vehicle access, the research team examined the percentage of drivers who are listed as the "main driver" for a household vehicle (table 133). Because household members may share access to a vehicle, not having a vehicle that is officially "theirs" does not necessarily mean a driver never has vehicle access. However, someone who is the main driver for a vehicle likely has more reliable access than someone who is not.

Unsurprisingly, the larger the vehicle deficit is in any given household, the less likely individual drivers are to have their own vehicle. Among households with at least two drivers, 98 percent of drivers in nondeficit households are the main driver of a household vehicle. In contrast, 74 percent of drivers in a household with a one-vehicle deficit are listed as a main vehicle driver, and only 56 percent of those in a household with a deficit of two or more vehicles.

On average, women are less likely than men to be the main driver of a household vehicle, though this pattern reverses among caregivers for young children. Nonworkers and people with mobility impairments are less likely to be main drivers than workers and nondisabled household members, respectively. Analysis using logistic regression indicates that these patterns continue to be significant after controlling for other factors (table 134).

Table 133. Percent of drivers listed as the "main" driver for a household vehicle.

	Personal Vehicle Access: Main Driver of a Household Vehicle*		
	All Households with 2+ Potential Drivers†	Vehicle-Deficit Households Only‡	Nondeficit Households Only
All drivers ages 16+	90.1%	69.6%	97.5%
Male	91.4%	70.5%	98.1%
Female	88.8%	68.8%	96.8%
By Caregiver Status§			
Male noncaregiver	90.6%	69.5%	97.6%
Female noncaregiver	87.3%	64.5%	96.6%
Male caregiver, youngest 0–4	91.1%	67.8%	98.5%
Female caregiver, youngest 0–4	90.3%	72.3%	96.6%
Male caregiver, youngest 5–15	94.6%	77.6%	99.5%
Female caregiver, youngest 5–15	92.2%	79.4%	97.6%
Age			
Teen (16–17)	65.8%	18.0%	89.5%
Working-age adult (18–64)	91.1%	71.6%	98.0%
Senior (65–79)	89.4%	67.5%	96.2%
Elderly (80+)	82.8%	72.3%	87.7%
Worker Status			
Nonworker	81.6%	55.7%	94.6%
Worker	94.6%	80.2%	98.8%
Mobility Impairment			
Absent	90.9%	70.8%	97.8%
Present	77.5%	57.7%	91.4%
Vehicle Sufficiency			
Nondeficit, 2+ potential drivers	97.5%	–	97.5%
Deficit of 1+ vehicles	69.6%	69.6%	–
Deficit of exactly 1 vehicle	74.3%	74.3%	–
Deficit of 2+ vehicles	56.0%	56.0%	–
Unweighted sample size	11,042	1,954	9,088

** Participant is listed as the "main driver" for one or more household vehicles.*

† Based on drivers in households with two or more members of driving age (16+). For consistency between descriptive analysis and models, households with missing income values have been excluded from this table.

‡ Vehicle-deficit households have at least one vehicle, but fewer vehicles than potential drivers.

§ A caregiver is defined as any adult age 18+ in a household with a child of less than 5 years old, and any adult age 22+ in a household with a child of 5–15 years old.

Table 134. Logistic regression: Vehicle allocation within vehicle-deficit households.

Logistic Regression: Probability of Being Main Driver for Any Household Vehicle†	Odds Ratio	Robust SE	T	P-Value
Female	0.633	0.087	-3.32	0.001 ***
Caregiver status‡ *by age of youngest child (reference: noncaregiver)*				
Caregiver, youngest child 0–4 years old	0.543	0.135	-2.45	0.014 **
Caregiver, youngest child 5–15	0.971	0.252	-0.11	0.911
Female x Caregiver, youngest child 0–4	2.655	0.993	2.61	0.009 ***
Female x Caregiver, youngest child 5–15	1.928	0.702	1.80	0.071 *
Age	1.097	0.0155	6.59	0.000 ***
Age^2	0.999	0.000141	-5.09	0.000 ***
Annual household income *(reference: <$35,000)*				
$35,000 to $49,999	0.986	0.109	-0.13	0.896
$50,000 to $74,999	0.912	0.105	-0.80	0.422
$75,000 to $99,999	1.119	0.183	0.68	0.494
$100,000+	1.056	0.149	0.38	0.702
Worker	3.050	0.393	8.66	0.000 ***
Mobility impairment	0.687	0.114	-2.25	0.024 **
Deficit of 2+ vehicles§ (versus deficit of exactly 1)	0.532	0.057	-5.84	0.000 ***
Constant	0.161	0.052	-5.69	0.000 ***
Model Indicators				
Number of cases, N	1,954			
Final log likelihood, LL(β)	-1,078			
Log likelihood of constants-only model, LL(C)	-1,198			
McFadden's Pseudo-R^2: 1-LL(β)/LL(C)	0.0999			

† Sample: drivers age 16+ in vehicle-deficit households (households with at least one vehicle, but fewer vehicles than potential drivers).

‡ A caregiver is defined as any adult age 18+ in a household with a child of less than 5 years old, and any adult age 22+ in a household with a child of 5–15 years old.

§ Deficit size is the number of potential drivers in a household minus the number of vehicles.

A related question concerns the quality of household vehicles, which we examine by looking at the *newest* household vehicle. We consider vehicles that were the newest chronologically (most recent model year) and also vehicles that were newly purchased, whether new or used at time of purchase. As shown in table 135, women are less likely to be recipients of a newly purchased vehicle, but, especially for caregivers, more likely to have the newest vehicle by model year. Logistic regression indicates that these patterns hold even after controlling for worker status, mobility impairment, and other factors (table 136).

Table 135. Percent of drivers who are listed as main driver for newest household vehicle.

	By Model Year†	Newly Purchased‡
All drivers ages 16+	48.1%	48.1%
Male	41.1%	49.5%
Female	55.9%	46.6%
By Caregiver Status§		
Male noncaregiver	42.2%	49.9%
Female noncaregiver	52.3%	43.1%
Male caregiver, youngest 0–4	38.3%	51.8%
Female caregiver, youngest 0–4	60.9%	51.7%
Male caregiver, youngest 5–15	39.8%	46.0%
Female caregiver, youngest 5–15	62.6%	51.6%
Age		
Teen (16–17)	23.5%	43.3%
Working-age adult (18–64)	48.2%	48.4%
Senior (65–79)	51.1%	48.9%
Elderly (80+)	55.0%	34.9%
Worker Status		
Nonworker	48.1%	43.6%
Worker	48.1%	50.5%
Mobility Impairment		
Absent	48.2%	48.5%
Present	47.3%	40.2%
Number of Household Vehicles		
1	–	54.6%
2	54.8%	54.1%
3+	41.5%	43.4%
Unweighted sample size	9,513	3,532

** For consistency between descriptive analysis and models, households with missing income values have been excluded from this table.*

† Sample: drivers age 16+ in household with 2+ vehicles and 2+ potential drivers. In case of a tie, both vehicles are coded as newest.

‡ Vehicles purchased in the past 12 months, whether purchased new or used. Based on sample of drivers age 16+ in household with newly purchased vehicle(s).

§ A caregiver is defined as any adult age 18+ in a household with a child of less than 5 years old, and any adult age 22+ in a household with a child of 5–15 years old.

Table 136. Logistic regression: Intra-household allocation of new vehicles.

	Newly Purchased†		By Model Year‡	
	Odds Ratio	P-Value	Odds Ratio	P-Value
Female	0.692	0.000 ***	1.623	0.000 ***
Caregiver status§ *by age of youngest child (reference: noncaregiver)*				
Caregiver, youngest child 0–4 years old	0.876	0.383	0.838	0.063 *
Caregiver, youngest child 5–15	0.701	0.015 **	0.813	0.023 **
Female x Caregiver, youngest child 0–4	1.420	0.155	1.823	0.000 ***
Female x Caregiver, youngest child 5–15	1.908	0.005 ***	1.653	0.002 ***
Age	1.003	0.750	1.044	0.000 ***
Age^2	1.000	0.992	0.9997	0.000 ***
Annual household income *(reference: <$35,000)*				
$35,000 to $49,999	0.986	0.856	0.961	0.362
$50,000 to $74,999	1.036	0.609	0.877	0.000 ***
$75,000 to $99,999	0.954	0.525	0.843	0.000 ***
$100,000+	0.925	0.233	0.819	0.000 ***
Worker	1.242	0.006 ***	1.145	0.006 ***
Mobility impairment	0.672	0.010 **	0.839	0.071 *
Number of household vehicles *(reference: exactly one vehicle)*				
Exactly two	0.769	0.013 **	–	–
Three or more	0.554	0.000 ***	–	–
Number of household vehicles *(reference: exactly two vehicles)*				
Three or more	–	–	0.690	0.000 ***
Constant	1.431	0.166	0.269	0.000 ***
Model Indicators				
Number of cases, N	3,352		9,513	
Final log likelihood, LL(β)	-2411.30		-6366.71	
Log likelihood of constants-only model, LL(C)	-2448.19		-6590.44	
McFadden's Pseudo-R^2: 1-LL(β)/LL(C)	0.0151		0.0339	

† *Vehicles purchased in the past 12 months, whether purchased new or used. Sample: drivers age 16+ in household with newly purchased vehicle(s).*

‡ *Sample: drivers age 16+ in household with 2+ vehicles and 2+ potential drivers. In case of a tie, both vehicles are coded as newest.*

§ *A caregiver is defined as any adult age 18+ in a household with a child of less than 5 years old, and any adult age 22+ in a household with a child of 5–15 years old.*

An examination of teen drivers' vehicles specifically indicates that gender affects vehicle access for the newest drivers. As shown in table 137, male teen drivers are slightly more likely to have their own car than female teen drivers. However, teen girls are slightly more likely to have a newly purchased car, and more than three times as likely to have the newest vehicle in the house by model year. Teen girls, it seems, are provided with cars that are in better condition than are teen boys, whether because they are considered more trustworthy drivers, because of greater concern about their safety in case of mechanical difficulties, or both.

Table 137. Percent of teen drivers who are the main driver for household vehicles, by sex.

Teen Drivers only	All	Boys	Girls
Any vehicle	64.9%	65.4%	64.6%
Newest by model year	15.0%	6.3%	21.6%
Newly-purchased	24.4%	22.4%	25.9%
Sample: all drivers ages 16-17 in households with at least one vehicle			

HOW MUCH AND WHAT FOR: THE INTERRELATED EFFECTS OF GENDER AND AGE ON MOBILITY AND TRIP PURPOSE

Gender profoundly influences how and why people travel. However, the effects are not the same across all ages and life stages. How can researchers best understand the interrelated effects of gender and age? Working-age women have more complex tripmaking patterns than men, and are disproportionately responsible for household-serving travel (trips made to maintain the household or its members) (Taylor, Ralph, and Smart 2015). Mothers are more likely than fathers to be responsible for transporting children to school and elsewhere, affecting day-to-day mode choice and long-term career and residential location decisions (Gimenez-Nadal and Molina 2016, Jun and Kwon 2015). Elderly women are likely to give up driving sooner than men, and suffer disproportionately from being immobile or housebound (Loukaitou-Sideris and Wachs 2018). All of these effects can reduce women’s quality of life, but many of them remain hidden if researchers do not incorporate age, gender, and the interactions between the two into their analyses.

This section examines trends in mobility and trip purpose by gender and age using binary and multivariate probit (MVP) models to analyze travel diary data. The researchers model: (1) the likelihood of being housebound (having made no trips outside the home within the past 7 days) and, (2) among nonhousebound respondents, the likelihood of having made trips of various purposes on the travel day. The MVP structure facilitates efficient modeling of the "simultaneous but separate" choices (Choo and Mokhtarian 2008, p. 147) to make or not make various types of trips in a single day.

The section begins by briefly discussing planning for women's needs and the importance of additionally considering the divergent needs of women of different ages. We then discuss the methods used; in particular, we address why an MVP model is useful for analyzing trip purpose.

The effects of gender on mobility and trip purpose are found to be substantial, but strongly age-dependent. All else equal, young women are not substantially more likely to be chronically housebound than young men. Among older adults, however, being female is associated with an increased likelihood of being housebound, ranging from 2.3 percentage points for seniors ages 75–79 to 8 percentage points for ages 85+, even after controlling for disability. This finding suggests that if being female were not associated with an elevated risk of becoming housebound, there would be 26,800 fewer housebound seniors in Georgia.

The findings on trip purpose show a consistent pattern. With one exception (trips for dining), among *younger* adults, being female is associated with an *increased* likelihood of making every kind of trip. With no exceptions, among *older* adults, being female is associated with a *decreased* likelihood of making every kind of trip measured. These findings underscore how the loss of mobility reduces older women's ability to attend social and recreational activities, maintain their household, and even seek medical care.

As for younger women and men, we find that equal mobility does not imply equal utility. Working-age women are disproportionately responsible for household-serving travel, and the extra responsibilities for transporting family members fall more heavily on mothers and other female caregivers. This finding holds even after controlling for employment. Further, the age at which men's tripmaking eclipses women's is much younger for trips that benefit the individual traveler (i.e., leisure) than for household-serving trips (i.e., errands, transporting others).

The final discussion in the section is the policy implications. It is vital to facilitate older women's mobility. For younger women who are already mobile, it may be more important to focus on providing a high level of service for the household-serving trips for which women are disproportionately responsible, and to facilitate access to recreational and fitness opportunities. This analysis is a reminder that women's travel needs are not constant at every stage of life.

Background

There is a substantial body of evidence that crafting transportation policy without taking gender into account results in worse outcomes for women (Loukaitou-Sideris 2016, Fainstein and Servon 2005). On average, women's travel behavior and vulnerabilities differ from those of men. In the U.S., the gender gap in household-serving and child-serving travel has persisted, even as gaps in labor force participation and overall mobility have narrowed (Taylor, Ralph, and Smart 2015, Craig and van Tienoven 2019). In part because of this disproportionate responsibility for household labor and childcare, women's commutes tend to be shorter than men's, but their journeys are more complex and involve more trip chaining (McQuaid and Chen 2012, Loukaitou-Sideris 2016).

While traditionally, and currently in some developing countries, women have been less mobile than men (Loukaitou-Sideris 2016), many American women today are constrained by an abundance of household- and child-serving trips at the expense of other uses of their time and travel (Loukaitou-Sideris 2016, Craig and van Tienoven 2019); Hanson (2010) refers to this conundrum as *hypermobility*. Transportation planning centered around travel directly between home and workplace, a pattern more typical of men, disadvantages women who may need to drop off a child on the way to work and run a series of errands on the way home.

Researchers and practitioners have argued that women's needs are best served when a gendered lens is applied to policymaking (Fainstein and Servon 2005). While progress has been uneven (Loukaitou-Sideris and Fink 2009), many organizations now incorporate gender into transportation planning and policymaking. However, women's needs are not monolithic. Just as planning for the needs of an "average" traveler often neglects the needs of women, planning for the needs of the "average" woman can disadvantage women who are also poor, disabled, or members of a racial minority.

Age strongly affects women's travel behavior and needs. All of the trends described here are true of American women "on average."[82] As this report will show, none of these trends are true of elderly women. While there is an increasing amount of literature on older adults, substantially fewer studies explicitly focus on gender. While common to note that women are more affected

[82] This includes those studies that discuss "women's needs" but did not include older adults.

because more seniors are women, it is significantly less common to examine how being female affects older women's travel behavior in comparison to that of older men.

Much transportation research on older adults has focused on driving behavior. Among the oldest seniors, driver licensing rates are lower among women than among men; this is not true of younger senior cohorts (Loukaitou-Sideris and Wachs 2018). For licensed drivers, researchers have focused on safety risks and the self-imposed limitations older drivers may place on their driving. Studies have consistently found that women are more likely to self-limit than men, and do so at younger ages (see Wong et al. 2016 for a review). Advocates, and an increasing number of researchers, have commented on the shortsightedness of a focus on helping seniors know when to stop driving without providing adequate transportation alternatives once they do so (Loukaitou-Sideris and Wachs 2018, Wong et al. 2016). Many U.S. seniors live in areas with anemic public transit coverage, and where transit exists, it may be physically and/or cognitively difficult for elderly riders to navigate. The resulting isolation adversely impacts seniors' mental and physical health (Decker 2006).

Gender, then, shapes the travel behavior and quality of life of working-age adults and seniors. Even female children are given less leeway to travel independently than male children (McDonald 2012). To meet women's transportation needs across an entire lifespan, it is critical to understand the separate and interconnected effects of gender and age on travel behavior.

Methods

Table 138 shows descriptive statistics about the sample. Unweighted data are used for the models of the likelihood of being housebound, and of trip purpose; in general terms, models do not require representative data to identify empirical relationships. Unless otherwise stated, the NHTS's person-weights are applied to descriptive statistics and average marginal effects.

Table 138. Sample characteristics.

	Unweighted		
Category	**All Adults** *(N=15,222)*	**Men** *(N=6,845)*	**Women** *(N=8,377)*
Female	55.0%		
Mean age	53.2	53.0	53.3
Adult 18–64	70.8%	71.0%	70.6%
Senior (ages 65–79)	23.7%	24.0%	23.5%
Elderly (ages 80+)	5.5%	5.1%	5.9%
Number of Trips on Travel Day			
0	16.9%	14.7%	18.7%
1–2	24.6%	27.1%	22.6%
3–5	37.6%	38.0%	37.3%
6+	20.5%	19.9%	21.1%
Out of country (N=57)*	0.4%	0.4%	0.4%
Chronically housebound *(no trips within past seven days)*	2.1%	1.6%	2.4%
Full-time worker	42.3%	50.5%	35.7%
Part-time worker	10.2%	8.5%	11.6%
Nonworker	45.5%	39.1%	50.8%
Unknown worker status (N=294)[†]	1.9%	1.9%	1.9%
Mobility impairment absent	89.2%	90.8%	87.9%
Mobility impairment present	10.7%	9.1%	12.0%
Unknown disability status (N=8)[†]	0.1%	0.0%	0.1%
Caregiver for child(ren) ages 0–15[‡]	21.4%	20.7%	22.0%
Driver[§]	92.1%	93.4%	91.1%
Race: white non-Hispanic	69.9%	73.0%	67.3%
Race: Black, Black multiracial, or Black Hispanic	22.2%	19.3%	24.6%
Race: other	7.9%	7.7%	8.1%
Annual Household Income			
$0 to $24,999	19.0%	15.8%	21.6%
$25,000 to $34,999	9.3%	8.7%	9.8%
$35,000 to $49,999	12.2%	12.1%	12.3%
$50,000 to $74,999	17.5%	17.9%	17.2%
$75,000 to $99,999	13.2%	14.3%	12.3%
$100,000+	25.4%	28.2%	23.2%
Unknown (N=3,393)[†]	3.3%	3.0%	3.6%

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Table 138. (Continued).

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	Weighted *(Non-missing Only)*		
Category	**All Adults**	**Men**	**Women**
Female	52.1%		
Mean age	46.1	45.1	46.9
Adult 18–64	83.1%	84.8%	81.6%
Senior (ages 65–79)	13.7%	13.0%	14.5%
Elderly (ages 80+)	3.1%	2.3%	3.9%
Number of Trips on Travel Day			
0	18.4%	16.4%	20.2%
1–2	26.2%	29.1%	23.5%
3–5	36.5%	36.5%	36.5%
6+	18.9%	18.0%	19.8%
Chronically housebound *(no trips within past 7 days)*	2.4%	1.8%	2.9%
Full-time worker	48.7%	58.3%	39.9%
Part-time worker	11.9%	9.9%	13.7%
Nonworker	39.4%	31.8%	46.4%
Mobility impairment absent	90.5%	92.2%	
Mobility impairment present	9.5%	7.8%	11.1%
Caregiver for child(ren) ages 0–15‡	31.8%	30.1%	33.3%
Driver§	89.0%	90.5%	87.6%
Race: white non-Hispanic	55.2%	59.5%	51.3%
Race: Black, Black multiracial, or Black Hispanic	31.6%	27.2%	35.7%
Race: other	13.1%	13.3%	13.0%
Annual Household Income			
$0 to $24,999	24.0%	20.7%	27.0%
$25,000 to $34,999	10.1%	9.5%	10.8%
$35,000 to $49,999	12.0%	12.2%	11.8%
$50,000 to $74,999	16.6%	16.7%	16.4%
$75,000 to $99,999	11.8%	12.9%	10.9%
$100,000+	25.5%	28.1%	23.1%

** NHTS automatically records a trip total of zero for participants who were out of the country. For the purposes of this paper, it is more useful to treat these observations as missing data.*

† Unknown here includes any kind of missing data, including "Don't Know," refusal to answer, and left blank.

‡ A caregiver is defined as any adult age 18+ in a household with a child of less than 5 years old, and any adult age 22+ in a household with a child of 5–15 years old.

§ The question asked by the NHTS is "Do you/does this person drive?" Driver rates in the data decrease among both male and female seniors; some seniors categorized as nondrivers likely have driver's licenses.

Seventeen percent of adults reported making zero trips on their travel day. Travel patterns vary over the course of the week, so it would be incorrect to assume all those respondents are housebound. We define "chronically housebound" as having made no trips outside the home within the past 7 days; this describes 2.4 percent of all Georgians and 8.7 percent of elderly or disabled residents.[83]

Table 139 shows annual per-capita rates of tripmaking by purpose, gender, and age. These descriptive statistics show clear gender differences in tripmaking patterns in every age group, but the form of those differences varies by age. Among the elderly population, women are significantly less mobile than men, making only two thirds as many trips. This mobility disadvantage is not present among working-age women. In fact, working-age women travel slightly *more* than working-age men (an extra 1.2 trips per week).

Even though working-age men and women make a similar quantity of trips, there are evident differences in the purposes of those trips. On average, over the course of a week, a working-age man will make 1.4 more work or school trips than a working-age woman, while a working-age woman will make an extra 2.2 household-serving trips.

These patterns are obviously entangled with broader demographic trends, such as women's lower participation in the labor market. To clarify the roles of gender and age, a holistic modeling approach is needed. This report uses a two-stage process to model mobility and trip purpose.

[83] Excluding residents of institutions such as nursing homes, who were not included in the sample.

Table 139. Annual trips per capita by purpose, gender, and age (weighted).

Trip Purpose	Working-Age Men 18–64	Working-Age Women 18–64	Senior Men 65–79	Senior Women 65–79	Elderly Men 80+	Elderly Women 80+
All purposes	1,223	1,285	1,196	1,062	948	636
Mandatory Travel	**256**	**182**	**83**	**41**	**28**	**4**
Work commute	215	149	73	35	26	1
Other work-related travel	18	15	8	4	2	1
Attend school or daycare	23	18	1	2		2
Household-Serving Travel	**286**	**399**	**405**	**399**	**345**	**242**
Transport someone	72	116	61	53	23	28
Shopping or errands	203	260	318	312	284	187
Medical/dental services	11	23	26	33	37	26
Discretionary Travel	**262**	**275**	**306**	**259**	**256**	**175**
Social/recreational	130	136	139	119	133	85
Dining	103	100	117	86	74	45
Community/religious	29	38	49	53	49	45
Other Travel	**419**	**429**	**403**	**362**	**320**	**215**
Return home	407	414	389	355	312	209
Other	13	15	14	7	7	7

Based on all adults (N=15,222). Estimates are weighted using NHTS's trip-weights, which are annualized versions of the person-weights.

We analyze mobility by using binary probit to model the likelihood that a person is chronically housebound (i.e., zero trips outside the home in the past 7 days). We chose to model chronic immobility rather than number of trips because the NHTS diary covers a single day for each respondent. The models therefore need to distinguish between respondents who completed their diaries on a day they happened to stay home and respondents who reported no trips because their ability to travel is more chronically impaired. We exclude people who were out of the country, as well as people missing either worker or disability status.[84]

[84] Income was the only variable with numerous missing values. To avoid compromising the representativeness of the sample by discarding these observations, a dummy variable was created for missing income. Where applicable, NHTS-imputed values for race, sex, and age are used.

The second model is a multivariate discrete choice (probit) model of the likelihood of having made at least one trip for each of five common trip purposes: transporting someone else, shopping/errands, medical/dental, social/recreational/fitness, and dining. Multivariate probit allows for the simultaneous inclusion of multiple dependent variables. It is useful for any situation where there are multiple binary outcomes to be modeled, and where those outcomes are separate but not necessarily independent. The model is based on the same sample as the binary model, but excludes those who are chronically housebound.

Although work is a common trip purpose, the research team opted not to include it in this analysis because the overwhelming determinant of whether or not people make work trips is their worker status. Worker status is instead included as a control variable, allowing us to assess whether different rates of household-serving travel persist even between men and women with the same employment status. Trips to return home are also not included because they are essentially the complement of having made any other trip.

To capture the separate and interrelated effects of gender and age on travel, the models incorporate multiple interaction terms between gender and age, and between gender and other relevant factors. While this provides more nuanced findings, the large number of interaction terms makes discerning the effects of gender directly from model coefficients more complicated. This report therefore provides visual representations of the average marginal effect of gender by age group and discusses joint significance of interaction terms.

Analysis for this project was conducted in Stata 15 software (StataCorp 2017). The MVP model was estimated using the mvProbit program created by Cappellari and Jenkins (2003).

Results

Table 140 shows the results of the first model: a binary probit model of the likelihood of being housebound. For both men and women, one of the strongest predictors of being housebound is disability. On average, having a disability is associated with an increase of 4.6 percentage points in the probability of being housebound; the average marginal effect (AME)[85] of having a disability is even larger for seniors (7.6 percentage points, versus 4.0 points for adults younger than 65).

However, the model shows that even after controlling for disability, gender affects the risk of being housebound. When the interactions between gender and age are accounted for, gender per se is not significant. Rather, gender's effects are captured by the interaction terms between gender and age, which are jointly significant (α=.05). The combined effect of gender and age is depicted in figure 29.

[85] To control for gender-related differences in the explanatory variables, AMEs are calculated here by predicting the probability of being housebound as if the whole sample had a mobility impairment, predicting the probability as if the whole sample did not have a mobility impairment, and subtracting the former from the latter. AMEs by age are the average of respondents from a given age category.

Table 140. Binomial probit model of likelihood of being chronically housebound (having made no trips within the past 7 days).

Covariate	Coefficient	P-Value	
Female	0.251	0.514	
Age	-0.0220	0.088	*
Age^2	0.00019	0.126	
Female x Age	-0.0161	0.291	
Female x Age^2 †	0.000213	0.129	
Worker	-0.346	<0.001	***
Mobility impairment, adult ages 18–64	0.666	<0.001	***
Mobility impairment, adult ages 65+	0.774	<0.001	***
Vehicle Ownership Category *(Reference: Vehicle-Nondeficit Household with 2+ Drivers)* ‡			
Single-driver vehicle-nondeficit	-0.174	0.051	*
Vehicle-deficit	0.404	<0.001	***
Zero-vehicle	0.141	0.233	
Race (reference: white non-Hispanic)			
Black§	0.267	<0.001	***
Other	0.293	0.003	***
Built Environment Type *(Reference: Urban/Second City)*			
Rural	0.115	0.164	
Small town	0.0135	0.862	
Suburban	0.0102	0.908	
Annual Household Income (Reference: <$25,000)			
$25,000 to $34,999	-0.152	0.157	
$35,000 to $49,999	-0.00525	0.956	
$50,000 to $74,999	0.00719	0.940	
$75,000 to $99,999	0.0108	0.923	
$100,000+	-0.390	0.001	***
Unknown (missing)	-0.0699	0.628	
Constant	-1.773	0.000	***
Number of cases, N	15,155		
Final log likelihood, LL(β)	-1194.2		
Initial log likelihood LL(0)	-1477.6		
Pseudo-R^2: 1-LL(β)/LL(0)	0.192		

* Denotes significance for = .10 ** Denotes significance for = .05 *** Denotes significance for = .01

† *The test of joint significance of female x age and female x age ^{2} returned a P-value of .020, indicating that they are jointly significant for = .05. The P-value for a joint significance test of female, female x age, and female x age ^{2} was .006.*

‡ *Vehicle-deficit households have at least one car, but fewer cars than potential drivers.*

§ *Includes Black Hispanic and Black multiracial.*

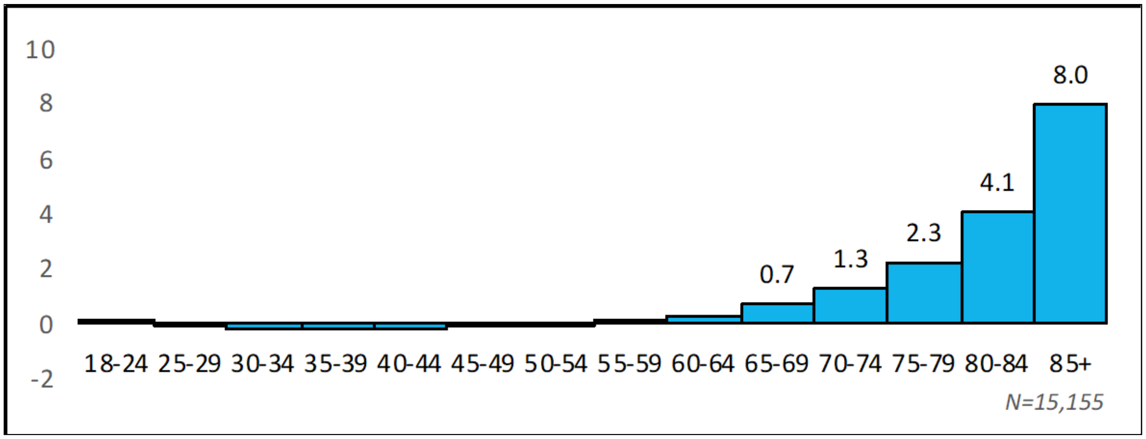

Figure 29. Histogram. Average marginal effect of being female on probability of being housebound, by age group (percentage points).

All else equal, young women are not substantially more likely to be chronically housebound than young men; the average marginal effect (AME)[86] of gender among working-age adults is essentially zero. However, it begins to increase in late middle age. Among seniors ages 75–79, being female is associated with an increase of 2.3 percentage points in the probability of being housebound. The AME for seniors in their early 80s is 4.1 percentage points. At age 85, being female is associated with an increase of 8 percentage points. The AME of gender and age is in addition to the effects of age alone; elderly women's total probability of being housebound is 14.5 percent, more than double that of elderly men (figure 30). To put these numbers in perspective, if being an older woman were not associated with an elevated risk of being housebound even after controlling for disability, there would be 26,800 fewer housebound seniors in Georgia.

[86] To control for gender-related differences in the explanatory variables, AMEs are calculated here by predicting the probability of being housebound as if the whole sample were male, predicting the probability as if the whole sample were female, and subtracting the former from the latter. AMEs by age are the average of respondents from a given age category. Five-year age groups are used to ensure that each estimate is based on an average over at least 300 respondents.

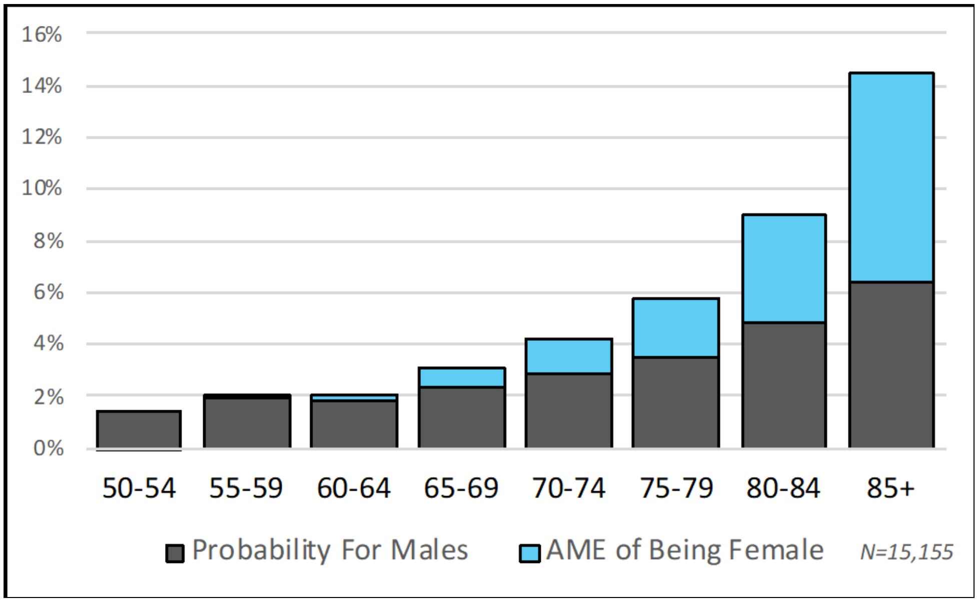

Figure 30. Histogram. Probability of being housebound by gender and age.

Trip Purpose

Table 141 shows results of the multivariate probit model of trip purpose. Before describing findings, this section briefly assesses the strength of the model as a whole and presents McFadden's pseudo-R^2 statistics based on several different benchmarks (Mokhtarian 2016) (table 142). The juxtaposition of a relatively low $\rho^2_{(MS)}$ with higher $\rho^2_{(EL)}$ and $\rho^2_{(NC)}$ indicates that compared to a model with only constant terms, the full model represents a modest improvement in the researchers' ability to *predict* what trips a person will have made and a larger increase in our power to *explain* the factors that contribute to the observed trip patterns. The $\rho^2_{(EL)}$ of 0.380 is considered very good, especially for a multivariate model with 64 (=2^6) possible outcomes.

Table 141. Multivariate probit model of likelihood of making trips for various purposes.

Covariate	Community/ Religious	Transport Other	Shopping/ Errands	Medical/ Dental	Social/ Recreational	Dining
Female	-0.040	-0.330	0.235	0.405	-0.189	-0.164
Age	0.0156 *	0.0236 ***	0.0401 ***	0.0268 ***	0.00903	0.00347
Age^2	-0.000068	-0.000209 ***	-0.000295 ***	-0.000087	-0.000096 *	-0.00003
Female x Age	-0.001277	0.0153	-0.000213	-0.00725	0.00228	0.0109
Female x Age^2 [†]	-0.000004	-0.000204 **	-0.000081	-0.000017	-0.000061	-0.000138 **
Mobility-impaired non-senior[‡]	-0.194 **	-0.149 **	-0.0569	0.497 ***	-0.273 ***	-0.0936
Driver	0.064	0.390 ***	0.441 ***	-0.0102	0.118	0.241 ***
Female x Driver	0.246 *	0.245	0.0954	0.230 *	0.206 **	-0.0211
Full-time worker	-0.305 ***	-0.118 ***	-0.452 ***	-0.456 ***	-0.426 ***	-0.0432
Part-time worker	0.002	0.0859 *	-0.234 ***	-0.319 ***	-0.225 ***	0.0447
Caregiver for Child <16 Years Old* *(Reference: Noncaregiver)* [§]						
Caregiver	–	–	-0.0322	0.0915	-0.102 **	-0.0354
Female x Caregiver	–	–	-0.00338	0.00631	0.00592	-0.0889 *
Caregiver Status by Age of Youngest Child in Years *(Reference: Noncaregiver)* [§]						
Youngest child 0–4	0.197 **	0.723 ***	–	–	–	–
Youngest child 5–15	0.0652	0.796 ***	–	–	–	–
Female x Youngest 0–4	-0.0607	0.196 **	–	–	–	–
Female x Youngest 5–15	-0.0336	0.122 *	–	–	–	–
Vehicle Ownership Category *(Reference: Vehicle-Nondeficit Household with 2+ Drivers)* [¶]						
Single-driver vehicle-nondeficit	0.0904 *	0.0696	0.291 ***	0.0313	0.292 ***	0.149 ***
Vehicle-deficit	-0.0253	0.0511	0.0324	0.00898	-0.0400	-0.107 **
Zero-vehicle	0.142	-0.163	0.413 ***	0.168 *	0.213 ***	-0.0147
Race *(Reference: White Non-Hispanic)*						
Black[††]	0.0827 *	0.0737 *	0.054 *	0.108 **	-0.160 ***	-0.140 ***
Other	0.0506	-0.004	0.008	0.053	0.027	-0.238 ***

Table continues on next page.

Table 141. (Continued).

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Covariate	Community/ Religious		Transport Other		Shopping/ Errands		Medical/ Dental		Social/ Recreational		Dining	
Built Environment Type *(Reference: Urban)*												
Rural	0.105		0.119		-0.118		-0.061		-0.543	***	-0.093	
Small town	0.0519		0.156		-0.076		0.000		-0.468	***	-0.104	
Suburban	0.0926		0.186		-0.108		-0.030		-0.425	***	-0.094	
Second city	0.124		0.228	*	-0.015		-0.041		-0.407	***	-0.080	
Annual Household Income (Reference: <$25,000)												
$25,000 to $34,999	0.0766		-0.0923		0.107	**	-0.050		0.034		0.121	**
$35,000 to $49,999	0.134	**	-0.0432		0.096	**	-0.124	*	0.152	***	0.179	***
$50,000 to $74,999	0.100		-0.0487		0.112	**	-0.123	*	0.151	***	0.220	***
$75,000 to $99,999	0.0942		0.0549		0.076		-0.019		0.243	***	0.123	**
$100,000+	0.133	**	0.0368		0.031		0.021		0.340	***	0.240	***
Missing (unknown)	0.0790		-0.253	**	-0.068		-0.158		0.119		-0.076	
Day of Week *(Reference: Monday)*												
Tuesday	0.216	***										
Wednesday	0.446	***										
Thursday	0.131	*										
Friday	0.111		0.001		0.058	*	-0.168	***	0.074	**	0.123	***
Saturday	0.193	*	-0.353	***	-0.022		-1.240	***	0.079		0.124	**
Sunday	1.048	***	-0.473	***	-0.349	***	-1.264	***	-0.031		0.109	**
Worker x Saturday	0.0706				0.418	***	0.538	**	0.356	***	0.000	
Worker x Sunday	0.217	**			0.563	***	0.404		0.190	**	0.000	
Constant	-2.561	***	-2.501	***	-1.704	***	-2.518	***	-0.395	**	-0.984	***

** denotes significance for $\alpha = .10$ ** denotes significance for $\alpha = .05$ *** denotes significance for $\alpha = .01$*

† *Female x age and female x age^2 were jointly significant for all trip purposes except community ($\alpha = .01$).*

‡ *Adult age 18–64 with medical condition that makes it difficult to travel.*

§ *A caregiver is defined as any adult age 18+ in a household with a child of less than 5 years old, and any adult age 22+ in a household with a child of 5–15 years old.*

¶ *Vehicle-deficit households have at least one car, but fewer cars than potential drivers.*

†† *Includes Black Hispanic and Black multiracial.*

Table 142. Summary statistics and indicators for multivariate probit model.

Indicator		
Number of cases, N		14,854
Final log likelihood, LL(β)		-38323.0
Log likelihood of constants-only (market share) model, LL(MS)		-40562.7
Equally likely benchmark, LL(0)		-61776.0
Log likelihood without constants, LL(NC)		-38497.8
McFadden's Pseudo-R^2 Measures		
Market share benchmark, $^{2}_{(MS)}$: 1-LL(β)/LL(MS)		0.055
Equally-likely benchmark, $^{2}_{(EL)}$: 1-LL(β)/LL(EL)		0.380
No-constant benchmark, $^{2}_{(NC)}$: 1-LL(β)/LL(NC)		0.377
Share of Cases Making Each Type of Trip		
Community or religious		8.6%
Transport other		13.0%
Shopping/errands		42.7%
Medical/dental		6.8%
Social, recreational, or fitness		27.9%
Dining		25.6%
Correlation Between Error Terms for Outcomes		
		P-value
$_{21}$	0.1302	0.000 ***
$_{31}$	0.0741	0.000 ***
$_{32}$	0.1637	0.000 ***
$_{41}$	-0.0087	0.803
$_{42}$	0.0825	0.002 ***
$_{43}$	0.1384	0.000 ***
$_{51}$	0.0382	0.080 *
$_{52}$	0.1348	0.000 ***
$_{53}$	0.1703	0.000 ***
$_{54}$	-0.0282	0.236
$_{61}$	0.1454	0.000 ***
$_{62}$	0.2109	0.000 ***
$_{63}$	0.3011	0.000 ***
$_{64}$	0.1851	0.000 ***
$_{65}$	0.1803	0.000 ***

As with the model of immobility, the researchers find that gender significantly affects trip purpose, but its effects are dependent on age. The gender/age interactions are jointly significant (α=.01) for all trip purposes except community/religious trips.[87]

There are additional interactions between gender and being a parent or other caregiver. Parenthood is associated with an increase in the likelihood of making a trip to transport someone else, but the increase is larger for female caregivers (e.g., mothers and grandmothers) than it is for fathers and other male caregivers. Female caregiving is also associated with a disproportionate decrease in dining trips.

Using the same methods as for the immobility model, figure 31 shows the average marginal effect of being female for each outcome, across the entire sample and incorporating all interactions. The AME of being female on the likelihood of making each type of trip is relatively modest, ranging from an increase of about 4 percentage points in the probability of making a trip for transporting someone or shopping, to an approximately 1 percentage point decrease in the likelihood of making a trip for dining or socialization/recreation.

[87] For community/religious trips, gender is significant when *all* interaction terms are jointly tested (α=.01).

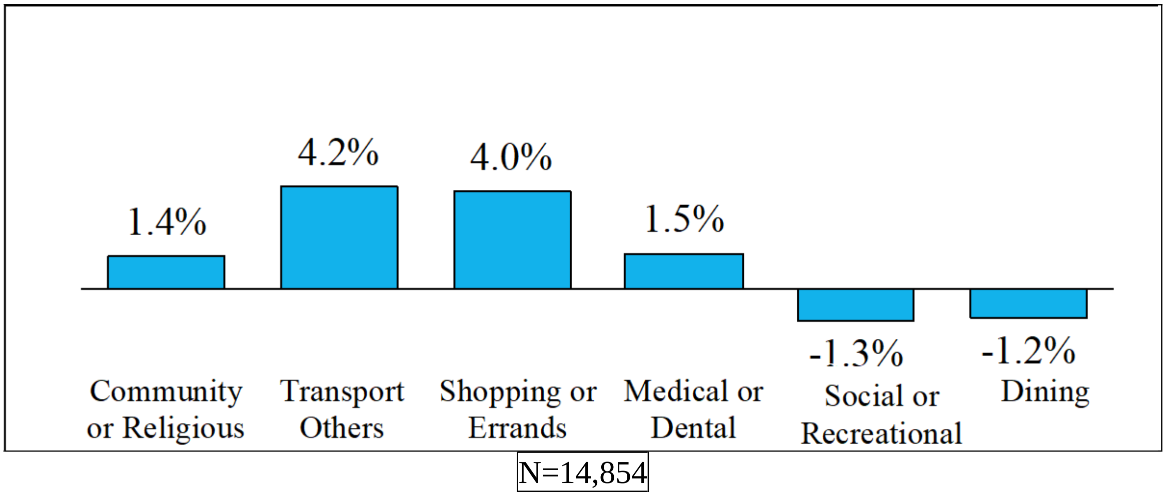

Figure 31. Bar graph. Average marginal effect of gender on probability of making trips of various purposes on travel day (in percentage points).

However, these apparently modest effects are deceptive. Because the size and, more importantly, direction of the effect of being female varies by age, a single average marginal effect understates the degree to which gender affects tripmaking.

Figure 32 provides a visual representation of the effect of gender across different ages,[88] underscoring the dramatically different effect gender may have on the trip patterns of younger and older adults. For example, while the overall AME of gender on the probability of making trips to shop or run errands is +4.0 percentage points, the gender AME by age ranges from +9.2 percentage points for the youngest adults to −12.3 for the oldest, a range of 21.5 percentage points. The smallest range of effects is 3.5 percentage points (for community/religious trips), and the average is 11.1 percentage points.[89]

[88] Five-year age groups are used rather than individual years to ensure that each estimate is based on an average over at least 300 respondents.

[89] The two trip types with the smallest marginal effect, community/religious and medical/dental, were the least common at the outset. The fact that the effects are presented as percentage points limits how much values that are already close to zero can be reduced.

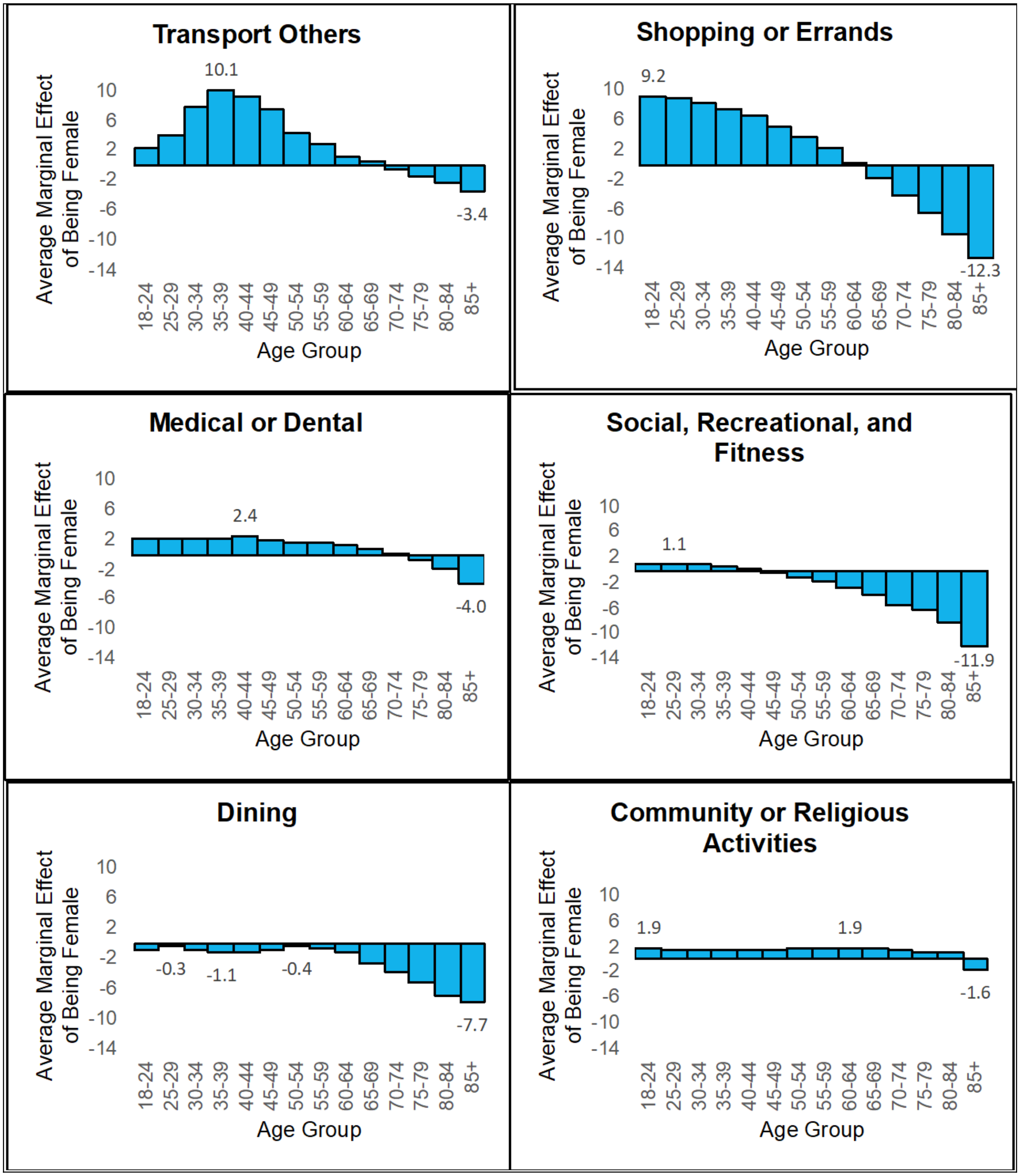

Figure 32. Histograms. Average marginal effects of gender by age (in percentage points).

There is a consistent pattern: for younger adults, being female is associated with an increased likelihood of making a trip of that type, but at some point the trend reverses; among seniors and the elderly, being female is associated with a *decreased* likelihood. The sole exception to this is dining, where women are already slightly less likely than men to eat out when young, and become increasingly less likely to do so as they age.

Trips to transport others are highest during the years when many people are responsible for the care of a child who is not old enough to drive. However, this caregiver increase is higher for female caregivers than for male caregivers (figure 33).

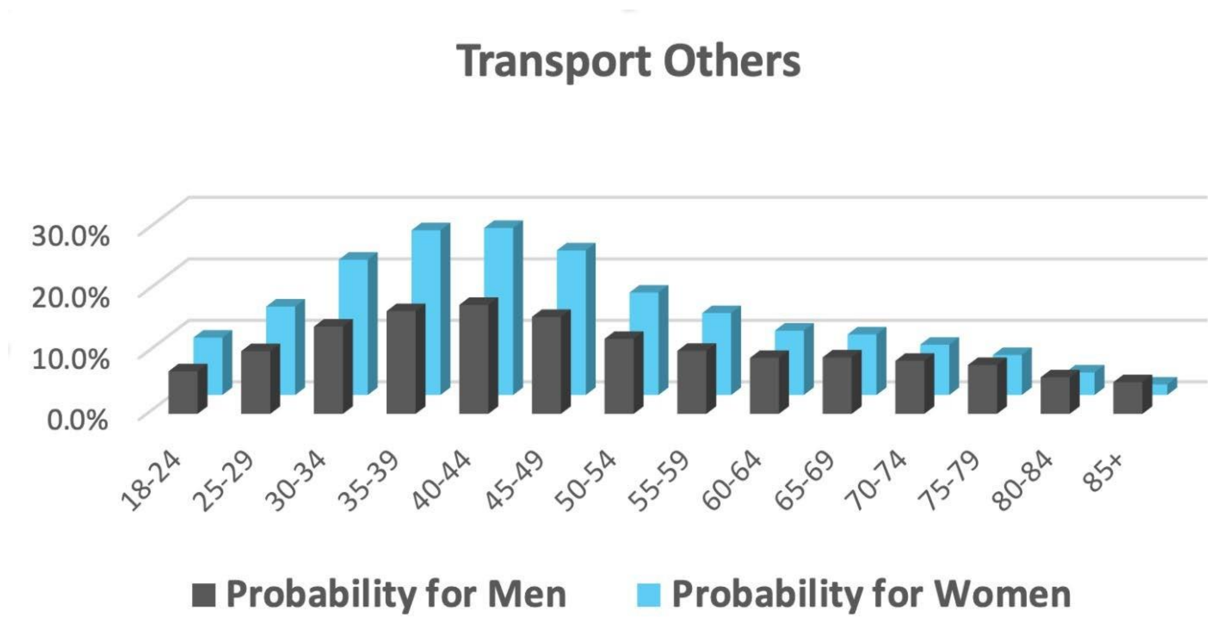

Figure 33. 3D histogram. Predicted probability of making a trip to transport others by gender and age.

Another notable variation is the age at which being female switches from being associated with an increased likelihood to being associated with a decreased likelihood. For household-serving travel (i.e., transport others, shopping/errands, medical/dental), this transition occurs somewhere between ages 65 and 75, depending on the specific purpose. For social and recreational travel, this switch occurs much earlier, at age 45.[90] The latest transition is for community/religious trips, which also shows the smallest decrease. This suggests that as older women are less able to make trips, they are likely to highly prioritize community and religious excursions.

Gender also has significant interactions with driver status. Driving increases the likelihood of making trips for several purposes. For women, this increase is greater, though the interaction terms themselves are not universally significant.

Discussion

While gender clearly influences both the likelihood of being housebound and the purposes of the trips a person makes, these results suggest that there is no monolithic effect of being female. Rather, the effect is strongly mediated by age, and for some purposes, by parenthood and ability to drive. Other studies have documented how the effects of gender are also influenced by travelers' race, income, and other demographic factors (Loukaitou-Sideris 2016).

Failing to attend to the interactions between gender and age can obscure troubling gendered inequalities. The fact that women are, on average, more likely to make shopping trips than men is likely of little comfort to an elderly woman who is waiting to fill a prescription until her adult daughter is able to give her a ride to the pharmacy. That daughter may be making just as many trips as men her age; however, if her travel is disproportionately devoted to chauffeuring family members and doing errands, she may have less time to socialize or go out to eat, and as a result derive fewer personal benefits from her travel.

[90] The AME of being female on dining trips is always zero or negative.

A simple gendered lens can help craft transportation policy that does not disadvantage the average woman. To attend to the needs of *all* women, a compound gendered lens that clarifies the layered effects of gender, age, and other sources of inequality is needed. The following subsections discuss some of the key findings by age group.

Working-Age Women: Equal Mobility, Unequal Utility

Historically in the U.S. and currently in some developing cities, women were or are less mobile than men (Loukaitou-Sideris 2016). This study finds no significant discrepancy in the *quantity* of trips made by working-age men and women in Georgia. There are, however, gendered differences in the *purposes* of those trips and, therefore, we would argue, in the personal benefit that men and women derive from their tripmaking.

In particular, women are disproportionately likely to engage in household-serving travel, even after controlling for worker status. For Georgians who become parents, the burden of transporting their new family falls more heavily on mothers than on fathers. In contrast, the differences between men and women for trip purposes that directly benefit the traveler (i.e., socialization, recreation, dining) are much smaller. This is consistent with findings about hypermobility, suggesting that despite their high levels of mobility, working-age women may derive less utility from those trips (Craig and van Tienoven 2019).

From a policy standpoint, the coexistence of equal mobility and unequal utility is a classic "wicked" problem (Rittel and Webber 1973). Gendered inequality in trip purpose is likely a symptom of other gendered inequalities, such as distributions of household labor, expectations of parents, and, for purposes like dining out, income. Given that transportation professionals have few tools for addressing these structural social forces, how can these planners nevertheless improve transportation for working-age women? One method is to focus on providing a high level of service for the types of trips that women disproportionately make, particularly household-serving travel.

Public transit is a good example of a system that can inadvertently provide a lower level of service to women because their trip purposes and patterns differ from men's.[91] Radial public transit networks, which are designed to transport workers to and from a city center, are often poorly suited for suburb-to-suburb commuting and the more complex trip patterns required to run errands and drop off or pick up children on the way to or from work. Additionally, if riders are required to pay a new fare for each stop they make, the cost of doing errands can rise quickly. Making sure transit routes adequately serve shopping and residential areas and providing free transfers can make transit more useful for household-serving travel, thereby disproportionately benefiting women.

Similarly, household-serving travel, especially transporting children, causes many women to spend long hours driving, leaving limited time for leisure and exercise. Active transport such as bicycling can do "double duty" for completing responsibilities but simultaneously enjoying exercise. Since unsafe traffic conditions are known to particularly deter female would-be cyclists (Emond, Tang, and Handy 2009), improving bicycle infrastructure could result in fewer women stuck behind the steering wheel.

[91] As a side note, transit may provide equal mobility but unequal utility in another way: sexual assault during transit trips does not always stop women from riding transit, but it drastically increases the emotional and psychological cost (Kash 2019).

Transportation professionals could also improve travel for women who are caregivers by improving travel for students. For example, the need to drop children off at school makes it difficult for working parents (disproportionately, working mothers) to walk or bike for their commute. Improving school transportation may also free up students' parents.

Older Women Face a Crisis of Immobility

Mobility decreases with age for both men and women, but for women, the effect is much stronger. Elderly men make 77 percent as many trips as working-age men, but elderly women make just half as many trips as working-age women. Even after excluding people who live in a supportive care facility, 13 percent of elderly women (ages 80+) are chronically housebound, more than triple the rate among elderly men (3.6 percent).

For every trip purpose measured, there is an age past which women are less likely to make that trip than are men of the same age. However, men's likelihood of making leisure trips eclipses women's in middle age, several decades before they eclipse women's rates of household-serving trips.

Given that women are documented to utilize medical services at higher rates than men, it is striking that among older adults, being female is associated with a decreased likelihood of making medical trips. Being a driver increases the likelihood of making medical trips for women, but has no significant effect for men. This suggests that women make fewer medical trips not because they have no need of a doctor, but because they have no means of reaching the doctor's office.

The only trip purpose for which there is not a large gender discrepancy among older adults is community and religious activities. This finding may indicate that older women especially value trips to stay connected to community and church, but may also reflect a greater availability of transportation; these trips take place primarily on weekends, when relatives are more likely to be available to provide a ride. Additionally, many churches provide free transportation to congregants in need.

The results of this study indicate that the most pressing transportation need for older women is simply more transportation. Rates of driving are lower among senior women than senior men. Often, seniors who stop driving are left with few alternatives to replace their private auto; even where public transit networks are robust, the systems are difficult to navigate for riders who gave up driving due to physical (or cognitive) limitations (Decker 2006).

Many social service organizations that serve seniors provide shuttle service to take advantage of programming. Transportation to nonorganizational destinations may be more difficult to come by. Taxi service is not affordable for many seniors. Utilization of ridehailing services such as Uber and Lyft is relatively low among seniors; thus, this category may present an opportunity for improving senior mobility (Shirgaokar 2018). In fact, Fulton County (which includes Atlanta) recently began offering subsidized ridehailing for elderly residents.[92]

A Change of Pace: Women in Late Middle Age and Younger Seniors

This report has discussed hypermobility among young women and immobility among the elderly. Middle-aged women and young seniors are at a point of transitioning between the two states of mobility. Is it possible to help middle-aged women and young seniors maintain their mobility and avoid the challenges facing the cohort before them? As men retire from the

[92] For more information, visit the website for Fulton County Senior Services: https://www.fultoncountyga.gov/services/senior-services/transportation.

workforce, their overall travel declines, but there is some substitution of leisure and household trips for work trips. Curiously, women's leisure trips decline around the same age many children become more independent or leave home, and decline further after retirement. Are there policies that might encourage women to engage in more recreational travel as their childcare and employment responsibilities diminish?

Limitations and Directions for Future Research

The principal limitation of this study is that it is cross-sectional rather than longitudinal. The primary advantage of a cross-sectional approach is, of course, that the data are much more readily attainable.[93] In a cross-sectional study, it is important to ask whether the observed effects that this study has attributed to age may, in fact, be related to cohort (generation). After all, when today's 18-year-old reaches her 80th birthday, the world will be rather different than it is today. However, gendered differences in trip purpose are evident even among the youngest of respondents, and studies have found that gendered divisions of household labor have diminished only slightly over recent decades (Crane 2007, Loukaitou-Sideris 2016). Though the research team believes the effects we have uncovered are predominantly age effects, they are not inevitable. Transportation professionals, in other words, may be able to prevent the epidemic of immobility currently afflicting older adults from reaching today's young women.

However, regardless of whether these same issues will face older women decades from now, there is a clear policy need for better transportation for today's seniors. Future research can provide guidance for evidence-based practice. For example, how could ridehailing services help

[93] While the NHTS has been repeated a number of times, it uses a unique pool of respondents each time. Additionally, question structures and sampling methods have changed substantially over the years.

more older adults? Is it simply a question of increasing older adults' comfort with technology? Or are there aspects of the service that are unfriendly to elderly adults who may have physical or cognitive limitations?

Gender identifiably affects the travel behavior of adults as young as 18, raising the question of when this differentiation begins. Therefore, it would also be valuable to analyze gendered differences in trip purpose and independent mobility among children and adolescents. Finally, just as it is important to pay attention to the intersection of age and gender, more research is needed on other factors that interact with gender. For instance, parenthood affects low-income women and single mothers differently than it does women with working partners.

A Compound Gendered Lens

While gender strongly influences travel behavior, there is no such thing as a monolithic "women's travel needs." This study has found that the magnitude and direction of the effects of gender vary with age. Examining gender without age therefore produces an incomplete, and in some cases misleading, portrait of the challenges facing women. In particular, hypermobility among working-aged women can obscure the crisis of immobility that leaves many older women isolated in their own homes.

To attend to the needs of *all* women, researchers need a compound gendered lens, where they account for the layered effects of gender, age, and other sources of inequality. Methodologically, these findings underscore the importance of incorporating gender and age into analysis, not only separately, but also jointly. From a policy standpoint, this study's results suggest a need for interventions aimed at improving two distinct transportation problems facing women of different ages. Elderly women, who no longer feel comfortable driving or can no longer navigate public transit, urgently need viable replacements to improve their mobility. Working-age women, in contrast, face equal mobility but unequal utility compared to working-age men. In the face of persistent gender differences in household division of labor, we argue that planners should work to ensure that the level of service for the household-serving trips generally allocated to women is not lower than for the simpler work journeys that have been the traditional focus of planning. Additionally, modes that can do double duty as transportation and exercise (such as cycling) should also be made more friendly to women. The specific policies needed to promote equitable transportation vary by age group, but this study reveals one constant: a gendered lens is critical when planning for the needs of travelers of every age.

HEALTH AND DISABILITY

This section examines equity concerns related to disability status, health, and physical activity. It first investigates mobility differences by age and health among Georgians with and without a mobility impairment. Even among Georgians with no mobility impairment, the researchers find a strong link between low income and poor health, and indications that captive walking trips among the lowest-income Georgians are not a public health panacea. The report then turns to a more detailed analysis comparing different subgroups of Georgians with disabilities.

In the context of this analysis, a *mobility impairment* is a medical condition that interferes with travel. While it is sometimes used interchangeably with *disability*, it does not include disabilities that have no direct effect on travel (as defined by the participants). It is also important to note that the NHTS sample excludes institutionalized populations. The disabilities being analyzed here are, therefore, not severe enough to require institutionalization. Given that this most infirm population has already been screened out, the differences in mobility between Georgians with and without mobility impairments are striking.

Georgians with mobility impairments face many challenges. Some of these challenges are related directly to the presence of a mobility impairment, but many are not. For example, figure 34 compares the annual household incomes of Georgians with and without mobility impairments. Georgians with mobility impairments are likely to be impoverished. Thirty-seven percent have an annual household income of less than $15,000, putting them near or below the poverty line regardless of household size. Only 12 percent of adults without mobility impairments fall in this category. Georgians with mobility impairments are overrepresented in all income groups under $35,000 per year and underrepresented in all income groups above that point. Regardless of the cause of this discrepancy, low-income people with disabilities have fewer resources to address the mobility challenges that they face.

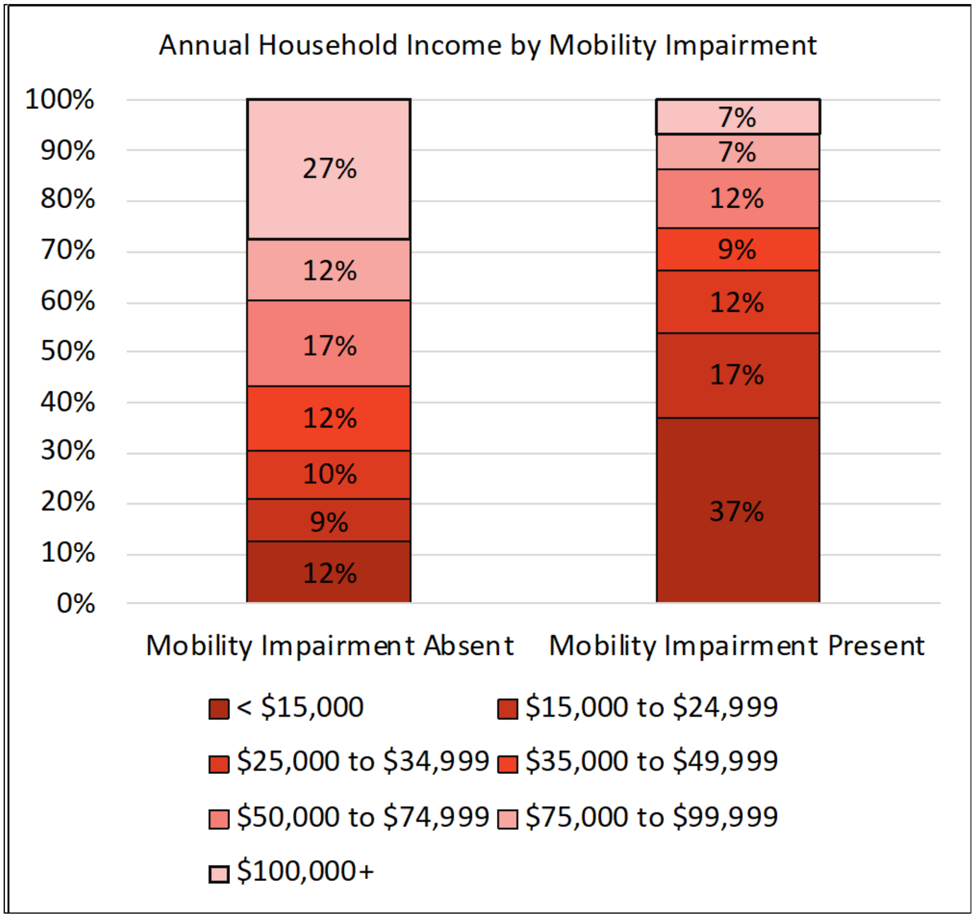

Figure 34. Stacked bar graph. Annual household income of Georgians with and without mobility impairments.

Health and Physical Activity among Disabled and Nondisabled Georgians

A mobility impairment is not synonymous with being elderly or infirm. As shown in table 143, a plurality of Georgians with mobility impairments are in good health (42 percent) and the majority are younger than age 65 (60 percent).[94] However, these shares are far smaller among Georgians with mobility impairments than they are for nondisabled Georgians (93 percent and 86 percent, respectively).

[94] Table 143 also contains information about the unweighted and weighted distribution of the sample used for table 144 to table 149.

Table 143. Health and age of Georgia adults with and without mobility impairments.

	Population (Weighted)		Sample (Unweighted)	
	With Mobility Impairment	Without Mobility Impairment	With Mobility Impairment	Without Mobility Impairment
All adults	723,241	6,930,155	1,609	13,487
Health				
Good, very good, or excellent	41.5%	92.9%	43.1%	92.5%
Fair health	37.3%	6.4%	37.1%	6.7%
Poor health	21.1%	0.7%	19.8%	0.7%
Age				
Working age (18–64)	59.8%	85.7%	47.8%	73.7%
Senior (65–79)	27.8%	12.2%	33.4%	22.4%
Elderly (80+)	12.4%	2.1%	18.8%	3.9%

As shown in table 144, 37 percent of Georgians with a mobility impairment live in very low-income households (those with an annual income of less than $15,000), triple the rate for nondisabled adults. The difference in the share of low-income residents between disabled and nondisabled Georgians is actually largest among the young and those in good health. Among working-age Georgians with a mobility impairment, 44 percent live in a very low-income household, versus just 12 percent of nondisabled adults of the same age. The only subpopulation where disability is not linked to an increased likelihood of living in a low-income household is among Georgians in poor health; more than 40 percent of Georgians in poor health live in the lowest-income households, regardless of the presence or absence of a mobility impairment.

Table 144. Driver status and income of Georgians with and without mobility impairments, by health and age.

	With Mobility Impairment		Without Mobility Impairment	
	Driver*	Very Low Income (<$15,000) †	Driver*	Very Low Income (<$15,000) †
All Adults	61.6%	36.7%	91.9%	12.1%
Health				
Good, very good, or excellent	63.7%	63.4%	92.7%	10.6%
Fair health	68.4%	62.9%	83.7%	30.8%
Poor health	36.2%	55.8%	62.7%	42.8%
Age				
Working age (18–64)	63.7%	44.3%	92.1%	12.3%
Senior (65–79)	68.4%	25.1%	93.5%	10.2%
Elderly (80+)	36.2%	26.3%	75.9%	16.6%

Note: Within each impairment group (with and without), the numbers represent the share of those possessing the row characteristic who also possess the column characteristic. For example, among those with mobility impairment, 63.7% of those in good health are drivers.

** NHTS uses the following question wording: "Do you/does this person drive?"*

† Based on annual household income. Income data are missing for 54 respondents with disabilities (3.4% unweighted) and 421 respondents without disabilities (3.1% unweighted). Statistics are based on nonmissing observations.

There is a strong link between income and health among all ages and levels of ability (table 145). On average, 12 percent of Georgians describe themselves as being in fair or poor health.[95] However, for low-income Georgians, this figure is 30 percent, compared to fewer than 4 percent of high-income Georgians. The association between poverty and worse health persists for disabled and nondisabled Georgians, both working-age adults and seniors.

[95] This report combines fair and poor as measures of being less healthy because just 0.7 percent of nondisabled Georgians described themselves as being in poor health, compared to 21.1 percent of Georgians with a mobility impairment. When focusing specifically on Georgians with mobility impairments, we disaggregate fair and poor health.

Table 145. Georgians in poor or fair health by income, age, and disability.

	All Adults *(Ages 18+)*			Working Age *(18–64)*		Older Adults *(65+)*	
Annual Household Income	All	Non-disabled*	Disabled	Non-disabled	Disabled	Non-disabled	Disabled
All Adults	11.9%	7.1%	58.5%	6.3%	54.0%	11.8%	65.1%
<$15,000	30.5%	18.6%	68.0%	30.5%	67.6%	28.1%	69.2%
$15,000 to $24,999	20.3%	11.7%	60.6%	20.3%	47.3%	14.7%	75.6%
$25,000 to $34,999	13.1%	8.1%	53.1%	13.1%	42.8%	10.9%	64.6%
$35,000 to $49,999	10.2%	6.6%	58.1%	10.2%	54.9%	11.7%	60.5%
$50,000 to $74,999	9.2%	5.7%	56.7%	9.2%	50.0%	9.0%	63.1%
$75,000 to $99,999	5.6%	3.5%	44.4%	5.6%	44.8%	8.2%	43.8%
$100,000+	3.7%	2.8%	36.8%	3.7%	26.2%	6.6%	53.7%

** No mobility impairment.*

Note: Health is based on self-assessment with response options poor, fair, good, very good, and excellent.

Further, the association between low income and poor health persists even when comparing adults with the same level of physical activity (figure 35). Among Georgians who are physically inactive, 22 percent of adults from the lowest-income households are in fair or poor health, compared to just 15 percent of inactive adults from households earning more than $15,000 per year. Among adults who engage in vigorous physical activity, the percentage of adults in the lowest-income households who consider themselves to be in fair or poor health is 10 times that of adults from other income brackets (11 percent versus 1.1 percent).

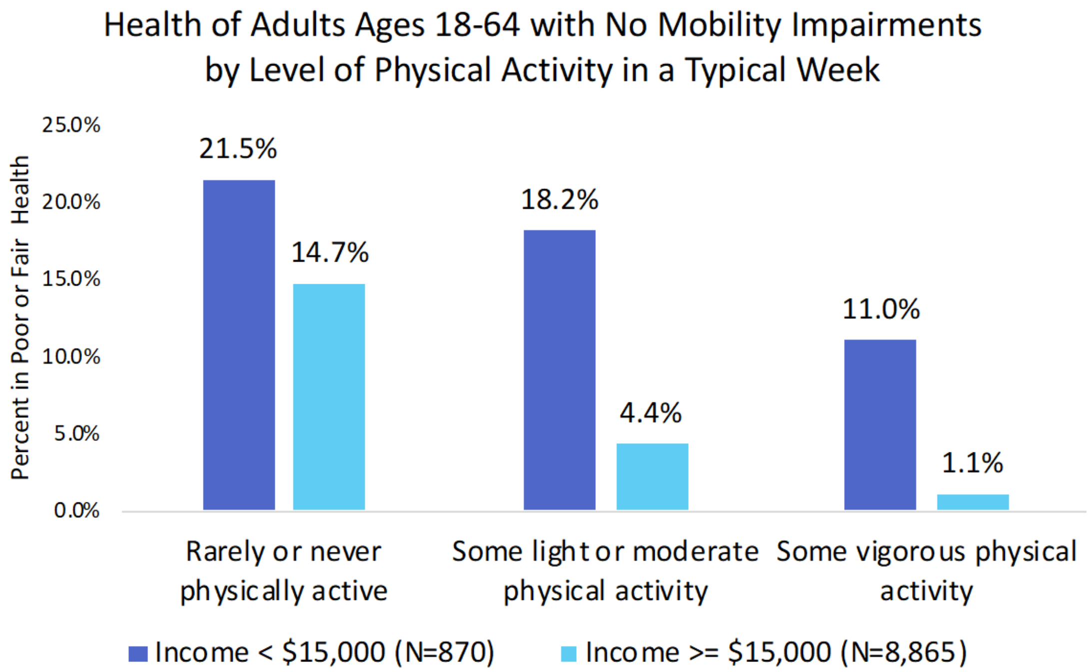

Figure 35. Bar graph. Health of nondisabled Georgia adults by income and level of physical activity in a typical week.

On average, nondisabled adults in poor health walk *more* than those in better health (table 146), likely due to the strong correlation between poor health and poverty. This fact is a reminder that while promoting walking and cycling is an important public health intervention, other policies are needed to support the health of Georgians who are already walking because they have no choice.

A majority of both disabled and nondisabled Georgians report making at least one walk trip in the past 7 days (table 146). On average, nondisabled Georgians are more likely than their mobility-impaired counterparts to report at least one walk trip (73 percent versus 60 percent), and are more likely to be physically active (88 percent versus 65 percent). Among working-age Georgians and those in good health, the difference between disabled and nondisabled Georgians with respect to walking is relatively small. In fact, working-age Georgians with disabilities walk slightly *more* on average than nondisabled working-age Georgians (6.3 average trips versus 5.8 trips), though a somewhat smaller percentage of them report at least one walking trip. The gap in overall physical activity is somewhat larger, however. The same pattern exists among Georgians in good health. Disability is most strongly associated with decreased physical activity and walking among Georgians who are older or in poor health.

Mobility Differences between Georgians with and without Mobility Impairments

Georgians with mobility impairments are more likely than nondisabled Georgians to be immobile on the travel day, over the past few days, and over the past week (table 147). On a typical day, 4 in 10 Georgians with mobility impairments will not leave the house, compared to 16 percent of nondisabled Georgians. One out of 10 disabled Georgians reports having made no trips in the past 7 days, compared to 1.6 percent of nondisabled Georgians. Mobility impaired Georgians also report fewer trips per capita, and on active travel days (table 148). Unlike differences in physical activity, these gaps persist among the young and the healthy. This suggests that many obstacles to mobility for Georgians with disabilities are *not* related to health or physical capability.

Table 146. Walking and physical activity among Georgians with and without mobility impairments, by health and age.

	With Mobility Impairment			Without Mobility Impairment		
	At Least One Walk Trip *(Past 7 Days)*	Number of Walk Trips	Physically Active*	At Least One Walk Trip *(Past 7 Days)*	Number of Walk Trips	Physically Active*
All adults	60.1%	5.01	64.8%	73.4%	5.81	87.5%
Health						
Good, very good, or excellent	70.5%	5.93	75.6%	74.1%	5.81	89.0%
Fair health	55.8%	3.95	65.0%	64.5%	5.46	68.4%
Poor health	47.1%	5.07	43.4%	67.2%	8.84	67.5%
Age						
Working age (18–64)	70.2%	6.26	69.3%	73.4%	5.78	87.0%
Senior (65–79)	48.1%	3.67	62.4%	74.8%	6.07	90.6%
Elderly (80+)	37.8%	1.97	48.7%	67.7%	5.35	91.3%

Note: Within each impairment group (with and without) percentages represent the share of those possessing the row characteristic who also possess the column characteristic. For example, 70.5 percent of people with mobility impairments who are in good health made at least one walk trip in the past 30 days, versus 74.1 percent of people in good health who do not have a mobility impairment.

** In a typical week, respondent engages in some light, moderate, or vigorous physical activity.*

Table 147. Immobility by disability, health, and age.

	With Mobility Impairment			Without Mobility Impairment		
	Travel Day	Past Few Days	Past Seven Days	Travel Day	Past Few Days	Past Seven Days
All adults	39.5%	15.8%	10.0%	16.3%	2.7%	1.6%
Health						
Good, very good, or excellent health	33.8%	8.3%	4.4%	15.6%	2.4%	1.4%
Fair health	41.7%	16.8%	10.3%	22.8%	5.6%	4.2%
Poor health	46.7%	28.8%	20.6%	41.9%	16.6%	6.8%
Age						
Working age (18–64)	34.1%	13.0%	8.4%	14.8%	2.4%	1.5%
Senior (65–79)	41.9%	16.2%	8.2%	23.6%	4.2%	1.8%
Elderly (80+)	60.1%	29.0%	22.2%	33.8%	6.1%	2.7%

Note: Immobility refers to zero reported trips during the specified timeframe.

Respondents with zero trips on the travel day were asked about the date of their most recent trip. Response options included 1. "The day before," 2. "A few days before," 3. "A week before," 4. "More than a week but within a month," and 5. "More than a month." We consider respondents to be immobile for the past few days if they selected response 3, 4, or 5 and immobile for the past week if they selected response 4 or 5. A respondent who has been immobile for the past week has also been immobile for the past few days and on the travel day.

Table 148. Average daily trips by disability, health, and age.

	With Mobility Impairment		Without Mobility Impairment	
	Per Capita	Active Travelers Only*	Per Capita	Active Travelers Only*
All adults	2.33	3.85	3.46	4.13
Health				
Good, very good, or excellent health	2.53	3.82	3.50	4.14
Fair health	2.21	3.79	3.08	3.99
Poor health	2.14	4.02	2.34	4.03
Age				
Working age (18–64)	2.57	3.89	3.51	4.12
Senior (65–79)	2.28	3.92	3.30	4.31
Elderly (80+)	1.28	3.20	2.55	3.85

* *Reporting at least one trip on the travel day*

A number of behavioral adaptations take place as mobility becomes more difficult. The NHTS asked about such adaptations of all respondents age 80 and older, and of younger individuals who reported mobility limitations. Seventy percent of Georgians with mobility impairments reported reducing day-to-day travel (table 149). This figure was 77 percent for elderly disabled Georgians, versus just 31 percent for elderly nondisabled Georgians.

Table 149. Behavioral adaptations among disabled and older adults.

	With Mobility Impairment				Without Mobility Impairment
Behavioral Adaptation	All Adults 18+	Working Age (18–64)	Seniors (65–79)	Elderly (80+)	Elderly (80+)
Reduced day-to-day travel	69.6%	67.5%	70.8%	76.8%	30.9%
Asked others for rides	39.9%	44.1%	31.0%	38.5%	20.1%
Limited driving to daytime	26.7%	24.8%	31.5%	22.9%	34.9%
Given up driving altogether	24.9%	18.4%	27.0%	52.0%	15.8%
Used the bus or subway less frequently	8.1%	9.8%	5.8%	5.0%	4.0%
Used special transportation services such as Dial-A-Ride	9.8%	11.3%	7.5%	7.0%	0.5%
Used a reduced fare taxi	1.9%	1.4%	2.1%	3.7%	0.1%

Note: Values shown are percentage of people in each age group (column) who reported engaging in the listed behavior (row).

Compared to nondisabled elderly Georgians, disabled elderly Georgians are also more likely to ask others for rides and use reduced-fare taxis and special transit services. They are slightly more likely to reduce their usage of regular public transit. More than half of elderly Georgians with a mobility impairment have given up driving, versus just 15.8 percent of those without. Elderly Georgians without a mobility impairment were instead more likely to limit driving to daytime (34.9 percent).

Children with Mobility Impairments

Among Georgia children ages 5–17, 2.2 percent have a mobility impairment (table 150). Half of these children were immobile on the travel day, versus 22 percent of children without a mobility impairment. However, the sample contains just 42 children with a mobility impairment, and thus the statistics presented here should be interpreted with caution. Nevertheless, the high frequency of immobility among disabled children is indicative of a mobility disadvantage that might benefit from more targeted data collection and study.

Table 150. Comparison of children (ages 5–17) with and without mobility impairments.

Demographics for Children Ages 5–17		
	Percent *(weighted)*	**Sample Size** *(unweighted)*
Mobility impairment present	2.2%	42
Mobility impairment absent	97.8%	2,416
Mobility Aids *(children with mobility impairments)*		
None	86.4%	32
Wheelchair	12.2%	6
Vision aid (white cane)	0.6%	2
Other (not specified)	0.8%	2
Immobility Among Children Ages 5–17 *(Weighted)*		
	Immobile on Travel Day	**Immobile for Past Seven Days**
Mobility impairment present	50.5%	7.1%
Mobility impairment absent	22.0%	2.1%

Variations among Adults with Mobility Impairments

Table 151 shows demographic characteristics of Georgia's 723,000 residents with mobility impairments.[96] One out of 20 mobility impairments are short term (having lasted fewer than 6 months).[97] Women account for 61 percent of people with mobility impairments. This is not

[96] Table 151 also contains sample information for table 152 to table 154.

[97] We considered eliminating or separating those with short-term disabilities from the analysis of those with longer-term limitations. However, short-term is not synonymous with temporary: an unknown share of disabilities that are less than 6 months old may, in fact, simply be newly occurring long-term disabilities. In view of this fact, plus the relatively small share of short-term disabilities in the sample (5 percent), we chose to retain all cases of mobility limitation for analysis. Short-term disability is included as a covariate in the regressions.

fully accounted for by women's longer life expectancies; disability is also more prevalent among working-age women compared to working-age men.

Table 151. Demographic characteristics of Georgians with mobility impairments.

	Population*	Sample* *(unweighted)*
All adults with mobility impairment	723,241	1,609
Mobility Aid Usage		
None	43.2%	38.9%
Wheelchair (incl. wheelchair and other)	19.1%	20.4%
Cane, walker, or other§	37.8%	40.6%
Duration of Mobility Impairment†		
Long-term (more than 6 months)	95.0%	93.2%
Short-term (6 months or less)	5.0%	6.8%
Age		
Working age (18–64)	59.8%	47.8%
Senior (65–79)	27.8%	33.4%
Elderly (80+)	12.4%	18.8%
Men Only	39.2%	38.3%
Working age (18–64)	25.1%	18.8%
Senior (65–79)	11.1%	13.4%
Elderly (80+)	3.0%	6.2%
Women Only	60.8%	61.7%
Working age (18–64)	34.7%	29.0%
Senior (65–79)	16.7%	20.0%
Elderly (80+)	9.4%	12.7%
Driving and Paratransit‡		
Driver	61.6%	67.2%
Nondriver	38.4%	32.8%
Paratransit user	10.8%	6.7%
Paratransit nonuser	89.2%	93.3%
MPO Tier		
1. Atlanta MPO	44.0%	23.3%
2. Medium MPOs	16.7%	36.4%
3. Small MPOs	9.1%	25.1%
4. Non-MPO	30.2%	15.2%
Annual Household Income†		
<$15,000	36.7%	27.5%
$15,000 to $24,999	17.3%	16.5%
$25,000 to $34,999	11.9%	12.6%
$35,000 to $49,999	8.7%	11.9%
$50,000 to $74,999	11.9%	13.0%
$75,000 to $99,999	6.7%	8.0%
$100,000+	6.8%	7.2%
Workforce Participation		
Nonworker	87.7%	89.9%
Worker	12.3%	10.1%

** Population is based on nonmissing observations and sample includes missing observations.*
† Income data are missing for 54 observations (3.4%) and duration of mobility impairment is missing for one observation.
‡ Respondents were asked, "Do you/does this person drive?" Paratransit includes reduced-fare taxis and services like Dial-A-Ride.
§ Includes crutches, white cane, service dog, and other (specify). Other (specify) includes brace, respiratory assistance, and prosthesis.

The majority of Georgians with mobility impairments drive, but a substantial minority (38 percent) do not. However, just 11 percent of Georgians with mobility impairments use paratransit services. Given how prevalent immobility is among Georgians with disabilities (see table 151), the difference between the number of Georgians with mobility impairments who do not drive and the number who use paratransit suggests unmet transportation needs.

Two out of five people with mobility impairments use no mobility aids. One out of five uses a wheelchair, sometimes in conjunction with other mobility aids. As shown in figure 36, the most common mobility aid reported by respondents was a cane (36.5 percent), followed by a walker (22.9 percent) and a wheelchair (regular, motorized, or motorized scooter) (19.2 percent). Respondents could report multiple aids; 72.1 percent of wheelchair users reported using at least one other mobility aid. For example, someone who uses a wheelchair to travel outside of the house may also use a walker to travel short distances or transfer between rooms in their own home. The much higher prevalence of crutches among Georgians with short-term disabilities (18, versus 2 percent of those with long-term disabilities) suggests that some short-term disabilities are more likely to be acute orthopedic injuries.

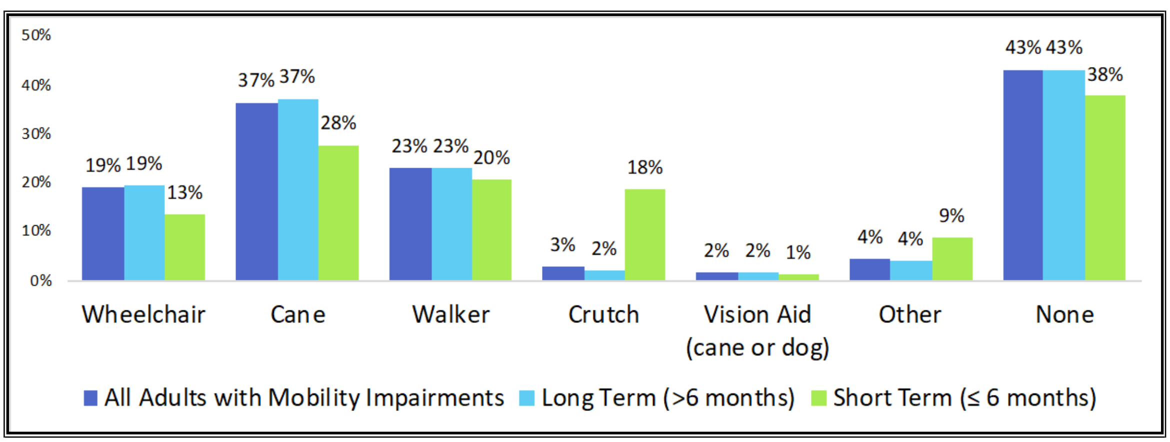

Figure 36. Bar graph. Mobility aids used by adults with mobility impairments.

Figure 34 compared the annual household incomes of adults with mobility impairments and adults without mobility impairments; table 152 further examines demographic differences in annual household income and driving specifically among Georgians with mobility impairments. More than half of people with disabilities have an annual household income of less than $25,000 (figure 34). More than a third fall into the very lowest income category (less than $15,000 per year), including 20 percent of workers (table 152). For comparison, this is more than twice the share of nondisabled workers in very low-income households (8 percent—not shown in the table). Mobility-impaired women of all ages are more likely than men in that same age group to be in a very low-income household, and nearly half of working-age women with disabilities are in very low-income households. Poverty is, perhaps unsurprisingly, less common among Georgians with short-term disabilities, of whom 10 percent live in a very low-income household (compared to 38 percent of those whose disabilities have lasted longer than 6 months).

Table 153 shows differences in mobility and immobility among Georgians with mobility impairments. In general, wheelchair users are more likely to be immobile than other Georgians with disabilities, as are those whose disability is short term, the elderly (but markedly more so for elderly women), nonworkers, and nondrivers. These patterns will be explored further in chapter 5, Risk Factors for Immobility among Adults with Mobility Impairments.

Table 154 shows walking and physical activity among Georgians with mobility impairments. Wheelchair users are less likely to report walking than other Georgians, but it is notable that 34 percent of wheelchair users report making at least one walking trip. This may reflect part-time wheelchair users, but it is also possible that participants are reporting wheelchair trips as "walking" because the vocabulary used in the NHTS questions does not address pedestrian travel by wheelchair users.

Table 152. Driver status and income of Georgia adults with mobility impairments.

	Driver*	Very Low Income (<$15,000) †
All adults with mobility impairment	61.6%	36.7%
Mobility Aid Usage		
None	61.4%	36.9%
Wheelchair (incl. wheelchair and other)	52.8%	34.3%
Cane, walker, or other§	66.2%	37.8%
Duration of Mobility Impairment		
Long-term (more than 6 months)	61.0%	38.2%
Short-term (6 months or less)	72.2%	9.8%
Age		
Working age (18–64)	63.7%	44.3%
Senior (65–79)	68.4%	25.1%
Elderly (80+)	36.2%	26.3%
Men Only	61.1%	32.8%
Working age (18–64)	56.7%	39.8%
Senior (65–79)	73.2%	21.2%
Elderly (80+)	52.3%	17.1%
Women Only	61.9%	39.3%
Working age (18–64)	68.7%	47.6%
Senior (65–79)	65.2%	27.8%
Elderly (80+)	31.0%	29.3%
Driving and Paratransit		
Driver	100.0%	31.1%
Nondriver	––	46.0%
Paratransit user (e.g., reduced fare taxi or Dial-a-Ride)	36.2%	70.8%
Paratransit nonuser	64.7%	32.6%
MPO Tier		
1. Atlanta MPO	55.7%	32.2%
2. Medium MPOs	62.0%	37.1%
3. Small MPOs	59.9%	38.5%
4. Non-MPO	70.5%	42.6%
Annual Household Income‡		
<$15,000	52.5%	100.0%
$15,000 to $24,999	65.6%	––
$25,000 to $34,999	67.7%	––
$35,000 to $49,999	63.8%	––
$50,000 to $74,999	68.1%	––
$75,000 to $99,999	73.2%	––
$100,000+	70.9%	––
Workforce Participation		
Nonworker	59.3%	39.0%
Worker	77.9%	20.3%

** Respondents were asked, "Do you/does this person drive?"*

† Annual household income is missing for 54 observations and duration of mobility impairment is missing for one observation. All figures based on nonmissing observations.

§ Includes crutches, white cane, and service dog, and other (specify). Other (specify) includes brace, respiratory assistance, and prosthesis.

Table 153. Immobility and average daily trips of Georgians with mobility impairments.

	Immobility *(Zero Trips in Time Frame)*			Daily Trips	
	Travel Day	Past Few Days	Past Seven Days	Per Capita	Active Travelers Only†
All adults with mobility impairment	39.5%	15.8%	10.0%	2.33	3.85
Mobility Aid Usage					
None	33.7%	12.8%	8.9%	2.35	3.54
Wheelchair (incl. wheelchair and other)	50.7%	24.8%	13.2%	1.77	3.58
Cane, walker, or other‡	40.4%	14.8%	9.7%	2.58	4.34
Duration of Mobility Impairment					
Long-term (more than 6 months)	39.4%	15.6%	9.6%	2.31	3.82
Short-term (6 months or less)	40.1%	20.9%	19.0%	2.59	4.33
Age					
Working age (18–64)	34.1%	13.0%	8.4%	2.57	3.89
Senior (65–79)	41.9%	16.2%	8.2%	2.28	3.92
Elderly (80+)	60.1%	29.0%	22.2%	1.28	3.20
Men Only	37.3%	14.8%	11.0%	2.36	3.77
Working age (18–64)	36.2%	15.1%	10.9%	2.39	3.75
Senior (65–79)	39.7%	13.8%	10.6%	2.37	3.92
Elderly (80+)	37.6%	16.2%	12.7%	2.09	3.35
Women Only	40.9%	16.5%	9.4%	2.31	3.90
Working age (18–64)	32.5%	11.5%	6.5%	2.69	3.99
Senior (65–79)	43.4%	17.7%	6.6%	2.22	3.93
Elderly (80+)	67.2%	33.0%	25.2%	1.02	3.11
Driving and Paratransit§					
Driver	31.9%	9.6%	4.5%	2.74	4.02
Nondriver	51.6%	25.9%	18.9%	1.67	3.45
Paratransit user	31.8%	10.6%	9.1%	2.39	3.51
Paratransit nonuser	40.4%	16.5%	10.1%	2.32	3.89
MPO Tier					
1. Atlanta MPO	39.2%	17.5%	11.7%	2.22	3.66
2. Medium MPOs	37.2%	14.1%	9.9%	2.49	3.97
3. Small MPOs	39.9%	17.7%	10.9%	2.57	4.28
4. Non-MPO	40.9%	13.8%	7.3%	2.32	3.92
Annual Household Income					
<$15,000	38.7%	14.1%	8.3%	2.43	3.97
$15,000 to $24,999	35.4%	15.2%	12.2%	2.41	3.74
$25,000 to $34,999	48.3%	23.7%	11.9%	1.81	3.50
$35,000 to $49,999	29.9%	14.8%	11.4%	2.81	4.01
$50,000 to $74,999	46.1%	19.1%	12.4%	2.14	3.98
$75,000 to $99,999	34.2%	11.7%	7.1%	2.73	4.15
$100,000+	46.8%	13.7%	7.0%	1.91	3.58
Workforce Participation					
Nonworker	42.1%	17.2%	10.6%	2.21	3.82
Worker	20.9%	6.1%	5.7%	3.16	3.99

Based on 1,609 adults with mobility impairments. Income is missing for 54 observations and duration of impairment for one observation.

† Reporting at least one trip on the travel day.

‡ Includes crutches, white cane, service dog, and other (specify). Other (specify) includes brace, respiratory assistance, and prosthesis.

§ Respondents were asked, "Do you/does this person drive?" Paratransit includes reduced-fare taxis and special services such as Dial-A-Ride.

Table 154. Walking and physical activity among Georgians with mobility impairments.

	Walk Trips *(Past 30 Days)*		**Physical Activity Level** *(Typical Week)*	
	Any Walk Trip	**Number of Walk Trips**	**Active** *(some light, moderate, or vigorous activity)*	**Inactive** *(rarely or never)*
All adults with mobility impairment	60.1%	5.0	64.8%	35.2%
Mobility Aid Usage				
None	72.8%	6.1	71.8%	28.2%
Wheelchair (incl. wheelchair and other)	34.4%	2.3	51.8%	48.2%
Cane, walker, or other‡	58.5%	5.1	63.4%	36.6%
Duration of Mobility Impairment				
Long-term (more than 6 months)	60.4%	5.1	63.9%	36.1%
Short-term (6 months or less)	54.6%	2.7	81.8%	18.2%
Age				
Working age (18–64)	70.2%	6.3	69.3%	30.7%
Senior (65–79)	48.1%	3.7	62.4%	37.6%
Elderly (80+)	37.8%	2.0	48.7%	51.3%
Men Only	62.5%	5.4	65.3%	34.7%
Working age (18–64)	70.7%	6.4	68.7%	31.3%
Senior (65–79)	46.6%	3.6	56.8%	43.2%
Elderly (80+)	52.7%	3.2	68.0%	32.0%
Women Only	58.5%	4.8	64.5%	35.5%
Working age (18–64)	69.9%	6.2	69.7%	30.3%
Senior (65–79)	49.1%	3.7	66.1%	33.9%
Elderly (80+)	33.1%	1.6	42.5%	57.5%
Driving and Paratransit§				
Driver	62.4%	5.6	69.0%	31.0%
Nondriver	56.3%	4.1	58.1%	41.9%
Paratransit user	62.8%	4.5	63.9%	36.1%
Paratransit nonuser	59.7%	5.1	64.9%	35.1%
MPO Tier				
1. Atlanta MPO	57.6%	4.5	65.6%	34.4%
2. Medium MPOs	58.4%	3.8	68.1%	31.9%
3. Small MPOs	65.3%	4.7	71.9%	28.1%
4. Non-MPO	63.0%	6.4	59.6%	40.4%
Annual Household Income				
<$15,000	69.6%	6.1	69.1%	30.9%
$15,000 to $24,999	50.9%	3.7	57.8%	42.2%
$25,000 to $34,999	60.9%	6.2	64.8%	35.2%
$35,000 to $49,999	55.9%	3.2	70.8%	29.2%
$50,000 to $74,999	52.5%	5.7	56.7%	43.3%
$75,000 to $99,999	62.0%	3.8	71.6%	28.4%
$100,000+	43.5%	2.8	60.7%	39.3%
Workforce Participation				
Nonworker	58.0%	4.9	63.4%	36.6%
Worker	75.1%	6.1	75.0%	25.0%

Based on 1,609 adults with mobility impairments. Income is missing for 54 observations and duration of impairment for one observation.

‡ Includes crutches, white cane, service dog, and other (specify). Other (specify) includes brace, respiratory assistance, and prosthesis.

§ Respondents were asked, "Do you/does this person drive?" Paratransit includes reduced-fare taxis and special services such as Dial-A-Ride.

Risk Factors for Immobility among Adults with Mobility Impairments

The researchers use logistic regression to disentangle the demographic factors associated with immobility among people with mobility impairments (table 155).[98] We created three binary logit models looking at the likelihood of being immobile on the travel day, immobile for "the past few days," and immobile for the past week.[99] Table 156 isolates the AME of key covariates.

Being in poor health is associated with a 12-percentage-point increase in the probability of being immobile on the travel day, compared to a mobility-impaired Georgian in good health. It is also associated with an 11-percentage-point increase in the probability of being immobile for the past few days, and a 7-percentage-point increase in the probability of being immobile for the past week. Being in fair health has a similar effect on the travel day (an 11-percentage-point increase in the probability of travel day immobility), but the effect drops off sharply when examining longer term immobility. In other words, on any given day, disabled Georgians in fair or poor health are equally likely to be housebound, but Georgians in fair health are more likely to be able to leave the house at least a few times per week.

Wheelchair use is also associated with an increased likelihood of immobility, and working outside the home and being a driver are associated with a decreased likelihood of immobility. Living alone is associated with a decreased likelihood of immobility, but this may be because people able to live independently are also more able to travel independently. Paratransit use is

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[98] Income was excluded from the models because it was not significant and was missing for 3.3 percent of observations.

[99] Respondents with zero trips on the travel day were asked about the date of their most recent trip. Response options included: (1) "The day before," (2) "A few days before," (3) "A week before," (4) "More than a week but within a month," and (5) "More than a month." This report considers respondents to be immobile for the past few days if they selected response 3, 4, or 5 and immobile for the past week if they selected response 4 or 5. A respondent who has been immobile for the past week has also been immobile for the past few days and on the travel day.

associated with a lower probability of immobility, but the effect is not significant. Being female is associated with an increased chance of immobility, but only among elderly residents.

Urban neighborhoods appear to confer some mobility benefits; people with mobility impairments living in urban neighborhoods are less likely to be immobile on the travel day and over the past several days; there is no significant difference in weekly immobility.

Table 155. Logistic regression: Immobility among Georgia adults with a mobility impairment.

	1. Immobile on Travel Day†		2. Immobile, Past Few Days†		3. Immobile, Past Seven Days†	
	Odds Ratio	P-Value	Odds Ratio	P-Value	Odds Ratio	P-Value
Health *(reference: good, very good, or excellent)*						
Fair	1.64	0.000 ***	1.61	0.012 **	1.61	0.037 **
Poor	1.76	0.000 ***	2.52	0.000 ***	2.38	0.000 ***
Wheelchair user	1.43	0.011 **	1.53	0.012 **	1.40	0.102
Short-term disability (<6 months)	1.12	0.635	1.18	0.615	1.31	0.487
Female	0.97	0.841	0.82	0.411	0.81	0.470
Age *(reference: adults ages 18–64)*						
Senior (ages 65–79)	1.04	0.856	0.92	0.780	1.05	0.875
Elderly (ages 80+)	0.93	0.785	0.86	0.668	0.94	0.879
Female x Senior	1.46	0.138	1.62	0.187	0.97	0.954
Female x Elderly	1.77	0.075 *	2.04	0.097 *	3.53	0.013 **
Live alone	0.69	0.005 ***	0.83	0.311	1.04	0.859
Worker	0.41	0.003 ***	0.43	0.114	0.79	0.663
Work from home	2.49	0.063 *	1.35	0.744	0.64	0.708
Driver	0.42	0.000 ***	0.32	0.000 ***	0.30	0.000 ***
Paratransit user	0.75	0.228	0.62	0.134	0.77	0.470
Race *(reference: white non-Hispanic only)*						
Black (incl. Black multiracial)	0.90	0.471	1.17	0.393	1.24	0.323
Other	0.95	0.797	1.27	0.377	1.05	0.889
Urban neighborhood‡	0.71	0.013 **	0.71	0.057 *	0.82	0.341
Constant	0.81	0.267	0.21	0.000 ***	0.11	0.000 ***
Number of cases, N	1,581		1,581		1,581	
Final log likelihood, LL(β)	-955.50		-592.83		-441.86	
Market share log likelihood, LL(MS)	-1,052.40		-681.77		-504.89	
McFadden's pseudo-R^2: 1-LL(β)/LL(MS)	0.092		0.131		0.125	

** denotes significance for $\alpha = .10$ ** denotes significance for $\alpha = .05$ *** denotes significance for $\alpha = .01$*

† Zero trips within the specified time frame. Respondents who have been immobile for the past 7 days are also immobile for the past few days and on the travel day.

‡ Urban or second-city neighborhood type versus suburban, small-town, or rural.

Table 156. Selected average marginal effects on probability of being immobile among adults with a mobility impairment, percentage points.

	1. Immobile on Travel Day†	2. Immobile, Past Few Days†	3. Immobile, Past Seven Days†
Mean predicted probability x 100‡	38.58	15.95	10.00
Average Marginal Effects *(percentage points)* §			
Health *(reference: good, very good, or excellent)*			
Fair	10.46 ***	5.17 **	3.45 **
Poor	11.93 ***	11.39 ***	7.31 ***
Wheelchair user	7.74 **	5.40 **	2.92
Live alone	-7.75 ***	-2.12	0.31
Worker Status *(reference: nonworker)*			
Work outside of home (nonhome-based)¶	-16.88 ***	-7.98	-1.79
Work from home (home-based)	0.65 *	-5.58	-4.44
Driver	-19.18 ***	-14.58 ***	-10.26 ***
Urban neighborhood††	-7.03 **	-3.84 *	-1.57

** Indicates that model coefficient was significant for = .10, ** for = .05, and *** for = .01.*

† Respondents with zero trips on the travel day were asked about the date of their most recent trip. Response options included 1. "The day before," 2. "A few days before," 3. "A week before," 4. "More than a week but within a month," and 5. "More than a month." This report considers respondents to be immobile for the past few days if they selected response 3, 4, or 5 and immobile for the past week if they selected response 4 or 5. A respondent who has been immobile for the past week has also been immobile for the past few days and on the travel day.

‡ Weighted mean predicted probability based on unweighted logit models. This report displays predicted probabilities as a percentage rather than observed means for consistency. (The two values are not identical because survey weights have been applied to results produced by an unweighted model. For all variables, the two values differ by less than one percentage point.)

§ Since the explanatory variables presented are dummy variables indicating the presence of a certain characteristic, the AME for each variable is calculated by predicting the probability of being immobile as if the whole sample did not have the characteristic in question, predicting the probability as if the whole sample did have the characteristic in question, subtracting the former from the latter, and averaging the predicted marginal effect for all observations in the sample. Effects shown are weighted means based on the unweighted logit models.

¶ For nonhome-based workers, worker = 1 and work from home = 0. For home-based workers, both worker and work from home = 1.

†† Urban or second-city neighborhood type versus suburban, small-town, or rural.

Taken together, the findings presented here indicate that Georgians with disabilities face multiple barriers to mobility. Policy is needed to address accessibility barriers in public and private transportation and on the public right of way, as well as to address related sources of social exclusion (Beyzak et al. 2019, Decker 2006, National Council on Disability 2015).

CHAPTER 6.
NONMOTORIZED TRANSPORTATION AND ACCESS/EGRESS TRAVEL

CHAPTER 6 – SUMMARY

This chapter examines nonmotorized travel (i.e., walking and biking) and access/egress travel, or travel to reach a primary mode of transportation.

- **Overview** provides an overview of how many Georgians walk and bike over a typical week and examines some barriers to walking and biking more frequently. It discusses gender differences in concerns about the safety of NMT and reviews the available data about physical activity.
- **Access and Egress Travel** discusses access and egress travel. It reviews how the NHTS measures access/egress legs for transit and nontransit trips and discusses related measurement issues. Access/egress travel is particularly important when studying nonmotorized travel because walking and biking account for a large proportion of access/egress travel; including access/egress legs increases the number of instances of walking and biking per capita by 28 percent versus including separately recorded nonmotorized trips alone. This section especially examines access/egress to public transit, for which NMT is a dominant mode.
- **Travel Day Walking and Biking by Georgia Adults** examines travel-day walking and biking by Georgia adults. It incorporates the trips analyzed throughout this report, as well as the legs analyzed in Access and Egress Travel in this chapter. Frequency of walking and biking, purpose of NMT trips/legs, and duration of trips by purpose are examined and demographic differences explored. Time of day is also examined.

- **Captive and Choice Nonmotorized Travel** examines captive and choice nonmotorized travel. As with public transit, some pedestrians and cyclists choose to walk and bike, while other use these modes by necessity. Captive pedestrians and cyclists spent more time traveling than their choice counterparts did, after controlling for trip quantity and purpose. Captive nonmotorized travelers also tended to make more nonmotorized trips, compounding the differences in total travel time. While increased walking and biking is broadly considered a public health goal, it is important to remember that some travelers are already walking or riding more than they would like.
- **Children's Nonmotorized and School Travel** examines nonmotorized and school travel for children ages 5–17. After describing the research team's methods for identifying school trips, which are analogous to the methods used to define adults' work commutes in chapter 2, this section reviews children's observed and usual modes of travel to and from school. Walking and biking account for approximately 5 percent of school travel in Georgia. It then describes children's nonmotorized travel for all purposes. Children are more likely to have walked or biked than are adults. The difference is particularly pronounced for cycling; 30.5 percent of children reported cycling in the past 7 days versus 5.5 percent of adults. Cycling is most common among children under the age of 9 and declines steadily as they approach adulthood.

OVERVIEW

As shown in figure 37, in a typical week, 72.6 percent of Georgia adults will walk, ride a bike, or both.[100] Cyclists are, in general, also pedestrians; only 0.4 percent of Georgians reported biking but not walking.

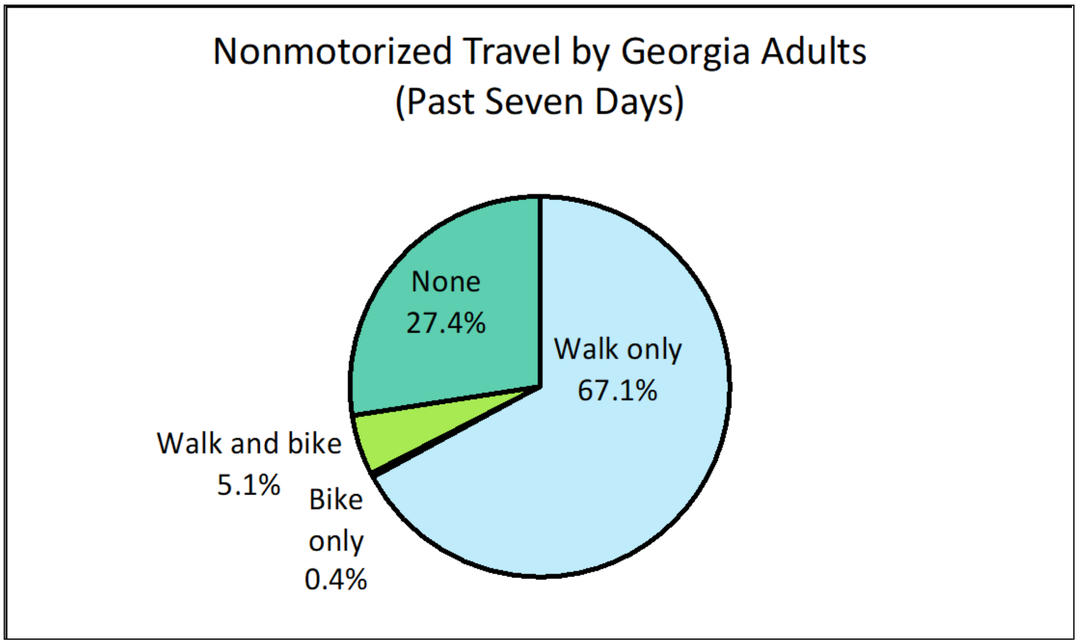

Figure 37. Pie chart. Use of nonmotorized modes by Georgia adults (past 7 days).

As shown in table 157, walkers average 7.9 walking trips per week, and cyclists average 3.1 bike trips. When walking and biking are combined, nonmotorized travelers make an average of 8.1 nonmotorized trips per week.

[100] The precise questions were: "In the past seven days, how many times did you:

1. "…take a walk *outside* including walks to exercise, go somewhere, or to walk the dog (e.g., walk to a friend's house, walk around the neighborhood, walk to the store, etc.)?"
2. "… ride a bicycle *outside* including bicycling to exercise, or to go somewhere (e.g., bike to a friend's house, bike around the neighborhood, bike to the store, etc.)?

There are some differences between MPO tiers, but the larger differences are by neighborhood type, which can vary substantially within an MPO. NMT is most common in the densest urban neighborhood type (which, in Georgia, is only found in Atlanta). Women are more likely to walk than men, but less likely to bike. Biking is most common among those ages 18–52 compared to other age groups, while walking is most common from ages 37–64.

Pedestrians and cyclists are most common among residents of the lowest-income (less than $15,000 per year) and highest-income ($100,000 or more per year) households, compared to their incidence among other income groups. However, low-income pedestrians and cyclists walk and ride their bikes more frequently than do their wealthier counterparts (9.9 times and 7.3 times a week, respectively).

Table 157. Walking and biking among Georgia adults (past 7 days).

	Percent of Adults who have Used Mode (Past 7 Days)			Mean Trips among Mode Users (Past 7 Days)		
	Walk	Bike	Any NMT	Walk	Bike	Any NMT
All adults ages 18+	72.2%	5.5%	72.5%	7.9	3.1	8.1
MPO Tier						
1. Atlanta MPO	71.7%	5.1%	72.0%	7.2	2.6	7.3
2. Medium MPOs	72.1%	7.6%	72.8%	8.0	4.1	8.3
3. Small MPOs	72.4%	6.1%	73.0%	8.6	3.4	8.9
4. Non-MPO counties	73.3%	4.4%	73.5%	9.6	3.3	9.8
Urbanicity *(Neighborhood Type)*						
Rural	72.9%	4.0%	73.1%	9.2	2.9	9.3
Small town	67.4%	5.6%	68.0%	8.0	2.9	8.2
Suburban	72.5%	5.5%	72.8%	7.1	3.0	7.3
Second city	75.0%	5.3%	75.4%	7.4	3.7	7.7
Urban	91.0%	18.5%	91.7%	9.3	3.5	10.0
Sex						
Male	71.6%	6.8%	72.2%	8.2	3.3	8.4
Female	72.7%	4.3%	72.9%	7.7	2.9	7.9
Age Cohort						
Millennial and Gen Z (18–36)	70.9%	6.2%	71.2%	8.3	3.3	8.5
Gen X (37–52)	75.3%	6.3%	75.6%	7.3	3.3	7.6
Pre-retirement age Boomer (53–64)	74.1%	5.3%	74.7%	8.3	3.0	8.4
Retirement Age (65+)	67.1%	2.8%	67.4%	7.9	2.4	8.0
Caregiver Status‡						
Noncaregiver	72.2%	5.1%	72.7%	8.0	3.3	8.2
Caregiver, youngest child ages 0–15	72.1%	6.3%	72.3%	7.7	2.8	8.0
Race						
White non-Hispanic only	74.2%	5.9%	74.6%	8.3	3.0	8.5
Black, Black multiracial & Black Hisp.	69.0%	4.8%	69.3%	7.5	3.7	7.7
Other	71.3%	5.2%	71.5%	7.2	2.4	7.4

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Table 157. (Continued).

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	Percent of Adults who have Used Mode (Past 7 Days)			Mean Trips among Mode Users (Past 7 Days)		
	Walk	Bike	Any NMT	Walk	Bike	Any NMT
All adults ages 18+	72.2%	5.5%	72.5%	7.9	3.1	8.1
Driver Status						
Nondriver	68.8%	6.7%	69.4%	8.5	4.5	8.8
Driver	72.6%	5.3%	72.9%	7.9	2.9	8.1
Mobility Impairment: *a "condition or handicap that makes it difficult to travel outside of the home."*						
Absent	73.4%	5.8%	73.8%	7.9	3.1	8.1
Present	59.9%	2.6%	59.9%	8.3	3.9	8.5
Annual Household Income						
<$15,000	76.1%	8.1%	76.8%	9.5	4.6	9.9
$15,000 to $49,999	66.9%	3.9%	67.2%	8.1	3.6	8.3
$50,000 to $99,999	72.5%	4.0%	72.7%	7.7	2.6	7.8
$100,000+	76.5%	7.5%	77.0%	7.1	2.3	7.3
Vehicle Deficit Category of Household§						
Zero-vehicle	86.8%	9.5%	86.8%	9.3	5.6	9.9
Deficit	69.0%	5.0%	69.4%	8.1	3.9	8.4
Nondeficit (sufficient/surplus)	72.3%	5.4%	72.7%	7.8	2.6	7.9
Worker Status						
Nonworker	71.6%	4.5%	72.0%	8.3	3.4	8.5
Worker	72.5%	6.1%	72.9%	7.7	3.0	7.9

Row percentages shown.

‡ A caregiver is defined as any adult ages 18+ in a household with a child of less than 5 years old, and any adult ages 22+ in a household with a child of 5–15 years old.

§ A vehicle-deficit household owns at least one vehicle, but fewer vehicles than potential drivers.

Barriers to Walking and Biking More Frequently

How could Georgians be enticed to walk or bike more? Table 158 shows perceived barriers to walking and biking more frequently. The most common complaints for pedestrians are missing or inadequate sidewalks and insufficient night lighting. For cyclists, heavy traffic is the most common complaint, with missing/inadequate sidewalks and a lack of nearby paths or trails coming in second and third.

Table 158. Perceived barriers to walking and biking more frequently (pedestrians and cyclists ages 18+).

Reason for not walking/biking more	Walk more	Bike more
No nearby paths or trails	18.1%	20.0%
No nearby parks	14.4%	13.3%
No sidewalks or sidewalks are in poor condition	22.5%	20.9%
Street crossings are unsafe	11.7%	15.6%
Heavy traffic with too many cars	17.4%	27.5%
Not enough lighting at night	21.4%	19.1%
None of the above	38.3%	33.4%

Participants were allowed to select multiple response options. Walk questions were asked of people who walked at least once in the past 7 days; bike questions were asked of people who biked at least once in the past 7 days.

These questions were only asked of people who had walked or biked at least once in the 7 days previous to the survey. As such, they describe barriers to walking and biking *more,* but not necessarily barriers to walking and biking *at all.* The NHTS does not have direct information about the concerns of the 94.5 percent of Georgians who have *not* biked recently; more information is needed about how to attract *new* pedestrians and cyclists.

As shown in figure 38, there are notable gender differences in perceived barriers to walking and biking. Women selected most barriers more frequently than men (with the sole exception of a lack of nearby parks, which male cyclists selected more than female cyclists). The largest gender gaps among pedestrians focused on safety: night lighting (9.8 percentage point difference between men and women) and sidewalks (7.2 percentage point difference). Among cyclists, the largest gender gaps were around sidewalk condition (9.8 percentage points), heavy traffic (9.5 percentage points) and a lack of nearby paths or trails (9.2 percentage points). A number of studies have documented how unfavorable traffic and safety conditions disproportionately discourage female nonmotorized travelers (e.g., Emond, Tang, and Handy 2009).

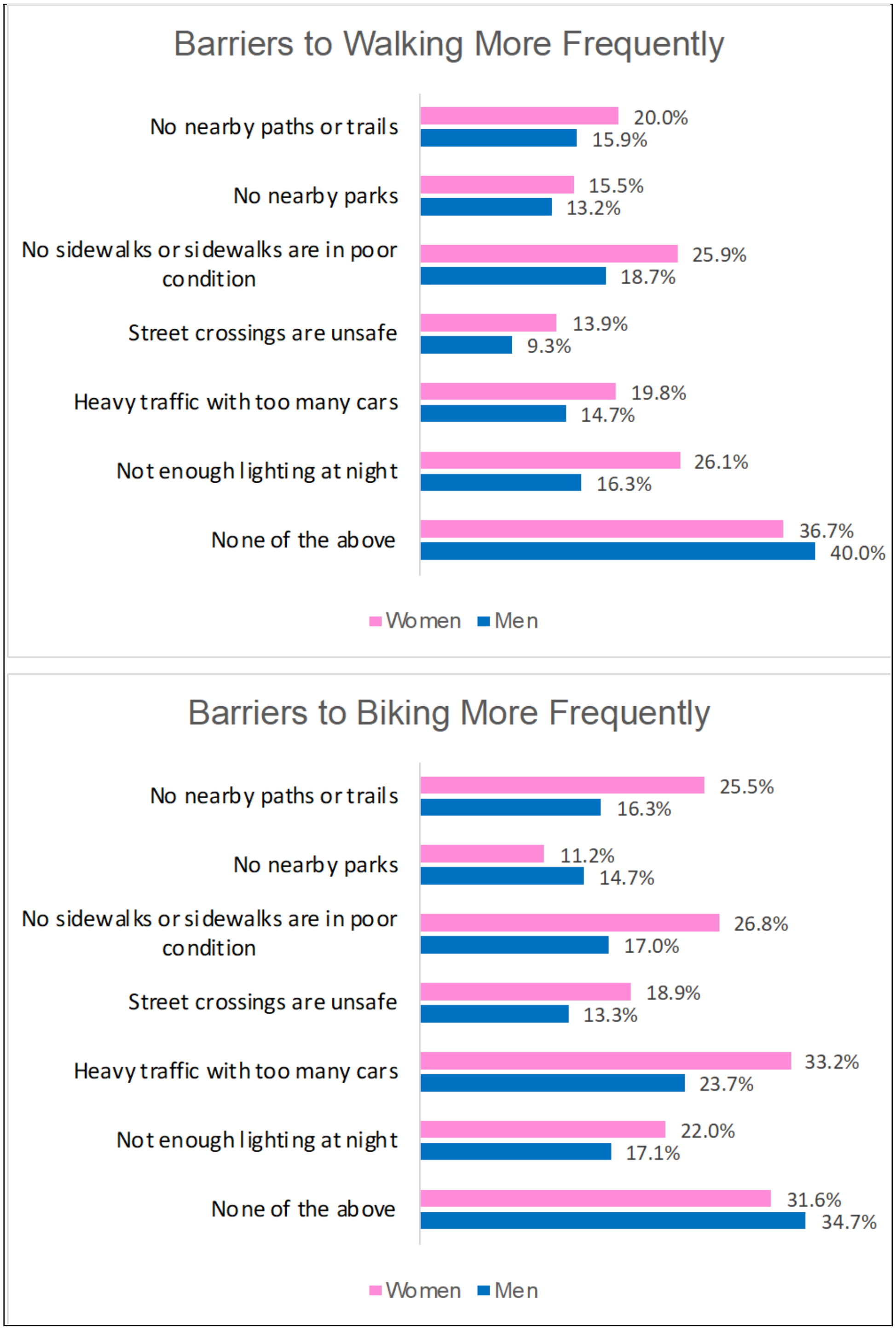

Figure 38. Bar graphs. Gender differences in perceived barriers to walking and biking more frequently among pedestrians and cyclists ages 18+.

Physical Activity

In this section, we examine physical activity between different groups of Georgians, and in relationship to walking and biking. As shown in table 159, 85 percent of Georgians are at least somewhat physically active in a typical week; 61.5 percent reported some light or moderate physical activity. Twenty-four percent reported vigorous physical activity; whether these respondents *also* engaged in light or moderate physical activity is not recorded. Respondents who engaged in light/moderate physical activity reported an average of four sessions of at least 30 minutes per week, while those who reported vigorous activity reported an average of 5.2 sessions.

Residents of urban neighborhoods are less likely to be inactive than residents of other types of neighborhoods (6.5 percent versus 14–16 percent elsewhere). They are much more likely to engage in vigorous physical activity (41 percent versus 22–25 percent elsewhere). However, urban residents engaged in vigorous physical activity report fewer instances per person than their vigorously active counterparts in other types of areas (4 percent versus 4.9–5.8 percent elsewhere).

Men are more active than women. Low-income people, nondrivers, and people with mobility impairments are much more likely to report no physical activity. As discussed in chapter 5, Health and Disability, there is considerable overlap between those groups.

Table 159. Physical activity among Georgia adults.

	Physical Activity Level *(Row Percentages)**			Weekly Instances of Physical Activity†	
	Rarely or Never	**Some Light or Moderate**	**Some Vigorous**	**Light/Moderate** *(Among Light/Moderately Active Respondents)*	**Vigorous** *(Among Respondents with Vigorous Physical Activity)*
All adults ages 18+	14.6%	61.5%	23.8%	4.03	5.22
MPO Tier					
1. Atlanta MPO	14.2%	61.9%	23.9%	3.94	4.84
2. Medium MPOs	15.4%	61.1%	23.5%	3.77	5.44
3. Small MPOs	13.6%	63.0%	23.4%	3.98	5.51
4. Non-MPO counties	15.8%	60.3%	23.9%	4.51	5.96
Urbanicity *(Neighborhood Type)*					
Rural	15.1%	59.5%	25.4%	4.41	5.81
Small town	15.7%	61.6%	22.7%	3.88	5.18
Suburban	13.8%	62.7%	23.5%	3.99	4.92
Second city	14.9%	63.4%	21.8%	3.86	5.24
Urban	6.5%	52.5%	41.0%	4.29	4.05
Sex					
Male	13.8%	55.8%	30.4%	4.15	5.48
Female	15.4%	66.9%	17.8%	3.93	4.83
Age Cohort					
Millennial and Gen Z (18–36)	15.5%	56.1%	28.4%	4.08	5.53
Gen X (37–52)	13.8%	61.4%	24.7%	3.91	5.04
Pre-retirement age Boomer (53–64)	12.5%	66.0%	21.5%	3.99	5.14
Retirement Age (65+)	16.8%	67.4%	15.8%	4.17	4.72
Driver Status					
Nondriver	27.0%	59.4%	13.6%	4.03	6.64
Driver	13.1%	61.8%	25.1%	4.03	5.13

Table continues on next page.

Table 159. (Continued).

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	Physical Activity Level *(Row Percentages)**			**Weekly Instances of Physical Activity†**	
	Rarely or Never	**Some Light or Moderate**	**Some Vigorous**	**Light/Moderate** *(Among Light/Moderately Active Respondents)*	**Vigorous** *(Among Respondents with Vigorous Physical Activity)*
All adults ages 18+	14.6%	61.5%	23.8%	4.03	5.22
Race					
White non-Hispanic only	12.7%	60.3%	26.9%	4.23	5.30
Black, Black multiracial & Black Hispanic	17.2%	62.9%	19.9%	3.66	4.85
Other	16.3%	63.6%	20.1%	4.09	5.69
Mobility Impairment: *a "condition or handicap that makes it difficult to travel outside of the home."*					
Absent	12.5%	61.8%	25.7%	4.11	5.22
Present	35.4%	59.1%	5.5%	3.22	5.44
Annual Household Income					
<$15,000	19.7%	64.0%	16.3%	4.13	6.04
$15,000 to $49,999	15.7%	62.6%	21.7%	4.10	5.46
$50,000 to $99,999	13.6%	64.5%	21.8%	4.05	5.32
$100,000+	11.7%	55.3%	33.0%	3.82	4.73
Vehicle Deficit Category of Household *(a vehicle-deficit household owns at least one vehicle, but fewer vehicles than potential drivers.)*					
Zero-vehicle	16.3%	68.1%	15.6%	3.80	5.66
Deficit	20.1%	60.5%	19.3%	3.96	5.60
Nondeficit (sufficient/surplus)	12.5%	61.5%	26.1%	4.07	5.10
Worker Status					
Nonworker	18.8%	65.4%	15.8%	4.20	5.13
Worker	12.0%	59.1%	28.8%	3.91	5.26

** Question wording: "Which of the following statements best describes how physically active you are in a typical week? (1) I rarely or never do any physical activity; (2) I do some light or moderate physical activity; (3) I do some vigorous physical activities."*

† Respondents who reported light moderate physical activity were asked about light/moderate physical activity. Respondents who reported vigorous activity were only asked about vigorous activity; data on light/moderate physical activity by this group were not collected.

N=15,120. Table excludes observations missing number of walk or bike trips, physical activity, health, or disability for later comparison on these variables.

How does the physical activity of the 73 percent of Georgians who reported walking and/or biking in the previous week compare to the physical activity of the 27 percent who did not walk or bike?

As shown in table 160, pedestrians and cyclists are less likely to be sedentary than Georgians who do not walk or bike. Only 8.8 percent of Georgians who walk or bike reported rarely or never engaging in physical activity, versus 30.2 percent of those who did not walk or bike. Among the physically active, pedestrians and cyclists also report a higher number of activity sessions.

Cyclists are the most physically active group. Nearly half of cyclists report vigorous physical activity, versus one quarter of Georgians who walked only and 16 percent of Georgians who neither walked nor biked.

Table 160. Usual physical activity of Georgia adults by walking and biking behavior (past 7 days).

	Physical Activity Level *(Row Percentages)**			Weekly Instances of Physical Activity†	
	Rarely or Never	**Some Light or Moderate**	**Some Vigorous**	**Light/Moderate** *(Among Light/Moderately Active Respondents)*	**Vigorous** *(Among Respondents with Vigorous Physical Activity)*
All adults ages 18+	14.6%	61.5%	23.8%	4.03	5.22
Any Nonmotorized Travel (Past Seven Days)					
None (zero walk and bike trips)	30.2%	54.2%	15.6%	3.41	5.00
Some (1+ walk or bike trip(s))	8.8%	64.3%	26.9%	4.23	5.27
Types of Nonmotorized Travel (Past Seven Days)					
None	30.2%	54.2%	15.6%	3.41	5.00
Walk only	9.0%	65.7%	25.2%	4.23	5.33
Bike only and bike + walk	5.2%	47.2%	47.6%	4.18	4.87
Number of Nonmotorized Trips (Walk + Bike) (Past 7 Days)‡					
0	30.2%	54.2%	15.6%	3.41	5.00
1–5 (group mean: 3.1 trips)	10.5%	67.0%	22.5%	3.44	4.54
6+ (group mean: 13.8 trips)	6.7%	61.2%	32.0%	5.21	5.86
Number of Walk Trips (Past 7 Days)‡					
0	30.1%	54.1%	15.9%	3.41	5.01
1–5 (group mean: 3.1 trips)	10.3%	66.7%	23.0%	3.44	4.52
6+ (group mean: 13.8 trips)	6.8%	61.7%	31.5%	5.26	5.94
Number of Bike Trips (Past 7 Days)‡					
0	15.2%	62.4%	22.4%	4.02	5.27
1–2 (group mean: 1.4 trips)	6.2%	49.1%	44.7%	3.99	4.99
3+ (group mean: 5.6 trips)	3.7%	44.6%	51.7%	4.47	4.72

** Question wording: "Which of the following statements best describes how physically active you are in a typical week? (1) I rarely or never do any physical activity; (2) I do some light or moderate physical activity; (3) I do some vigorous physical activities."*

† Respondents who reported light moderate physical activity were asked about light/moderate physical activity. Respondents who reported vigorous activity were only asked about vigorous activity; data on light/moderate physical activity by this group were not collected.

‡ Category boundaries were chosen based on the median number of trips of each type. Fifty-three percent of NMT travelers made 1–5 trips, 55 percent of walkers made 1–5 walking trips, and 59 percent of cyclists made 1–2 trips.

N=15,120. Table excludes observations missing number of walk or bike trips, physical activity, health, or disability for later comparison on these variables.

Not surprisingly, pedestrians and cyclists are more likely to report being active in general. It would be useful to know whether NMT replaces other physical activity, or supplements it. However, the following data limitations make it difficult to document the relationship between number of walking and biking trips and the specific number of sessions of physical activity:

- Because people who reported engaging in vigorous physical activity were not asked how many times they engage in moderate or light physical activity, there is no measure of total physical activity for each respondent. There is no way to distinguish between someone who went to the gym once and also engaged in light exercise throughout the rest of the week from someone who went to the gym once and engaged in no other exercise.
- The measures of physical activity are generic (a typical week) while the measures of walking and biking are specific (the past 7 days).
- Information about how many of the instances of physical activity reported are walking versus biking is not available. The extent of overlap between reported walk/bike trips and recorded physical activity bouts is, therefore, unclear.

To facilitate more in-depth analysis of this topic, the NHTS could consider:

- Asking participants about specific instances of light, moderate, and physical activity in the past 7 days.
- Recording whether bouts of physical activity are walking/running, biking, or something else.
- Alternatively, asking participants to report total minutes of light, moderate, and vigorous physical activity over the past week.

ACCESS AND EGRESS TRAVEL

As shown in table 161, Georgians make more than 950,000,000 nonmotorized trips per year. However, in addition to these trips, which are analyzed throughout this report, Georgians also walk and bike as a way to get to and from other modes of transportation (i.e., access/egress legs). As shown in table 161, Georgians used walking or biking to access/egress another mode more than 260,000,000 times per year.[101]

Table 161. Total annual trips and access/egress legs by nonmotorized modes.

	Total Nonmotorized Trips* per Year		
	Walk	**Bike**	**All NMT**
All Georgians Ages 5+	887,174,800	66,663,125	953,837,925
MPO Tier			
1. Atlanta MPO	539,657,200	23,250,820	562,908,020
2. Medium MPOs	141,069,100	17,425,210	158,494,310
3. Small MPOs	74,786,200	6,015,215	80,801,415
4. Non-MPO counties	131,662,300	19,971,880	151,634,180
** A trip is a unit of travel from one origin to one destination.*			
	Total Nonmotorized Access/Egress Legs† per Year		
	Walk	**Bike**	**All NMT**
All Georgians Ages 5+	260,397,290	3,534,818	263,932,108
MPO Tier			
1. Atlanta MPO	203,008,300	2,342,461	205,350,761
2. Medium MPOs	32,361,740	1,192,357	33,554,097
3. Small MPOs	12,374,430	-	12,374,430
4. Non-MPO counties	12,652,820	-	12,652,820
† An occasion where a respondent walks or bikes to access or egress another mode of transportation (e.g., public transit, commuter train). These legs are usually included as part of the trip by the primary mode rather than as individual trips. Thus, nonmotorized access/egress legs are essentially mutually exclusive with nonmotorized trips.			

[101] Two additional sources of nonmotorized travel are not reflected in the NHTS: stationary fitness NMT (i.e., a stationary bicycle or treadmill) and walking within a destination (e.g., a shopping mall or amusement park).

The following subsections will describe how the NHTS is designed to measure access/egress travel, discuss some deviations between the survey as written and some of the resulting data, and then discuss trends in access/egress travel.

Measurement of Access/Egress Travel

The NHTS has different procedures for measuring access/egress travel for public transit versus other modes. For any mode besides public transit, each section of a multimodal sequence of trips is recorded as its own trip. So, for example, if someone walks to meet up with a carpool to work, the travel would be recorded as a walk trip for the purpose of changing mode of transportation, followed by a car trip with the purpose of work. The same is true for other mixes of modes (e.g., bike to car, take a taxi to the airport). These sequences would be recorded as two trips, and a longer sequence would be recorded as three or more trips.

For public transit, in contrast, access and egress legs are considered part of the main transit trip (and accordingly, throughout this report we will distinguish access and egress "legs" from separately recorded "trips"). So, for instance, a trip where someone walked to the bus stop, took the city bus, and then got off the bus and walked to the office would be recorded as a single trip by public transit (rather than two walking trips and a transit trip); details about the walking are included as additional variables about the transit trip. As a result, these access/egress legs are occasions of walking (or other modes, including bicycling) that are not included in trip counts and mode shares.

Incorporating transit access and egress legs into public transit trips (as opposed to treating each portion as a separate trip) has a number of advantages. First, a large quantity of analysis is done at the trip level rather than the more complicated tour level. Including access/egress travel within a transit trip therefore ensures that the full, door-to-door durations of public transit trips are considered. Additionally, it ensures that number of trips is a reasonable proxy for number of destinations accessed, rather than including extra trips that are generated entirely by the need to take public transit. This is important in particular for assessing the mobility of transit-dependent people.

However, because walking and biking account for 70 percent of access and egress legs, not including those legs results in an undercount of the total amount of walking and biking. As shown in table 162, walking and biking account for 8.6 percent of all trips made by Georgians ages 5+. However, when all instances of travel, including both trips and access/egress legs by any mode are considered, the apparent mode share of nonmotorized travel increases to 10.6 percent.

Table 162. Mode share of walking and biking trips and legs.

	Trips Only			Trips and Access/Egress Legs*		
	Walk	Bike	All NMT	Walk	Bike	All NMT
All Georgians Ages 5+	8.0%	0.6%	8.6%	10.0%	0.6%	10.6%
MPO Tier						
1. Atlanta MPO	8.7%	0.4%	9.1%	11.5%	0.4%	11.9%
2. Medium MPOs	8.1%	1.0%	9.1%	9.7%	1.0%	10.7%
3. Small MPOs	6.7%	0.5%	7.2%	7.7%	0.5%	8.2%
4. Non-MPO counties	6.5%	1.0%	7.4%	7.0%	1.0%	8.0%

** A leg is an occasion where a respondent walks or bikes to access or egress another mode of transportation (e.g., public transit, commuter train). These legs are usually included as part of the trip by the primary mode rather than as individual trips.*

As table 163 shows, including access/egress legs also increases the number of instances of travel-day walking and biking per capita by 28 percent, from 100 trips to 127 trips and legs. The effect is even more pronounced in the Atlanta MPO, where including access/egress legs increases the measured instances of walking and biking per capita by 36 percent (from 109 trips to 148 trips and legs).

Table 163. Instances of walking and biking per person ages 5+.

	Trips Only			Trips and Access/Egress Legs*		
	Walk	Bike	All NMT	Walk	Bike	All NMT
All Georgians Ages 5+	92.8	7.0	99.8	120.1	7.3	127.4
MPO Tier						
1. Atlanta MPO	104.1	4.5	108.6	143.3	4.9	148.3
2. Medium MPOs	92.1	11.4	103.5	113.3	12.2	125.4
3. Small MPOs	76.9	6.2	83.0	89.6	6.2	95.8
4. Non-MPO counties	70.4	10.7	81.1	77.2	10.7	87.8

** A leg is an occasion where a respondent walks or bikes to access or egress another mode of transportation (e.g., public transit, commuter train). These legs are usually included as part of the trip by the primary mode rather than as individual trips.*

There is no settled answer as to whether access and egress legs should be counted as separate trips for the purposes of calculating mode share, and indeed the NHTS's approach to the question has not been constant over the years.[102] For broad comparability, most of this current analysis has followed the NHTS's practice of considering access and egress legs to be part of a larger trip by the mode accessed by those legs. However, for the purpose of measuring the number of occasions and amount of time Georgians spend walking and biking, including access/egress legs is imperative for getting a more accurate picture.

The data contain a second problem: 95 percent of trips by public transit have at least one access and/or egress mode listed, but additionally, 0.4 percent of trips by modes *other* than public transit

[102] In 2009, NHTS respondents were directed not to include trips to change the type of transportation. In 2017, travel to access/egress public transit was intended to be excluded while access/egress legs for modes other than public transit were to be recorded as trips with the purpose of changing mode of transportation. In practice, as NHTS Access/Egress Questions and Instructions will show, this procedure was not always followed.

incorrectly have access/egress mode(s) recorded (accounting for 10 percent of the access/egress legs recorded). As table 164 shows, the Georgia subsample of the NHTS includes 1,319 access/egress legs. Of these, 977 were to access/egress public transit, 212 were for transit-like modes (e.g., paratransit, charter or intercity bus, ferry), and 130 for modes that were neither public transit nor transit-like. Legs are divided by the mode used for the leg itself, and the mode of the trip for which the leg served as access or egress (the "parent" mode).

Table 164. Access and egress legs by mode and parent mode (unweighted).

	Mode Being Accessed/Egressed (Parent Mode)		
Leg Mode	**Public Transit**	**Transit-like***	**Other†**
All legs by Georgians ages 5+	977	212	130
Adults ages 18+	949	183	122
Walk	670	105	59
Bike	26	0	0
POV	54	7	18
School bus	81	2	0
Public or paratransit	65	8	0
Other bus (e.g. intercity, private, or charter)	0	12	2
Air	0	0	28
Other	18	39	10
Walk + other(s)‡	32	8	3
Multiple, not including walk or bike	3	2	2
Children ages 5–17	28	29	8
Walk	15	26	6
POV	10	1	1
School bus	3	0	0
Other	0	1	0
Walk + other(s)	0	1	1

Note: Each trip can have both an access and an egress leg. The 1,319 legs here were attached to 666 trips.

** Legs to access/egress modes that are similar to public transit. For adults, this includes paratransit (N=39 legs), other bus (139), and ferry (6). For children, this includes other bus (28) and school bus (1).*

† Legs to access/egress a mode that is not transit or transit-like. For adults: air (N=57 legs), POV (33), taxi/ridehail/limo (22), walking (2), and other (10). For children: POV (2) and walking (2).

‡ Includes one instance of walk + bike.

Access/egress legs for nontransit modes would have been more accurately recorded as trips for the purpose of changing mode of transportation.[103] Describing the specific questions asked by the NHTS helps to explain how some (albeit not all) of these mistaken records may have originated.

NHTS Access/Egress Questions and Instructions

Before reporting about individual trips, respondents were asked: "Did you use a bus, subway, train, or some other type of public transportation during your travel day?" If they answered yes, they were prompted after each reported trip, "Did you take a bus, subway, train, or some other type of public transportation from [PreviousPlace] to [CurrentPlace]?" If they answered in the affirmative, after reporting the trip's mode, they were asked, "How did you get to the [mode]?" and "How did you get from the [mode] to [location]?"

The fact that the definition of public transit for these questions includes "some other form of public transportation" likely explains why a number of transit-like modes have associated access/egress legs: some respondents would conclude that an intercity bus or a commuter ferry are public transit. Even if subsequent data cleaning would classify the trip itself as nontransit, the recorded access/egress leg(s) would remain with the data. Some other respondents may have had

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[103] Interestingly, a disproportionate share of incorrectly reported legs comes from higher income respondents. Respondents with an annual household income of at least $50,000 account for 26 percent of correctly reported legs to access/egress public transit, but 48 percent of incorrectly reported legs to access/egress a nontransit trip (unweighted). Put differently, 38 percent of access/egress legs reported by people earning $50,000 or more are for an inappropriate mode, versus just 21 percent of legs reported by people earning less than $15,000 and 17 percent of legs reported by people making $15,000–49,999 (unweighted).

expansive views of public transit; air was the most common nontransit and nontransit-like parent mode. The remainder can likely be attributed to user error.[104]

Access/egress legs for parent modes besides public transit were incorrectly recorded, but they do represent real instances of travel. A majority of these misrecorded legs are nonmotorized, and they are equivalent to close to 5 percent of the total of correctly recorded nonmotorized trips (unweighted). To avoid missing these unintentionally hidden instances of walking, subsequent sections of this chapter recategorize access/egress legs for modes other than transit as trips to change mode of transportation.

Access/Egress Travel by Georgia Residents

Table 165 shows the weighted mode share of access legs for public transit and other parent modes.

[104] The inverse error—reporting transit access/egress travel as separate trips for the purpose of change mode of transportation—also occurred. It was, however, less common. The researchers identified three nonmotorized trips that would have more accurately been considered transit access/egress legs. For the sake of simplicity, those trips were not reclassified.

Table 165. Mode share of legs to access/egress public transit and other modes.

	Mode Being Accessed/Egressed (Parent Mode)	
Leg Mode	Public Transit	Transit-like* and Other
All nonmotorized legs	74.7%	46.1%
Walk	69.5%	44.2%
Bike	1.2%	0.0%
Walk + other(s)	3.9%	1.9%
POV	6.0%	17.3%
All transit/transit-like legs*	17.4%	6.3%
School bus	7.2%	0.3%
Public or paratransit	10.2%	3.3%
Other bus (e.g., intercity, private, or charter)	0.0%	2.7%
Air	0.0%	7.6%
Other	1.2%	19.1%
Multiple, not including walk or bike	0.7%	3.6%

** Transit-like includes school, intercity, private, or charter bus. Ferry is included as a transit-like parent mode, but was not a listed response option for leg modes.*

Nonmotorized modes account for three quarters of transit access/egress legs, and a plurality (46 percent) of legs to access/egress other modes.[105] Walking accounts for the overwhelming majority of access/egress legs. The second-most common type of transit access mode is another transit or transit-like mode (17.4 percent). A commuter might, for instance, take a local bus to get to the train station. POVs account for 6 percent of transit access/egress legs. Interestingly, no access/egress legs by taxi or other vehicle-for-hire were recorded.

As shown in table 166, the average leg to access/egress public transit is 11.6 minutes. Nonmotorized legs are, on average, shorter than motorized legs. Walk legs are the shortest at 8.6 minutes.

[105] The difference between the unweighted and weighted proportion of nonmotorized legs to incorrect access modes is likely due to the fact that high-income people, who account for the majority of these trips, are weighted less heavily in order to account for the greater difficulty in eliciting survey responses from low-income households.

Table 166. Mean duration in minutes of access/egress legs by mode.

	Mode Being Accessed/Egressed (Parent Mode)	
Leg Mode	**Public Transit**	**Transit-like* and Other**
All access/egress legs by Georgians ages 18+	11.6	15.5
All nonmotorized legs	9.2	7.2
Walk	8.6	7.4
Bike	11.9	-
Walk + other(s)	19.3	1.8
All motorized	18.9	21.9
Transit and transit-like	18.2	22.6
POV	20.2	13.7
Air	-	74.8
Other or multiple without NMT	21.1	9.8

* *Transit-like includes school, intercity, private, or charter bus. Ferry is included as a transit-like parent mode, but was not a listed response option for leg modes.*

Table 167 shows the mode of public transit access/egress legs disaggregated by various demographic factors.

Table 167. Mode share of public transit access/egress legs by demographic characteristics (row percentages).

	NMT (Walk, Bike, Walk + Other)	Transit or Transit-like*	Other Motorized*
Legs by all adults ages 18+	74.6%	17.3%	8.0%
MPO Tier			
1. Atlanta MPO	73.8%	17.7%	8.5%
2. Medium MPOs	80.7%	16.1%	3.2%
3-4. Small MPOs & non-MPO counties	75.0%	12.8%	12.2%
Urbanicity *(Neighborhood Type)*			
Rural & small town	62.5%	24.9%	12.5%
Suburban	77.4%	11.7%	10.9%
Second city	67.5%	26.4%	6.1%
Urban	87.5%	12.0%	0.6%
Sex			
Male	68.3%	22.6%	9.0%
Female	79.4%	13.3%	7.3%
Age Cohort			
Millennial and Gen Z (18–36)	77.9%	14.0%	8.0%
Gen X (37–52)	67.1%	24.1%	8.8%
Pre-retirement age Boomer (53–64)	75.7%	16.3%	8.0%
Retirement age (65+)	83.4%	11.5%	5.0%
Caregiver Status†			
Noncaregiver	73.3%	17.8%	8.8%
Caregiver, youngest child ages 0–15	79.4%	15.5%	5.1%
Race			
White non-Hispanic only	78.1%	10.6%	11.3%
Black, Black multiracial & Black Hispanic	76.5%	15.5%	8.0%
Other	57.7%	40.2%	2.0%
Driver Status			
Nondriver	81.5%	15.1%	3.4%
Driver	70.4%	18.7%	10.9%
Mobility Impairment: *a "condition or handicap that makes it difficult to travel outside of the home."*			
Absent	73.9%	17.7%	8.4%
Present	78.7%	15.2%	6.1%
Annual Household Income			
<$15,000	80.7%	14.3%	5.0%
$15,000 to $24,999	83.3%	4.5%	12.3%
$25,000 to $34,999	88.6%	11.4%	0.0%
$35,000 to $49,999	79.6%	17.8%	2.6%
$50,000 to $74,999	66.0%	17.6%	16.4%
$75,000 to $99,999	52.5%	30.6%	16.9%
$100,000+	59.1%	28.9%	12.0%

Table continues on next page.

Table 167. (Continued).

Continued from previous page.	NMT (Walk, Bike, Walk + Other)	Transit or Transit-like*	Other Motorized
Legs by all adults ages 18+	74.6%	17.3%	8.0%
Vehicle Deficit Category of Household‡			
Zero-vehicle	81.7%	15.5%	2.9%
Deficit	77.0%	12.6%	10.4%
Nondeficit (sufficient/surplus)	64.2%	23.7%	12.1%
Educational Attainment			
High school or less	74.8%	19.2%	6.1%
Some college or associate degree	82.6%	9.8%	7.6%
Bachelor's or higher	67.3%	21.9%	10.8%
Worker Status			
Nonworker	87.9%	9.9%	2.3%
Worker	68.0%	21.1%	10.9%
Occupational Category *(Workers Only)*			
Sales or service	80.2%	15.9%	3.9%
Clerical or administrative support	65.7%	20.5%	13.8%
Blue collar§	91.3%	4.6%	4.0%
Professional, managerial, or technical	59.1%	26.7%	14.2%

** Transit-like includes paratransit and school, intercity, private, or charter bus. Other motorized includes POV, air, other, and multiple (not including walk or bike).*

† A caregiver is defined as any adult age 18+ in a household with a child of less than 5 years old, and any adult age 22+ in a household with a child of 5–15 years old.

‡ A vehicle-deficit household owns at least one vehicle, but fewer vehicles than potential drivers.

§ Blue collar refers to manufacturing, construction, maintenance, or farming.

NMT is the most common transit access/egress mode for every subpopulation examined, with mode shares ranging from 52.5 percent (for travelers with a household income of $75,000–$99,999) to 87.9 percent (among nonworkers). There are some differences in mode share by MPO tier, but because the built environment differs strongly within an MPO region, the difference is clearer when looking at neighborhood type. The NMT mode share is highest in urban neighborhoods (87.5 percent) and lowest in small towns and rural areas (62.5 percent). NMT comprises a larger share of transit access/egress legs among women (as compared to men), whites and Blacks (as compared to people of another race), nondrivers versus drivers, and people with mobility impairments versus those without. NMT is a more common access mode among lower-income households compared to those of higher incomes and among nonworkers compared to workers. For travelers from zero-vehicle households, NMT accounts for 81.7 percent of legs, versus 77.0 percent for vehicle-deficit households and 64.2 percent for nondeficit households. Table 168 shows the unweighted sample distribution on which table 167 is based.

Table 168. Unweighted sample sizes of public transit access/egress legs.

	NMT (Walk, Bike, Walk + Other)	Transit or Transit-like*	Other Motorized*
Legs by all adults ages 18+	728	146	76
MPO Tier			
1. Atlanta MPO	420	90	52
2. Medium MPOs	212	41	11
3-4. Small MPOs & non-MPO counties	96	15	13
Urbanicity *(Neighborhood Type)*			
Rural & small town	81	21	18
Suburban	282	45	39
Second city	282	71	17
Urban	83	9	2
Sex			
Male	320	72	32
Female	408	74	44
Age Cohort			
Millennial and Gen Z (18–36)	235	38	21
Gen X (37–52)	194	52	22
Pre-retirement age Boomer (53–64)	188	43	25
Retirement age (65+)	111	13	8
Caregiver Status†			
Noncaregiver	615	130	67
Caregiver, youngest child ages 0–15	113	16	9
Race			
White non-Hispanic only	203	36	31
Black, Black multiracial & Black Hispanic	447	92	43
Other	78	18	2
Driver Status			
Nondriver	270	52	18
Driver	458	94	58
Mobility Impairment: *a "condition or handicap that makes it difficult to travel outside of the home."*			
Absent	611	125	68
Present	117	21	8
Annual Household Income			
<$15,000	334	64	18
$15,000 to $24,999	79	8	7
$25,000 to $34,999	53	7	0
$35,000 to $49,999	57	10	3
$50,000 to $74,999	41	11	12
$75,000 to $99,999	41	14	11
$100,000+	108	31	25
Table continues on next page.			

Table 168. (Continued).

Continued from previous page.	NMT (Walk, Bike, Walk + Other)	Transit or Transit-like*	Other Motorized*
Legs by all adults ages 18+	728	146	76
Vehicle Deficit Category of Household‡			
Zero-vehicle	363	63	14
Deficit	145	27	18
Nondeficit (sufficient/surplus)	220	56	44
Educational Attainment			
High school or less	272	60	22
Some college or associate degree	175	22	13
Bachelor's or higher	281	64	41
Worker Status			
Nonworker	337	45	18
Worker	391	101	58
Occupational Category *(Workers Only)*			
Sales or service	113	21	4
Clerical or administrative support	59	13	12
Blue collar§	41	6	1
Professional, managerial, or technical	176	58	38

** Transit-like includes paratransit and school, intercity, private, or charter bus. Other motorized includes POV, air, other, and multiple (not including walk or bike).*

† A caregiver is defined as any adult age 18+ in a household with a child of less than 5 years old, and any adult age 22+ in a household with a child of 5–15 years old.

‡ A vehicle-deficit household owns at least one vehicle, but fewer vehicles than potential drivers.

§ Blue collar refers to manufacturing, construction, maintenance, or farming.

Table 169 shows differences in the mean transit access/egress leg duration by mode and demographic groups. Motorized access/egress legs have an average duration more than twice that of nonmotorized legs (18.9 minutes versus 9.2 minutes). Some of the differences in average access/egress leg duration between different groups shown in table 169 are artifacts of differences in the motorized and nonmotorized mode shares of access/egress legs made by members of those groups (table 167). Groups with a higher mode share of motorized legs (e.g., residents of rural areas) will generally have a higher average leg duration than groups with a higher nonmotorized share (e.g., residents of urban areas).

However, there are also intergroup differences in the duration of legs by any given mode. For example, workers are more likely than nonworkers to access transit using a motorized mode. However, because the average duration of a nonmotorized leg is longer for nonworkers than for workers (10.7 minutes versus 8.2 minutes), the difference in the average leg duration for the two groups is smaller than what the mode share might imply.

Table 169. Duration in minutes of public transit access/egress legs by demographic characteristics.

	All Legs	NMT (Walk, Bike, Walk + Other)	Motorized*
Legs by all adults ages 18+	11.6	9.2	18.9
MPO Tier			
1. Atlanta MPO	11.9	9.3	19.2
2. Medium MPOs	10.0	8.7	15.5
3-4. Small MPOs & non-MPO counties	11.1	8.5	19.0
Urbanicity *(Neighborhood Type)*			
Rural & small town	17.3	13.7	23.2
Suburban	10.7	7.9	20.1
Second city	12.8	10.4	17.8
Urban	9.4	9.2	11.1
Sex			
Male	13.4	10.2	20.4
Female	10.2	8.5	17.0
Age Cohort			
Millennial and Gen Z (18–36)	11.3	8.6	21.0
Gen X (37–52)	12.6	10.5	16.9
Pre-retirement age Boomer (53–64)	11.6	9.2	19.7
Retirement age (65+)	8.9	7.8	14.7
Caregiver Status†			
Noncaregiver	11.9	9.5	18.7
Caregiver, youngest child ages 0–15	10.4	8.2	19.8
Race			
White non-Hispanic only	10.8	8.1	20.5
Black, Black multiracial & Black Hispanic	11.9	9.7	19.4
Other	11.4	8.3	15.7
Driver Status			
Nondriver	10.2	9.1	15.4
Driver	12.5	9.3	20.2
Mobility Impairment: *a "condition or handicap that makes it difficult to travel outside of the home."*			
Absent	11.7	9.1	19.1
Present	11.2	9.7	17.0
Annual Household Income			
<$15,000	11.6	10.2	17.5
$15,000 to $24,999	11.3	9.2	21.5
$25,000 to $34,999	9.6	7.8	23.6
$35,000 to $49,999	9.1	6.4	19.7
$50,000 to $74,999	9.7	6.1	16.7
$75,000 to $99,999	19.9	18.1	21.8
$100,000+	11.3	6.3	18.5

Table continues on next page.

Table 169. (Continued).

Continued from previous page.			
	All Legs	**NMT (Walk, Bike, Walk + Other)**	**Motorized***
Legs by all adults ages 18+	11.6	9.2	18.9
Vehicle Deficit Category of Household‡			
Zero-vehicle	11.5	10.1	17.5
Deficit	11.7	10.3	16.4
Nondeficit (sufficient/surplus)	11.7	6.5	21.0
Educational Attainment			
High School or less	12.4	10.9	17.1
Some college or associate degree	9.3	7.4	18.2
Bachelor's or higher	12.7	8.8	20.8
Worker Status			
Nonworker	11.4	10.7	16.7
Worker	11.7	8.2	19.3
Occupational Category *(Workers Only)*			
Sales or service	9.8	8.2	16.3
Clerical or administrative support	10.9	6.3	19.8
Blue collar§	8.0	7.8	10.0
Professional, managerial, or technical	13.7	9.1	20.4

** Motorized includes public transit; transit-like (paratransit; school, intercity, private, or charter bus); POV; air; other; and multiple (not including walk or bike).*

† A caregiver is defined as any adult age 18+ in a household with a child of less than 5 years old, and any adult age 22+ in a household with a child of 5–15 years old.

‡ A vehicle-deficit household owns at least one vehicle, but fewer vehicles than potential drivers.

§ Blue collar refers to manufacturing, construction, maintenance, or farming.

TRAVEL DAY WALKING AND BIKING BY GEORGIA ADULTS

This section describes travel day trips and transit access/egress legs. As discussed in the previous section of this chapter (Access and Egress Travel), access/egress legs for modes other than public transit have been recoded as trips with a purpose of “change mode of transportation.”

Georgia adults produce an average of 135 nonmotorized trips and legs per year (table 170). The mean duration for a nonmotorized trip/leg is 16.4 minutes, which averages to 6.0 minutes of walking and biking per person per day.

Table 170. Nonmotorized trips/legs per capita and duration of NMT trips/legs.

	Nonmotorized Trips and Legs per Adult *Annually*	Mean Duration of NMT Trips/Legs *(Minutes)*	Average Daily Minutes of Walking/Biking*
All adults ages 18+	134.9	16.4	6.0
MPO Tier			
1. Atlanta MPO	158.8	15.3	6.7
2. Medium MPOs	133.8	17.3	6.3
3. Small MPOs	96.2	19.1	5.0
4. Non-MPO counties	90.4	19.0	4.7
Urbanicity *(Neighborhood Type)*			
Rural	72.5	16.9	3.4
Small town	79.4	22.8	5.0
Suburban	175.4	15.7	7.6
Second city	170.6	14.3	6.7
Urban	587.4	12.9	20.8
Sex			
Male	140.5	16.9	6.5
Female	129.7	15.8	5.6
Age Cohort			
Millennial and Gen Z (18–36)	154.5	15.6	6.6
Gen X (37–52)	134.8	15.9	5.9
Pre-retirement age Boomer (53–64)	133.2	16.0	5.9
Retirement age (65+)	97.1	20.5	5.5
Caregiver Status‡			
Noncaregiver	146.9	17.4	7.0
Caregiver, youngest child ages 0–15	108.9	13.5	4.0
Race			
White non-Hispanic only	122.5	16.2	5.4
Black, Black multiracial & Black Hisp.	154.5	15.4	6.5
Other	139.2	19.8	7.6

Table continues on next page.

Table 170. (Continued).

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	Nonmotorized Trips and Legs per Adult *Annually*	Mean Duration of NMT Trips/Legs *(Minutes)*	Average Daily Minutes of Walking/Biking*
All adults ages 18+	134.9	16.4	6.0
Driver Status			
Nondriver	309.8	16.1	13.7
Driver	113.2	16.4	5.1
Mobility Impairment: *a "condition or handicap that makes it difficult to travel outside of the home."*			
Absent	132.1	16.5	6.0
Present	161.0	15.5	6.9
Annual Household Income			
<$15,000	279.0	17.6	13.4
$15,000 to $49,999	109.5	15.8	4.7
$50,000 to $99,999	88.1	16.3	3.9
$100,000+	141.6	15.5	6.0
Vehicle Deficit Category of Household§			
Zero-vehicle	688.9	16.4	31.0
Deficit	134.8	16.5	6.1
Nondeficit (sufficient/surplus)	95.8	16.3	4.3
Worker Status			
Nonworker	152.0	19.2	8.0
Worker	124.1	14.2	4.8

** Average duration x annual per capita total ÷ 365.*

‡ A caregiver is defined as any adult ages 18+ in a household with a child of less than 5 years old, and any adult ages 22+ in a household with a child of 5–15 years old.

§ A vehicle-deficit household owns at least one vehicle, but fewer vehicles than potential drivers.

Residents of urban areas make 587 NMT trips/legs per year; this is more than three times as many NMT trips/legs as second-city and suburban residents, and more than seven times as many trips/legs as residents of small towns and rural areas. The average urban resident spends more than 20 minutes per day walking and/or biking, compared to less than 8 minutes in all other neighborhood types.

Residents of zero-vehicle households make 689 NMT trips/legs per year. Low income, nonworker and nondriver status, and younger age are all associated with increased NMT trips/legs.

Mobility-impaired adults generate more NMT trips/legs per capita than other adults, though the duration of each trip/leg is somewhat shorter. This counterintuitive finding is likely related to the fact that people with mobility impairments disproportionately find themselves in groups that walk more by necessity (low-income, nondrivers, etc.). See chapter 5, Health and Disability for more discussion of the challenges facing people with mobility impairments.

Table 171 shows the mode and purpose of NMT trips/legs. Walking accounts for 94.8 percent of nonmotorized travel while biking accounts for 5.2 percent. Biking is less prominent in the Atlanta MPO overall, but more prevalent in the urban neighborhoods within Atlanta, where it accounts for 9.6 percent of nonmotorized travel. Cycling also accounts for a comparatively high proportion of the nonmotorized travel by people in medium MPOs and small towns, men, members of Gen X, low-income people, people with mobility impairments, and residents of zero-vehicle and vehicle-deficit households.

Table 171. Mode and purpose of NMT trips/legs by demographic factors.

	Annual	Mode*		Purpose	
	NMT Trips and Legs per Adult	Bike	Walk	Leisure†	Instru-mental†
All adults ages 18+	134.9	5.2%	94.8%	26.2%	73.8%
MPO Tier					
1. Atlanta MPO	158.8	2.8%	97.2%	25.2%	74.8%
2. Medium MPOs	133.8	10.5%	89.5%	22.2%	77.8%
3. Small MPOs	96.2	6.1%	93.9%	27.4%	72.6%
4. Non-MPO counties	90.4	10.1%	89.9%	34.6%	65.4%
Urbanicity *(Neighborhood Type)*					
Rural	72.5	3.4%	96.6%	34.6%	65.4%
Small town	79.4	8.7%	91.3%	37.1%	62.9%
Suburban	175.4	4.3%	95.7%	22.8%	77.2%
Second city	170.6	3.3%	96.7%	23.8%	76.2%
Urban	587.4	9.6%	90.4%	17.3%	82.7%
Sex					
Male	140.5	6.8%	93.2%	27.8%	72.2%
Female	129.7	3.7%	96.3%	24.5%	75.5%
Age Cohort					
Millennial and Gen Z (18–36)	154.5	5.0%	95.0%	21.0%	79.0%
Gen X (37–52)	134.8	7.2%	92.8%	25.7%	74.3%
Pre-retirement age Boomer (53–64)	133.2	4.9%	95.1%	29.2%	70.8%
Retirement age (65+)	97.1	1.9%	98.2%	39.0%	61.0%
Caregiver Status‡					
Noncaregiver	146.9	5.0%	95.0%	27.8%	72.2%
Caregiver, youngest child ages 0–15	108.9	5.8%	94.2%	21.5%	78.5%
Race					
White non-Hispanic only	122.5	6.7%	93.3%	32.8%	67.2%
Black, Black multiracial & Black Hisp.	154.5	3.0%	97.0%	15.1%	84.9%
Other	139.2	5.8%	94.2%	31.4%	68.6%

Table continues on next page.

Table 171. (Continued).

Continued from previous page.	Annual	Mode*		Purpose	
	NMT Trips and Legs per Adult	Bike	Walk	Leisure†	Instru-mental†
All adults ages 18+	134.9	5.2%	94.8%	26.2%	73.8%
Driver Status					
Nondriver	309.8	6.8%	93.2%	12.6%	87.4%
Driver	113.2	4.7%	95.3%	30.8%	69.2%
Mobility Impairment: *a "condition or handicap that makes it difficult to travel outside of the home."*					
Absent	132.1	4.9%	95.1%	27.1%	72.9%
Present	161.0	7.6%	92.4%	19.1%	80.9%
Annual Household Income					
<$15,000	279.0	8.7%	91.3%	15.8%	84.2%
$15,000 to $49,999	109.5	3.4%	96.6%	24.4%	75.6%
$50,000 to $99,999	88.1	2.6%	97.4%	35.6%	64.4%
$100,000+	141.6	5.1%	94.9%	32.7%	67.3%
Vehicle Deficit Category of Household§					
Zero-vehicle	688.9	8.0%	92.0%	8.3%	91.7%
Deficit	134.8	7.2%	92.8%	23.7%	76.3%
Nondeficit (sufficient/surplus)	95.8	2.8%	97.2%	36.5%	63.5%
Worker Status					
Nonworker	152.0	4.7%	95.3%	28.1%	71.9%
Worker	124.1	5.6%	94.4%	24.7%	75.3%

Row percentages shown.

* *Includes multimodal access/egress legs. One walk+bike egress leg is included in both the walk and bike columns.*

† *Leisure includes nonloop and loop trips with the purposes of fitness and leisure. Instrumental includes all other trip/leg purposes.*

‡ *A caregiver is defined as any adult ages 18+ in a household with a child of less than 5 years old, and any adult ages 22+ in a household with a child of 5–15 years old.*

§ *A vehicle-deficit household owns at least one vehicle, but fewer vehicles than potential drivers.*

The purpose of NMT varies for different groups of people, as well. Overall, 26.2 percent of NMT trips/legs are for leisure: recreation and fitness.[106] The remaining 73.8 percent of trips/legs

[106] As discussed elsewhere, recreation and fitness trips are a mix of trips where the purpose of the trip itself is leisure and trips to access a leisure destination (e.g., a gym or movie theater).

are instrumental trips taken for the purpose of accessing a destination (work, school, shopping, public transit, etc.).

Many of the same groups that have elevated numbers of NMT trips/legs per capita also devote a higher percentage of those trips to instrumental travel. More than 90 percent of NMT trips/legs by people from zero-vehicle households are for instrumental purposes, versus just 63.5 percent of the NMT by people from nondeficit households. Nondrivers, low-income people, millennials and Gen Zers, people with mobility impairments, and residents of urban neighborhoods likewise report more NMT, with a higher share of it devoted to instrumental travel.

In contrast, men and childfree adults all report higher-than-average rates of NMT, but with a higher than usual share of it devoted to leisure.

Table 172 compares the duration of leisure and instrumental trips/legs by walking and biking. Bike trips/legs are longer than walk trips/legs on average, though the difference is larger for leisure travel than for instrumental travel.

Table 172. Mean duration in minutes of leisure and instrumental NMT trips/legs by Georgia adults.

	All NMT	Walk	Bike
All purposes	16.4	16.1	21.8
Leisure (recreation and fitness)	25.5	25.1	37.8
Instrumental (all other purposes)	13.1	12.7	19.1

Table 173 provides a more detailed breakdown of the purposes of NMT trips and legs. Among instrumental NMT trips/legs, the most common purposes are to access/egress public transit (20.6 percent), return home (19.0 percent) and household-serving travel (11.1 percent). Compared to walking trips, a higher percentage of bike trips are for instrumental travel

(85.6 percent versus 73.2 percent). The higher percentage of return-home trips by bicycle suggests a number of possible explanations; perhaps cyclists are not trip chaining or stopping along the way as often as pedestrians, or pedestrians are more likely to start a walking circuit from a location besides their home. The more detailed purposes of bicycle trips should be treated with caution, as some of the unweighted cell sizes are quite small (see table 174).

Table 173. Purpose and duration of NMT trips/legs.

	Percent of Trips/Legs *(Column Percent)*			**Mean Duration** *(Minutes)*
	All NMT	**Walk***	**Bike***	**All NMT**
All purposes	100%	100%	100%	16.4
Leisure†	26.2%	26.8%	14.4%	25.5
Recreation nonloop	3.0%	2.9%	3.9%	14.2
Fitness nonloop	7.2%	7.3%	6.8%	14.6
Loop recreation or fitness	16.0%	16.7%	3.8%	32.5
Instrumental	73.8%	73.2%	85.6%	13.1
Access/egress public transit (legs)	20.6%	21.4%	6.5%	9.2
Work	6.3%	6.2%	7.2%	12.4
School	2.2%	2.3%	1.3%	20.9
Medical	0.4%	0.4%	0.1%	23.8
Household-serving‡	11.1%	10.7%	18.5%	13.3
Change mode of transportation§	4.1%	4.3%	0.5%	9.3
Discretionary: dining, visit friends/relatives	8.9%	8.7%	13.4%	12.1
Community, volunteer and religious activities	1.0%	1.0%	0.2%	19.7
Return home	19.0%	18.0%	37.8%	17.4
Other	0.1%	0.1%	0.0%	23.7

** Includes walk + other and bike + other legs. One egress leg with the modes walk + bike is included in both the walk and bike columns (but only counted once when combining all NMT trips and legs).*

† Loop trips with a purpose of home or work-from home have been recoded as recreation/fitness. However, since it is not possible to distinguish between recreation and fitness loops, loop recreation/fitness is listed as its own subcategory. Loop trips with an instrumental purpose are included with that purpose. See chapter 7 for more details on loop trip classification.

‡ Includes buy goods and services, general errands, transport others, and accompany others.

§ Trips to change mode of transportation and access/egress legs for modes besides public transit (e.g., airplane, ferry, long-distance train, etc.).

Table 174 contains the unweighted data on which table 173 is based.

Table 174. Unweighted trips/legs by mode and purpose.

	All NMT		Walk*		Bike*	
All purposes	4,829		4,586		244	
Leisure†	1,499	31.0%	1,452	31.7%	47	19.3%
Recreation nonloop	108	(2.2%)	101	(2.2%)	7	(2.9%)
Fitness nonloop	379	(7.8%)	356	(7.8%)	23	(9.4%)
Loop recreation or fitness	1,012	(21.0%)	995	(21.7%)	17	(7.0%)
Instrumental	3,330	69.0%	3,134	68.3%	197	80.7%
Access/egress public transit (legs)	728	(15.1%)	702	(15.3%)	27	(11.1%)
Work	338	(7.0%)	319	(7.0%)	19	(7.8%)
School	54	(1.1%)	51	(1.1%)	3	(1.2%)
Medical	27	(0.6%)	26	(0.6%)	1	(0.4%)
Household-serving‡	554	(11.5%)	520	(11.3%)	34	(13.9%)
Change mode of transportation§	240	(5.0%)	236	(5.1%)	4	(1.6%)
Discretionary: dining, visit friends/relatives	440	(9.1%)	417	(9.1%)	23	(9.4%)
Community, volunteer, and religious activities	47	(1.0%)	45	(1.0%)	2	(0.8%)
Return home	895	(18.5%)	811	(17.7%)	84	(34.4%)
Other	7	(0.1%)	7	(0.2%)	-	(0.0%)

** Includes walk + other and bike + other legs. One egress leg with the modes walk + bike is included in both the walk and bike columns (but only counted once when combining all NMT trips and legs).*

possible to distinguish between recreation and fitness loops, loop recreation/fitness is listed as its own subcategory. Loop trips with an instrumental purpose are included with that purpose. See chapter 7 for more details on loop trip classification.

‡ Includes buy goods and services, general errands, transport others, and accompany others.

§ Trips to change mode of transportation and access/egress legs for modes besides public transit (e.g., airplane, ferry, long-distance train, etc).

Time of Day

Figure 39 shows the start times of NMT trips/legs on weekdays and weekends. The figure on the left depicts the annual total in millions, and the figure on the right shows trips as a percentage of weekday or weekend trips. Table 175 and table 176 show the weighted and unweighted data on which these figures are based. While there are gentle peaks around 9:00 a.m. and 5:00 p.m., trips/legs are distributed throughout the day.

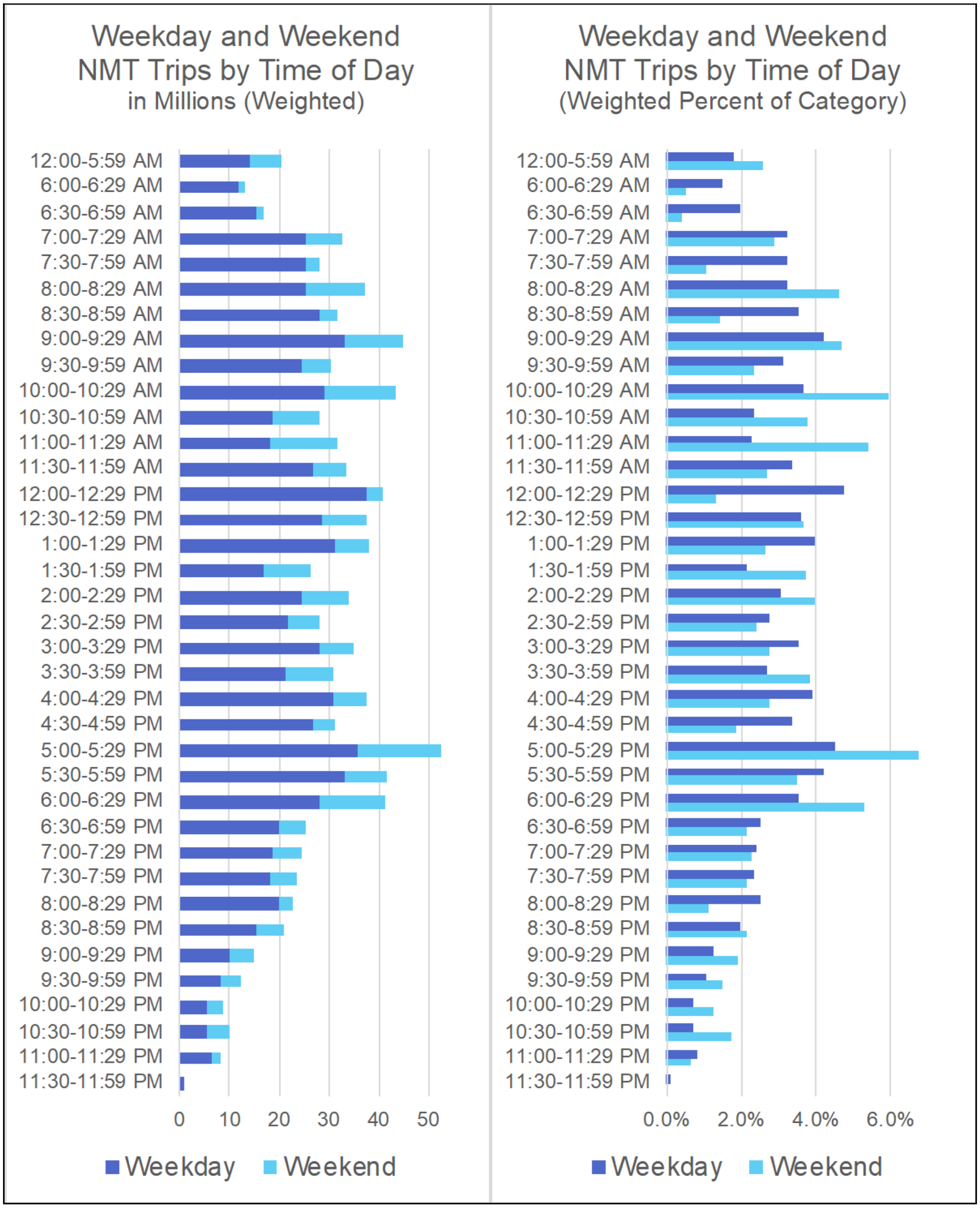

Figure 39. Bar graphs. Weekday and weekend NMT by time of day.

Table 175. Weighted NMT trips/legs by time of day

Time of Day	Weekday	Weekend	Total
All times of day	789.991	248.956	1038.947
12:00–5:59 AM	14.152 (1.8%)	6.418 (2.6%)	20.570 (2.0%)
6:00–6:29 AM	11.630 (1.5%)	1.390 (0.6%)	13.020 (1.3%)
6:30–6:59 AM	15.526 (2.0%)	1.095 (0.4%)	16.621 (1.6%)
7:00–7:29 AM	25.542 (3.2%)	7.205 (2.9%)	32.748 (3.2%)
7:30–7:59 AM	25.604 (3.2%)	2.721 (1.1%)	28.325 (2.7%)
8:00–8:29 AM	25.506 (3.2%)	11.602 (4.7%)	37.108 (3.6%)
8:30–8:59 AM	28.253 (3.6%)	3.511 (1.4%)	31.765 (3.1%)
9:00–9:29 AM	33.159 (4.2%)	11.728 (4.7%)	44.888 (4.3%)
9:30–9:59 AM	24.554 (3.1%)	5.784 (2.3%)	30.338 (2.9%)
10:00–10:29 AM	28.903 (3.7%)	14.813 (6.0%)	43.716 (4.2%)
10:30–10:59 AM	18.672 (2.4%)	9.444 (3.8%)	28.116 (2.7%)
11:00–11:29 AM	17.995 (2.3%)	13.528 (5.4%)	31.523 (3.0%)
11:30–11:59 AM	26.656 (3.4%)	6.720 (2.7%)	33.376 (3.2%)
12:00–12:29 PM	37.415 (4.7%)	3.245 (1.3%)	40.660 (3.9%)
12:30–12:59 PM	28.479 (3.6%)	9.070 (3.6%)	37.550 (3.6%)
1:00–1:29 PM	31.416 (4.0%)	6.584 (2.6%)	38.000 (3.7%)
1:30–1:59 PM	16.839 (2.1%)	9.298 (3.7%)	26.137 (2.5%)
2:00–2:29 PM	24.309 (3.1%)	9.907 (4.0%)	34.217 (3.3%)
2:30–2:59 PM	21.967 (2.8%)	5.996 (2.4%)	27.963 (2.7%)
3:00–3:29 PM	28.203 (3.6%)	6.819 (2.7%)	35.022 (3.4%)
3:30–3:59 PM	21.129 (2.7%)	9.531 (3.8%)	30.660 (3.0%)
4:00–4:29 PM	30.825 (3.9%)	6.915 (2.8%)	37.740 (3.6%)
4:30-4:59 PM	26.720 (3.4%)	4.610 (1.9%)	31.329 (3.0%)
5:00–5:29 PM	35.614 (4.5%)	16.811 (6.8%)	52.425 (5.0%)
5:30–5:59 PM	33.089 (4.2%)	8.739 (3.5%)	41.828 (4.0%)
6:00–6:29 PM	28.121 (3.6%)	13.240 (5.3%)	41.361 (4.0%)
6:30–6:59 PM	19.904 (2.5%)	5.312 (2.1%)	25.216 (2.4%)
7:00–7:29 PM	18.752 (2.4%)	5.659 (2.3%)	24.411 (2.3%)
7:30–7:59 PM	18.323 (2.3%)	5.420 (2.2%)	23.743 (2.3%)
8:00–8:29 PM	20.048 (2.5%)	2.844 (1.1%)	22.892 (2.2%)
8:30–8:59 PM	15.573 (2.0%)	5.360 (2.2%)	20.933 (2.0%)
9:00–9:29 PM	10.092 (1.3%)	4.726 (1.9%)	14.818 (1.4%)
9:30–9:59 PM	8.417 (1.1%)	3.803 (1.5%)	12.220 (1.2%)
10:00–10:29 PM	5.604 (0.7%)	3.101 (1.2%)	8.705 (0.8%)
10:30–10:59 PM	5.421 (0.7%)	4.390 (1.8%)	9.811 (0.9%)
11:00–11:29 PM	6.593 (0.8%)	1.616 (0.6%)	8.209 (0.8%)
11:30–11:59 PM	0.983 (0.1%)	0.000 (0.0%)	0.983 (0.1%)

Column percentages in parentheses.

Includes all trips and legs by walking, biking, and walking + other.

Table 176. Unweighted NMT trips/legs by time of day.

	Weekday	Weekend	Total
All times of day	4127	703	4830
12:00–5:59 AM	60 (1.5%)	14 (2.0%)	74 (1.5%)
6:00–6:29 AM	53 (1.3%)	4 (0.6%)	57 (1.2%)
6:30–6:59 AM	76 (1.8%)	6 (0.9%)	82 (1.7%)
7:00–7:29 AM	136 (3.3%)	18 (2.6%)	154 (3.2%)
7:30–7:59 AM	129 (3.1%)	15 (2.1%)	144 (3.0%)
8:00–8:29 AM	160 (3.9%)	37 (5.3%)	197 (4.1%)
8:30–8:59 AM	138 (3.3%)	15 (2.1%)	153 (3.2%)
9:00–9:29 AM	160 (3.9%)	26 (3.7%)	186 (3.9%)
9:30–9:59 AM	131 (3.2%)	27 (3.8%)	158 (3.3%)
10:00–10:29 AM	181 (4.4%)	41 (5.8%)	222 (4.6%)
10:30–10:59 AM	101 (2.4%)	23 (3.3%)	124 (2.6%)
11:00–11:29 AM	120 (2.9%)	29 (4.1%)	149 (3.1%)
11:30–11:59 AM	140 (3.4%)	19 (2.7%)	159 (3.3%)
12:00–12:29 PM	186 (4.5%)	18 (2.6%)	204 (4.2%)
12:30–12:59 PM	158 (3.8%)	18 (2.6%)	176 (3.6%)
1:00–1:29 PM	151 (3.7%)	18 (2.6%)	169 (3.5%)
1:30–1:59 PM	99 (2.4%)	24 (3.4%)	123 (2.5%)
2:00–2:29 PM	118 (2.9%)	29 (4.1%)	147 (3.0%)
2:30–2:59 PM	105 (2.5%)	14 (2.0%)	119 (2.5%)
3:00–3:29 PM	152 (3.7%)	19 (2.7%)	171 (3.5%)
3:30–3:59 PM	118 (2.9%)	23 (3.3%)	141 (2.9%)
4:00–4:29 PM	172 (4.2%)	25 (3.6%)	197 (4.1%)
4:30–4:59 PM	135 (3.3%)	13 (1.8%)	148 (3.1%)
5:00–5:29 PM	191 (4.6%)	45 (6.4%)	236 (4.9%)
5:30–5:59 PM	156 (3.8%)	30 (4.3%)	186 (3.9%)
6:00–6:29 PM	146 (3.5%)	32 (4.6%)	178 (3.7%)
6:30–6:59 PM	101 (2.4%)	14 (2.0%)	115 (2.4%)
7:00–7:29 PM	113 (2.7%)	19 (2.7%)	132 (2.7%)
7:30–7:59 PM	101 (2.4%)	13 (1.8%)	114 (2.4%)
8:00–8:29 PM	95 (2.3%)	11 (1.6%)	106 (2.2%)
8:30–8:59 PM	71 (1.7%)	13 (1.8%)	84 (1.7%)
9:00–9:29 PM	55 (1.3%)	16 (2.3%)	71 (1.5%)
9:30–9:59 PM	39 (0.9%)	14 (2.0%)	53 (1.1%)
10:00–10:29 PM	33 (0.8%)	10 (1.4%)	43 (0.9%)
10:30–10:59 PM	22 (0.5%)	7 (1.0%)	29 (0.6%)
11:00–11:29 PM	20 (0.5%)	4 (0.6%)	24 (0.5%)
11:30–11:59 PM	5 (0.1%)	0 (0.0%)	5 (0.1%)

Column percentages in parentheses.

Includes all trips and legs by walking, biking, and walking + other.

Table 177 shows the time of day by day of week and MPO tier, collapsed into 3-hour categories (and a 6-hour overnight period). Cyclists and pedestrians get a slightly later start on the weekends.[107]

Table 177. Time of day of NMT trips/legs by day and MPO tier.

	All	Day of Week		MPO Tier			
	All NMT Trips/Legs	Weekday	Weekend	Tier 1 Atlanta	Tier 2 Medium MPOs	Tier 3 Small MPOs	Tier 4 Non-MPO Counties
Weighted Column Percentages							
12:00–5:59 am	2.0%	1.8%	2.6%	2.3%	1.8%	0.6%	1.4%
6:00–8:59 am	15.4%	16.7%	11.1%	16.3%	13.3%	14.3%	14.0%
9:00–11:59 am	20.4%	19.0%	24.9%	19.6%	24.6%	19.8%	19.5%
12:00–2:59 pm	19.7%	20.3%	17.7%	19.5%	19.3%	22.3%	19.6%
3:00–5:59 pm	22.0%	22.2%	21.5%	21.1%	22.0%	23.1%	25.7%
6:00–8:59 pm	15.3%	15.3%	15.2%	15.9%	13.6%	16.4%	13.4%
9:00–11:59 pm	5.3%	4.7%	7.1%	5.2%	5.2%	3.5%	6.3%
Unweighted Sample Sizes							
All times of day	4,830	4,127	703	1,870	1,742	840	378
12:00–5:59 am	74	60	14	39	24	8	3
6:00–8:59 am	787	692	95	324	267	131	65
9:00–11:59 am	998	833	165	360	387	180	71
12:00–2:59 pm	938	817	121	373	331	156	78
3:00–5:59 pm	1,079	924	155	385	394	199	101
6:00–8:59 pm	729	627	102	290	261	136	42
9:00–11:59 pm	225	174	51	99	78	30	18
Unweighted Column Percentages							
12:00–5:59 am	1.5%	1.5%	2.0%	2.1%	1.4%	1.0%	0.8%
6:00–8:59 am	16.3%	16.8%	13.5%	17.3%	15.3%	15.6%	17.2%
9:00–11:59 am	20.7%	20.2%	23.5%	19.3%	22.2%	21.4%	18.8%
12:00–2:59 pm	19.4%	19.8%	17.2%	19.9%	19.0%	18.6%	20.6%
3:00–5:59 pm	22.3%	22.4%	22.0%	20.6%	22.6%	23.7%	26.7%
6:00–8:59 pm	15.1%	15.2%	14.5%	15.5%	15.0%	16.2%	11.1%
9:00–11:59 pm	4.7%	4.2%	7.3%	5.3%	4.5%	3.6%	4.8%
Includes all trips and legs by walking, biking, or walk + other.							

[107] The weekend trips/legs in the overnight period are primarily in the 12:00–12:30 a.m. hour, while those on weekdays are more evenly divided between late night and early morning.

CAPTIVE AND CHOICE NONMOTORIZED TRAVEL

As with public transit, some pedestrians and cyclists choose to walk and bike, and others use these modes by necessity. This section compares the nonmotorized travel of captive and choice travelers.

We use linear regression to examine the time penalties incurred by captive pedestrians and cyclists as compared to choice pedestrians/cyclists. We model the total minutes of walking/biking on the travel day for leisure (fitness and recreation) and instrumental purposes (all other purposes) as a function of being a captive traveler and a number of control variables. Unless otherwise stated, descriptive statistics are weighted using values provided by NHTS, and models are based on unweighted data.

Defining Captive Travel

We base our definition of captive travel on mode, household vehicle ownership, and income. This allows us to differentiate the needs of travelers who are carless by necessity from those who are car-free by choice (Brown 2017). We also include transit and nonmotorized trips by residents of low- and moderate-income *vehicle-deficit* households, or households that own at least one automobile but not enough for each potential driver in the household (Blumenberg, Brown, and Schouten 2018). In this study, a potential driver is any household resident ages 16+.[108] In Georgia, these households substantially outnumber carless households, and because

[108] The researchers chose to use all individuals ages 16+ because the NHTS defines drivers by asking “does this person drive?” Whether or not a person drives may be in part determined by the availability of a vehicle.

the family car is not available for all trips, some household members will obligatorily use transit or nonmotorized modes.

Table 178 shows vehicle sufficiency among Georgia households earning less than $50,000 per year and those earning $50,000 or more per year. We chose this threshold because it is the closest approximation of Georgia's median income (estimated by the American Community Survey to be $55,679 for the years 2014–2018) achievable with NHTS categorical income data. We conducted sensitivity analysis using different income cutoffs, and the models we present were found to be robust.

Georgians who have sufficient income largely choose to have a vehicle for each driver. Among households earning at least $50,000 per year, vehicle ownership is nearly universal; 99.5 percent of households own at least one vehicle. Vehicle-deficit households are also somewhat uncommon (12.7 percent), and just 0.5 percent have chosen to be car-free. While the majority of households in the lower half of the income distribution also own cars, 38.1 percent of these households are vehicle-deficit or carless.

Additionally, higher-income vehicle-deficit households are more likely to have a vehicle deficit due to the presence of a driver under the age of 18 (10.9 percent of vehicle-deficit households earning at least $50,000 versus 3.3 percent of those earning less than $50,000).

Table 178. Vehicle sufficiency of Georgia households and adults.

Vehicle Sufficiency	Percent of Households (N=8,611)	Percent of Adults (N=15,222)
All Households		
Zero-vehicle	6.9%	4.9%
Vehicle-deficit*	18.9%	25.9%
Nondeficit†	74.1%	69.2%
Households Earning <$50,000 per year		
Zero-vehicle	13.2%	10.0%
Vehicle-deficit	24.9%	36.4%
Nondeficit	61.9%	53.7%
Households Earning ≥$50,000 per year		
Zero-vehicle	0.5%	0.5%
Vehicle-deficit	12.7%	16.6%
Nondeficit	86.8%	83.0%

** A vehicle-deficit household has at least one vehicle, but fewer vehicles than potential drivers.*
† A nondeficit household has at least one household vehicle for each potential driver.

In this analysis, a *captive nonmotorized trip* is a walking or biking trip by a traveler who lives in a *captive household*. A captive household meets the following criteria:

1. The household is carless or vehicle-deficit. We include vehicle-deficit households in the definition of captive travel because, while a car is available to some household members for some trips, for other trips, household members will have more limited options.
2. The household earns less than $50,000 per year. The income criterion is designed to screen out travel by people who are "car-free" by choice versus those who are financially unable to afford vehicles for every potential driver in the household.

Model Structure

We model the total amount of NMT on the travel day based on the sample of people who had at least one nonmotorized trip or leg. We estimate one model for leisure travel (fitness and recreation) and one model for instrumental travel (all other purposes). The dependent variable for each model is the total time in minutes spent on nonmotorized travel of that type. The leisure model includes fitness and recreation trips. The instrumental model includes trips for all other purposes, as well as time spent walking/biking to and from transit stations.[109]

Per-person totals are modeled rather than individual trips because, unlike transit trips, nonmotorized trips are easily subdivided by travelers in ways that produce idiosyncrasies in the data. Consider, for example, two respondents who walk to work past a coffee shop. The choice pedestrian, with more disposable income, may choose to stop, while a lower-income captive pedestrian will walk past, regardless of her desire for coffee. To avoid the kind of "apples to oranges" comparisons that can result from such differences in whether respondents stop along the way, the research team chose to model the daily total duration of nonmotorized travel while controlling for purpose and number of trips.

We separate leisure travel from instrumental travel because we believe different processes guide people's choices to walk for leisure or instrumental purposes. While in most cases longer trips are considered a disutility, for some recreational and fitness trips the longer duration is part of the purpose. Separating the two forms of travel allows the models to accommodate the general tendency to try and minimize instrumental travel time but maximize leisure time (including leisure walking and biking). It also allows us to incorporate the amount of time spent walking for nonleisure purposes as an independent variable into the model, explaining the amount of time people spend walking for leisure.

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[109] As discussed in Travel Day Walking and Biking by Georgia Adults of this chapter, the NHTS does not report access/egress nonmotorized travel as separate "trips," so this report describes them as "legs."

Multiple specifications were explored for each model; the effects of captive travel described here were consistent in both magnitude and significance across alternate specifications.

Results

As shown in table 179, captive pedestrians and cyclists make an average of 3.4 nonmotorized trips and legs per day, versus 2.3 for choice pedestrians and cyclists. Choice pedestrians and cyclists are more likely to use NMT for leisure (58 percent, versus 30 percent of captive travelers), and somewhat less likely to use NMT for instrumental purposes. Among instrumental purposes, work and school are more common destinations for choice pedestrians and cyclists than for captive travelers, who more commonly use nonmotorized travel for household-serving travel and accessing public transit.

Table 179. Duration, quantity, and purpose of nonmotorized travel for captive and choice travelers.

	All Non-motorized Travelers	Captive* Non-motorized Travelers	Choice Non-motorized Travelers
At least one walk trip or leg	97.1%	95.6%	97.8%
At least one bike trip or leg	4.4%	7.2%	3.2%
Percent with any instrumental NMT†	73.2%	84.4%	68.2%
Percent with any leisure (fitness or recreation) NMT	49.6%	30.6%	58.1%
Mean NMT trips and legs, all purposes	2.64	3.42	2.29
Mean walk trips and legs, all purposes	2.50	3.17	2.21
Mean bike trips and legs, all purposes	0.14	0.25	0.08
Total NMT minutes	39.91	51.33	34.80
Leisure NMT minutes	15.37	9.97	17.78
Instrumental NMT minutes	24.55	41.36	17.02
Percent of Travelers using NMT for Each Purpose			
Recreation nonloop	7.2%	3.7%	8.7%
Fitness nonloop	15.2%	9.3%	17.9%
Loop recreation or fitness	29.5%	19.6%	33.9%
Access/egress public transit (legs)	16.1%	29.5%	10.1%
Work	13.8%	10.4%	15.3%
School	3.7%	1.6%	4.6%
Medical	0.8%	1.6%	0.5%
Household-serving‡	20.3%	32.8%	14.8%
Change mode of transportation§	5.1%	3.7%	5.7%
Discretionary: dining, visit friends/relatives	20.7%	22.0%	20.1%
Community, volunteer, and religious activities	2.5%	2.9%	2.3%
Return home	49.3%	49.3%	35.4%

** From household with fewer vehicles than potential drivers (incl. zero vehicles) and annual household income <$50,000.*

† Instrumental NMT includes trips for any purpose besides fitness or leisure, along with public transit access/egress legs.

‡ Includes buy goods and services, general errands, transport others, and accompany others.

§ Trips to change mode of transportation and access/egress legs for modes besides public transit (e.g., airplane, ferry, long-distance train, etc.).

Table 180 shows the effect of being a captive traveler on the total amount of time spent walking and/or biking for instrumental purposes over the course of the day. Being a captive traveler does not, by itself, have a significant effect on the amount of time spent walking or biking. However, it increases the expected duration of each expected walk trip by just over 3 minutes. While there was no significant interaction between captivity and the duration of bike trips or transit access/egress legs, the fact that captive users tend to make more NMT trips and legs for instrumental purposes results in a longer overall expected duration of instrumental NMT. Additionally, using a private auto at any point on the travel day is associated with a 6-minute reduction in the duration of nonmotorized instrumental travel. While this reduction applies to captive and choice travelers alike, choice travelers are more likely to have used a POV at some point on the travel day.

In terms of trip purpose, school travel, medical travel, and travel to return home have the longest durations. The coefficient on medical trips is not significant, but as this trip was the least common (reported by just 23 respondents), it may be worth revisiting the issue of nonmotorized medical travel with a larger or more targeted dataset.

Table 181 models the total duration of leisure (recreation and fitness) NMT. The amount of instrumental (nonleisure) NMT is negatively associated with the amount of leisure travel. This may reflect the fact that travel that does “double duty” as both instrumental and leisure will be recorded as instrumental. For example, a decision to walk to a nearby coffee shop rather than drive will be recorded by the purpose at the destination (in this case, dining). However, it likely also reflects a reduced availability of leisure time. In particular, the duration of a recreational trip to wander around a local park will be constrained by the traveler’s amount of free time to, say, choose a more circuitous route or pause to admire wildlife.

As per the descriptive statistics in table 179, the average minutes of leisure NMT is lower for captive users than for choice users.[110] However, after controlling for time spent on *instrumental* nonmotorized travel, captivity does not have a significant effect. It seems a key reason captive nonmotorized travelers spend less time on leisure NMT is because they spend more on instrumental NMT.

[110] Interactions between captivity and number, purpose, and mode of trips were also found to be insignificant and were therefore excluded from the final model.

Table 180. Linear regression: Daily total minutes of instrumental walking and biking.

	Coefficient	P-value
Captive traveler[†]	1.12	0.737
Used POV on travel day	-6.14	0.002 ***
Used public transit on travel day	-5.79	0.090 *
Instrumental walk trip (excluding public transit access legs)	6.59	0.000 ***
Captive* walk trip	3.35	0.005 ***
Instrumental bike trip (excluding public transit access legs)	11.32	0.000 ***
Captive* bike trip	-1.78	0.587
NMT leg to access/egress public transit	8.62	0.000 ***
Captive* NMT transit access/egress leg	0.26	0.849
Purpose(s) of nonmotorized trips *(1 = yes)*		
Work (commute or work-related business)	5.96	0.011 **
School	18.09	0.003 ***
Medical	13.94	0.130
Household-serving (transport other, buy goods/services, general errands)	4.47	0.035 **
Change mode of transportation, including access/egress non-transit mode	2.91	0.312
Discretionary: dining, visit friends/relatives	5.45	0.016 **
Community, volunteer and religious activities	9.72	0.004 ***
Return home	11.16	0.000 ***
Female	-1.72	0.227
Race *(reference: white non-Hispanic only)*		
Black and Black multiracial	1.34	0.477
Other	2.11	0.450
Annual household income *(reference: $100,000+)*		
<$15,000	4.88	0.135
$15,000 to $24,999	-1.70	0.613
$25,000 to $34,999	-5.42	0.023 **
$35,000 to $49,999	-3.74	0.080 *
$50,000 to $74,999	-2.24	0.264
$75,000 to $99,999	0.88	0.654
Mobility impairment	1.30	0.719
Age	-0.07	0.165
Caregiver for child ages 0–4	-5.85	0.001 ***
Neighborhood type *(reference: rural)*		
Small town	3.55	0.108
Suburban	3.61	0.120
Second city	4.16	0.064 *
Urban	0.46	0.873
Weekend	2.69	0.198
Constant	3.32	0.467

Model indicators: N = 1,288 R^2 = 0.471 Adjusted R^2 = 0.457

[†] From household with fewer vehicles than potential drivers (incl. zero vehicles) and annual household income <$50,000.

Table 181. Linear regression: Daily total minutes of leisure walking and biking.

	Coefficient	P-value
Captive traveler†	-2.72	0.394
Any instrumental NMT‡	-15.59	0.000 ***
Minutes of instrumental NMT	0.50	0.000 ***
Minutes^2 of instrumental NMT	-2.72E-03	0.001 ***
Used POV on travel day	-3.64	0.121
Used public transit on travel day	-5.52	0.238
Walk recreation legs (nonloop)	-0.16	0.943
Bike recreation legs (nonloop)	1.44	0.830
Walk fitness legs (nonloop)	1.78	0.374
Bike fitness legs (nonloop)	3.88	0.298
Walk loop leisure travel (fitness or recreation)	12.48	0.000 ***
Bike loop leisure travel (fitness or recreation)	36.04	0.001 ***
Female	3.32	0.048 **
Race *(reference: white non-Hispanic only)*		
Black and Black multiracial	0.24	0.937
Other	1.26	0.667
Annual household income *(reference: $100,000+)*		
<$15,000	6.43	0.123
$15,000 to $24,999	2.16	0.549
$25,000 to $34,999	0.33	0.903
$35,000 to $49,999	-2.35	0.418
$50,000 to $74,999	0.41	0.874
$75,000 to $99,999	4.32	0.105
Mobility impairment	-9.99	0.002 ***
Age	0.10	0.050 *
Caregiver for child ages 0–4	-1.14	0.723
Neighborhood type *(reference: rural)*		
Small town	-2.16	0.448
Suburban	-1.63	0.585
Second city	-2.99	0.305
Urban	-0.69	0.865
Weekend	4.14	0.063 *
Constant	21.06	0.000 ***

Model indicators: N = 1,059 R^2 = 0.228 Adjusted R^2 = 0.206

† From household with fewer vehicles than potential drivers (incl. zero vehicles) and annual household income <$50,000.

‡ Nonmotorized travel for a purpose other than fitness or leisure.

Since promoting walking and cycling are often pursued as public health interventions, it is also important to note that the association between health and nonmotorized travel is not the same for captive and choice travelers (results not tabulated). Among choice pedestrians and cyclists who walked or biked on the travel day, 96.1 percent consider themselves to be in good, very good, or excellent health. This is slightly higher than the rate among residents of similar households who did not walk or bike (92.3 percent). However, only 76.7 percent of captive pedestrians and cyclists consider themselves to be in those categories of good health. Not only is this lower than the rate among choice pedestrians, it is also lower than the rate among residents of captive households who did not walk or bike (79.2 percent).

Captive pedestrians and cyclists spent more time traveling than their choice counterparts did, after controlling for trip quantity and purpose. Captive nonmotorized travelers also tended to make more nonmotorized trips, compounding the differences in total travel time. While increased walking and biking is broadly considered a public health goal, it is important to remember that some travelers are already walking or riding more than they would like. However, the health benefits of increasing walking and biking may not accrue equally to captive nonmotorized travelers. Not only were captive pedestrians and cyclists less likely to be in good health than choice pedestrians and cyclists, they were also less likely to be in good health than travelers from captive households who did not walk and bike. While this finding is descriptive, it suggests the need for follow-up study to examine differences in the relationship between nonmotorized travel and health among captive pedestrians and cyclists. As with transit, there may be equity issues related to access to walking and biking infrastructure and other streetscape features that are known to affect wellbeing, as well as exposure to air pollution (Maurer Braun, Read, and Ricklin 2016).

CHILDREN'S NONMOTORIZED AND SCHOOL TRAVEL

This section discusses children's nonmotorized travel, as well as their travel to and from school. Walking and biking historically accounted for a large portion of school travel, though this is less true today. The section begins with a discussion of how children's school travel has been identified in this study.

Identifying School Trips

In addition to children's reported "usual" modes of travel to and from school, we examine school travel on the travel day. A school trip is a trip *to* school at the start of the school day and a trip home *from* school, typically after classes and extracurricular activities have concluded. The methods used to identify school travel are closely related to the techniques for identifying work journeys described in chapter 2, in that we consider trips with the *purpose* of school and trips to and from the school location, some of which may not have a listed purpose of school. Most school journeys (82 percent) are simple: directly from home to school or school to home. Figure 40 provides a sample itinerary to illustrate how we categorize more complex travel patterns.

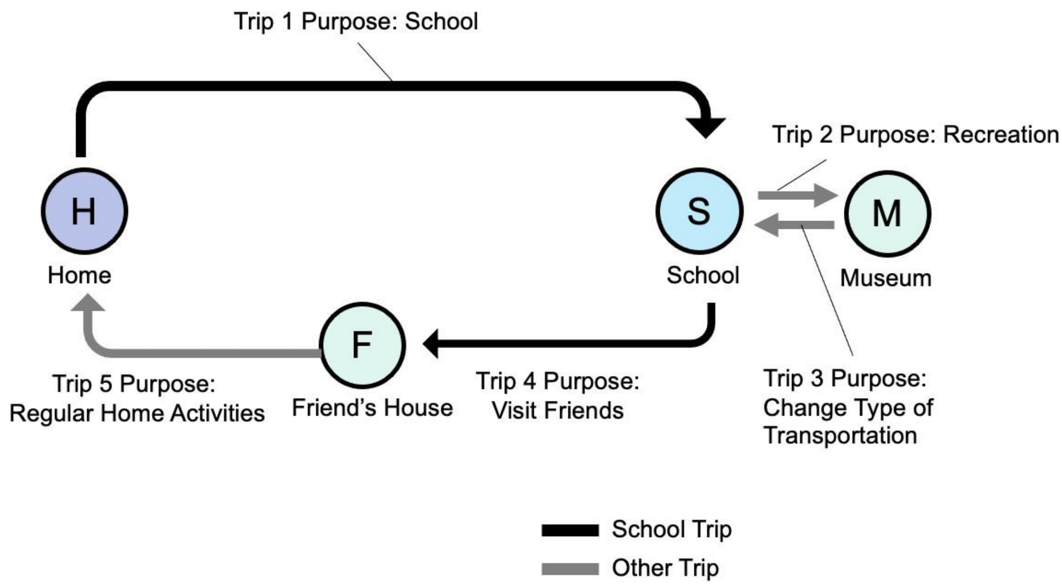

Figure 40. Diagram. Example child's travel itinerary with trips to and from school.

This child travels from home to school. Her class then embarks on a field trip to a local museum. At the end of the field trip, the child returns to the school to change her mode of transportation. She goes to a friend's house for a few hours, and then returns home. Following the model of constructing work journeys precisely, trip 1 would be a simple school journey and trips 4 and 5 would be a complex school journey. Trips 2 and 3, from the school to a nonhome location and back, would not be part of a school journey. Because the goal is not to quantify the duration of school travel, the researchers' needs here are somewhat simpler than they are in chapter 2. For simplicity, then, in complex school journeys, the research team identifies them by the leg that is connected to the school location (the last leg of a journey *to* school or the first leg of a journey *from* school). In this example, trips 1 and 4 would be considered school travel.

It is important to note that the definition of school travel used in this section differs from trips with the *purpose* of school reported elsewhere. Trip purpose is defined by purpose at destination; as a result, all trips from school to home are classified as having a purpose besides school. Ninety percent of *school trips* identified here have a *purpose* of either school or home, with the remaining 10 percent split between purposes such as running errands, visiting friends or relatives, leisure, etc.

The following steps provide a few more technical details. Some readers may wish to proceed to the next section.

Step 1: In identifying travel to and from school for children ages 5–17, the researchers initially included all trips that started or ended at the respondent's school location, all trips with the listed purpose of school, and all trips where the listed origin-purpose (the primary activity at the origin location) was school.

- Trips to school: A total of 1,412 trips with a destination and/or purpose of school were identified. Of those, 54 trips were screened out because they were loops or because the origin and destination purposes were both school; 1,290 trips with a purpose of school that did not originate from the school location were identified as school trips; and 68 trips to the school location with a different listed purpose were flagged for manual review.
- Trips from school: A total of 1,440 trips with an origin location or origin purpose of school were identified. Of those, 56 were disqualified because they were loops or the origin and destination purposes were both school. A total of 1,311 trips were classified as trips from school based on having an origin-purpose of school and nonschool destinations

and destination-purposes. Seventy-three trips from the school location with a nonschool origin-purpose were flagged for manual review.

Step 2: Flagged trips from step 1 were reviewed manually based on other trips in each child's travel itinerary; see chapter 2 for an example of the kinds of factors considered. The researchers identified one additional trip to school and six trips from school. The remainder were disqualified as school trips.

Step 3: To further screen out field trips and similar travel from school, the total number of school trips for each child was calculated. Seventeen children were listed as having three or more school trips (in the single travel day measured by the diary). These children's trips were manually reviewed. As a result, six trips to school and nine trips from school were disqualified, leaving 1,285 trips to school, 1,308 trips from school, and 3,967 nonschool trips.

As in the rest of this chapter, this analysis of school travel additionally screened out 8 children who did not answer questions about frequency of nonmotorized travel. Table 182 shows the mode of trips to and from school.

Table 182. Mode of travel-day trips to and from school by children ages 5–17 (unweighted).

	To School		From School		Total	
Walk	45	(3.5%)	63	(4.8%)	108	(4.2%)
Bike	4	(0.3%)	4	(0.3%)	8	(0.3%)
POV	742	(57.7%)	673	(51.5%)	1415	(54.6%)
School bus	480	(37.4%)	550	(42.0%)	1030	(39.7%)
Public or paratransit	7	(0.5%)	5	(0.4%)	12	(0.5%)
charter)	2	(0.2%)	6	(0.5%)	8	(0.3%)
Vehicle for hire *(taxi, ridehail, limo)*	1	(0.1%)	0	(0.0%)	1	(0.0%)
Air	0	(0.0%)	0	(0.0%)	0	(0.0%)
Other	4	(0.3%)	7	(0.5%)	11	(0.4%)
Total (all modes)	1285		1308		2593	

Unweighted column percentages in parentheses.

Note: All tables in this section exclude eight children with missing responses to number of walk and/or bike trips in the past 7 days. These children made a total of 12 trips (two trips to school, two trips from school, and eight other trips) and no access or egress legs.

Additionally, respondents (or their parents) were asked about how they "usually get to school" (table 183). These two data sources are used for the analysis.

Table 183. Usual mode of travel to and from school by children ages 5–17 (unweighted).

Usual Mode....	To School		From School	
Walk	87	(3.8%)	100	(4.4%)
Bike	9	(0.4%)	9	(0.4%)
POV	1,190	(52.5%)	995	(43.9%)
School bus	958	(42.3%)	1,122	(49.5%)
Public or paratransit	8	(0.4%)	6	(0.3%)
Other bus *(e.g., intercity, private, or charter)*	2	(0.1%)	16	(0.7%)
Vehicle for hire *(taxi, ridehail, limo)*		(0.0%)		(0.0%)
Air	1	(0.0%)		(0.0%)
Other	11	(0.5%)	18	(0.8%)
Total (all modes)	2,266		2,266	

Due to the small sample size of school travel by bicycle, the remaining analysis combines walking and biking into the more general category of nonmotorized travel.

Children's School Travel

Table 184 shows children's observed (travel day) and usual modes of travel to and from school.

Table 184. School travel: Mode split of trips and usual mode(s).

	Travel Day School Trips N=2,593 Trips			Usual School Mode N=2,273 Children		
	To	From	Total	To	From	To and/or From*
Nonmotorized (walk or bike)	4.2%	4.9%	4.6%	3.9%	4.5%	5.4%
POV	49.5%	47.0%	48.2%	44.8%	37.6%	47.6%
School bus	45.0%	46.7%	45.8%	49.7%	55.2%	58.8%
Other	1.3%	1.4%	1.4%	1.6%	2.7%	3.0%

Weighted column percentages shown.

** Mode is reported as usual mode of transportation either to school, from school, or both. Because 14.9 percent of children have a different usual mode to and from school, this column sums to more than 100 percent.*

School bus is the most commonly reported "usual" mode of transportation to and from school; 58.8 percent of caregivers reported that their child usually takes the bus to school, from school, or both. The second most common usual school travel mode is POV, which is the usual mode to and/or from school for 47.6 percent of children. In contrast, for observed (travel day) school travel, the private auto eclipses school bus, accounting for 48.2 percent of trips (versus 45.8 percent by school bus). Students' day-to-day travel diverges, to some degree, from their caregivers' description of their "usual" travel behavior.

For both observed and "usual" mode of school travel, nonmotorized travel comes in a distant third. Depending on which measure is used, nonmotorized travel accounts for slightly more or slightly less than 5 percent of school travel. The mode share of nonmotorized travel is higher in the afternoon (trips home from school) than in the morning; some children arrive to school by auto or bus and then walk home in the afternoon.

As shown in table 184, 4.6 percent of observed school trips are by walking and biking. 5.4 percent of children are listed as usually using nonmotorized travel in at least one direction (0.9 percent only to school, 1.5 percent only from school, and 3.0 percent in both directions). Table 185 shows demographic differences in the prevalence of nonmotorized school travel.

Table 185. Walking and biking as percentage of school travel by geography, age, driver status, sex, race, income, and household vehicles.

	Travel Day School Trips (To and From) *N=2,593 Trips*	Usual School Mode (Either Direction) *N=2,273 Children*
All children 5—17	4.6%	5.4%
MPO Tier		
1. Atlanta MPO	4.9%	5.5%
2. Medium MPOs	7.2%	8.1%
3. Small MPOs	3.1%	4.4%
4. Non-MPO counties	2.6%	3.5%
Urbanicity *(Neighborhood Type)*		
Rural	1.2%	0.6%
Small town	2.1%	3.5%
Suburban	7.4%	7.2%
Second city	6.6%	9.8%
Urban	18.6%	22.2%
Age and Driver Status		
5—9	5.7%	5.8%
10—13	5.7%	5.6%
14—15	1.2%	6.1%
16—17	2.8%	3.5%
Nondriver, ages 16—17	3.9%	5.8%
Driver, ages 16—17	1.3%	1.2%
Sex		
Male	5.2%	5.1%
Female	3.9%	5.8%
Race		
White non-Hispanic only	2.3%	3.3%
Black, Black multiracial & Black Hispanic	7.0%	7.1%
Other	4.6%	7.6%
Annual Household Income		
<$15,000	4.2%	7.5%
$15,000 to $49,999	6.6%	6.6%
$50,000 to $99,999	2.5%	3.6%
$100,000+	4.1%	5.4%
Vehicle Deficit Category of Household†		
Zero-vehicle	8.4%	8.9%
Deficit	8.0%	8.3%
Nondeficit (sufficient/surplus)	3.0%	4.0%

Note: Trips denotes the percentage of all school trips (in either direction) that was made by walking or biking by children in the row category. Usual school mode depicts the percentage of children in each row category who "usually" walk or bike to school, from school, or both.

† A vehicle-deficit household owns at least one vehicle, but fewer vehicles than potential drivers.

Walking and biking to/from school is most common in medium-MPO counties, where they account for 7.2 percent of observed school trips and are listed as the usual mode of school travel in at least one direction for 8.1 percent of children. It is the least common in non-MPO counties, where just 3.5 percent of children usually walk or bike to or from school and NMT accounts for just 2.6 percent of observed school trips. While nonmotorized school travel is not quite as common in the Atlanta MPO compared to smaller MPOs, it is much more prevalent in the dense urban neighborhoods only found in Atlanta; 18.6 percent of school trips in these neighborhoods are by walking or biking.

Walking and biking are less common among children who are old enough to drive (ages 16–17). However, this effect mainly applies to children who are themselves drivers. Nondrivers ages 16–17 are comparatively more likely to walk/bike to or from school. White children are also less likely to walk to school than children of other races.

Children in zero-vehicle households and vehicle-deficit households are more likely to walk or bike to school than children in nondeficit households. There is a dip in walking/biking among children in upper-middle income households (earning $50,000–$99,999 per year) compared to both poorer and wealthier households. This may be a sign that walkability is an amenity for some high-income families.

Children's Nonmotorized Travel for All Purposes

We turn now from school travel to nonmotorized travel for any purpose. Table 186 shows the purposes of nonmotorized trips made by children, as well as access/egress legs.[111] Because the

[111] Access/egress legs were added to the data following the methods that were described with regard to adults in Access and Egress Travel in this chapter.

most common purposes of children's NMT differ from those of adults, rather than duplicate the adults' categories, the research team has created categories more tailored to children's observed travel. We divide children's NMT into four types of purposes. Travel for "fun" purposes like leisure and socialization (i.e., exercise, recreation, visiting friends and relatives, and dining out) account for a plurality of children's nonmotorized travel (35.4 percent). Trips with the purpose of school account for 7.0 percent of children's NMT.[112] Other instrumental purposes (such as changing mode of transportation, household-serving travel, work, community, volunteer, and religious activities) account for 27.6 percent, and the remaining 30.0 percent of trips and legs have the purpose of returning home.

[112] As opposed to the definition of school travel used in Children's School Travel in this chapter, here, we are returning to the standard method of defining the purpose of a trip by its destination. School trips (both to and from school) account for 14.5 percent of children's nonmotorized trips and legs.

Table 186. Purpose of children's nonmotorized trips (weighted and unweighted).

	Weighted Column Percent	Unweighted N	Unweighted Column Percent
All children's nonmotorized trips		602	
Leisure and Socialization	35.4%	201	33.4%
Leisure (recreation and fitness)	17.7%	110	18.3%
Visit friends or relatives	13.5%	66	11.0%
Dining out	4.2%	25	4.2%
School/Daycare			
Attend school/daycare*	7.0%	53	8.8%
Other Instrumental Travel	27.6%	152	25.2%
Change mode of transportation or access/egress public transit†	16.9%	91	15.1%
Household-serving‡	8.0%	46	7.6%
Work, volunteer, community, and religious activities	2.5%	13	2.2%
Other	0.2%	2	0.3%
Return Home			
Return home	30.0%	196	32.6%

** Trips with the purpose of attend school (101 trips) and attend daycare (1 trip).*

† Includes trips with the purpose of change mode of transportation (42), legs to access/egress public transit (15), and legs to access/egress other modes (34).

‡ Includes drop off/pick up someone (7), buy goods/services (29), health care (2), and other general errands (8).

Table 187 shows variations in the purpose of nonmotorized trips between different subpopulations of children. Unweighted sample sizes of nonmotorized trips by each group are included in the right-most column to allow the reader to cautiously interpret findings about groups with especially small sample sizes (e.g., children in urban neighborhoods, who made a total of 23 reported nonmotorized trips on the travel day).

Leisure and socialization account for more than half of children's nonmotorized travel in rural and small-town neighborhoods (51.9 percent and 51.5 percent, respectively), as well as in non-MPO counties more generally (51.5 percent). Elsewhere in the state, this travel for "fun" purposes is outnumbered by other instrumental travel.

“Fun” purposes account for a higher share of nonmotorized travel by children 10–15 years old as compared to older and younger children. However, while 16–17-year-old nondrivers devote just 19.8 percent of their nonmotorized trips to leisure and socialization, 60.5 percent of nonmotorized trips by their peers who drive are devoted to leisure and socialization. This is largely because children who can drive begin making fewer nonmotorized trips overall.

Table 187. Purpose of children's nonmotorized trips by geography, age, driver status, sex, race, income, and household vehicle ownership.

	Purposes of Nonmotorized Trips *(Weighted Row Percentages)*				
	Leisure and Socialization	**Attend School or Daycare**	**Other Instrumental**	**Return Home**	**Unweighted Sample Size**
All children ages 5–17	35.4%	7.0%	27.6%	30.0%	602
MPO Tier					
1. Atlanta MPO	33.6%	7.3%	28.8%	30.4%	216
2. Medium MPOs	27.2%	10.3%	28.0%	34.5%	231
3. Small MPOs	36.6%	1.8%	26.4%	35.2%	115
4. Non-MPO counties	51.5%	5.9%	23.2%	19.3%	40
Urbanicity *(Neighborhood Type)*					
Rural	51.9%	1.0%	20.8%	26.3%	87
Small town	51.5%	6.1%	13.8%	28.7%	145
Suburban	30.2%	9.3%	32.1%	28.5%	160
Second city	25.3%	6.2%	36.1%	32.4%	187
Urban	15.3%	15.2%	23.1%	46.5%	23
Age					
5–9	27.5%	10.6%	30.3%	31.5%	202
10–13	40.3%	8.6%	19.7%	31.3%	200
14–15	43.1%	2.3%	18.4%	36.2%	84
16–17	33.1%	2.3%	42.9%	21.7%	116
Driver Status					
Underage, ages 5–15	36.0%	8.3%	23.5%	32.3%	486
Nondriver, ages 16–17	19.8%	2.5%	57.8%	19.9%	70
Driver, ages 16–17	60.5%	1.9%	12.3%	25.3%	46
Sex					
Male	38.0%	6.3%	23.1%	32.6%	353
Female	31.5%	8.0%	34.2%	26.3%	249
Race					
White non-Hispanic only	42.8%	3.3%	21.7%	32.1%	307
Black & Black multiracial	30.8%	10.2%	29.8%	29.1%	200
Other	30.4%	7.0%	34.9%	27.7%	95
Annual Household Income					
<$15,000	31.5%	3.2%	38.0%	27.4%	93
$15,000 to $49,999	26.0%	10.6%	32.0%	31.5%	164
$50,000 to $99,999	43.4%	6.0%	19.0%	31.6%	135
$100,000+	40.6%	6.7%	22.7%	30.0%	203
Vehicle Deficit Category of Household†					
Zero-vehicle	10.0%	5.3%	58.7%	26.0%	66
Deficit	40.2%	6.9%	25.7%	27.2%	172
Nondeficit (sufficient/surplus)	38.4%	7.6%	20.5%	33.5%	364

† *A vehicle-deficit household owns at least one vehicle, but fewer vehicles than potential drivers.*

Leisure and socialization also account for a higher proportion of travel among wealthier children, and a greatly reduced portion of trips (just 10.0 percent) made by children from zero-vehicle households.

Frequency of Nonmotorized Travel by Children

Table 188 shows the mode(s) of nonmotorized transportation used by children in the past 7 days. Children are more likely to report walking and biking than adults; 78.8 percent walked or biked in the past 7 days compared to 72.5 percent of adults. Children are slightly more likely to walk than adults (75.5 percent versus 72.2 percent of adults), and much more likely to bike (30.5 percent versus 5.5 percent). Additionally, some children exhibited a mobility pattern that was virtually absent from adults. Just 0.3 percent of adults reported biking but not walking. As shown in table 188, 3.3 percent of children reported just biking.

Table 188. Nonmotorized travel of children ages 5–17 (past 7 days).

	Neither Walk nor Bike	Walk Only	Bike Only	Walk and Bike	Any NMT
All children ages 5–17	21.2%	48.3%	3.3%	27.3%	78.8%
MPO Tier					
1. Atlanta MPO	23.0%	52.6%	2.6%	21.8%	77.0%
2. Medium MPOs	21.8%	40.5%	3.2%	34.5%	78.2%
3. Small MPOs	24.3%	34.8%	4.8%	36.0%	75.7%
4. Non-MPO counties	13.1%	50.4%	4.3%	32.3%	86.9%
Urbanicity *(Neighborhood Type)*					
Rural	15.1%	48.6%	4.8%	31.5%	84.9%
Small town	20.8%	44.9%	3.3%	31.0%	79.2%
Suburban	22.4%	53.6%	2.9%	21.1%	77.6%
Second city	25.4%	45.0%	2.4%	27.2%	74.6%
Urban	36.5%	50.2%	0.0%	13.3%	63.5%
Age					
5–9	16.9%	38.7%	5.0%	39.4%	83.1%
10–13	19.4%	45.7%	3.8%	31.1%	80.6%
14–15	22.6%	61.8%	1.0%	14.6%	77.4%
16—17	32.6%	60.0%	0.8%	6.6%	67.4%
Driver Status					
Underage, ages 5–15	19.0%	46.0%	3.8%	31.3%	81.0%
Nondriver, ages 16–17	33.0%	60.3%	0.1%	6.7%	67.0%
Driver, ages 16–17	32.2%	59.7%	1.6%	6.5%	67.8%
Sex					
Male	19.0%	47.8%	2.8%	30.4%	81.0%
Female	23.4%	48.7%	3.8%	24.0%	76.6%
Race					
White non-Hispanic only	17.7%	50.3%	3.4%	28.6%	82.3%
Black & Black multiracial	25.2%	47.4%	2.6%	24.8%	74.8%
Other	21.5%	44.4%	4.7%	29.4%	78.5%
Annual Household Income					
<$15,000	19.9%	41.8%	1.6%	36.7%	80.1%
$15,000 to $49,999	*21.8%*	48.8%	3.4%	25.9%	78.2%
$50,000 to $99,999	20.1%	50.8%	2.5%	26.6%	79.9%
$100,000+	19.4%	50.3%	4.8%	25.5%	80.6%
Vehicle Deficit Category of Household†					
Zero-vehicle	18.9%	42.0%	0.0%	39.1%	81.1%
Deficit	24.0%	53.3%	1.8%	21.0%	76.0%
Nondeficit (sufficient/surplus)	20.2%	46.6%	4.2%	29.0%	79.8%

Note: Weighted row percentages shown. Any NMT is the sum of walk only, bike only, and walk and bike. Respondents missing either reported number of walk or bike trips are excluded.

† *A vehicle-deficit household owns at least one vehicle, but fewer vehicles than potential drivers.*

Table 189 consolidates the data from table 188 by presenting the total percentage of children who walked (regardless of whether or not they biked) and the percentage who biked (regardless of whether or not they walked). It also shows the average number of trips in the past 7 days by users of each mode.

Statewide, 78.8 percent of children ages 5–17 have walked and/or biked within the past 7 days. This share is higher than average in non-MPO counties, small towns, and rural areas and lower than average in second-city and urban neighborhoods. NMT usage is more common among younger children than older ones. However, while the percentage of children who walk remains relatively constant between ages 5–15, biking declines earlier; 44.4 percent of children ages 5–9 reported riding a bike, versus 34.9 percent of 10–13 year olds, 15.6 percent of 14–15 year olds, and just 7.4 percent of teenagers age 16–17. There is not an analogous age-related decrease in the *number* of nonmotorized trips among those children who do walk or bike.

Table 189. Percentage of children who have walked or biked in the past 7 days and average number of trips among mode users.

	NMT Usage Past Seven Days			Avg. Trips among Mode Users		
	Walk*	Bike*	Any NMT (Walk and/or Bike)	Walk	Bike	Total NMT
All children ages 5–17	75.5%	30.5%	78.8%	7.5	4.2	8.9
MPO Tier						
1. Atlanta MPO	74.3%	24.4%	77.0%	6.9	3.5	7.8
2. Medium MPOs	75.0%	37.7%	78.2%	8.9	4.8	10.9
3. Small MPOs	70.8%	40.9%	75.7%	8.1	4.4	10.0
4. Non-MPO counties	82.6%	36.6%	86.9%	7.7	5.1	9.4
Urbanicity *(Neighborhood Type)*						
Rural	80.1%	36.3%	84.9%	8.1	5.0	9.8
Small town	75.9%	34.3%	79.2%	7.2	4.4	8.8
Suburban	74.6%	24.0%	77.6%	7.1	3.5	7.9
Second city	72.2%	29.5%	74.6%	8.2	3.9	9.5
Urban	63.5%	13.3%	63.5%	7.9	2.2	8.4
Age						
5–9	78.1%	44.4%	83.1%	7.2	4.3	9.1
10–13	76.8%	34.9%	80.6%	6.8	3.9	8.2
14–15	76.4%	15.6%	77.4%	9.0	5.2	9.9
16–17	66.6%	7.4%	67.4%	8.4	4.1	8.7
Driver Status						
Underage, ages 5–15	77.3%	35.1%	81.0%	7.4	4.3	8.9
Nondriver, ages 16–17	67.0%	6.7%	67.0%	10.7	5.7	11.3
Driver, ages 16–17	66.2%	8.1%	67.8%	5.8	2.6	6.0
Sex						
Male	78.2%	33.1%	81.0%	7.7	4.6	9.3
Female	72.8%	27.8%	76.6%	7.3	3.8	8.4
Race						
White non-Hispanic only	78.9%	32.0%	82.3%	7.4	4.3	8.7
Black & Black multiracial	72.2%	27.4%	74.8%	7.7	4.3	9.0
Other	73.9%	34.1%	78.5%	7.5	4.2	8.9
Annual Household Income						
<$15,000	78.6%	38.3%	80.1%	8.8	4.2	10.7
$15,000 to $49,999	74.8%	29.3%	78.2%	9.0	5.4	10.6
$50,000 to $99,999	77.4%	29.1%	79.9%	6.6	3.7	7.7
$100,000+	75.8%	30.3%	80.6%	5.8	3.4	6.8
Vehicle Deficit Category of Household†						
Zero-vehicle	81.1%	39.1%	81.1%	6.5	3.4	8.2
Deficit	74.3%	22.7%	76.0%	8.1	5.0	9.4
Nondeficit (sufficient/surplus)	75.6%	33.2%	79.8%	7.4	4.1	8.7

** Percentage of row group who have walked or biked, regardless of their usage of the other mode (i.e., walk includes walk only and both walk and bike; bike includes bike only and both walk and bike).*

† A vehicle-deficit household owns at least one vehicle, but fewer vehicles than potential drivers.

We turn now to trips observed on the travel day itself. As shown in table 190, 9.7 percent of trips by children ages 5–17 were by walking and 1.0 percent were by biking, for a total of 10.6 percent of all children's trips. The percentage of *children* who made at least one nonmotorized trip on the travel day (12.9 percent) is slightly higher than the percentage of the trips themselves that are nonmotorized.

Table 190. Nonmotorized travel on the travel day: Percent of trips/legs and percent of children.

Travel Day Trips/Legs by Children Ages 5–17			
	Percent of Trips (Weighted)	Number of Trips (Unweighted)	Unweighted Percent
Walk*	9.7%	540	8.2%
Bike	1.0%	62	0.9%
All NMT (walk + bike)	10.6%	602	9.2%
All other modes	89.4%	5956	90.8%
Total		6558	
Modes Used on Travel Day by Each Child Ages 5–17			
	Percent of Children (Weighted)	Number of Children (Unweighted)	Unweighted Percent
1+ walk trips/legs	11.8%	276	11.3%
1+ bike trips/legs	1.4%	33	1.3%
1+ nonmotorized trip/leg (walk and/or bike)†	12.9%	306	12.5%
No nonmotorized travel	87.1%	2,145	87.5%
Total		2,451	

* Includes two legs of walk + other.

† Three children made both walk and bike trips on the travel day.

As shown in table 191, a higher percentage of children walk and/or bike in large and medium MPOs than in small MPOs and non-MPO counties. In urban neighborhoods of Atlanta, more than a quarter of children walked or biked on the travel day compared to less than 10 percent in rural and small-town neighborhoods.

Table 191. Percent of children who walked/biked on the travel day and minutes of nonmotorized travel.

	Percent of Children who Walked and/or Biked on the Travel Day	Total Minutes of Nonmotorized Travel on Travel Day (*among children with 1+ minutes of NMT)*
All children ages 5–15	12.9%	29.3
MPO Tier		
1. Atlanta MPO	13.7%	31.3
2. Medium MPOs	13.8%	22.0
3. Small MPOs	10.9%	23.4
4. Non-MPO counties	11.1%	33.7
Urbanicity *(Neighborhood Type)*		
Rural	7.9%	31.4
Small town	9.9%	22.0
Suburban	15.3%	39.5
Second city	18.7%	21.7
Urban	26.1%	27.6
Age		
5–9	11.8%	27.2
10–13	14.4%	27.7
14–15	10.6%	28.4
16–17	14.6%	36.6
Driver Status		
Underage, ages 5–15	12.6%	27.6
Nondriver, age 16–17	18.4%	39.2
Driver, age 16–17	10.5%	31.8
Sex		
Male	14.9%	28.1
Female	10.9%	31.0
Race		
White non-Hispanic only	11.9%	21.4
Black & Black multiracial	13.8%	38.8
Other	13.8%	25.7
Annual Household Income		
<$15,000	16.4%	51.8
$15,000 to $49,999	14.9%	26.4
$50,000 to $99,999	8.6%	21.7
$100,000+	12.8%	26.3
Vehicle Deficit Category of Household†		
Zero-vehicle	23.4%	36.7
Deficit	17.2%	32.4
Nondeficit (sufficient/surplus)	10.2%	25.6

† *A vehicle-deficit household owns at least one vehicle, but fewer vehicles than potential drivers.*

There is not a clear trend in the percentage of children who walk/bike by age. However, among teenagers old enough to drive, nondrivers are more likely to walk/bike than drivers. Additionally, nondrivers who walk or bike do so for an average of 39.2 minutes compared to 31.8 minutes among pedestrians/cyclists who are able to drive.

Boys are more likely to report walking/biking than girls, but female pedestrians/cyclists spend slightly longer on nonmotorized travel than do male ones. Compared to white non-Hispanic children, children of all other races were more likely to walk/bike on the travel day. However, Black children who walk/bike do so for an average of 38.8 minutes, while children of other races average 25.7 minutes (white children average 21.4 minutes).

The lowest-income children (<$15,000 per year) are somewhat more likely to walk/bike than their wealthier peers. However, the average number of minutes spent on NMT by pedestrians/cyclists from these households (51.8 minutes), is nearly double the amount of time spent by more affluent pedestrians and cyclists. As with adults, there is evidence that some children are walking and biking by necessity.

CHAPTER 7.
TRAVEL FOR ITS OWN SAKE

CHAPTER 7 – SUMMARY

This chapter explores the positive utility of travel by focusing on travel undertaken for its own sake.

- **Overview and Methods** defines and reviews examples of *travel for its own sake* (TFIOS). We discuss the methodological challenges of measuring TFIOS in general and with regard to NHTS data. We focus on loop trips (trips with the same start and end location) as an easily identifiable form of TFIOS, and discuss the NHTS's methods of soliciting information about loop trips. The purpose of a loop trip generally differs from the activities conducted at the origin and destination. This section discusses how the researchers have reclassified the purposes of loop trips (this classification has also been used throughout chapter 1 to chapter 6).
- **Loop Trips in the 2017 Georgia NHTS Subsample** reviews empirical findings on loop trips in the state of Georgia and compares them to nonloop trips. While nonloop travel is dominated by the private auto, the overwhelming majority of loop trips are on foot. Likewise, while recreation and fitness account for 85 percent of loop trips, only 6 percent of nonloop trips are for the purpose of recreation or fitness.

OVERVIEW AND METHODS

Studies of transportation typically frame travel as a disutility: a cost that must be paid to access a desired destination. However, a number of studies have pointed to the intrinsic value of travel, beyond its utilitarian purpose of getting people from A to B (Mokhtarian 2019, Mokhtarian et al. 2015). Travel can provide positive utility via several avenues. First, utility can come from enjoyment of the trip itself, independent of destination (for example, a walk through one's own neighborhood to experience fresh air and exercise[113]). Travel can also provide positive utility as an enjoyable activity on the way to a desired destination (e.g., an enjoyable bike ride to meet a friend at a coffee shop).[114] Finally, travel can provide positive utility through the opportunity it affords to conduct additional productive or pleasant activities during the trip; this has been the focus of some research on mode choice between public transit and private autos and the emerging literature on autonomous vehicles (Frei, Hyland, and Mahmassani 2017; Frei, Mahmassani, and Frei 2015; Malokin, Circella, and Mokhtarian 2019).

For this study's purposes, TFIOS comprises trips that afford positive utility in their own right, instead of or in addition to the utility of the destination accessed. TFIOS can include:

- A trip with the same origin and destination (loop trip), made for fitness, exercise, leisure, to enjoy riding a motorcycle (or train, boat, or beloved car), to see the sights, or simply to "get out of the house."
- Travel where the nominal destination is the excuse for the trip rather than the other way around. In other words, the destination was generated by the trip and would not have been visited otherwise.
- Travel that was intended to be a loop trip but included an impulsive stop along the way.

[113] As will be discussed in the section on Loop Trips in the 2017 Georgia NHTS Subsample in this chapter, such trips are often categorized (or, as these researchers argue, miscategorized) as trips to return home.

[114] The difference between these two cases is that in the second case, the positive utility is a purpose *in addition to* the recorded purpose at the destination while in the first, the purpose at destination (e.g., to go home) is not an accurate reflection of the trip itself.

- A sightseeing tour with stop(s) along the way.
- A trip where the main purpose is the destination accessed, but the traveler chooses a longer route or slower mode for pleasure. This would include choosing a circuitous, deliberately longer route on a bike trip or enjoying a drive along one of Georgia's Scenic Byways[115] when a more direct route is available.

Challenges of Identifying and Measuring TFIOS

Many studies address the positive utility of travel in a general sense, with survey questions about a liking for travel in general, by various modes, and for various purposes (e.g., Ory and Mokhtarian 2005). Research that investigates a particular trip often focuses on directly measuring travelers' subjective well-being, direct satisfaction with the travel, and perceptions about whether the travel time itself was well spent or wasted (Ettema et al. 2011, Friman et al. 2012). Other studies focus on qualitative aspects of the trip themselves, including pleasant or unpleasant experiences during travel and activities conducted during travel (Abou-Zeid et al. 2012, Gripsrud and Hjorthol 2012, Susilo et al. 2012, Lin 2012).[116] Some studies use the thought experiment of teleportation ("If you could instantly teleport yourself to the destination, would you do so?") to assess the extent to which the trip itself is desirable (Russell and Mokhtarian 2015).

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[115] See http://www.dot.ga.gov/DS/Travel/Scenic for a list of the 15 corridors (as of this writing) that have been designated as Georgia Scenic Byways by the Georgia DOT.

[116] However, there is not perfect overlap between studies of the positive utility of travel and TFIOS; travel can have incidental benefits even if it is undertaken primarily for a separate purpose.

NHTS does not contain data about travelers' internal experiences, well-being, satisfaction, or motives for making a trip.[117] Without these direct data, identifying and measuring TFIOS poses a number of challenges:

- No category of purpose at destination can unambiguously indicate that a trip ought to be considered TFIOS. A trip with the purpose of "leisure," for example, would include going to a local park for a stroll (TFIOS) or going to a movie theater to sit and watch a film (not TFIOS).
- For loop trips, the purpose at destination will never capture the true purpose of the trip. For example, as discussed in Loop Trips in the 2017 Georgia NHTS Subsample later in this chapter, 72 percent of Georgia's loop trips nominally have the destination purpose of "regular home activities."
- For nonloop trips, it is difficult to distinguish between (a) a nominal destination generated *by* a trip and (b) a standard destination that *generated* a trip. Further, the intent of such a trip may vary between members of the same party. A parent may coax their child to go for a walk in the park by promising them ice cream. For the parent, the purpose of the trip might be to get out of the house and enjoy the greenery (TFIOS). For the child, the point is definitely the ice cream (not TFIOS).
- Using loop trips as a proxy for TFIOS will result in many false negatives (i.e., failing to identify nonloop trips that would more accurately be considered TFIOS). Classifying all loop trips as TFIOS results in a small but nonzero number of false positives, such as a drive to charge up a car battery or walking the family dog in inclement weather.

[117] Trip purpose in NHTS is defined by the primary activity conducted at the destination, rather than reasons for conducting that activity or for making the trip at all.

Additionally, some loop trips may actually be a series of nonloop trips for which the respondent neglected to report interim stops.

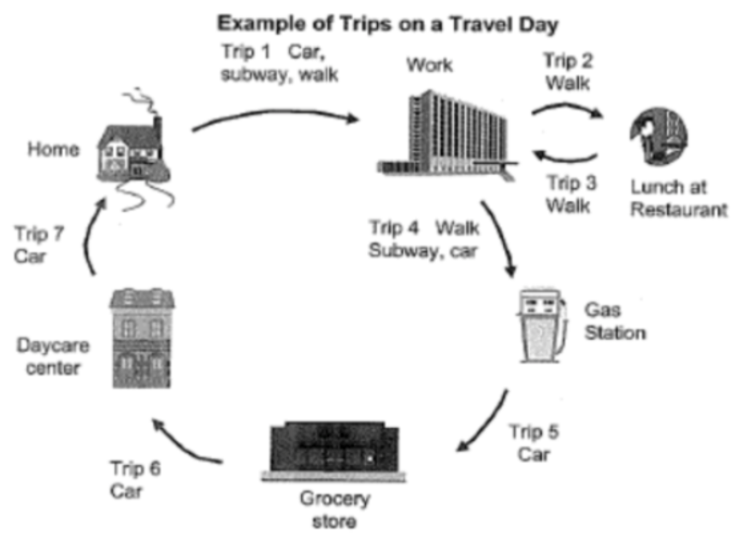
- Unless the reason for mode choice is asked—which it is not for the NHTS—no given mode can be assumed to be TFIOS. Even a stereotypically pleasurable mode such as the bicycle may be only reluctantly “chosen” by the traveler who owns a car and would prefer to drive but whose car is in the shop. Conversely, for the traveler who just bought a new car, even a trip to the grocery store may be TFIOS, invented as an excuse to drive.
- With walking for its own sake, it is unclear if and how walking *within* a destination such as a botanical garden or zoo is reflected in survey data and may vary based on how detail-oriented the traveler filling out the survey is.
- While using a service such as a Google API is likely more accurate than self-reported distance for many trips, it will not detect trips where a circuitous route is chosen and will underestimate the distance of such trips. Because trip duration is self-reported, the duration will still be accurate. However, an unexpectedly long duration, particularly for a trip by private auto, is more likely to be a result of congestion than of TFIOS.
- NHTS does not include travel outside of the country, which will miss trips taken while on vacation abroad.

With the caveats listed above, in the NHTS data set, loop trips are the most reliable proxy for TFIOS. While using loop trips as a proxy will neglect to include nonloop TFIOS, a high proportion of loop trips can safely be considered TFIOS.

Measurement of Loop Trips and TFIOS in the 2017 and 2009 NHTS

Figure 41 shows an excerpt from the 2009 NHTS instructions for completing the travel diary.[118] A trip was defined as "whenever you travel from one address to another." While this instruction would seem to exclude loop trips, respondents were given the clarification "if you started and ended in the same place, list the farthest point you reached and record a return trip."

- A **trip** is whenever you travel **from one address to another.** Use one line to record each trip. **Include:**
  - All trips you made for a specific reason, such as to go to work or school, buy gas, or drop someone off.
  - Return trips, such as coming home from work or school.
  - Walks, jogs, bike rides, and short drives. If you started and ended in the same place, list the farthest point you reached and record a return trip.



Excerpt of instructions retyped for legibility. Emphasis in original.

Figure 41. Instructions. Excerpt from 2009 NHTS travel diary instructions.

[118] Page 13 of the instructions sent to respondents, reproduced as p. 124 of the 2009 "Questionnaire and Field Documents" file available for download on the NHTS site: https://nhts.ornl.gov/documentation.shtml.

The 2017 NHTS, in contrast, prompted respondents to include loop trips without adding a destination in the middle (figure 42). Additionally, compared to 2009, loop trips figured more prominently in the instructions; both of the instructional graphics shown to respondents included a clearly marked loop.

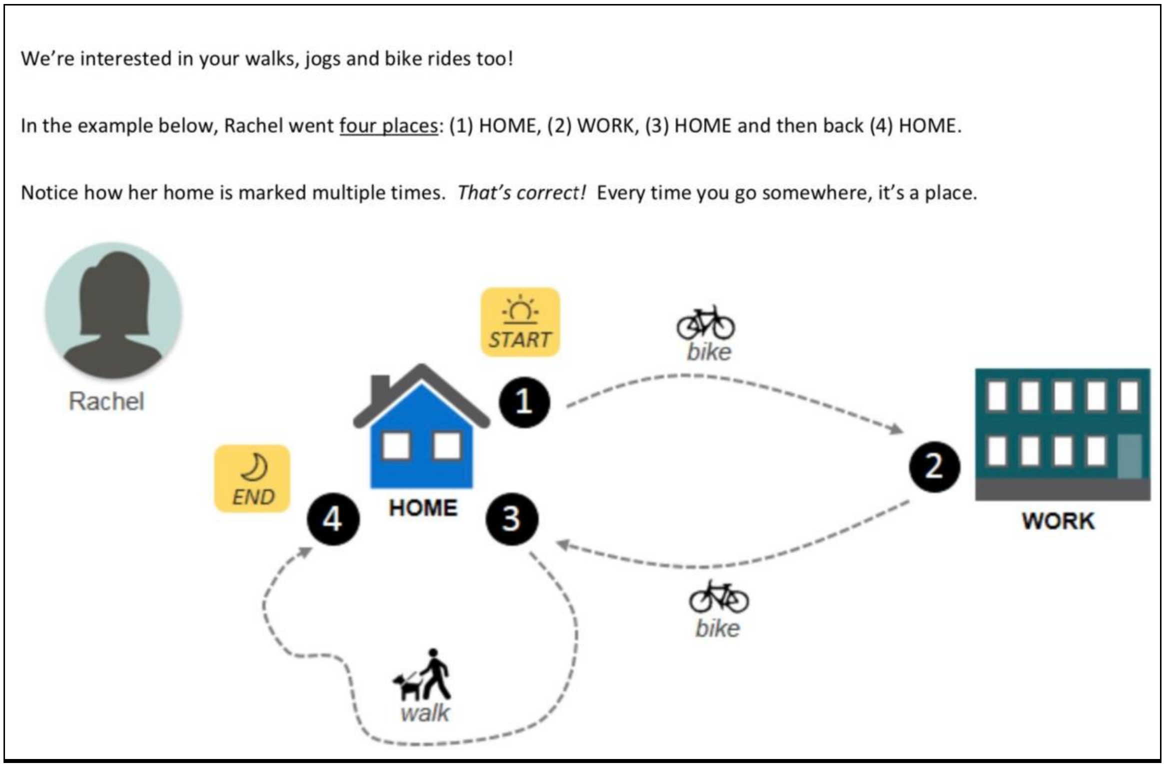


Figure 42. Instructions. Excerpt from 2017 NHTS travel diary instructions.

When 2017 NHTS respondents reported a loop trip, they were asked to report the total distance traveled (as opposed to nonloop trips, where the Google API was used to calculate the shortest path distance). Misra (2017), studying data from the Cycle Atlanta mobile app, which recorded location traces of users' bicycle trips, found that the majority of trips deviated from the shortest distance path, with a mean deviation of 20 percent and a median of 2 percent (p. 161). The probability and size of the deviation was influenced by built environment characteristics (e.g., traffic volume and speed, availability of bike facilities, slope) and rider demographics; women and older adults were more likely to choose a longer route (p. 168). Self-reported distances are therefore potentially more accurate, depending on the precision of respondents' estimates of their own travel distance.

Trip Purpose for Loop Trips

With nonloop trips, the primary activity at the destination (destination purpose) is a workable proxy for the trip purpose; a nonloop trip to a location where the primary activity is working for pay can reasonably be considered a trip with the purpose of work, and a nonloop trip where the primary activity at the destination is regular home activities can reasonably be considered a trip to return home. However, this logic breaks down with loop trips. Table 192 shows destination purposes for the 1,294 loop trips reported by 928 Georgians ages 5 and up; 4.6 percent of Georgians (weighted) made at least one loop trip on the travel day.

Table 192. Destination purpose of loop trips made by Georgians ages 5+ (unweighted).

Destination Purpose*	Number of Loop Trips	Unweighted Percent
All purposes	1294	100.0%
Home†	**956**	**73.9%**
Regular home activities (chores, sleep)	933	72.1%
Work from home (paid)	23	1.8%
Recreation and Fitness‡	**181**	**14.0%**
Recreational activities (visit parks, movies, bars, museums)	24	1.9%
Exercise (go for a jog, walk, walk the dog, go to the gym)	157	12.1%
Work, School, and Daycare	**91**	**7.0%**
Work	65	5.0%
Work-related meeting / trip	6	0.5%
Attend school as a student†	19	1.5%
Attend adult care	1	0.1%
Other	**66**	**5.1%**
Volunteer activities (not paid)	2	0.2%
Drop off / pick up someone	8	0.6%
Change type of transportation	5	0.4%
Buy goods (groceries, clothes, appliances, gas)	8	0.6%
Buy services (dry cleaners, banking, service a car, pet care)	2	0.2%
Buy meals (go out for a meal, snack, carry-out)	13	1.0%
Other general errands (post office, library)	3	0.2%
Visit friends or relatives	19	1.5%
Health care visit (medical, dental, therapy)	1	0.1%
Religious or other community activities	3	0.2%
Unknown	2	0.2%

** Primary activity at the end location of the loop trip.*

† This table shows original trip destination purposes as defined by NHTS. For the rest of this analysis, home loop trips ("regular home activities" and "work from home") are reclassified as recreation/fitness trips. We also reclassify some trips with the destination purpose of "attend school as a student." Five trips with the purpose of "attend school" and a location of the respondent's school were reclassified as recreation/fitness; school trips at nonschool locations were left with their original classification (14).

‡ In subsequent analysis, the researchers combine recreational activities and exercise into a single recreation/fitness category because, absent further data, it is difficult to distinguish recreational purposes (e.g., visiting a park) from exercise purposes (e.g., walking the dog), or ambiguous cases such as walking a dog at the park.

Seventy-four percent of these trips (unweighted) have a destination purpose of home (regular home activities or work from home). In fact, the majority of loop trips (58.8 percent unweighted) are walking trips where the primary activity at both the origin *and* destination is home (not tabulated). In other words, the respondent is engaging in home activities, perhaps reading the news or doing housework. She leaves the house to take a walk, returns home, and resumes household activities (perhaps making dinner or watching television). In this sequence of events, it is not logical to conclude that the purpose of the trip was home activities. The loop trip, rather, was a break from those home activities.

The true purpose of these trips could be characterized more accurately as exercise ("go for a jog, walk, walk the dog, go to the gym") or recreation ("visit parks, movies, bars, museums"). Absent further data,[119] it is difficult to distinguish between the two, and it is easy to think of trips for which the classification would be ambiguous (e.g., a walk through a local park to exercise while walking the dog). Therefore, throughout this report, the research team has reclassified loop trips with a destination purpose of home and placed them in a combined category of fitness/recreation, along with loop and nonloop trips with the destination purposes of exercise or recreation. We have likewise reclassified five loops with the purpose of attending school as fitness/recreation.[120]

Some of the remaining loop trips are also likely misclassified, either because the destination purpose does not reflect the purpose of the trip itself or because the respondent neglected to

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[119] NHTS technical documentation indicates that respondents who reported making a loop trip were prompted as to whether it was for fitness or "something else." However, the variable this question would have generated, "TPURP_LOOP," was not included with either the public or private versions of the dataset. The reasons for this omission are, at the time of writing, unknown.

[120] The researchers did not reclassify school trips at nonschool locations on the grounds that the travel might be part of an educational activity. We likewise did not classify work-based loops on the grounds that they might be work errands.

report interim stops. Loop trips with the destination purposes of buying goods/services/meals or running errands readily support the interpretation that some of these loops are simply trip chains with missing interim stops. However, these trips are relatively few in number. To be conservative, the research team has not reclassified the purposes of these other types of loops. We do, however, include them in this chapter's analysis of travel for its own sake, presented in the next section.

LOOP TRIPS IN THE 2017 GEORGIA NHTS SUBSAMPLE

In 2017, Georgians ages 5 and older made 233,173,400 loop trips, or 2.1 percent of all trips. This figure varies considerably by mode: loops account for 22.5 percent of all walk trips but only 5.4 percent of bike trips and just 0.3 percent of POV trips (table 193). There are likewise variations by purpose. Loop trips account for 24.5 percent of recreation and fitness trips versus 0.3 percent of trips for all other purposes (not tabulated).

Table 193. Loop trips as a percent of total trips by mode and purpose (Georgians ages 5+).

	Loop Trips	Nonloop Trips
All modes and purposes	2.1%	97.9%
Mode		
Nonmotorized *(walk, wheelchair, bike)*	21.3%	78.7%
Walk or wheelchair	22.5%	77.5%
Bike	5.4%	94.6%
Motorized	0.3%	99.7%
POV (including rental car)	0.3%	99.7%
Other ground or water	0.5%	99.5%
Purpose		
Recreation and fitness*	24.5%	75.5%
Work, school, and daycare§	1.2%	98.8%
Other	0.3%	99.7%
Return home*	0.0%	100.0%
Note: Weighted row percentages shown.		

As shown in table 194, Georgians made 24.4 loop trips per capita in 2017, of which 21.2 were nonmotorized. The number of loop trips per capita is highest in Atlanta and non-MPO counties, and lower in small and medium MPOs. Similarly, the number of loop trips per capita is highest at the lowest and highest ends of the income spectrum. Older adults make more loop trips than younger adults, and those with disabilities make more loop trips than those without. One plausible explanation for this is availability of free time and/or limited access to destinations that are farther afield. Working Georgians make fewer loop trips than nonworkers, but drivers make more loop trips than nondrivers.

Black Georgians make fewer loop trips than white Georgians and those of other races. Young children make the fewest loop trips of any group, likely due to their limited autonomy compared to adults.

Table 194. Loop trips per capita in 2017 (ages 5+).

	Nonmotorized* (Walk and Bike)	All Other Modes	Total
All Georgians ages 5+	21.2	3.2	24.4
MPO Tier			
1. Atlanta MPO	23.8	2.9	26.7
2. Medium MPOs	14.8	3.1	18.0
3. Small MPOs	15.2	1.5	16.7
4. Non-MPO counties	22.6	4.9	27.4
Sex			
Male	23.5	3.1	26.6
Female	19.2	3.2	22.3
Age Cohort			
Minor ages 5–17	8.3	2.8	11.1
Millennial and Gen Z (18–36)	20.9	3.2	24.1
Gen X (37–52)	20.4	3.8	24.2
Pre-retirement age Boomer (53–64)	29.3	3.7	33.0
Retirement age (65+)	32.4	1.7	34.1
Race			
White non-Hispanic only	24.6	2.9	27.5
Black, Black multiracial & Black Hispanic	13.4	4.0	17.4
Other	27.1	2.0	29.1
Mobility Impairment: *a "condition or handicap that makes it difficult to travel outside of the home."*			
Absent	20.9	3.2	24.2
Present	24.8	2.3	27.1
Annual Household Income			
<$15,000	26.2	4.5	30.7
$15,000 to $49,999	16.4	3.1	19.5
$50,000 to $99,999	19.3	2.0	21.2
$100,000+	26.7	3.6	30.3
Vehicle Deficit Category of Household§			
Zero-vehicle	26.7	5.9	32.5
Deficit	23.1	2.1	25.2
Nondeficit (sufficient/surplus)	20.1	3.4	23.5
Driver Status *(Ages 16+ Only)*			
Nondriver	21.9	2.0	23.9
Driver	24.1	3.4	27.5
Worker Status *(Ages 16+ Only)*			
Nonworker	30.4	2.5	32.9
Worker	19.4	3.8	23.1

** Walk, bike, and wheelchair.*

§ A vehicle-deficit household owns at least one vehicle, but fewer vehicles than potential drivers.

Table 195 shows the mode and purpose of Georgians' loop trips. Of loop trips, 87.1 percent were nonmotorized, primarily by walk/wheelchair (85.5 percent), with biking a distant second

(1.6 percent). The remaining 12.9 percent were by other motorized modes: POV (11.7 percent) and other ground or water (1.2 percent). No loop trips by air were reported.

Table 195. Mode and purpose of loop trips by Georgians ages 5+.

	Weighted	Unweighted	
	Column Percent	Number of Trips	Column Percent
All loop trips		1,294	
Mode*			
Nonmotorized	**87.1%**	**1,147**	**88.6%**
Walk or wheelchair	85.5%	1,122	86.7%
Bike	1.6%	25	1.9%
Motorized	**12.9%**	**147**	**11.4%**
POV (including rental car)	11.7%	132	10.2%
Other ground or water†	1.2%	15	1.2%
Purpose: Loop Trips by All Modes *(N=1,29)* *			
Recreation and fitness‡	84.7%	1,142	88.3%
Work, school, and daycare§	8.9%	86	6.6%
Other	6.3%	66	5.1%
Purpose: Nonmotorized Loop Trips *(N=1,147)* ¶			
Recreation and fitness‡	88.6%	1,060	92.4%
Work, school, and daycare§	6.8%	50	4.4%
Other	4.5%	37	3.2%
Purpose: Motorized Loop Trips *(N=147)* ¶			
Recreation and fitness‡	58.6%	82	55.8%
Work, school, and daycare§	23.0%	36	24.5%
Other	18.4%	29	19.7%

** Column percentages shown are based on total sample of 1,294 loop trips.*

† Includes school bus (3), public transit (3), other bus (1), taxi/ridehail/limo (1), golf cart/Segway (3), boat/ferry/water taxi (2), and unspecified (1).

‡ Includes original destination purposes of recreation, exercise, home, and school trips at the school location.

§ Includes work, work-related meeting/trip, attend school as a student, and attend daycare or adult daycare.

¶ Column percentages shown are based on subtotal of loop trips by each mode category (nonmotorized or motorized).

Recreation/fitness was the dominant purpose of loop trips. These purposes accounted for 84.7 percent of all loop trips and 88.6 percent of nonmotorized trips (after the reclassification described previously in Trip Purpose for Loop Trips). Recreation/fitness was still the most common purpose of motorized loops, but by a narrower margin (58.6 percent).

Table 196 compares the characteristics of loop and nonloop trips. Walking accounted for 85.5 percent of loop trips versus just 6.3 percent of nonloop trips. Private autos accounted for 87.1 percent of nonloop trips versus 11.7 percent of loop trips. While recreation and fitness are the dominant purpose of loop trips, these trips make up just 5.6 percent of nonloop trips.

Table 196. Mode, purpose, distance, and duration of loop and nonloop trips.

Mode *(Column Percent)*	**Loop Trips**	**Nonloop Trips**
Walk or wheelchair	85.5%	6.3%
Bike	1.6%	0.6%
POV (including rental car)	11.7%	87.1%
Other ground or water	1.2%	5.8%
Air	0.0%	0.2%
Purpose *(Column Percent)*	**Loop Trips**	**Nonloop Trips**
Recreation and fitness*	84.7%	5.6%
Work, school, and daycare§	8.9%	16.4%
Other	6.3%	43.7%
Return home*	n/a	34.3%
Mean Distance *(Miles)*	**Loop Trips**	**Nonloop Trips**
All modes	4.2	12.0
Walk or wheelchair	1.0	0.7
Bike	4.7	2.2
POV (including rental car)	26.6	10.9
Other ground or water	0.9	9.0
Mean Duration *(Minutes)*	**Loop Trips**	**Nonloop Trips**
All modes	46.5	23.6
Walk or wheelchair	31.3	13.9
Bike	53.6	18.1
POV (including rental car)	160.4	23.0
Other ground or water	93.0	38.5

Note: All statistics are weighted.

** For loop trips, home trips (regular home activities, work from home) are reclassified as recreation/fitness. School loop trips at the school location are also reclassified as recreation/fitness. Nonloop trips with these purposes are unchanged.*

§ Includes work, work-related meeting/trip, attend school as a student, and attend daycare or adult daycare.

Because so many loop trips are nonmotorized, their average distance is much shorter than that of nonloop trips (4.2 miles versus 12.0 miles). However, when comparing individual modes, loop trips by walking/wheelchair, biking, and POV are all longer, on average, than nonloop trips by these same modes. In terms of duration, loop trips are longer than nonloop trips in the aggregate and across every mode.

Table 197 shows these same statistics but narrowed to the sample of only fitness and recreation trips. The differences between loop and nonloop fitness/recreation trips are similar to those between loop and nonloop trips in general. This may suggest that differences in trip purpose between loop and nonloop trips do not explain differences in distance and duration, but it is also likely that a much higher fraction of nonloop trips in the fitness and recreation category represent trips to a sedentary recreation activity (such as a movie) than for loop trips. In other words, it is likely that the nature of this composite category (created for reasons explained in Trip Purpose for Loop Trips in this chapter) varies substantially between loop and nonloop trips.

Table 197. Distance and duration of loop and nonloop trips for fitness and recreation.

Percentage of Trips that are for Fitness or Recreation *(by Mode)* *	**Loop Trips**	**Nonloop Trips**
All modes	84.7%	5.6%
Walk or wheelchair	88.5%	16.7%
Bike	96.5%	14.0%
POV (including rental car)	56.3%	4.8%
Other ground or water	81.3%	4.9%
Mean Distance of Fitness/Recreation Trips *(Miles)*	**Loop Trips**	**Nonloop Trips**
All modes	3.7	10.8
Walk or wheelchair	1.1	0.7
Bike	4.9	2.4
POV (including rental car)	33.2	13.0
Other ground or water	0.9	18.5
Mean Duration of Fitness/Recreation Trips *(Minutes)*	**Loop Trips**	**Nonloop Trips**
All modes	42.9	25.5
Walk or wheelchair	32.2	13.9
Bike	55.3	25.7
POV (including rental car)	162.5	26.7
Other ground or water	103.1	50.2

Note: All statistics are weighted.

** For loop trips, home trips (regular home activities, work from home) are reclassified as recreation/fitness. School loop trips at the school location are also reclassified as recreation/fitness. Nonloop trips with these purposes are unchanged.*

APPENDIX:
SAMPLE SIZE TABLES

This appendix contains detailed sample breakdowns of the different populations and subpopulations analyzed for this report. As shown in table 198, NHTS provides data on (A) households, (B) vehicles owned by each household, (C) the people that live in those households, and (D) trips made by the people living in each household. NHTS is a national dataset. Unless otherwise stated, all analysis in this report is based specifically on the samples of Georgia households, residents, vehicles, and trips.

For our analysis, we used information in the trip files to additionally derive samples of (E) work journeys (see chapter 2), (F) legs of travel to access/egress another mode of transportation (chapter 6), and (G) total nonmotorized travel (pooling nonmotorized trips and nonmotorized access/egress legs).

Table 198. Overview of Georgia NHTS population types and samples used in this report.

Category	Unweighted Sample Size	Weighted Population Size	Weights Used	Chapters Used
A. Households (HH)	8,611	3,651,249	HH	All
B. Vehicles	16,947	6,997,337	HH	All
C. Persons	17,681	9,555,773	Person	All
D. Trips	59,706	11,073,916,082	Trip*	1, 3-7
D1. Nonmotorized trips *(walking, biking*	4,480	955,364,711	Trip*	1, 3-7
D2. Motorized trips *(all other modes)* †	55,226	10,118,551,371	Trip*	1, 3-7
D3. Vehicle-trips‡	40,635	6,882,189,438	Trip*	2
E. Work journeys *(derived from trips)*	10,490	1,967,280,029	Trip*	2
F. Access/egress legs *(derived from trips)*	1,319	379,495,222	Trip*	6
F1. Nonmotorized legs	952	263,897,843	Trip*	6
F2. Motorized legs	367	114,142,132	Trip*	6
G. Total nonmotorized travel (D1+F1)	56,178	10,382,449,215	Trip*	6

Note: A–D are the raw files provided by NHTS. E, F, and G are derived from the trip file, as described in chapters 2 and 6.

** Trip-weights are an annualized version of person-weights (i.e., person-weight divided by 365).*

† Motorized trips are all trips made by motorized modes (auto, public transit, boat, etc), regardless of who is driving. Vehicle-trips are private auto trips or rental car trips where the respondent is driving the vehicle.

All analyses in this report are based on one of these seven samples, or a subsample thereof (for example, workers are a subset of persons). The remainder of this appendix provides more detailed information on each sample and key subsamples.[121] Each section begins with a list of which tables in the body of the report use the relevant samples and subsamples. The tables also note populations for which sample tables can be found in the main body of the report.

[121] Tables in chapter 1 through chapter 7 may exclude additional observations from their sample based on missing data. Unless otherwise stated, missing data are omitted from relevant rows/columns rather than the entire table. Where missing data occur, it represents a small fraction of observations.

HOUSEHOLD AND VEHICLE SAMPLE TABLES

Table 199. Overview of household and vehicle subsamples.

Population	Subpopulation	Sample Size* (Unweighted)	Tables Using Subpopulation	Detailed Sample Table(s)
Households	n/a (all households)	8,611	1.3–7, 1.16, 1.25, 1.26, 4.14, 4.15, 6.22	A3
Households	Online shoppers (1+ orders in past month)	5,714	4.14, 4.15	n/a
Vehicles	n/a (all vehicles)	16,947	1.3–6, 1.27–29	A4
Vehicles	Seldom-used	832	1.30, 1.31	n/a
Vehicles	Newly purchased (past 12 months)	2,369	1.26	n/a
Vehicles	Recent (model year 2004–2017)	11,588	4.3, 4.5, 4.6	n/a
Vehicles	Alternative-fuel vehicles	313	4.1–6	4.2
Vehicles	Conventional-fuel vehicles	16,606	4.2, 4.4	4.2

** Additional exclusion criteria may be listed in individual tables. Unless otherwise stated, missing data are omitted from relevant rows/columns rather than the entire table.*

Table 200. Household sample table.

	Weighted	Unweighted	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All Georgia households	-	8,611	-
MPO Tier			
1. Atlanta MPO counties	53.6%	2,532	29.4%
2. Medium MPO counties	16.3%	3,144	36.5%
3. Small MPO counties	10.2%	2,004	23.3%
4. Non-MPO counties	19.9%	931	10.8%
Addresses are classified by whether the county is part of an MPO. Medium MPOs have an MPO population of 200,001–1,000,000 people; small MPOs have a population of 200,000 or less. See chapter 1, Geographic Divisions for Analysis for more details.			
MPO			
Albany	1.2%	229	2.7%
Athens	2.5%	502	5.8%
Atlanta	53.6%	2,532	29.4%
Augusta	3.8%	746	8.7%
Brunswick	1.1%	245	2.9%
Cartersville	0.8%	167	1.9%
Chattanooga	1.1%	70	0.8%
Columbus	2.7%	503	5.8%
Dalton	1.1%	201	2.3%
Gainesville	2.3%	512	6.0%
Hinesville	0.7%	115	1.3%
Macon	1.9%	350	4.1%
Rome	0.8%	167	1.9%
Savannah	3.8%	811	9.4%
Valdosta	1.1%	202	2.4%
Warner Robins	1.6%	328	3.8%
Non-MPO	19.9%	931	10.8%
Neighborhood Type (Urbanicity)			
Rural	22.3%	2,050	23.8%
Small town	26.9%	2,725	31.7%
Suburban	27.8%	1,751	20.3%
Second city	20.5%	1,945	22.6%
Urban	2.7%	140	1.6%
Urbanicity is a measure of built environment type. See chapter 1, Geographic Divisions for Analysis for detailed definitions.			
Table continues on next page.			

Continued from previous page: Household sample table.

	Weighted	Unweighted	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All Georgia households	-	8,611	-
Annual Household Income			
<$15,000	16.8%	1,119	13.0%
$15,000 to $24,999	10.4%	818	9.5%
$25,000 to $34,999	11.0%	865	10.1%
$35,000 to $49,999	12.1%	1,072	12.5%
$50,000 to $74,999	16.4%	1,487	17.3%
$75,000 to $99,999	10.9%	1,048	12.2%
$100,000+	22.4%	1,904	22.1%
Missing		298	3.5%
Household Composition			
One adult, no children	18.5%	1,635	19.0%
2+ adults, no children	20.8%	1,793	20.8%
One adult, youngest child 0–5	2.1%	93	1.1%
2+ adults, youngest child 0–5	11.0%	657	7.6%
One adult, youngest child 6–15	4.0%	225	2.6%
2+ adults, youngest child 6–15	12.3%	710	8.3%
One adult, youngest child 16–21	1.4%	87	1.0%
2+ adults, youngest child 16–21	5.2%	290	3.4%
One adult, retired, no children	8.4%	1,129	13.1%
2+ adults, retired, no children	16.3%	1,992	23.1%
Number of Workers			
0	25.5%	2,972	34.5%
1	41.2%	3,262	37.9%
2+	33.3%	2,377	27.6%

Table continues on next page.

Continued from previous page: Household sample table.

	Weighted	Unweighted	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All Georgia households	-	8,611	-
Race of Household Member(s)			
White non-Hispanic only	54.0%	5,680	66.0%
Black and Black multiracial only (incl. Black Hisp.)	29.5%	1,949	22.6%
Other race only	7.1%	382	4.4%
Multiracial household (multiple races)	9.5%	600	7.0%
This definition differs from NHTS' measure of household race, which is based only on the race of the primary respondent.			
Female-headed Household			
Not female-headed	71.6%	6,206	72.1%
Female-headed	28.4%	2,405	27.9%
A female-headed household is one with no adult males, or with adult males between the ages of 18–21 who are the child or other dependent of an older adult woman.			
Mobility impairment			
Absent	82.4%	7,111	82.6%
Present	17.6%	1,496	17.4%
Missing		4	0.1%
A mobility impairment is defined as a "condition or handicap that makes it difficult to travel outside of the home."			
Vehicle Deficit Category of Household			
Zero-vehicle	6.9%	444	5.2%
Deficit (hard or soft)	18.9%	1,055	12.3%
Nondeficit (sufficient/surplus)	74.1%	7,112	82.6%
A vehicle-deficit household owns at least one vehicle, but fewer vehicles than household members ages 16+ (i.e., potential drivers). See chapter 1, Vehicle Ownership for more details.			
Vehicle Deficit Category by Household Size			
Nondeficit, single potential driver	26.4%	2,685	31.2%
Nondeficit, 2+ potential drivers	47.7%	4,427	51.4%
Deficit	18.9%	1,055	12.3%
Zero-vehicle	6.9%	444	5.2%

Table continues on next page.

Continued from previous page: Household sample table.			
	Weighted	**Unweighted**	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All Georgia households	-	8,611	-
Household Vehicle Count			
0	6.9%	444	5.2%
1	33.6%	2,737	31.8%
2	34.6%	3,281	38.1%
3+	24.9%	2,149	25.0%
Household Purchased 1+ vehicles in past 12 months			
No	73.9%	6,532	75.9%
Yes	26.1%	2,079	24.1%
Newly purchased vehicles can be new or used so long as the household acquired them within the past 12 months.			
Transit Funding Status of County of Residence			
No transit funding	10.5%	948	11.0%
Rural (on-demand)	29.4%	2,528	29.4%
Urban (whole county)	46.0%	3,031	35.2%
Urban & rural	12.7%	2,039	23.7%
City only	1.4%	65	0.8%
County-level transit funding information provided by Garrow et al. (2019). For more information, see chapter 1, Transit Availability and Use.			
County-level Transit Access			
None	4.5%	228	2.7%
Partial*	35.4%	3,248	37.7%
Full	60.1%	5,135	59.6%
** Partial transit access includes counties with no fixed-route transit service that have: (a) on-demand rural transit service, (b) access to fixed-route transit in a different county in the MPO, or (c) both. See chapter 1, Transit Availability and Use for more information.*			
Transit Funding Category of County of Residence			
No transit funding	10.5%	948	11.0%
Rural (on-demand) only	29.4%	2,528	29.4%
Transit funding	60.1%	5,135	59.6%

Table 201. Sample table: Vehicles owned by Georgia households.

	Weighted	Unweighted	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All vehicles	-	16,947	-
MPO Tier			
1. Atlanta MPO counties	52.8%	4,866	28.7%
2. Medium MPO counties	16.0%	6,197	36.6%
3. Small MPO counties	10.1%	3,878	22.9%
4. Non-MPO counties	21.1%	2,006	11.8%
Addresses are classified by whether the county is part of an MPO. Medium MPOs have an MPO population of 200,001–1,000,000 people; small MPOs have a population of 200,000 or less. See chapter 1, Geographic Divisions for Analysis for more details.			
MPO by County			
Albany	1.0%	392	2.3%
Athens	2.5%	1,006	5.9%
Atlanta	52.8%	4,866	28.7%
Augusta	3.4%	1,398	8.3%
Brunswick	1.1%	472	2.8%
Cartersville	1.0%	352	2.1%
Chattanooga	1.2%	149	0.9%
Columbus	2.5%	934	5.5%
Dalton	1.1%	415	2.5%
Gainesville	2.7%	1,162	6.9%
Hinesville	0.7%	232	1.4%
Macon	1.8%	650	3.8%
Rome	0.8%	338	2.0%
Savannah	3.7%	1,548	9.1%
Valdosta	1.1%	381	2.3%
Warner Robins	1.6%	646	3.8%
Non-MPO	21.1%	2,006	11.8%
Vehicle Type			
Car/wagon	49.5%	7,988	47.1%
Van	5.4%	840	5.0%
SUV	23.6%	3,978	23.5%
Pickup	17.5%	3,369	19.9%
Other truck	0.6%	97	0.6%
RV	0.7%	113	0.7%
Motorcycle	2.4%	477	2.8%
Something else	0.3%	54	0.3%
Missing		31	0.2%

Table continues on next page.

Continued from previous page: Sample of vehicles owned by Georgia households.			
	Weighted	**Unweighted**	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All vehicles	-	16,947	-
Newly Purchased (past 12 months)			
Not newly purchased	84.2%	14,500	85.6%
Newly purchased	15.8%	2,369	14.0%
Missing		78	0.5%
Newly purchased vehicles can be new or used so long as the household acquired them within the past 12 months.			
Newly Purchased (past 12 months)			
Not newly purchased	84.2%	14,500	85.6%
Newly purchased	15.8%	2,369	14.0%
Missing		78	0.5%
Newly purchased vehicles can be new or used so long as the household acquired them within the past 12 months.			
Vehicle Age Cohort			
Pre-LEV (pre-1993)	4.6%	882	5.2%
LEV1 (1993–2003)	26.7%	4,346	25.6%
LEV2 (2004–2014)	56.3%	9,534	56.3%
New vehicles (2015–2017)	12.3%	2,054	12.1%
Missing		131	0.8%
Vehicle Mileage			
0–49,999 mi	28.6%	4,240	25.0%
50,000–99,999 mi	24.1%	3,598	21.2%
100–149,999 mi	20.6%	2,763	16.3%
150–199,999 mi	14.4%	1,863	11.0%
200,000+ mi	12.3%	1,481	8.7%
Missing		3,002	17.7%
Table continues on next page.			

Continued from previous page: Sample of vehicles owned by Georgia households.			
	Weighted	**Unweighted**	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All vehicles	-	16,947	-
Fuel Type			
Gas	96.0%	16,229	95.8%
Diesel	2.1%	367	2.2%
Hybrid, electric, or other alternative fuel	1.8%	307	1.8%
Some other fuel	0.1%	18	0.1%
Missing		26	0.2%
Seldom Used			
No	95.9%	15,823	93.4%
Yes	4.1%	832	4.9%
Missing		292	1.7%
A seldom-used vehicle is defined as a vehicle with fewer than 1,050 annual miles that is driven less than half as many miles as would be expected given the household annual miles driven and number of vehicles. See chapter 1, Vehicle Fleet Characteristics.			
Annual Household Income			
<$15,000	8.4%	1,154	6.8%
$15,000 to $24,999	7.6%	1,162	6.9%
$25,000 to $34,999	9.3%	1,488	8.8%
$35,000 to $49,999	12.0%	2,073	12.2%
$50,000 to $74,999	18.4%	3,187	18.8%
$75,000 to $99,999	13.7%	2,478	14.6%
$100,000+	30.6%	4,852	28.6%
Missing		553	3.3%
Vehicle Deficit Category of Household			
Deficit (hard or soft)	14.4%	1,452	8.6%
Nondeficit (sufficient/surplus)	85.6%	15,495	91.4%
A vehicle-deficit household owns at least one vehicle, but fewer vehicles than household members ages 16+ (i.e., potential drivers). See chapter 1, Vehicle Ownership for more details.			

PERSON SAMPLE TABLES

Table 202. Overview of person subsamples.

Population	Subpopulation	Unweighted Sample Size*	Tables Using Subpopulation	Detailed Sample Table(s)
Persons Ages 5+				
All persons ages 5+	n/a (all)	17,681	1.3–6, 1.8, 1.17, 1.18, 6.7, 7.3	A6
Drivers ages 5+	n/a (all)	14,292	1.3, 1.8	n/a
Adults Ages 18+				
All adults 18+	n/a (all)	15,222	2.1, 2.4, 3.2, 5.1–.5, 5.17–21, 6.1, 6.3, 6.4, 6.14, 6.22	A7, 5.17
Workers ages 18+	n/a (all)	8,293	2.1, 2.2, 2.4, 2.7, 2.20, 2.22, 2.24, 2.31, 3.1, 3.2, 3.4–6, 3.11–13, 3.23, 3.26–29, 3.31	A8-9
Workers ages 18+	College-educated	4,202	2.3, 3.7, 3.9	n/a
Workers ages 18+	Noncollege-educated	4,081	2.3, 3.8, 3.10	n/a
Workers ages 18+	Telecommute-eligible	1,079	3.17–22, 3.24, 3.25	n/a
Adults 18+	Active commuters (on travel day)	5,039	2.5, 2.6, 2.8, 2.9, 2.27, 2.28, 2.36,	A10
Adults 18+	Active workers (on travel day)	5,720	3.2, 3.3	n/a
Adults 18+	Active telecommuters (on travel day)	713	3.2	n/a
Adults 18+	With mobility impairment	1,632	5.22–35	5.30
Adults 18+	Without mobility impairment	13,582	5.22–5.27	5.30
Adults 18+	Recent pedestrian or cyclist (past 7 days)	11,111	6.2, 6.23–25	n/a
Adults 18+	Travel-day pedestrian or cyclist	2,019	6.23–6.25	n/a
Persons Ages 16+				
All persons ages 16+	n/a (all)	15,605	4.8, 4.10, 4.11, 4.14, 4.17–19	A11
Persons ages 16+	Ridehailing users	1,176	4.7, 4.11–13	4.7, 4.12
Persons ages 16+	Carsharing users	104	4.7–4.9	4.7, 4.8
Persons ages 16+	Bikesharing users	51	4.7–4.9	4.7, 4.8
Persons ages 16+	Other recent cyclists (past 7 days)	842	4.8	4.8
Persons ages 16+	Workers	8,363	1.3, 1.4, 1.34–36	A12
Persons ages 16+	Drivers	14,236	1.3, 1.4, 5.10–15	5.11
Other Age				
Ages 16–17	Teen drivers in vehicle-owning households	212	5.16	n/a
Children 5–17	n/a (all)	2,459	5.29, 6.32–35	5.29
Children 5–17	Enrolled in public or private school	2,275	6.27–6.29	6.27
Older adults ages 80+	Without mobility impairment	534	5.28	n/a

** Additional exclusion criteria may be listed in individual tables. Unless otherwise stated, missing data are omitted from relevant rows/columns rather than the entire table.*

Table 203. Person sample table: All persons ages 5+.

	Weighted	Unweighted	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All persons ages 5+	-	17,681	-
MPO Tier			
1. Atlanta MPO counties	54.2%	5,284	29.9%
2. Medium MPO counties	16.0%	6,459	36.5%
3. Small MPO counties	10.2%	4,035	22.8%
4. Non-MPO counties	19.6%	1,903	10.8%
Addresses are classified by whether the county is part of an MPO. Medium MPOs have an MPO population of 200,001–1,000,000 people; small MPOs have a population of 200,000 or less. See chapter 1, Geographic Divisions for Analysis for more details.			
MPO			
Albany	1.1%	436	2.5%
Athens	2.4%	987	5.6%
Atlanta	54.2%	5,284	29.9%
Augusta	3.8%	1,567	8.9%
Brunswick	1.0%	473	2.7%
Cartersville	0.8%	326	1.8%
Chattanooga	0.9%	129	0.7%
Columbus	2.7%	1,035	5.9%
Dalton	1.2%	421	2.4%
Gainesville	2.4%	1,089	6.2%
Hinesville	0.8%	257	1.5%
Macon	1.9%	702	4.0%
Rome	0.7%	338	1.9%
Savannah	3.8%	1,652	9.3%
Valdosta	1.1%	400	2.3%
Warner Robins	1.6%	682	3.9%
Non-MPO	19.6%	1,903	10.8%
Age			
Child 5–15	16.2%	2,076	11.7%
Teen 16–17	3.2%	383	2.2%
Adult 18–64	67.0%	10,771	60.9%
Senior 65–79	11.1%	3,609	20.4%
Elderly 80+	2.5%	842	4.8%
NHTS imputed age for 50 people.			
Age Cohort (Adults Only)			
Millennial and Gen Z (18–36)	34.2%	3,244	18.4%
Gen X (37–52)	28.7%	3,571	20.2%
Pre-retirement age Boomer (53–64)	20.3%	3,956	22.4%
Retirement age (65+)	16.9%	4,451	25.2%
{Children & teens}		2,459	13.9%

Table continues on next page.

Continued from previous page: Sample of persons ages 5+.			
	Weighted	**Unweighted**	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All persons ages 5+	-	17,681	-
Driver Status by Age			
Nondriver ages 16+	10.5%	1,368	7.7%
Driver ages 16+	73.3%	14,236	80.5%
Underage driver *(Excluded from analysis unless otherwise stated)*	0.4%	56	0.3%
Underage nondriver	15.8%	2020	11.4%
Missing		1	0.0%
NHTS does not ask about drivers' licensing; rather, they ask "do you/does this person drive?" Some children under 16 were reported as drivers, perhaps due to learner's permits. Unless otherwise stated, drivers in the report refers only to drivers ages 16+.			
Worker Status by Age			
Nonworker ages 18+	31.1%	6,929	39.2%
Worker ages 18+	49.6%	8,293	46.9%
Nonworker ages 16–17	2.7%	313	1.8%
Worker ages 16–17	0.4%	70	0.4%
Child under 16		2076	11.7%
NHTS defines a worker as someone who worked for pay or profit, or was temporarily absent from paid employment, in the week before completing the travel survey ("last week"). Unless otherwise specified, all references to "workers" in this report refer to NHTS-defined workers ages 18+.			
Sex			
Male	48.5%	8,142	46.1%
Female	51.5%	9,539	54.0%
NHTS imputed sex for 16 people.			
Race (Detailed)			
White non-Hispanic only	53.4%	12,057	68.2%
Black non-Hispanic only	30.8%	3,847	21.8%
Latino (white Hispanic) only	7.6%	625	3.5%
Asian/Pacific Islander only	3.9%	521	3.0%
Native American only	0.2%	49	0.3%
Other (single race)	0.2%	15	0.1%
Black multiracial (incl. Black Hispanic)	2.3%	256	1.5%
Other multiracial (not including Black or Black Hispanic)	1.6%	311	1.8%
NHTS imputed race and/or Hispanic status for 74 people. See chapter 1, Assorted Definitions and Notes for more details on how race is categorized in this report.			
Race (Categories)			
White non-Hispanic only	53.4%	12,057	68.2%
Black and Black multiracial (incl. Black Hispanic)	33.0%	4,103	23.2%
Other	13.6%	1,521	8.6%
Table continues on next page.			

Continued from previous page: Sample of persons ages 5+.			
	Weighted	**Unweighted**	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All persons ages 5+	-	17,681	-
Race/Ethnicity *(used in Chapter 5: Equity)*			
White non-Hispanic only	53.4%	12,057	68.2%
Black and Black multiracial (excl. Black Hispanic)	31.9%	4,027	22.8%
Hispanic (any race)	9.0%	724	4.1%
Asian or other	5.6%	873	4.9%
Mobility Impairment			
Absent	91.9%	15,998	90.5%
Present	8.1%	1,674	9.5%
Missing		9	0.1%
A mobility impairment is defined as a "condition or handicap that makes it difficult to travel outside of the home."			
Annual Household Income			
<$15,000	14.3%	1,846	10.4%
$15,000 to $24,999	9.8%	1,475	8.3%
$25,000 to $34,999	10.2%	1,622	9.2%
$35,000 to $49,999	11.8%	2,143	12.1%
$50,000 to $74,999	16.2%	3,034	17.2%
$75,000 to $99,999	11.8%	2,346	13.3%
$100,000+	25.9%	4,673	26.4%
Missing		542	3.1%
Education Level			
<HS graduate	13.3%	1,547	8.8%
HS or GED	23.4%	3,422	19.4%
Some college or associate degree	28.4%	4,470	25.3%
Bachelor's degree	19.6%	3,408	19.3%
Graduate or professional degree	15.4%	3,132	17.7%
Missing		27	0.2%
Age <14		1,674	9.5%
College-educated			
No 4-year degree	65.0%	9,439	53.4%
Bachelor's or higher	35.0%	6,540	37.0%
Missing		1,701	9.6%
Age <14		1,674	9.5%
Immigrant			
Nonimmigrant (born in U.S.)	89.5%	16,322	92.3%
Immigrant (born elsewhere)	10.5%	1,350	7.6%
Missing		9	0.1%
Table continues on next page.			

Continued from previous page: Sample of persons ages 5+.			
	Weighted	**Unweighted**	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All persons ages 5+	-	17,681	-
Immigrant by Education Level			
US HS or less	33.1%	4,644	26.3%
US some college/assoc.	26.0%	4,185	23.7%
US bachelor's+	29.5%	5,852	33.1%
Imm. HS or less	3.6%	323	1.8%
Imm. some college/assoc.	2.4%	284	1.6%
Imm. bachelor's+	5.4%	685	3.9%
Missing		1,708	9.7%
Caregiver Status			
Noncaregiver	74.4%	14,418	81.6%
Caregiver, youngest child ages 0–15	25.6%	3,263	18.5%
A caregiver is defined as any adult age 18+ in a household with a child of less than 5 years old, and any adult age 22+ in a household with a child of 5–15 years old.			
Caregiver Status by Gender			
Male noncaregiver	36.9%	6,725	38.0%
Female noncaregiver	11.6%	1,417	8.0%
Male caregiver	37.5%	7,693	43.5%
Female caregiver	14.0%	1,846	10.4%
Caregiver Status by Age of Youngest Child			
Noncaregiver	74.4%	14,418	81.6%
Youngest ages 0–4	12.5%	1,520	8.6%
Youngest ages 5–15	13.1%	1,743	9.9%
Caregiver Status by Household Type			
Male noncaregiver	36.9%	6,725	38.0%
Female noncaregiver	37.5%	7,693	43.5%
Male co-caregiver	11.3%	1,375	7.8%
Female co-caregiver	11.6%	1,564	8.9%
Male single caregiver	0.4%	42	0.2%
Female single caregiver	2.3%	282	1.6%
Vehicle Deficit Category of Household			
Zero-vehicle	5.0%	653	3.7%
Deficit (hard or soft)	26.4%	3,030	17.1%
Nondeficit (sufficient/surplus)	68.6%	13,998	79.2%
A vehicle-deficit household owns at least one vehicle, but fewer vehicles than household members ages 16+ (i.e., potential drivers). See chapter 1, Vehicle Ownership for more details.			
Vehicle Deficit Category by Household Size			
Nondeficit, single potential driver	13.0%	2,991	16.9%
Nondeficit, 2+ potential drivers	55.6%	11,007	62.3%
Deficit	26.4%	3,030	17.1%
Zero-vehicle	5.0%	653	3.7%
Table continues on next page.			

Continued from previous page: Sample of persons ages 5+.			
	Weighted	**Unweighted**	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All persons ages 5+	-	17,681	-
Household Vehicle Count			
0	5.0%	653	3.7%
1	25.2%	4,054	22.9%
2	37.5%	7,280	41.2%
3+	32.3%	5,694	32.2%
Household Purchased 1+ vehicles in past 12 months			
No	69.0%	12,749	72.1%
Yes	31.0%	4,932	27.9%
Newly purchased vehicles can be new or used so long as the household acquired them within the past 12 months.			
Transit Use, Past 30 Days			
No	87.3%	16,008	90.5%
Yes	12.7%	1,656	9.4%
Missing		17	0.1%
Days of Transit Use, Past 30 Days			
No days	87.3%	16,008	90.5%
1–5 days	2.0%	291	1.7%
6+ days	10.6%	1,365	7.7%
Missing		17	0.1%
Transit Funding Status of County of Residence			
No transit funding	11.0%	2,036	11.5%
Rural (on-demand)	29.8%	5,392	30.5%
Urban (whole county)	45.6%	6,068	34.3%
Urban & rural	12.4%	4,061	23.0%
City only	1.1%	124	0.7%
County-level transit funding information provided by Garrow et al (2019). For more information, see chapter 1, Transit Availability and Use.			
Transit Funding Category of County of Residence			
No transit funding	11.0%	2,036	11.5%
Rural (on-demand) only	29.8%	5,392	30.5%
Transit funding	59.2%	10,253	58.0%
Table continues on next page.			

Continued from previous page: Sample of persons ages 5+.			
	Weighted	**Unweighted**	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All persons ages 5+	-	17,681	-
Walking, Past 30 Days			
No	27.2%	4,734	26.8%
Yes	72.8%	12,877	72.8%
Missing		70	0.4%
Biking, Past 30 Days			
No	89.7%	15,997	90.5%
Yes	10.3%	1,674	9.5%
Missing		10	0.1%
Number of Walk Trips, Past 30 Days			
0	27.2%	4,734	26.8%
1–4	30.0%	5,302	30.0%
5–9	27.9%	4,906	27.8%
10–19	7.9%	1,468	8.3%
20+	6.9%	1,201	6.8%
Missing		70	0.4%
Number of Bike Trips, Past 30 Days			
0	89.7%	15,997	90.5%
1–4	7.6%	1,273	7.2%
5+	2.7%	401	2.3%
Missing		10	0.1%

Table 204. Person sample table: All adults ages 18+.

	Weighted	Unweighted	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All adults ages 18+	-	15,222	
MPO Tier			
1. Atlanta MPO counties	54.1%	4,496	29.5%
2. Medium MPO counties	15.8%	5,549	36.5%
3. Small MPO counties	10.1%	3,505	23.0%
4. Non-MPO counties	20.0%	1,672	11.0%
Addresses are classified by whether the county is part of an MPO. Medium MPOs have an MPO population of 200,001–1,000,000 people; small MPOs have a population of 200,000 or less. See chapter 1, Geographic Divisions for Analysis for more details.			
MPO			
Albany	1.1%	387	2.5%
Athens	2.4%	870	5.7%
Atlanta	54.1%	4,496	29.5%
Augusta	3.6%	1,313	8.6%
Brunswick	1.0%	417	2.7%
Cartersville	0.8%	291	1.9%
Chattanooga	1.0%	120	0.8%
Columbus	2.6%	870	5.7%
Dalton	1.1%	361	2.4%
Gainesville	2.3%	939	6.2%
Hinesville	0.7%	206	1.4%
Macon	2.0%	621	4.1%
Rome	0.7%	290	1.9%
Savannah	3.9%	1,437	9.4%
Valdosta	1.1%	348	2.3%
Warner Robins	1.6%	584	3.8%
Non-MPO	20.0%	1,672	11.0%
Age			
Adult 18–64	83.1%	10,771	70.8%
Senior 65–79	13.7%	3,609	23.7%
Elderly 80+	3.1%	842	5.5%
NHTS imputed age for 50 people.			
Age Cohort (Adults Only)			
Millennial and Gen Z (18–36)	34.2%	3,244	21.3%
Gen X (37–52)	28.7%	3,571	23.5%
Pre-retirement age Boomer (53–64)	20.3%	3,956	26.0%
Retirement age (65+)	16.9%	4,451	29.2%

Table continues on next page.

Continued from previous page: Sample of adults ages 18+.			
	Weighted	**Unweighted**	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All adults ages 18+	-	15,222	
Driver Status by Age			
Nondriver ages 16+	11.0%	1,199	7.9%
Driver ages 16+	89.0%	14,022	92.1%
Missing		1	0.0%
NHTS does not ask about drivers' licensing; rather, they ask "do you/does this person drive?" Some children under 16 were reported as drivers, perhaps due to learner's permits. Unless otherwise stated, drivers in the report refers only to drivers ages 16+.			
Worker Status by Age			
Nonworker ages 18+	38.5%	6,929	45.5%
Worker ages 18+	61.5%	8,293	54.5%
NHTS defines a worker as someone who worked for pay or profit, or was temporarily absent from paid employment, in the week before completing the travel survey ("last week"). Unless otherwise specified, all references to "workers" in this report refer to NHTS-defined workers ages 18+.			
Sex			
Male	47.9%	6,845	45.0%
Female	52.1%	8,377	55.0%
NHTS imputed sex for 16 people.			
Race (Detailed)			
White non-Hispanic only	55.2%	10,635	69.9%
Black non-Hispanic only	30.0%	3,233	21.2%
Latino (white Hispanic) only	7.2%	481	3.2%
Asian/Pacific Islander only	3.9%	426	2.8%
Native American only	0.3%	41	0.3%
Other (single race)	0.2%	15	0.1%
Black and Black multiracial (incl. Black Hispanic)	1.6%	149	1.0%
Other multiracial (not including Black or Black Hispanic)	1.5%	242	1.6%
NHTS imputed race and/or Hispanic status for 74 people. See chapter 1, Assorted Definitions and Notes for more details on how race is categorized in this report.			
Race (Categories)			
White non-Hispanic only	55.2%	10,635	69.9%
Black and Black multiracial (incl. Black Hispanic)	31.6%	3,382	22.2%
Other	13.1%	1,205	7.9%
Table continues on next page.			

Continued from previous page: Sample of adults ages 18+.			
	Weighted	**Unweighted**	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All adults ages 18+	-	15,222	
Race/Ethnicity *(used in Chapter 5: Equity)*			
White non-Hispanic only	55.2%	10,635	69.9%
Black and Black multiracial (excl. Black Hisp.)	30.8%	3,335	21.9%
Hispanic (any race)	8.5%	548	3.6%
Asian or other	5.5%	704	4.6%
Mobility Impairment			
Absent	90.5%	13,582	89.2%
Present	9.5%	1,632	10.7%
Missing		8	0.1%
A mobility impairment is defined as a "condition or handicap that makes it difficult to travel outside of the home."			
Annual Household Income			
<$15,000	14.6%	1,612	10.6%
$15,000 to $24,999	9.4%	1,277	8.4%
$25,000 to $34,999	10.1%	1,419	9.3%
$35,000 to $49,999	12.0%	1,864	12.3%
$50,000 to $74,999	16.6%	2,661	17.5%
$75,000 to $99,999	11.8%	2,013	13.2%
$100,000+	25.5%	3,872	25.4%
Missing		504	3.3%
Education Level			
<HS graduate	7.0%	811	5.3%
HS or GED	24.7%	3,381	22.2%
Some college or associate degree	30.5%	4,467	29.4%
Bachelor's degree	21.1%	3,408	22.4%
Graduate or professional degree	16.6%	3,132	20.6%
Missing		23	0.2%
College-educated			
No 4-year degree	62.3%	8,659	56.9%
Bachelor's or higher	37.7%	6,540	43.0%
Missing		23	0.2%
Immigrant			
Nonimmigrant (born in US)	88.0%	13,953	91.7%
Immigrant (born elsewhere)	12.0%	1,262	8.3%
Missing		7	0.1%
Table continues on next page.			

Continued from previous page: Sample of adults ages 18+.			
	Weighted	**Unweighted**	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All adults ages 18+	-	15,222	
Immigrant by Education Level			
US HS or less	28.2%	3,902	25.6%
US some college/assoc.	28.0%	4,182	27.5%
US bachelor's+	31.8%	5,851	38.4%
Imm. HS or less	3.5%	288	1.9%
Imm. some college/assoc.	2.6%	284	1.9%
Imm. bachelor's+	5.9%	685	4.5%
Missing		30	0.2%
Caregiver Status			
Noncaregiver	68.2%	11,959	78.6%
Caregiver, youngest child ages 0–15	31.8%	3,263	21.4%
A caregiver is defined as any adult age 18+ in a household with a child of less than 5 years old, and any adult age 22+ in a household with a child of 5–15 years old.			
Caregiver Status by Gender			
Male noncaregiver	33.5%	5,428	35.7%
Female noncaregiver	14.4%	1,417	9.3%
Male caregiver	34.7%	6,531	42.9%
Female caregiver	17.3%	1,846	12.1%
Caregiver Status by Age of Youngest Child			
Noncaregiver	68.2%	11,959	78.6%
Youngest ages 0–4	15.6%	1,520	10.0%
Youngest ages 5–15	16.2%	1,743	11.5%
Caregiver Status by Household Type			
Male noncaregiver	33.5%	5,428	35.7%
Female noncaregiver	34.7%	6,531	42.9%
Male co-caregiver	14.0%	1,375	9.0%
Female co-caregiver	14.4%	1,564	10.3%
Male single caregiver	0.5%	42	0.3%
Female single caregiver	2.9%	282	1.9%
Vehicle Deficit Category of Household			
Zero-vehicle	4.9%	572	3.8%
Deficit (hard or soft)	25.9%	2,513	16.5%
Nondeficit (sufficient/surplus)	69.2%	12,137	79.7%
A vehicle-deficit household owns at least one vehicle, but fewer vehicles than household members ages 16+ (i.e., potential drivers). See chapter 1, Vehicle Ownership for more details.			
Vehicle Deficit Category by Household Size			
Nondeficit, single potential driver	13.3%	2,685	17.6%
Nondeficit, 2+ potential drivers	55.9%	9,452	62.1%
Deficit	25.9%	2,513	16.5%
Zero-vehicle	4.9%	572	3.8%
Table continues on next page.			

Continued from previous page: Sample of adults ages 18+.			
	Weighted	**Unweighted**	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All adults ages 18+	-	15,222	
Household Vehicle Count			
0	4.9%	572	3.8%
1	24.9%	3,535	23.2%
2	37.1%	6,234	41.0%
3+	33.1%	4,881	32.1%
Household Purchased 1+ Vehicles in Past 12 Months			
No	69.2%	11,079	72.8%
Yes	30.8%	4,143	27.2%
Newly purchased vehicles can be new or used so long as the household acquired them within the past 12 months.			
Transit Use, Past 30 Days			
No	89.2%	14,017	92.1%
Yes	10.8%	1,190	7.8%
Missing		15	0.1%
Days of Transit Use, Past 30 Days			
No days	89.2%	14,017	92.1%
1–5 days	2.3%	268	1.8%
6+ days	8.5%	922	6.1%
Missing		15	0.1%
Transit Funding Status of County of Residence			
No transit funding	10.4%	1,717	11.3%
Rural (on-demand)	30.0%	4,638	30.5%
Urban (whole county)	45.9%	5,225	34.3%
Urban & rural	12.4%	3,529	23.2%
City only	1.3%	113	0.7%
County-level transit funding information provided by Garrow et al. (2019). For more information, see chapter 1, Transit Availability and Use.			
Transit Funding Category of County of Residence			
No transit funding	10.4%	1,717	11.3%
Rural (on-demand) only	30.0%	4,638	30.5%
Transit funding	59.6%	8,867	58.3%
Table continues on next page.			

Continued from previous page: Sample of adults ages 18+.			
	Weighted	**Unweighted**	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All adults ages 18+	-	15,222	
Walking, Past 30 Days			
No	27.8%	4,127	27.1%
Yes	72.2%	11,033	72.5%
Missing		62	0.4%
Biking, Past 30 Days			
No	94.5%	14,355	94.3%
Yes	5.5%	861	5.7%
Missing		6	0.0%
Number of Walk Trips, Past 30 Days			
0	27.8%	4,127	27.1%
1–4	30.5%	4,598	30.2%
5–9	26.5%	4,102	27.0%
10–19	8.1%	1,271	8.4%
20+	7.1%	1,062	7.0%
Missing		62	0.4%
Number of Bike Trips, Past 30 Days			
0	94.5%	14,355	94.3%
1–4	4.5%	713	4.7%
5+	1.0%	148	1.0%
Missing		6	0.0%

Table 205. Person sample table: All workers ages 18+ (demographic characteristics).

	Weighted	Unweighted	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All workers ages 18+		8,293	
MPO Tier			
1. Atlanta MPO counties	57.8%	2,789	33.6%
2. Medium MPO counties	15.7%	3,001	36.2%
3. Small MPO counties	10.0%	1,779	21.5%
4. Non-MPO counties	16.6%	724	8.7%
Addresses are classified by whether the county is part of an MPO. Medium MPOs have an MPO population of 200,001–1,000,000 people; small MPOs have a population of 200,000 or less. See chapter 1, Geographic Divisions for Analysis for more details.			
MPO			
Albany	1.0%	186	2.2%
Athens	2.5%	506	6.1%
Atlanta	57.8%	2,789	33.6%
Augusta	3.4%	695	8.4%
Brunswick	1.0%	188	2.3%
Cartersville	0.9%	156	1.9%
Chattanooga	1.0%	70	0.8%
Columbus	2.6%	474	5.7%
Dalton	1.1%	180	2.2%
Gainesville	2.3%	467	5.6%
Hinesville	0.8%	125	1.5%
Macon	1.9%	326	3.9%
Rome	0.6%	128	1.5%
Savannah	3.9%	789	9.5%
Valdosta	1.2%	181	2.2%
Warner Robins	1.5%	309	3.7%
Non-MPO	16.6%	724	8.7%
Age			
Adult 18–64	95.0%	7,556	91.1%
Senior 65–79	4.8%	701	8.5%
Elderly 80+	0.2%	36	0.4%
NHTS imputed age for 50 people.			
Age Cohort (Adults Only)			
Millennial and Gen Z (18–36)	38.1%	2,361	28.5%
Gen X (37–52)	36.8%	2,843	34.3%
Pre-retirement age Boomer (53–64)	20.1%	2,352	28.4%
Retirement age (65+)	5.0%	737	8.9%
Table continues on next page.			

Continued from previous page: Sample of workers ages 18+.			
	Weighted	**Unweighted**	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All workers ages 18+		8,293	
Driver Status by Age			
Nondriver ages 16+	4.9%	240	2.9%
Driver ages 16+	95.1%	8,052	97.1%
Missing		1	0.0%
NHTS does not ask about drivers' licensing; rather, they ask "do you/does this person drive?" Some children under 16 were reported as drivers, perhaps due to learner's permits. Unless otherwise stated, drivers in the report refers only to drivers ages 16+.			
Worker Status by Age			
Nonworker ages 18+			
Worker ages 18+		8,293	100.0%
NHTS defines a worker as someone who worked for pay or profit, or was temporarily absent from paid employment, in the week before completing the travel survey ("last week"). Unless otherwise specified, all references to "workers" in this report refer to NHTS-defined workers ages 18+.			
Sex			
Male	53.8%	4,169	50.3%
Female	46.2%	4,124	49.7%
NHTS imputed sex for 16 people.			
Race (Detailed)			
White non-Hispanic only	56.1%	5,745	69.3%
Black non-Hispanic only	28.8%	1,752	21.1%
Latino (white Hispanic) only	7.9%	313	3.8%
Asian/Pacific Islander only	3.4%	227	2.7%
Native American only	0.3%	23	0.3%
Other (single race)	0.2%	8	0.1%
Black and Black multiracial (incl. Black Hispanic)	1.8%	93	1.1%
Other multiracial (not including Black or Black Hispanic)	1.4%	132	1.6%
NHTS imputed race and/or Hispanic status for 74 people. See chapter 1, Assorted Definitions and Notes for more details on how race is categorized in this report.			
Race (Categories)			
White non-Hispanic only	56.1%	5,745	69.3%
Black and Black multiracial (incl. Black Hispanic)	30.6%	1,845	22.3%
Other	13.2%	703	8.5%
Table continues on next page.			

Continued from previous page: Sample of workers ages 18+.

	Weighted	Unweighted	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All workers ages 18+		8,293	
Race/Ethnicity *(used in chapter 5, Equity)*			
White non-Hispanic only	56.1%	5,745	69.3%
Black and Black multiracial (excl. Black Hisp.)	29.6%	1,812	21.9%
Hispanic (any race)	9.3%	360	4.3%
Asian or other	4.9%	376	4.5%
Mobility Impairment			
Absent	98.1%	8,127	98.0%
Present	1.9%	163	2.0%
Missing		3	0.0%
A mobility impairment is defined as a "condition or handicap that makes it difficult to travel outside of the home."			
Annual Household Income			
<$15,000	8.1%	473	5.7%
$15,000 to $24,999	7.7%	476	5.7%
$25,000 to $34,999	10.1%	714	8.6%
$35,000 to $49,999	12.3%	979	11.8%
$50,000 to $74,999	17.7%	1,493	18.0%
$75,000 to $99,999	13.2%	1,243	15.0%
$100,000+	30.9%	2,721	32.8%
Missing		194	2.3%
Education Level			
<HS graduate	3.4%	201	2.4%
HS or GED	21.1%	1,458	17.6%
Some college or associate degree	30.9%	2,422	29.2%
Bachelor's degree	25.0%	2,188	26.4%
Graduate or professional degree	19.7%	2,014	24.3%
Missing		10	0.1%
College-educated			
No 4-year degree	55.3%	4,081	49.2%
Bachelor's or higher	44.7%	4,202	50.7%
Missing		10	0.1%
Immigrant			
Nonimmigrant (born in US)	87.0%	7,536	90.9%
Immigrant (born elsewhere)	13.0%	753	9.1%
Missing		4	0.1%

Table continues on next page.

Continued from previous page: Sample of workers ages 18+.			
	Weighted	**Unweighted**	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All workers ages 18+		8,293	
Immigrant by Education Level			
US HS or less	21.1%	1,521	18.3%
US some college/assoc.	28.1%	2,258	27.2%
US bachelor's+	37.8%	3,750	45.2%
Imm. HS or less	3.4%	137	1.7%
Imm. some college/assoc.	2.7%	163	2.0%
Imm. bachelor's+	6.8%	450	5.4%
Missing		14	0.2%
Caregiver Status			
Noncaregiver	62.6%	5,883	70.9%
Caregiver, youngest child ages 0–15	37.4%	2,410	29.1%
A caregiver is defined as any adult age 18+ in a household with a child of less than 5 years old, and any adult age 22+ in a household with a child of 5–15 years old.			
Caregiver Status by Gender			
Male noncaregiver	33.6%	2,932	35.4%
Female noncaregiver	20.2%	1,237	14.9%
Male caregiver	29.0%	2,951	35.6%
Female caregiver	17.2%	1,173	14.1%
Caregiver Status by Age of Youngest Child			
Noncaregiver	62.6%	5,883	70.9%
Youngest ages 0–4	17.8%	1,105	13.3%
Youngest ages 5–15	19.5%	1,305	15.7%
Caregiver Status by Household Type			
Male noncaregiver	33.6%	2,932	35.4%
Female noncaregiver	29.0%	2,951	35.6%
Male co-caregiver	19.7%	1,203	14.5%
Female co-caregiver	13.8%	969	11.7%
Male single caregiver	0.5%	34	0.4%
Female single caregiver	3.4%	204	2.5%
Vehicle Deficit Category of Household			
Zero-vehicle	2.5%	141	1.7%
Deficit (hard or soft)	20.9%	1,063	12.8%
Nondeficit (sufficient/surplus)	76.6%	7,089	85.5%
A vehicle-deficit household owns at least one vehicle, but fewer vehicles than household members ages 16+ (i.e. potential drivers). See chapter 1, Vehicle Ownership for more details.			
Vehicle Deficit Category by Household Size			
Nondeficit, single potential driver	14.1%	1,420	17.1%
Nondeficit, 2+ potential drivers	62.5%	5,669	68.4%
Deficit	20.9%	1,063	12.8%
Zero-vehicle	2.5%	141	1.7%
Table continues on next page.			

Continued from previous page: Sample of workers ages 18+.			
	Weighted	Unweighted	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All workers ages 18+		8,293	
Household Vehicle Count			
0	2.5%	141	1.7%
1	22.1%	1,592	19.2%
2	39.7%	3,562	43.0%
3+	35.8%	2,998	36.2%
Household Purchased 1+ Vehicles in Past 12 Months			
No	67.1%	5,756	69.4%
Yes	32.9%	2,537	30.6%
Newly purchased vehicles can be new or used so long as the household acquired them within the past 12 months.			
Transit Use, Past 30 Days			
No	88.3%	7,563	91.2%
Yes	11.7%	724	8.7%
Missing		6	0.1%
Days of Transit Use, Past 30 Days			
No days	88.3%	7,563	91.2%
1–5 days	2.8%	173	2.1%
6+ days	8.9%	551	6.6%
Missing		6	0.1%
Transit Funding Status of County of Residence			
No transit funding	9.3%	894	10.8%
Rural (on-demand)	27.4%	2,340	28.2%
Urban (whole county)	49.7%	3,163	38.1%
Urban & rural	12.6%	1,845	22.3%
City only	1.1%	51	0.6%
County-level transit funding information provided by Garrow et al. (2019). For more information, see chapter 1, Transit Availability and Use.			
Transit Funding Category of County of Residence			
No transit funding	9.3%	894	10.8%
Rural (on-demand) only	27.4%	2,340	28.2%
Transit funding	63.3%	5,059	61.0%
Table continues on next page.			

Continued from previous page: Sample of workers ages 18+.			
	Weighted	**Unweighted**	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All workers ages 18+		8,293	
Walking, Past 30 Days			
No	27.5%	2,150	25.9%
Yes	72.5%	6,123	73.8%
Missing		20	0.2%
Biking, Past 30 Days			
No	93.9%	7,743	93.4%
Yes	6.1%	548	6.6%
Missing		2	0.0%
Number of Walk Trips, Past 30 Days			
0	27.5%	2,150	25.9%
1–4	32.2%	2,696	32.5%
5–9	25.7%	2,159	26.0%
10–19	8.0%	705	8.5%
20+	6.6%	563	6.8%
Missing		20	0.2%
Number of Bike Trips, Past 30 Days			
0	93.9%	7,743	93.4%
1–4	5.0%	454	5.5%
5+	1.1%	94	1.1%
Missing		2	0.0%

Table 206. Person sample table: All workers ages 18+ (job and commute characteristics).

	Weighted	Unweighted	
	Percent (Nonmissing Observations)	Sample Size, N	*Percent (All Observations)*
All workers ages 18+		8,293	
Usual Commute Mode (Detailed)			
Walk	1.7%	88	1.1%
Bicycle	0.6%	28	0.3%
Car	63.8%	4,345	52.4%
SUV	14.5%	1,047	12.6%
Van	2.3%	161	1.9%
Pickup truck	12.0%	1,003	12.1%
Golf cart / Segway	0.0%	1	0.0%
Motorcycle/moped	0.5%	31	0.4%
RV (motor home, ATV, snowmobile)	0.0%	2	0.0%
School bus	0.0%	5	0.1%
Public or commuter bus	1.2%	53	0.6%
Paratransit/dial-a-ride	0.1%	3	0.0%
Private/charter/tour/shuttle bus	0.1%	8	0.1%
Intercity bus (megabus, Greyhound)	0.1%	5	0.1%
Amtrak/commuter rail	0.4%	12	0.1%
Subway/light rail/ streetcar	1.1%	43	0.5%
Taxi/ridehailing/limo	0.8%	29	0.4%
Rental car (incl Zipcar etc)	0.0%	4	0.1%
Airplane	0.3%	19	0.2%
Other or unknown motorized	0.4%	19	0.2%
Missing		1,387	16.7%
"How did you usually get to your (primary)] job last week? If you used more than one mode of transportation, please select the one used for most of the distance." This may differ from the commute mode used on the travel day.			
Category of Usual Commute Mode			
POV incl rental car	93.2%	6598	79.6%
Nonmotorized	2.3%	116	1.4%
Public transit or other bus	3.8%	155	1.9%
Other ground or water	0.4%	18	0.2%
Air	0.3%	19	0.2%
Missing		1,387	16.7%
Distance to Work (Miles)			
≤5 mi	24.7%	1766	21.3%
5–10 mi	20.6%	1,659	20.0%
10–20 mi	27.8%	1,921	23.2%
20–45 mi	21.4%	1,227	14.8%
>45 mi	5.5%	339	4.1%
Missing		1,381	16.7%
Road network distance, in miles, between respondent's home location and work location, as calculated by NHTS.			
Table continues on next page.			

Continued from previous page: Sample of workers ages 18+.			
	Weighted	**Unweighted**	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All workers ages 18+		8,293	
Occupational Category			
Sales or service	26.9%	1,930	23.3%
Clerical or administrative support	9.3%	799	9.6%
Blue collar*	17.7%	1,143	13.8%
Professional, managerial, or technical	46.0%	4,112	49.6%
Other	0.1%	10	0.1%
Missing		299	3.6%
** Blue collar refers to manufacturing, construction, maintenance, or farming.*			
Worker Type			
Full-time (35+ hours per week)	19.6%	1,553	18.7%
Part-time	80.4%	6,446	77.7%
Missing		294	3.6%
Work Flexibility Type			
Schedule and location	22.3%	1,839	22.2%
Location only	4.9%	317	3.8%
Schedule only	18.7%	1,690	20.4%
Neither schedule nor location	54.2%	4,142	50.0%
Missing		305	3.7%
Schedule refers to flextime. Location refers to telecommute-eligible workers and home-based workers. See Flextime and Telework Eligibility below for definitions, and chapter 3, Overview for more details.			
Flextime			
Ineligible	59.1%	4,459	53.8%
Eligible	40.9%	3,529	42.6%
Missing		305	3.7%
"At your (primary) job, do you have the ability to set or change your own start time?"			
Telework Eligibility			
Telecommute-ineligible worker	73.8%	6,129	73.9%
Telecommute-eligible worker	13.0%	1,079	13.0%
Home-based worker	13.2%	1,085	13.1%
A home-based worker "usually work(s) from home." A telecommute-eligible worker does not usually work from home, "have the option of working from home or an alternate location instead of going into your/their primary workplace." See chapter 3, Worker Telework Eligibility Categories for details.			
Travel Day Teleworking			
Did not work	37.2%	2,573	31.0%
Telework (exclusive)	5.5%	501	6.0%
Telework (mixed)	2.3%	212	2.6%
Conventional commute	54.9%	5,007	60.4%
A respondent teleworked on the travel day if they reported working from home for pay. They engaged in a conventional commute if they reported a trip with the purpose of working for pay (not at home). Mixed teleworkers reported both teleworking and a conventional commute. See chapter 3, Travel Day Work and Telework Categories for more details.			

Table 207. Person sample table: Active commuters ages 18+.

	Weighted	Unweighted	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All active commuters ages 18+		5,113	-
An active commuter is a person who made one or more work journeys on the travel day (see chapter 2).			
NHTS-defined Worker Status			
Nonworker ages 18+	1.3%	74	1.4%
Worker ages 18+	98.7%	5,039	98.6%
NHTS defines a worker as someone who worked for pay or profit, or was temporarily absent from paid employment, in the week before completing the travel survey ("last week"). A small number of people who were not NHTS-designated workers nevertheless reported work travel on their travel day, perhaps reflecting irregular employment situations.			
MPO Tier			
1. Atlanta MPO counties	57.2%	1,650	32.3%
2. Medium MPO counties	14.9%	1,858	36.3%
3. Small MPO counties	9.8%	1,131	22.1%
4. Non-MPO counties	18.2%	474	9.3%
Addresses are classified by whether the county is part of an MPO. Medium MPOs have an MPO population of 200,001–1,000,000 people; small MPOs have a population of 200,000 or less. See chapter 1, Geographic Divisions for Analysis for more details.			
Age Cohort (Adults Only)			
Millennial and Gen Z (18–36)	40.2%	1,517	29.7%
Gen X (37–52)	35.9%	1,752	34.3%
Pre-retirement age Boomer (53–64)	19.7%	1,456	28.5%
Retirement age (65+)	4.2%	388	7.6%
Sex			
Male	56.2%	2,650	51.8%
Female	43.8%	2,463	48.2%
Annual Household Income			
<$35,000	27.9%	1,048	20.5%
$35,000 to $49,999	12.8%	646	12.6%
$50,000 to $74,999	18.3%	951	18.6%
$75,000 to $99,999	14.3%	806	15.8%
$100,000+	26.7%	1,556	30.4%
Missing		106	2.1%
Table continues on next page.			

Continued from previous page: Sample of active commuters ages 18+.	Weighted	Unweighted	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All active commuters ages 18+		5,113	-
An active commuter is a person who made one or more work journeys on the travel day (see chapter 2).			
Race (Categories)			
White non-Hispanic only	53.4%	3,493	68.3%
Black and Black multiracial (incl. Black Hispanic)	32.7%	1,182	23.1%
Other	13.9%	438	8.6%
NHTS imputed race and/or Hispanic status for 74 people. See chapter 1, Assorted Definitions and Notes for more details on how race is categorized in this report.			
Occupational Category			
Sales or service	27.2%	1,159	22.7%
Clerical or administrative support	9.1%	499	9.8%
Blue collar*	19.9%	795	15.5%
Professional, managerial, or technical	43.6%	2,553	49.9%
Other	0.1%	5	0.1%
Not an NHTS-defined worker		74	1.4%
Missing		28	0.5%
** Blue collar refers to manufacturing, construction, maintenance, or farming.*			
Worker Type			
Part-time (<35 hours per week)	15.4%	708	13.8%
Full-time (35+ hours per week)	84.6%	4,305	84.2%
Not an NHTS-defined worker		78	1.5%
Unknown		22	0.4%
College-educated			
No 4-year degree	59.4%	2,654	51.9%
Bachelor's or higher	40.6%	2,453	48.0%
Missing		6	0.1%

Table 208. Person sample table: Persons ages 16+.

	Weighted	Unweighted	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All persons ages 16+		17,618	-
MPO Tier			
1. Atlanta MPO counties	54.4%	4,627	26.3%
2. Medium MPO counties	15.8%	5,683	32.3%
3. Small MPO counties	10.1%	3,592	20.4%
4. Non-MPO counties	19.8%	1,703	9.7%
Addresses are classified by whether the county is part of an MPO. Medium MPOs have an MPO population of 200,001–1,000,000 people; small MPOs have a population of 200,000 or less. See chapter 1, Geographic Divisions for Analysis for more details.			
Age Cohort			
Teenager (16–17)	3.8%	383	2.2%
Millennial and Gen Z (18–36)	32.9%	3,244	18.4%
Gen X (37–52)	27.6%	3,571	20.3%
Pre-retirement age Boomer (53–64)	19.5%	3,956	22.5%
Seniors (65–79)	13.2%	3,609	20.5%
Elderly (80+)	3.0%	842	4.8%
Sex			
Male	47.9%	7,038	39.9%
Female	52.1%	8,567	48.6%
Annual Household Income			
<$15,000	14.5%	1,650	9.4%
$15,000 to $24,999	9.5%	1,303	7.4%
$25,000 to $34,999	10.1%	1,447	8.2%
$35,000 to $49,999	11.9%	1,904	10.8%
$50,000 to $74,999	16.6%	2,731	15.5%
$75,000 to $99,999	11.7%	2,061	11.7%
$100,000+	25.7%	3,995	22.7%
Missing		514	2.9%

Table continues on next page.

Continued from previous page: Sample of persons ages 16+.			
	Weighted	**Unweighted**	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All persons ages 16+		17,618	-
Race (Categories)			
White non-Hispanic only	54.8%	10,852	61.6%
Black and Black multiracial (incl. Black Hispanic)	32.1%	3,507	19.9%
Other	13.1%	1,246	7.1%
NHTS imputed race and/or Hispanic status for 74 people. See chapter 1, Assorted Definitions and Notes for more details on how race is categorized in this report.			
Mobility Impairment			
Absent	90.7%	13,957	79.2%
Present	9.3%	1,640	9.3%
Missing		8	0.0%
A mobility impairment is defined as a "condition or handicap that makes it difficult to travel outside of the home."			
Driver Status			
Nondriver ages 16+	12.6%	1,368	7.8%
Driver ages 16+	87.4%	14,236	80.8%
Missing		1	0.0%
Vehicle Deficit Category of Household			
Zero-vehicle	5.0%	589	3.3%
Deficit (hard or soft)	27.0%	2,697	15.3%
Nondeficit (sufficient/surplus)	68.0%	12,319	69.9%
A vehicle-deficit household owns at least one vehicle, but fewer vehicles than household members ages 16+ (i.e., potential drivers). See chapter 1, Vehicle Ownership for more details.			
Transit Use, Past 30 Days			
No	88.9%	14,344	81.4%
Yes	11.1%	1,246	7.1%
Missing		15	0.1%
Walking, Past 30 Days			
No	28.0%	4,257	24.2%
Yes	72.0%	11,285	64.1%
Missing		63	0.4%

Table 209. Person sample table: Workers ages 16+.

	Weighted	Unweighted	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All workers ages 16+		8,363	-
MPO Tier			
1. Atlanta MPO counties	57.7%	2,808	33.6%
2. Medium MPO counties	15.7%	3,033	36.3%
3. Small MPO counties	10.0%	1,794	21.5%
4. Non-MPO counties	16.5%	728	8.7%
Addresses are classified by whether the county is part of an MPO. Medium MPOs have an MPO population of 200,001–1,000,000 people; small MPOs have a population of 200,000 or less. See chapter 1, Geographic Divisions for Analysis for more details.			
Age Cohort			
Teenager (16–17)	0.9%	70	0.8%
Millennial and Gen Z (18–36)	37.8%	2,361	28.2%
Gen X (37–52)	36.5%	2,843	34.0%
Pre-retirement age Boomer (53–64)	19.9%	2,352	28.1%
Seniors (65–79)	4.7%	701	8.4%
Elderly (80+)	0.2%	36	0.4%
Sex			
Male	53.7%	4,203	50.3%
Female	46.3%	4,160	49.7%
Annual Household Income			
<$15,000	8.2%	481	5.8%
$15,000 to $24,999	7.7%	478	5.7%
$25,000 to $34,999	10.1%	721	8.6%
$35,000 to $49,999	12.2%	986	11.8%
$50,000 to $74,999	17.7%	1,500	17.9%
$75,000 to $99,999	13.2%	1,260	15.1%
$100,000+	30.9%	2,743	32.8%
Missing		194	2.3%
Table continues on next page.			

Continued from previous page: Sample of workers ages 16+.	Weighted	Unweighted	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All workers ages 16+		8,363	-
Race (Categories)			
White non-Hispanic only	56.1%	5,789	69.2%
Black and Black multiracial (incl. Black Hispanic)	30.7%	1,862	22.3%
Other	13.2%	712	8.5%
NHTS imputed race and/or Hispanic status for 74 people. See chapter 1, Assorted Definitions and Notes for more details on how race is categorized in this report.			
Mobility Impairment			
Absent	98.1%	8,197	98.0%
Present	1.9%	163	1.9%
Missing		3	0.0%
A mobility impairment is defined as a "condition or handicap that makes it difficult to travel outside of the home."			
Driver Status			
Nondriver ages 16+	5.2%	257	3.1%
Driver ages 16+	94.8%	8,105	96.9%
Missing		1	0.0%
Vehicle Deficit Category of Household			
Zero-vehicle	2.5%	143	1.7%
Deficit (hard or soft)	21.1%	1,086	13.0%
Nondeficit (sufficient/surplus)	76.4%	7,134	85.3%
A vehicle-deficit household owns at least one vehicle, but fewer vehicles than household members ages 16+ (i.e., potential drivers). See Section 1.6.1 for more details.			
Transit Use, Past 30 Days			
No	88.3%	7,628	91.2%
Yes	11.7%	729	8.7%
Missing		6	0.1%
Walking, Past 30 Days			
No	27.7%	2,179	26.1%
Yes	72.3%	6,164	73.7%
Missing		20	0.2%

TRIP, WORK JOURNEY, AND ACCESS/EGRESS TRAVEL SAMPLE TABLES

Samples of trips and trip-derived variables (WJs, access/egress legs) are broken down by *who* is doing the traveling and *what kind* of travel is being discussed (person trips, vehicle trips, work journeys, access/egress legs).[122] Additional subsamples are based on these primary divisions (e.g., nonmotorized person trips made by adults ages 18+). To clarify these relationships, table 210 summarizes the sample sizes of traveler populations and instances of travel by members of those populations.

Table 211 provides a more detailed overview of specific subsamples, where these subsamples are used in the report, and the location of more detailed subpopulation sample tables. In addition to tables focusing on trips or other instances of travel, travel behavior is frequently included in tables in a normalized fashion (e.g., trips per capita). In recognition of this reality, we have included sample tables for person trips and vehicle trips by adults ages 18+. These samples were not the independent basis of tables in the report, but were frequently used to calculate figures found in other tables.

[122] See Key Terms in chapter 1 for more discussion of the difference between person trips and vehicle trips. Discussions of the methods for deriving work journeys and access/egress legs can be found in chapter 2 and chapter 6.

Table 210. Summary of traveler populations and instances of travel.

	Group	Trips			Work	Access/Egress Legs		NMT
Traveler Group	A. Number of Persons in Group	B. Total Trips Made by Group†	C. Vehicle-Trips‡	D. Non-motorized Trips	E. Work Journeys	F. Non-motorized Legs	G. Motorized Legs	H. Non-motorized Travel (D+F)
All Georgians ages 5+	17,681	59,706	40,635	4,480	10,490	952	367	5,432
Ages 16+	15,605	54,271	40,606	4,023	10,490	923	355	4,946
Adults ages 18+	15,222	53,203	40,196	3,927	10,490	903	351	4,830
Children ages 5–17	2,459	6,503	439	553	-	49	16	602
Workers ages 16+	8,363	31,623	25,484	2,041	10,340	466	218	2,507
Workers ages 18+	8,293	31,356	25,333	2,017	10,340	466	218	2,483
Drivers, all ages	14,292	51,597	40,606	3,394	10,199	586	244	3,980
Drivers ages 16+	14,236	51,597	40,606	3,394	10,199	586	244	3,980
Drivers ages 18+	14,022	50,924	40,196	3,351	10,199	583	243	3,934

** Derived from trips as described in chapters 2 and 6.*

† Also described as person-trips.

‡ Vehicle trips are private auto or rental car trips where the respondent is driving the vehicle. Total motorized trips (all modes except walking and biking) can be calculated by subtracting column D from column B.

Table 211. Overview of trip, work journey, and access/egress travel subsamples.

Trip or Instance Category	Traveler Type	Trip or Instance Type	Unweighted Sample Size*	Tables Using Population†	Detailed Sample Table(s)
Person-trips (all trips by all modes)					
Person-trip	Persons ages 5+	All	59,706	1.5, 1.6, 1.9–12, 1.14, 1.20–24, 7.2, 7.5, 7.6	A15–18
Person-trip	Persons ages 5+	Loop	1,294	7.1, 7.4	7.1, 7.4
Person-trip	Adults ages 18+	All	53,203	n/a	A22–25
Person-trip	Adults ages 18+	Trips entirely within Georgia	50,270	5.6–5.9	5.6
Person-trip	Children ages 5–17	School trips	2,593	6.26, 6.28–29	6.26
Person-trip	Persons ages 16+	Vehicle-for-hire	205	4.12, 4.13	4.12
Vehicle-trips (motorized trips where respondent is driver)					
Vehicle-trip	Persons ages 5+	All	40,635	1.5, 1.6, 1.9, 1.15	A19–21
Vehicle-trip	Adults ages 18+	All	40,196	n/a	A26–29
Access/Egress Legs (legs to access or egress another mode of transportation, included in data as part of the trip by the parent mode. See chapter 6.)					
Access/egress legs	Persons ages 5+	All	1,319	6.8, 6.9	6.8
Access/egress legs	Adults ages 18+	Legs to access/egress transit	949	6.11–6.13	6.8
Access/egress legs	Adults ages 18+	All	1,254	6.10	6.8
Nonmotorized Trips and Legs (total of nonmotorized trips + nonmotorized access/egress legs)					
Person-trips + legs	Persons ages 5+	Nonmotorized	5,432	6.5, 6.6	n/a
Person-trips + legs	Adults ages 18+	Nonmotorized	4,830	6.15–21	6.18, 6.20
Person-trips + legs	Children ages 5–17	Nonmotorized	602	6.30, 6.31, 6.34	6.30, 6.31, 6.34
Work Journey/Commute (note: WJs and commutes differ in distance and duration, but are synonymous for sample size.)					
WJ/commute	Adults ages 18+	All (incl. supercommutes >100 mi)	10,463	2.10–13, 2.15, 2.20, 2.21, 2.23, 2.30	A30–32
WJ/commute	Adults ages 18+	WJ excl. supercommutes >100 mi	10,378	2.16–19, 2.25, 2.26, 2.29, 2.32–35	n/a
WJ/commute	Adults ages 18+	Complex WJs	6,218	2.16	2.16
WJ/commute	Adults ages 18+	Matched Complex WJs	1,585	2.17	2.16

** Sample size given is for instances of travel (trips, legs, or WJs) rather than the number of individuals in the traveler population (e.g., adults, children). Additional exclusion criteria may be listed in individual tables. Unless otherwise stated, missing data are omitted from relevant rows/columns rather than the entire table.*

† In addition to tables listed here, trip data are often the denominator in tables of normalized data (e.g., trips per capita, WJ per worker, etc.).

Table 212. Trip sample table: All trips by all persons ages 5+ by location.

	Weighted	Unweighted	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	**Percent** *(All Observations)*
All trips by all persons ages 5+	-	59,706	-
MPO Tier (Residence of Traveler)			
1. Atlanta MPO counties	55.7%	17,958	30.1%
2. Medium MPO counties	15.8%	22,160	37.1%
3. Small MPO counties	10.1%	13,563	22.7%
4. Non-MPO counties	18.4%	6,025	10.1%
Addresses are classified by whether the county is part of an MPO. Medium MPOs have an MPO population of 200,001–1,000,000 people; small MPOs have a population of 200,000 or less. See chapter 1, Geographic Divisions for Analysis for more details.			
MPO (Residence of Traveler)			
Albany	1.0%	1,396	2.3%
Athens	2.4%	3,622	6.1%
Atlanta	55.7%	17,958	30.1%
Augusta	3.9%	5,446	9.1%
Brunswick	1.3%	1,756	2.9%
Cartersville	0.8%	1,146	1.9%
Chattanooga	0.7%	404	0.7%
Columbus	2.6%	3,432	5.7%
Dalton	1.1%	1,419	2.4%
Gainesville	2.4%	3,741	6.3%
Hinesville	0.7%	770	1.3%
Macon	1.8%	2,302	3.9%
Rome	0.7%	1,271	2.1%
Savannah	3.8%	5,515	9.2%
Valdosta	1.1%	1,334	2.2%
Warner Robins	1.5%	2,169	3.6%
Non-MPO	18.4%	6,025	10.1%

Table continues on next page.

Continued from previous page: Sample of trips by all persons ages 5+.

	Weighted	Unweighted	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All trips by all persons ages 5+	-	59,706	-
Trip Location *(Based on Origin and Destination)*			
In Georgia	95.8%	57,007	95.5%
Partly in Georgia	1.5%	1,000	1.7%
Not in Georgia	2.7%	1,699	2.8%
MPO Tier (Trip Origin)			
1. Atlanta MPO	55.9%	18,085	30.3%
2. Medium MPOs	15.8%	20,525	34.4%
3. Small MPOs	10.5%	12,830	21.5%
4. Non-MPO	17.8%	6,077	10.2%
Out of state		2,189	3.7%
MPO (Trip Origin)			
Albany	1.1%	1,337	2.2%
Athens	2.6%	3,477	5.8%
Atlanta	54.0%	18,085	30.3%
Augusta	3.7%	5,110	8.6%
Brunswick	1.4%	1,644	2.8%
Cartersville	0.8%	1,000	1.7%
Chattanooga	0.5%	297	0.5%
Columbus	2.5%	3,246	5.4%
Dalton	1.0%	1,285	2.2%
Gainesville	2.3%	3,134	5.2%
Hinesville	0.7%	725	1.2%
Macon	1.8%	2,316	3.9%
Rome	0.7%	1,175	2.0%
Savannah	3.8%	5,261	8.8%
Valdosta	1.1%	1,309	2.2%
Warner Robins	1.5%	2,039	3.4%
Non-MPO	17.2%	6,077	10.2%
Out of state	3.5%	2,189	3.7%

Table 213. Trip sample table: All trips by all persons ages 5+ by purpose.

	Weighted	Unweighted	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All trips by all persons ages 5+	-	59,706	-
Purpose			
Home	33.6%	19,520	32.7%
Work commute	11.1%	6,770	11.3%
Other work-related travel	1.0%	698	1.2%
Attend school or daycare	4.1%	1,888	3.2%
Transport someone	6.7%	3,643	6.1%
Shopping or errands	18.7%	12,092	20.3%
Medical/dental services	1.4%	1,187	2.0%
Social/recreational or fitness	11.1%	6,552	11.0%
Dining (restaurant or carryout)	7.9%	4,954	8.3%
Community, religious, and volunteer	3.0%	1,658	2.8%
Other	1.3%	722	1.2%
Missing		22	0.0%
Purpose Type			
Mandatory	16.3%	9,356	15.7%
Household-serving	26.8%	16,922	28.3%
Discretionary	22.1%	13,164	22.0%
Return home	33.6%	19,520	32.7%
Other	1.3%	722	1.2%
Missing		22	0.0%

Table 214. Trip sample table: All trips by all persons ages 5+ by mode.

	Weighted	Unweighted	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All trips by all persons ages 5+	-	59,706	-
Mode			
Pedestrian (walk/wheelchair)	8.0%	4,201	7.0%
Bike	0.6%	287	0.5%
POV, including rental car	85.5%	52,675	88.2%
School bus	2.9%	1,213	2.0%
Public transit	1.4%	515	0.9%
Paratransit	0.1%	56	0.1%
Other bus	0.2%	141	0.2%
Taxi/ridehail/limo	0.6%	222	0.4%
Air	0.2%	105	0.2%
Other	0.4%	289	0.5%
Missing		2	0.0%
Mode Category			
POV, including rental car	85.5%	52,675	88.2%
Nonmotorized (walk, bike, wheelchair)	8.6%	4,490	7.5%
Public transit or other bus/train	4.6%	1,869	3.1%
Other ground or water	1.2%	565	0.9%
Air	0.2%	105	0.2%
Missing		2	0.0%
Vehicle or Person Trip			
Person trip only	37.9%	19,071	31.9%
Vehicle trip and person trip	62.1%	40,635	68.1%

See chapter 1, Key Terms for more explanation of the relationship between person trips and vehicle trips.

Table 215. Trip sample table: All trips by all persons ages 5+ by demographic factors.

	Weighted	Unweighted	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All trips by all persons ages 5+	-	59,706	-
Sex			
Male	48.4%	27,472	46.0%
Female	51.6%	32,234	54.0%
NHTS imputed sex for 16 people.			
Age			
Child 5–15	12.5%	5,435	9.1%
Teen 16–17	2.5%	1,068	1.8%
Adult 18–64	72.6%	38,862	65.1%
Senior 65–79	10.7%	12,333	20.7%
Elderly 80+	1.6%	2,008	3.4%
Age by Sex			
Male: child 5–15	6.7%	2,966	5.0%
Male: teen 16–17	1.2%	524	0.9%
Male: adult 18–64	34.6%	17,067	28.6%
Male: senior 65–79	5.2%	5,958	10.0%
Male: elderly 80+	0.7%	957	1.6%
Female: child 5–15	5.8%	2,469	4.1%
Female: teen 16–17	1.3%	544	0.9%
Female: adult 18–64	38.0%	21,795	36.5%
Female: senior 65–79	5.6%	6,375	10.7%
Female: elderly 80+	0.9%	1,051	1.8%
Age Cohort (Adults Only)			
Millennial and Gen Z (18–36)	32.8%	11,175	18.7%
Gen X (37–52)	31.3%	13,382	22.4%
Pre-retirement age Boomer (53–64)	21.3%	14,305	24.0%
Retirement age (65+)	14.6%	14,341	24.0%
{Children & teens}		6,503	10.9%
Driver Status by Age			
Driver ages 18+	79.1%	50,924	85.3%
Nondriver ages 18+	5.9%	2,279	3.8%
Driver ages 16–17	1.4%	673	1.1%
Nondriver ages 16–17	1.2%	395	0.7%
Child ages 5–15	12.5%	5,435	9.1%
NHTS does not ask about drivers' licensing; rather, they ask "do you/does this person drive?" Some children under 16 were reported as drivers, perhaps due to learner's permits. Unless otherwise stated, drivers in the report refers only to drivers ages 16+.			
Table continues on next page.			

Continued from previous page: Sample of trips by all persons ages 5+.			
	Weighted	**Unweighted**	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All trips by all persons ages 5+	-	59,706	-
Worker Status by Age			
Nonworker ages 18+	28.0%	21,847	36.6%
Worker ages 18+	57.0%	31,356	52.5%
Nonworker ages 16–17	2.0%	801	1.3%
Worker ages 16–17	0.5%	267	0.4%
Child under 16	12.5%	5,435	9.1%
Race (Categories)			
White non-Hispanic only	54.7%	41,603	69.7%
Black and Black multiracial (incl. Black Hisp.)	32.2%	13,330	22.3%
Other	13.0%	4,773	8.0%
NHTS imputed race and/or Hispanic status for 74 people. See chapter 1, Assorted Definitions and Notes for more details on how race is categorized in this report.			
Race/Ethnicity *(used in chapter 5, Equity)*			
White non-Hispanic only	54.7%	41,603	69.7%
Black and Black multiracial (excl. Black Hisp.)	31.1%	13,101	21.9%
Hispanic (any race)	9.1%	2,296	3.8%
Asian or other	5.1%	2,706	4.5%
Mobility Impairment			
Absent	94.2%	55,664	93.2%
Present	5.8%	4,019	6.7%
Missing		23	0.0%
Annual Household Income			
<$15,000	12.8%	5,587	9.4%
$15,000 to $24,999	8.7%	4,428	7.4%
$25,000 to $34,999	10.0%	5,182	8.7%
$35,000 to $49,999	12.3%	7,281	12.2%
$50,000 to $74,999	16.3%	10,536	17.6%
$75,000 to $99,999	12.2%	8,236	13.8%
$100,000+	27.7%	16,907	28.3%
Missing		1,549	2.6%
Education Level			
High school or less	30.9%	14,333	24.0%
Some college or associate degree	28.5%	15,289	25.6%
Bachelor's degree	21.9%	12,999	21.8%
Graduate or professional degree	18.7%	12,568	21.0%
Missing		4,517	7.6%
Age <14			0.0%
Table continues on next page.			

Continued from previous page: Sample of trips by all persons ages 5+.			
	Weighted	**Unweighted**	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All trips by all persons ages 5+	-	59,706	-
College-educated			
No 4-year degree	59.4%	29,622	49.6%
Bachelor's or higher	40.6%	25,567	42.8%
Missing		4,517	7.6%
Age <14		4,450	7.5%
Immigrant			
Nonimmigrant (born in US)	89.8%	55,487	92.9%
Immigrant (born outside of US)	10.2%	4,206	7.0%
Missing		13	0.0%
Immigrant by Education Level			
US HS or less	27.9%	13,487	22.6%
US some college/assoc.	26.5%	14,540	24.4%
US bachelor's+	34.7%	23,225	38.9%
Imm. HS or less	2.9%	846	1.4%
Imm. some college/assoc.	2.3%	876	1.5%
Imm. bachelor's+	5.7%	2,342	3.9%
N/A (age <14) or missing		4,390	7.4%
Caregiver Status			
Noncaregiver	65.4%	40,602	68.0%
Caregiver, youngest child ages 0–15	34.6%	12,601	21.1%
N/A (child under 18)		6,503	10.9%
A caregiver is defined as any adult age 18+ in a household with a child of less than 5 years old, and any adult age 22+ in a household with a child of 5–15 years old.			
Caregiver Status by Gender			
Male noncaregiver	32.3%	18,754	31.4%
Female noncaregiver	15.3%	5,228	8.8%
Male caregiver	33.1%	21,848	36.6%
Female caregiver	19.3%	7,373	12.3%
Missing		6,503	10.9%
Caregiver Status by Age of Youngest Child			
Noncaregiver	70.6%	47,105	78.9%
Youngest ages 0–4	14.1%	5,687	9.5%
Youngest ages 5–15	15.3%	6,914	11.6%
Table continues on next page.			

Continued from previous page: Sample of trips by all persons ages 5+	Weighted	Unweighted	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All trips by all persons ages 5+	-	59,706	-
Vehicle Deficit Category of Household			
Zero-vehicle	4.3%	1,804	3.0%
Deficit (hard or soft)	23.9%	8,730	14.6%
Nondeficit (sufficient/surplus)	71.8%	49,172	82.4%
A vehicle-deficit household owns at least one vehicle, but fewer vehicles than household members ages 16+ (i.e., potential drivers). See chapter 1, Vehicle Ownership for more details.			
Vehicle Deficit Category by Household Size			
Nondeficit, single potential driver	15.5%	11,675	19.6%
Nondeficit, 2+ potential drivers	56.4%	37,497	62.8%
Deficit	23.9%	8,730	14.6%
Zero-vehicle	4.3%	1,804	3.0%
Transit Use, Past 30 Days			
No	86.1%	53,866	90.2%
Yes	13.9%	5,796	9.7%
Missing		44	0.1%
Walking, Past 30 Days			
No	22.9%	13,826	23.2%
Yes	77.1%	45,688	76.5%
Missing		192	0.3%
Biking, Past 30 Days			
No	89.7%	53,934	90.3%
Yes	10.3%	5,751	9.6%
Missing		21	0.0%

Table 216. Trip sample table: All vehicle trips by all persons ages 5+ by location.

	Weighted	Unweighted	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All vehicle trips by all persons ages 5+		40,635	-
MPO Tier (Residence of Traveler)			
1. Atlanta MPO counties	55.9%	11,937	29.4%
2. Medium MPO counties	15.3%	15,095	37.1%
3. Small MPO counties	10.3%	9,460	23.3%
4. Non-MPO counties	18.6%	4,143	10.2%
Addresses are classified by whether the county is part of an MPO. Medium MPOs have an MPO population of 200,001–1,000,000 people; small MPOs have a population of 200,000 or less. See chapter 1, Geographic Divisions for Analysis for more details.			
MPO (Residence of Traveler)			
Albany	1.1%	1,001	2.5%
Athens	2.2%	2,336	5.7%
Atlanta	55.9%	11,937	29.4%
Augusta	3.7%	3,720	9.2%
Brunswick	1.4%	1,219	3.0%
Cartersville	0.9%	845	2.1%
Chattanooga	0.8%	319	0.8%
Columbus	2.6%	2,443	6.0%
Dalton	1.0%	972	2.4%
Gainesville	2.4%	2,577	6.3%
Hinesville	0.8%	567	1.4%
Macon	1.7%	1,579	3.9%
Rome	0.7%	855	2.1%
Savannah	3.5%	3,700	9.1%
Valdosta	1.2%	920	2.3%
Warner Robins	1.5%	1,502	3.7%
Non-MPO	18.6%	4,143	10.2%

Table continues on next page.

Continued from previous page: Sample of vehicle trips by all persons ages 5+.	Weighted	Unweighted	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All vehicle trips by all persons ages 5+		40,635	-
Trip Location *(Based on Origin and Destination)*			
In Georgia	97.2%	39,348	96.8%
Partly in Georgia	1.2%	641	1.6%
Not in Georgia	1.6%	646	1.6%
MPO Tier (Trip Origin)			
1. Atlanta MPO	56.2%	12,287	30.2%
2. Medium MPOs	15.3%	14,151	34.8%
3. Small MPOs	10.8%	9,094	22.4%
4. Non-MPO	17.6%	4,143	10.2%
Out of state		960	2.4%
MPO (Trip Origin)			
Albany	1.2%	970	2.4%
Athens	2.4%	2,310	5.7%
Atlanta	55.0%	12,287	30.2%
Augusta	3.6%	3,537	8.7%
Brunswick	1.5%	1,173	2.9%
Cartersville	0.8%	723	1.8%
Chattanooga	0.6%	233	0.6%
Columbus	2.5%	2,324	5.7%
Dalton	0.9%	889	2.2%
Gainesville	2.4%	2,187	5.4%
Hinesville	0.8%	537	1.3%
Macon	1.8%	1,626	4.0%
Rome	0.7%	801	2.0%
Savannah	3.5%	3,560	8.8%
Valdosta	1.3%	930	2.3%
Warner Robins	1.6%	1,445	3.6%
Non-MPO	17.2%	4,143	10.2%
Out of state	2.2%	960	2.4%

Table 217. Trip sample table: All vehicle trips by all persons ages 5+ by purpose.

	Weighted	Unweighted	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All vehicle trips by all persons ages 5+		40,635	-
Purpose			
Home	33.8%	13,463	33.1%
Work commute	14.9%	5,900	14.5%
Other work-related travel	1.2%	530	1.3%
Attend school or daycare	1.3%	401	1.0%
Transport someone	8.4%	2,987	7.4%
Shopping or errands	20.5%	9,008	22.2%
Medical/dental services	1.4%	801	2.0%
Social/recreational or fitness	7.8%	3,123	7.7%
Dining (restaurant or carryout)	7.5%	3,113	7.7%
Community, religious, and volunteer	2.7%	1,060	2.6%
Other	0.6%	235	0.6%
Missing		14	0.0%
Purpose Type			
Mandatory	17.4%	6,831	16.8%
Household-serving	30.3%	12,796	31.5%
Discretionary	17.9%	7,296	18.0%
Return home	33.8%	13,463	33.1%
Other	0.6%	235	0.6%
Missing		14	0.0%

Table 218. Trip sample table: All vehicle trips by all persons ages 5+ by demographic factors.

	Weighted	Unweighted	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All vehicle trips by all persons ages 5+		40,635	-
Sex			
Male	49.7%	19,343	47.6%
Female	50.3%	21,292	52.4%
NHTS imputed sex for 16 people.			
Age			
Child 5–15	0.1%	29	0.1%
Teen 16–17	1.2%	410	1.0%
Adult 18–64	84.6%	29,696	73.1%
Senior 65–79	12.6%	9,214	22.7%
Elderly 80+	1.5%	1,286	3.2%
Age by Sex			
Male: child 5–15	0.1%	13	0.0%
Male: teen 16–17	0.5%	182	0.4%
Male: adult 18–64	41.6%	13,553	33.4%
Male: senior 65–79	6.6%	4,902	12.1%
Male: elderly 80+	0.9%	693	1.7%
Female: child 5–15	0.0%	16	0.0%
Female: teen 16–17	0.7%	228	0.6%
Female: adult 18–64	43.0%	16,143	39.7%
Female: senior 65–79	6.0%	4,312	10.6%
Female: elderly 80+	0.6%	593	1.5%
Age Cohort (Adults Only)			
Millennial and Gen Z (18–36)	30.8%	8,110	20.0%
Gen X (37–52)	33.4%	10,576	26.0%
Pre-retirement age Boomer (53–64)	21.5%	11,010	27.1%
Retirement age (65+)	14.3%	10,500	25.8%
{Children & teens}		439	1.1%
Driver Status by Age			
Driver ages 18+	98.7%	40,196	98.9%
Nondriver ages 18+	0.0%		0.0%
Driver ages 16–17	1.2%	410	1.0%
Nondriver ages 16–17	0.0%		0.0%
Child ages 5–15	0.1%	29	0.1%
NHTS does not ask about drivers' licensing; rather, they ask "do you/does this person drive?" Some children under 16 were reported as drivers, perhaps due to learner's permits. Unless otherwise stated, drivers in the report refers only to drivers ages 16+.			
Table continues on next page.			

Continued from previous page: Sample of vehicle trips by all persons ages 5+.			
	Weighted	**Unweighted**	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All vehicle trips by all persons ages 5+		40,635	-
College-educated			
No 4-year degree	55.9%	20,785	51.2%
Bachelor's or higher	44.1%	19,825	48.8%
Missing		25	0.1%
Age <14			0.0%
Immigrant			
Nonimmigrant (born in US)	88.7%	37,682	92.7%
Immigrant (born outside of US)	11.3%	2,944	7.2%
Missing		9	0.0%
Immigrant by Education Level			
US HS or less	22.1%	8,292	20.4%
US some college/assoc.	28.6%	11,305	27.8%
US bachelor's+	38.0%	18,076	44.5%
Imm. HS or less	2.3%	510	1.3%
Imm. some college/assoc.	2.8%	678	1.7%
Imm. bachelor's+	6.1%	1,749	4.3%
N/A (age <14) or missing		25	0.1%
Caregiver Status			
Noncaregiver	62.5%	30,005	73.8%
Caregiver, youngest child ages 0–15	37.5%	10,191	25.1%
N/A (child under 18)		439	1.1%
A caregiver is defined as any adult age 18+ in a household with a child of less than 5 years old, and any adult age 22+ in a household with a child of 5–15 years old.			
Caregiver Status by Gender			
Male noncaregiver	32.5%	14,767	36.3%
Female noncaregiver	17.3%	4,381	10.8%
Male caregiver	30.0%	15,238	37.5%
Female caregiver	20.2%	5,810	14.3%
Missing		439	1.1%
Caregiver Status by Age of Youngest Child			
Noncaregiver	63.0%	30,444	74.9%
Youngest ages 0–4	17.8%	4,583	11.3%
Youngest ages 5–15	19.2%	5,608	13.8%
Table continues on next page.			

Continued from previous page: Sample of vehicle trips by all persons ages 5+.	Weighted	Unweighted	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All vehicle trips by all persons ages 5+		40,635	-
Worker Status by Age			
Nonworker ages 18+	27.6%	14,863	36.6%
Worker ages 18+	71.1%	25,333	62.3%
Nonworker ages 16–17	0.8%	259	0.6%
Worker ages 16–17	0.4%	151	0.4%
Child under 16	0.1%	29	0.1%
Race (Categories)			
White non-Hispanic only	56.8%	29,034	71.5%
Black and Black multiracial (incl. Black Hisp.)	31.4%	8,781	21.6%
Other	11.8%	2,820	6.9%
NHTS imputed race and/or Hispanic status for 74 people. See chapter 1, Assorted Definitions and Notes for more details on how race is categorized in this report.			
Race/Ethnicity *(used in Chapter 5: Equity)*			
White non-Hispanic only	56.8%	29,034	71.5%
Black and Black multiracial (excl. Black Hisp.)	30.3%	8,650	21.3%
Hispanic (any race)	8.2%	1,322	3.3%
Asian or other	4.7%	1,629	4.0%
Mobility Impairment			
Absent	95.5%	38,412	94.5%
Present	4.5%	2,205	5.4%
Missing		18	0.0%
Annual Household Income			
<$15,000	9.1%	2,944	7.2%
$15,000 to $24,999	8.2%	2,970	7.3%
$25,000 to $34,999	10.5%	3,636	8.9%
$35,000 to $49,999	13.1%	5,222	12.9%
$50,000 to $74,999	18.1%	7,585	18.7%
$75,000 to $99,999	13.0%	5,797	14.3%
$100,000+	28.0%	11,350	27.9%
Missing		1,131	2.8%
Education Level			
High school or less	24.4%	8,802	21.7%
Some college or associate degree	31.5%	11,983	29.5%
Bachelor's degree	23.8%	10,192	25.1%
Graduate or professional degree	20.3%	9,633	23.7%
Missing		25	0.1%
Age <14		0	0.0%

Table continues on next page.

Continued from previous page: Sample of vehicle trips by all persons ages 5+.			
	Weighted	**Unweighted**	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All vehicle trips by all persons ages 5+		40,635	-
College-educated			
No 4-year degree	55.9%	20,785	51.2%
Bachelor's or higher	44.1%	19,825	48.8%
Missing		25	0.1%
Age <14			0.0%
Immigrant			
Nonimmigrant (born in US)	88.7%	37,682	92.7%
Immigrant (born outside of US)	11.3%	2,944	7.2%
Missing		9	0.0%
Immigrant by Education Level			
US HS or less	22.1%	8,292	20.4%
US some college/assoc.	28.6%	11,305	27.8%
US bachelor's+	38.0%	18,076	44.5%
Imm. HS or less	2.3%	510	1.3%
Imm. some college/assoc.	2.8%	678	1.7%
Imm. bachelor's+	6.1%	1,749	4.3%
N/A (age <14) or missing		25	0.1%
Caregiver Status			
Noncaregiver	62.5%	30,005	73.8%
Caregiver, youngest child ages 0–15	37.5%	10,191	25.1%
N/A (child under 18)		439	1.1%
A caregiver is defined as any adult age 18+ in a household with a child of less than 5 years old, and any adult age 22+ in a household with a child of 5–15 years old.			
Caregiver Status by Gender			
Male noncaregiver	32.5%	14,767	36.3%
Female noncaregiver	17.3%	4,381	10.8%
Male caregiver	30.0%	15,238	37.5%
Female caregiver	20.2%	5,810	14.3%
Missing		439	1.1%
Caregiver Status by Age of Youngest Child			
Noncaregiver	63.0%	30,444	74.9%
Youngest ages 0–4	17.8%	4,583	11.3%
Youngest ages 5–15	19.2%	5,608	13.8%
Table continues on next page.			

Continued from previous page: Sample of vehicle trips by all persons ages 5+.			
	Weighted	**Unweighted**	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All vehicle trips by all persons ages 5+		40,635	-
Vehicle Deficit Category of Household			
Zero-vehicle	0.4%	115	0.3%
Deficit (hard or soft)	20.1%	4,888	12.0%
Nondeficit (sufficient/surplus)	79.5%	35,632	87.7%
A vehicle-deficit household owns at least one vehicle, but fewer vehicles than household members ages 16+ (i.e., potential drivers). See chapter 1, Vehicle Ownership for more details.			
Vehicle Deficit Category by Household Size			
Nondeficit, single potential driver	18.7%	9,386	23.1%
Nondeficit, 2+ potential drivers	60.8%	26,246	64.6%
Deficit	20.1%	4,888	12.0%
Zero-vehicle	0.4%	115	0.3%
Transit Use, Past 30 Days			
No	91.7%	38,348	94.4%
Yes	8.3%	2,263	5.6%
Missing		24	0.1%
Walking, Past 30 Days			
No	25.6%	10,058	24.8%
Yes	74.4%	30,458	75.0%
Missing		119	0.3%
Biking, Past 30 Days			
No	94.2%	38,158	93.9%
Yes	5.8%	2,471	6.1%
Missing	.	6	0.0%

Table 219. Trip sample table: All trips by all persons ages 18+ by location.

	Weighted	Unweighted	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All trips by adults ages 18+		53,203	-
MPO Tier (Residence of Traveler)			
1. Atlanta MPO counties	55.8%	15,850	29.8%
2. Medium MPO counties	15.6%	19,661	37.0%
3. Small MPO counties	10.1%	12,227	23.0%
4. Non-MPO counties	18.5%	5,465	10.3%
Addresses are classified by whether the county is part of an MPO. Medium MPOs have an MPO population of 200,001–1,000,000 people; small MPOs have a population of 200,000 or less. See chapter 1, Geography Divisions for Analysis for more details.			
MPO (Residence of Traveler)			
Albany	1.1%	1,285	2.4%
Athens	2.4%	3,292	6.2%
Atlanta	55.8%	15,850	29.8%
Augusta	3.7%	4,747	8.9%
Brunswick	1.3%	1,606	3.0%
Cartersville	0.9%	1,059	2.0%
Chattanooga	0.8%	375	0.7%
Columbus	2.5%	3,031	5.7%
Dalton	1.0%	1,250	2.3%
Gainesville	2.4%	3,291	6.2%
Hinesville	0.7%	679	1.3%
Macon	1.7%	2,070	3.9%
Rome	0.8%	1,135	2.1%
Savannah	3.8%	4,925	9.3%
Valdosta	1.1%	1,202	2.3%
Warner Robins	1.5%	1,941	3.6%
Non-MPO	18.5%	5,465	10.3%

Table continues on next page.

Continued from previous page: Sample of trips by all adults ages 18+.	Weighted	Unweighted	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All trips by adults ages 18+		53,203	-
Trip Location *(Based on Origin and Destination)*			
In Georgia	95.7%	50,724	95.3%
Partly in Georgia	1.6%	930	1.7%
Not in Georgia	2.8%	1,549	2.9%
MPO Tier (Trip Origin)			
1. Atlanta MPO	55.9%	15,992	30.1%
2. Medium MPOs	15.8%	18,171	34.2%
3. Small MPOs	10.5%	11,532	21.7%
4. Non-MPO	17.8%	5,507	10.4%
Out of state		2,001	3.8%
MPO (Trip Origin)			
Albany	2.7%	1,229	2.3%
Athens	53.9%	3,175	6.0%
Atlanta	3.6%	15,992	30.1%
Augusta	1.3%	4,432	8.3%
Brunswick	0.8%	1,493	2.8%
Cartersville	0.6%	920	1.7%
Chattanooga	2.4%	280	0.5%
Columbus	1.0%	2,862	5.4%
Dalton	2.2%	1,121	2.1%
Gainesville	0.6%	2,739	5.1%
Hinesville	1.8%	633	1.2%
Macon	0.7%	2,086	3.9%
Rome	3.7%	1,044	2.0%
Savannah	1.2%	4,683	8.8%
Valdosta	1.5%	1,188	2.2%
Warner Robins	17.2%	1,818	3.4%
Non-MPO	3.6%	5,507	10.4%
Out of state		2,001	3.8%

Table 220. Trip sample table: All trips by all persons ages 18+ by purpose.

	Weighted	Unweighted	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All trips by adults ages 18+		53,203	-
Purpose			
Home	32.8%	17,050	32.0%
Work commute	13.0%	6,715	12.6%
Other work-related travel	1.2%	693	1.3%
Attend school or daycare	1.4%	455	0.9%
Transport someone	7.1%	3,371	6.3%
Shopping or errands	19.9%	11,465	21.5%
Medical/dental services	1.6%	1,130	2.1%
Social/recreational or fitness	10.8%	5,723	10.8%
Dining (restaurant or carryout)	8.2%	4,541	8.5%
Community, religious, and volunteer	3.0%	1,480	2.8%
Other	1.1%	558	1.0%
Missing		22	0.0%
Purpose Type			
Mandatory	15.5%	7,863	14.8%
Household-serving	28.6%	15,966	30.0%
Discretionary	22.0%	11,744	22.1%
Return home	32.8%	17,050	32.0%
Other	1.1%	558	1.0%
Missing		22	0.0%

Table 221. Trip sample table: All trips by all persons ages 18+ by mode.

	Weighted	Unweighted	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All trips by adults ages 18+		53,203	-
Mode			
Pedestrian (walk/wheelchair)	7.9%	3,710	7.0%
Bike	0.6%	225	0.4%
POV, including rental car	88.0%	47,929	90.1%
School bus	0.4%	111	0.2%
Public transit	1.6%	495	0.9%
Paratransit	0.1%	53	0.1%
Other bus	0.2%	121	0.2%
Taxi/ridehail/limo	0.6%	203	0.4%
Air	0.2%	105	0.2%
Other	0.4%	249	0.5%
Missing		2	0.0%
Mode Category			
POV, including rental car	88.0%	47,929	90.1%
Nonmotorized (walk, bike, wheelchair)	8.4%	3,937	7.4%
Public transit or other bus/train	2.2%	727	1.4%
Other ground or water	1.2%	503	0.9%
Air	0.2%	105	0.2%
Missing		2	0.0%
Vehicle or Person Trip			
Person trip only	27.8%	13,007	24.4%
Vehicle trip and person trip	72.2%	40,196	75.6%

See chapter 1, Key Terms for more explanation of the relationship between person trips and vehicle trips.

Table 222. Trip sample table: All trips by all persons ages 18+ by demographic factors.

	Weighted	Unweighted	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All trips by adults ages 18+		53,203	-
Sex			
Male	47.6%	23,982	45.1%
Female	52.4%	29,221	54.9%
NHTS imputed sex for 16 people.			
Age			
Child 5–15			
Teen 16–17			
Adult 18–64	85.4%	38,862	73.0%
Senior 65–79	12.6%	12,333	23.2%
Elderly 80+	1.9%	2,008	3.8%
Age by Sex			
Male: adult 18–64	40.7%	17,067	32.1%
Male: senior 65–79	6.1%	5,958	11.2%
Male: elderly 80+	0.8%	957	1.8%
Female: adult 18–64	44.7%	21,795	41.0%
Female: senior 65–79	6.5%	6,375	12.0%
Female: elderly 80+	1.1%	1,051	2.0%
Age Cohort (Adults Only)			
Millennial and Gen Z (18–36)	32.8%	11,175	21.0%
Gen X (37–52)	31.3%	13,382	25.2%
Pre-retirement age Boomer (53–64)	21.3%	14,305	26.9%
Retirement age (65+)	14.6%	14,341	27.0%
Driver Status by Age			
Driver ages 18+	93.1%	50,924	95.7%
Nondriver ages 18+	6.9%	2,279	4.3%
NHTS does not ask about drivers' licensing; rather, they ask "do you/does this person drive?" Some children under 16 were reported as drivers, perhaps due to learner's permits. Unless otherwise stated, drivers in the report refers only to drivers ages 16+.			
Table continues on next page.			

Continued from previous page: Sample of trips by all adults ages 18+.			
	Weighted	**Unweighted**	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All trips by adults ages 18+		53,203	-
Worker Status by Age			
Nonworker ages 18+	32.9%	21,847	41.1%
Worker ages 18+	67.1%	31,356	58.9%
Race (Categories)			
White non-Hispanic only	55.8%	37,628	70.7%
Black and Black multiracial (incl. Black Hisp.)	31.7%	11,625	21.9%
Other	12.5%	3,950	7.4%
NHTS imputed race and/or Hispanic status for 74 people. See chapter 1, Assorted Definitions and Notes for more details on how race is categorized in this report.			
Race/Ethnicity *(used in chapter 5, Equity)*			
White non-Hispanic only	55.8%	37,628	70.7%
Black and Black multiracial (excl. Black Hisp.)	30.8%	11,474	21.6%
Hispanic (any race)	8.6%	1,822	3.4%
Asian or other	4.9%	2,279	4.3%
Mobility Impairment			
Absent	93.4%	49,257	92.6%
Present	6.6%	3,923	7.4%
Missing		23	
Annual Household Income			
<$15,000	12.7%	4,988	9.4%
$15,000 to $24,999	8.5%	3,990	7.5%
$25,000 to $34,999	10.1%	4,739	8.9%
$35,000 to $49,999	12.7%	6,597	12.4%
$50,000 to $74,999	16.6%	9,595	18.0%
$75,000 to $99,999	12.5%	7,340	13.8%
$100,000+	26.9%	14,467	27.2%
Missing		1,487	2.8%
Education Level			
High school or less	27.0%	12,295	23.1%
Some college or associate degree	30.1%	15,283	28.7%
Bachelor's degree	23.2%	12,999	24.4%
Graduate or professional degree	19.7%	12,566	23.6%
Missing		60	0.1%
Table continues on next page.			

Continued from previous page: Sample of trips by all adults ages 18+.

	Weighted	Unweighted	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All trips by adults ages 18+		53,203	-
College-educated			
No 4-year degree	57.1%	27,578	51.8%
Bachelor's or higher	42.9%	25,565	48.1%
Immigrant			
Nonimmigrant (born in US)	88.6%	49,199	92.5%
Immigrant (born outside of US)	11.4%	3,993	7.5%
Missing		11	0.0%
Immigrant by Education Level			
US HS or less	24.2%	11,535	21.7%
US some college/assoc.	27.6%	14,407	27.1%
US bachelor's+	36.8%	23,223	43.6%
Imm. HS or less	2.8%	760	1.4%
Imm. some college/assoc.	2.5%	876	1.6%
Imm. bachelor's+	6.1%	2,342	4.4%
N/A (age <14) or missing		60	0.1%
Caregiver Status			
Noncaregiver	65.4%	40,602	76.3%
Caregiver, youngest child ages 0–15	34.6%	12,601	23.7%
A caregiver is defined as any adult age 18+ in a household with a child of less than 5 years old, and any adult age 22+ in a household with a child of 5–15 years old.			
Caregiver Status by Gender			
Male noncaregiver	32.3%	18,754	35.2%
Female noncaregiver	15.3%	5,228	9.8%
Male caregiver	33.1%	21,848	41.1%
Female caregiver	19.3%	7,373	13.9%
Missing			
Caregiver Status by Age of Youngest Child			
Noncaregiver	65.4%	40,602	76.3%
Youngest ages 0–4	16.6%	5,687	10.7%
Youngest ages 5–15	18.0%	6,914	13.0%

Table continues on next page.

Continued from previous page: Sample of trips by all adults ages 18+.			
	Weighted	**Unweighted**	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All trips by adults ages 18+		53,203	-
Vehicle Deficit Category of Household			
Zero-vehicle	4.1%	1,603	3.0%
Deficit (hard or soft)	23.4%	7,517	14.1%
Nondeficit (sufficient/surplus)	72.5%	44,083	82.9%
A vehicle-deficit household owns at least one vehicle, but fewer vehicles than household members ages 16+ (i.e., potential drivers). See chapter 1, Vehicle Ownership for more details.			
Vehicle Deficit Category by Household Size			
Nondeficit, single potential driver	16.2%	10,870	20.4%
Nondeficit, 2+ potential drivers	56.3%	33,213	62.4%
Deficit	23.4%	7,517	14.1%
Zero-vehicle	4.1%	1,603	3.0%
Transit Use, Past 30 Days			
No	87.5%	48,610	91.4%
Yes	12.5%	4,549	8.6%
Missing		44	0.1%
Walking, Past 30 Days			
No	23.4%	12,378	23.3%
Yes	76.6%	40,645	76.4%
Missing		180	0.3%
Biking, Past 30 Days			
No	93.3%	49,577	93.2%
Yes	6.7%	3,605	6.8%
Missing		21	0.0%

Table 223. Trip sample table: All vehicle trips by all persons ages 18+ by location.

	Weighted	Unweighted	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All vehicle trips by adults ages 18+		40,196	
MPO Tier (Residence of Traveler)			
1. Atlanta MPO counties	55.8%	11,790	29.3%
2. Medium MPO counties	15.3%	14,926	37.1%
3. Small MPO counties	10.3%	9,358	23.3%
4. Non-MPO counties	18.7%	4,122	10.3%
Addresses are classified by whether the county is part of an MPO. Medium MPOs have an MPO population of 200,001–1,000,000 people; small MPOs have a population of 200,000 or less. See chapter 1, Geographic Divisions for Analysis for more details.			
MPO (Residence of Traveler)			
Albany	1.1%	989	2.5%
Athens	2.2%	2,290	5.7%
Atlanta	55.8%	11,790	29.3%
Augusta	3.8%	3,692	9.2%
Brunswick	1.3%	1,204	3.0%
Cartersville	0.9%	841	2.1%
Chattanooga	0.8%	311	0.8%
Columbus	2.6%	2,430	6.0%
Dalton	1.0%	959	2.4%
Gainesville	2.4%	2528	6.3%
Hinesville	0.8%	567	1.4%
Macon	1.7%	1,554	3.9%
Rome	0.7%	846	2.1%
Savannah	3.5%	3,675	9.1%
Valdosta	1.2%	907	2.3%
Warner Robins	1.5%	1,491	3.7%
Non-MPO	18.7%	4,122	10.3%
Table continues on next page.			

Continued from previous page: Sample of vehicle trips by all adults ages 18+

All vehicle trips by adults ages 18+		40,196	-
Trip Location *(Based on Origin and Destination)*			
In Georgia	97.2%	38,920	96.8%
Partly in Georgia	1.2%	634	1.6%
Not in Georgia	1.6%	642	1.6%
MPO Tier (Trip Origin)			
1. Atlanta MPO	56.1%	12,140	30.2%
2. Medium MPOs	15.4%	13,988	34.8%
3. Small MPOs	10.8%	8,994	22.4%
4. Non-MPO	17.7%	4,120	10.2%
Out of state		954	2.4%
MPO (Trip Origin)			
Albany	1.2%	958	2.4%
Athens	2.4%	2,264	5.6%
Atlanta	54.9%	12,140	30.2%
Augusta	3.6%	3,508	8.7%
Brunswick	1.4%	1,158	2.9%
Cartersville	0.8%	720	1.8%
Chattanooga	0.6%	228	0.6%
Columbus	2.5%	2,311	5.7%
Dalton	0.9%	877	2.2%
Gainesville	2.3%	2,142	5.3%
Hinesville	0.8%	537	1.3%
Macon	1.8%	1,600	4.0%
Rome	0.7%	791	2.0%
Savannah	3.5%	3,535	8.8%
Valdosta	1.3%	917	2.3%
Warner Robins	1.7%	1,436	3.6%
Non-MPO	17.3%	4,120	10.2%
Out of state	2.2%	954	2.4%

Table 224. Trip sample table: All vehicle trips by all persons ages 18+ by purpose.

	Weighted	Unweighted	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All vehicle trips by adults ages 18+		40,196	-
Purpose			
Home	33.7%	13,291	33.1%
Work commute	15.0%	5,868	14.6%
Other work-related travel	1.3%	528	1.3%
Attend school or daycare	1.1%	311	0.8%
Transport someone	8.4%	2,967	7.4%
Shopping or errands	20.6%	8,969	22.3%
Medical/dental services	1.5%	801	2.0%
Social/recreational or fitness	7.7%	3,081	7.7%
Dining (restaurant or carryout)	7.4%	3,082	7.7%
Community, religious, and volunteer	2.7%	1,052	2.6%
Other	0.6%	232	0.6%
Missing		14	0.0%
Purpose Type			
Mandatory	17.4%	6,707	16.7%
Household-serving	30.5%	12,737	31.7%
Discretionary	17.9%	7,215	17.9%
Return home	33.7%	13,291	33.1%
Other	0.6%	232	0.6%
Missing		14	0.0%

Table 225. Trip sample table: All vehicle trips by all persons ages 18+ by demographic factors.

	Weighted	Unweighted	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All vehicle trips by adults ages 18+		40,196	-
Sex			
Male	49.8%	19,148	47.6%
Female	50.2%	21,048	52.4%
NHTS imputed sex for 16 people.			
Age			
Child 5–15	0.0%		
Teen 16–17	0.0%		
Adult 18–64	85.7%	29,696	73.9%
Senior 65–79	12.8%	9,214	22.9%
Elderly 80+	1.5%	1,286	3.2%
Age by Sex			
Male: adult 18–64	42.2%	13,553	33.7%
Male: senior 65–79	6.7%	4,902	12.2%
Male: elderly 80+	0.9%	693	1.7%
Female: adult 18–64	43.5%	16,143	40.2%
Female: senior 65–79	6.1%	4,312	10.7%
Female: elderly 80+	0.6%	593	1.5%
Age Cohort (Adults Only)			
Millennial and Gen Z (18–36)	30.8%	8,110	20.2%
Gen X (37–52)	33.4%	10,576	26.3%
Pre-retirement age Boomer (53–64)	21.5%	11,010	27.4%
Retirement age (65+)	14.3%	10,500	26.1%
Driver Status by Age			
Driver ages 18+			
Nondriver ages 18+			
NHTS does not ask about drivers' licensing; rather, they ask "do you/does this person drive?" Some children under 16 were reported as drivers, perhaps due to learner's permits. Unless otherwise stated, drivers in the report refers only to drivers ages 16+.			
Table continues on next page.			

Continued from previous page: Sample of weekday trips by all adults ages 5+.			
	Weighted	**Unweighted**	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All vehicle trips by adults ages 18+		40,196	-
Worker Status by Age			
Nonworker ages 18+	28.0%	14,863	37.0%
Worker ages 18+	72.0%	25,333	63.0%
Race (Categories)			
White non-Hispanic only	56.5%	28,685	71.4%
Black and Black multiracial (incl. Black Hisp.)	31.6%	8,716	21.7%
Other	11.9%	2,795	7.0%
NHTS imputed race and/or Hispanic status for 74 people. See chapter 1, Assorted Definitions and Notes for more details on how race is categorized in this report.			
Race/Ethnicity *(used in chapter 5, Equity)*			
White non-Hispanic only	56.5%	28,685	71.4%
Black and Black multiracial (excl. Black Hisp.)	30.5%	8,591	21.4%
Hispanic (any race)	8.2%	1,301	3.2%
Asian or other	4.7%	1,619	4.0%
Mobility Impairment			
Absent	95.5%	37,973	94.5%
Present	4.5%	2,205	5.5%
Missing		18	0.0%
Annual Household Income			
<$15,000	9.1%	2,919	7.3%
$15,000 to $24,999	8.3%	2,968	7.4%
$25,000 to $34,999	10.5%	3,614	9.0%
$35,000 to $49,999	13.2%	5,183	12.9%
$50,000 to $74,999	18.2%	7,514	18.7%
$75,000 to $99,999	13.1%	5,717	14.2%
$100,000+	27.7%	11,158	27.8%
Missing		1,123	2.8%
Education Level			
High school or less	23.5%	8,370	20.8%
Some college or associate degree	31.9%	11,979	29.8%
Bachelor's degree	24.1%	10,192	25.4%
Graduate or professional degree	20.6%	9,631	24.0%
Missing		24	0.1%
Table continues on next page.			

Continued from previous page: Sample of weekday trips by all adults ages 5+.			
	Weighted	**Unweighted**	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All vehicle trips by adults ages 18+		40,196	-
College-educated			
No 4-year degree	55.4%	20,349	50.6%
Bachelor's or higher	44.6%	19,823	49.3%
Immigrant			
Nonimmigrant (born in US)	88.6%	37,275	92.7%
Immigrant (born outside of US)	11.4%	2,912	7.2%
Missing		9	0.0%
Immigrant by Education Level			
US HS or less	21.2%	7,892	19.6%
US some college/assoc.	29.0%	11,301	28.1%
US bachelor's+	38.5%	18,074	45.0%
Imm. HS or less	2.3%	478	1.2%
Imm. some college/assoc.	2.9%	678	1.7%
Imm. bachelor's+	6.1%	1,749	4.4%
N/A (age <14) or missing		24	0.1%
Caregiver Status			
Noncaregiver	62.5%	30,005	74.6%
Caregiver, youngest child ages 0–15	37.5%	10,191	25.4%
A caregiver is defined as any adult age 18+ in a household with a child of less than 5 years old, and any adult age 22+ in a household with a child of 5–15 years old.			
Caregiver Status by Gender			
Male noncaregiver	32.5%	14,767	36.7%
Female noncaregiver	17.3%	4,381	10.9%
Male caregiver	30.0%	15,238	37.9%
Female caregiver	20.2%	5,810	14.5%
Missing			
Caregiver Status by Age of Youngest Child			
Noncaregiver	62.5%	30,005	74.6%
Youngest ages 0–4	18.0%	4,583	11.4%
Youngest ages 5–15	19.5%	5,608	14.0%
Table continues on next page.			

Continued from previous page: Sample of weekday trips by all adults ages 5+.	Weighted	Unweighted	
	Percent (Nonmissing Observations)	**Sample Size, N**	**Percent** (All Observations)
All vehicle trips by adults ages 18+		40,196	-
Vehicle Deficit Category of Household			
Zero-vehicle	0.4%	112	0.3%
Deficit (hard or soft)	20.1%	4,817	12.0%
Nondeficit (sufficient/surplus)	79.5%	35,267	87.7%
A vehicle-deficit household owns at least one vehicle, but fewer vehicles than household members ages 16+ (i.e., potential drivers). See chapter 1, Vehicle Ownership for more details.			
Vehicle Deficit Category by Household Size			
Nondeficit, single potential driver	18.9%	9,383	23.3%
Nondeficit, 2+ potential drivers	60.5%	25,884	64.4%
Deficit	20.1%	4,817	12.0%
Zero-vehicle	0.4%	112	0.3%
Transit Use, Past 30 Days			
No	91.7%	37,940	94.4%
Yes	8.3%	2,232	5.6%
Missing		24	0.1%
Walking, Past 30 Days			
No	25.5%	9,894	24.6%
Yes	74.5%	30,183	75.1%
Missing		119	0.3%
Biking, Past 30 Days			
No	94.3%	37,744	93.9%
Yes	5.7%	2,446	6.1%
Missing		6	0.0%

Table 226. Work journey/commute sample table: Location, distance, and mode.

	Weighted	Unweighted	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All work journeys by adults ages 18+		10,490	
MPO Tier (Residence of Traveler)			
1. Atlanta MPO counties	56.9%	3,334	31.8%
2. Medium MPO counties	15.2%	3,848	36.7%
3. Small MPO counties	9.9%	2,330	22.2%
4. Non-MPO counties	18.0%	978	9.3%
MPO (Residence of Traveler)			
Albany	1.2%	274	2.6%
Athens	2.1%	605	5.8%
Atlanta	56.9%	3,334	31.8%
Augusta	3.9%	990	9.4%
Brunswick	1.1%	242	2.3%
Cartersville	0.8%	195	1.9%
Chattanooga	0.9%	88	0.8%
Columbus	2.4%	620	5.9%
Dalton	1.1%	243	2.3%
Gainesville	1.7%	523	5.0%
Hinesville	1.0%	186	1.8%
Macon	1.9%	429	4.1%
Rome	0.5%	137	1.3%
Savannah	4.1%	1,022	9.7%
Valdosta	1.0%	244	2.3%
Warner Robins	1.2%	380	3.6%
Non-MPO	18.0%	978	9.3%
WJ Type			
Simple (no stops)	75.8%	7,872	75.0%
Complex (one or more stops)	24.2%	2,618	25.0%
Supercommute (WJ > 100 mi)			
Not a supercommute (WJ PMT <100 mi)	99.2%	10,378	98.9%
Supercommute (WJ >100 mi)	0.8%	85	0.8%
Missing		27	0.3%
Mode			
POV	92.8%	9,994	95.3%
Nonmotorized (walk, bike wheelchair)	2.3%	171	1.6%
Public transit or other bus/train	2.6%	149	1.4%
Other ground or water	0.9%	50	0.5%
Air or air multimodal	0.1%	6	0.1%
Multimodal with POV	0.8%	98	0.9%
Multimodal, no POV	0.5%	20	0.2%
Missing		2	0.0%
Note: Work journeys and commutes are the same in terms of sample size; the two differ in terms of distance and duration. See chapter 2 for more details.			

Table 227. Work journey/commute sample table: Stops, driving, and time of day.

	Weighted	Unweighted	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All work journeys by adults ages 18+		10,490	
WJ Type			
Simple (no stops)	75.8%	7,872	75.0%
Complex (one or more stops)	24.2%	2,618	25.0%
Number and Duration of WJ Stops (Complex WJ Only)			*0.0%*
Direct (no stops)	75.8%	7,872	75.0%
Single short stop (<30 min)	13.3%	1,345	12.8%
Single long stop (30+ min)	5.0%	616	5.9%
Multiple short	2.5%	265	2.5%
Short + long or multiple long	3.5%	392	3.7%
Purpose of Stop(s) (Complex WJ Only)			*0.0%*
Shopping	10.7%	1,162	11.1%
Transport others	6.9%	673	6.4%
Dining	5.0%	566	5.4%
Social, recreational or fitness	2.6%	324	3.1%
Other work	0.7%	110	1.0%
Other nonwork	3.3%	329	3.1%
Note: Categories are not mutually exclusive. WJ may contain stops for more than one purpose.			
Drive Alone for Entire POV			
No	31.5%	2,723	26.0%
Yes	68.5%	7,767	74.0%
Driver Status for WJ			
Drive alone all POV legs	69.1%	7,833	74.7%
Family sharing: drive with household passenger for 1+ legs	6.7%	648	6.2%
Carpool driver: drive with nonhousehold passenger for 1+ legs	9.1%	963	9.2%
Both carpool and family sharing	1.7%	157	1.5%
Drive alone + ride as pax	0.2%	33	0.3%
All POV legs as passenger	6.7%	458	4.4%
No POV legs	6.4%	398	3.8%
Peak Category			
AM peak (6am–9:59am)	35.2%	3,873	36.9%
Midday (10am–2:59 pm)	15.8%	1,589	15.1%
PM peak (3pm–6:59 pm)	35.1%	3,846	36.7%
Overnight (7pm–6:59am)	13.9%	1,182	11.3%
Note: Work journeys and commutes are the same in terms of sample size; the two differ in terms of distance and duration. See chapter 2 for more details.			

Table 228. Work journey/commute sample table: Traveler characteristics.

	Weighted	Unweighted	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All work journeys by adults ages 18+		10,490	
Worker Status of Commuter			
Not an NHTS-defined worker	1.2%	150	1.4%
NHTS-defined worker	98.8%	10,340	98.6%
NHTS defines a worker as someone who worked for pay or profit, or was temporarily absent from paid employment, in the week before completing the travel survey ("last week"). A small number of people who were not NHTS-designated workers nevertheless reported work travel on their travel day, perhaps reflecting irregular employment situations.			
Occupational Category			
Sales or service	27.2%	2,365	22.5%
Clerical or administrative support	9.0%	1,045	10.0%
Blue collar*	19.8%	1,603	15.3%
Professional, managerial, or technical	43.9%	5,260	50.1%
Other	0.2%	11	0.1%
Missing		206	2.0%
** Blue collar refers to manufacturing, construction, maintenance, or farming.*			
Worker Type			
Full-time	16.4%	1,608	15.3%
Part-time	83.6%	8,830	84.2%
Missing		52	0.5%
Sex			
Male	56.3%	5,437	51.8%
Female	43.7%	5,053	48.2%
Age Cohort (Adults Only)			
Millennial and Gen Z (18–36)	40.5%	3,145	30.0%
Gen X (37–52)	35.3%	3,543	33.8%
Pre-retirement age Boomer (53–64)	19.9%	2,992	28.5%
Retirement age (65+)	4.3%	810	7.7%
Driver Status			
Nondriver	5.6%	291	2.8%
Driver	94.4%	10,199	97.2%
Race (categories)			
White non-Hispanic only	53.4%	7,199	68.6%
Black and black multiracial (incl. black Hispanic)	32.3%	2,394	22.8%
Other	14.3%	897	8.6%
See chapter 1, Assorted Definitions and Notes for more details on how race is categorized in this report.			
Table continues on next page.			

Continued from previous page: Sample of work journeys by adults ages 18+.			
	Weighted	**Unweighted**	
	Percent *(Nonmissing Observations)*	**Sample Size, N**	***Percent*** *(All Observations)*
All work journeys by adults ages 18+		10,490	
Mobility impairment			
Absent	98.7%	10,336	98.5%
Present	1.3%	150	1.4%
Missing		4	0.0%
A mobility impairment is defined as a "condition or handicap that makes it difficult to travel outside of the home."			
Annual Household Income			
<$35,000	28.0%	2,148	20.5%
$35,000 to $49,999	13.2%	1,345	12.8%
$50,000 to $74,999	18.0%	1,965	18.7%
$75,000 to $99,999	14.4%	1,657	15.8%
$100,000+	26.3%	3,161	30.1%
Missing		214	2.0%
Education Level			
High school or less	27.6%	2,226	21.2%
Some college or associate degree	31.4%	3,152	30.0%
Bachelor's degree	23.3%	2,641	25.2%
Graduate or professional degree	17.7%	2,460	23.5%
Missing		11	0.1%
College-educated			
No 4-year degree	59.0%	5,378	51.3%
Bachelor's or higher	41.0%	5,101	48.6%
Missing		11	0.1%
Caregiver Status			
Noncaregiver	63.8%	7,520	71.7%
Caregiver, youngest child ages 0–15	36.2%	2,970	28.3%
A caregiver is defined as any adult age 18+ in a household with a child of less than 5 years old, and any adult age 22+ in a household with a child of 5–15 years old.			
Caregiver Status by Gender			
Male noncaregiver	36.3%	3,850	36.7%
Female noncaregiver	20.0%	1,587	15.1%
Male caregiver	27.5%	3,670	35.0%
Female caregiver	16.2%	1,383	13.2%
Caregiver Status by Age of Youngest Child			
Noncaregiver	63.8%	7,520	71.7%
Youngest ages 0–4	16.9%	1,308	12.5%
Youngest ages 5–15	19.3%	1,662	15.8%
Vehicle Deficit Category by Household Size			
Nondeficit, single potential driver	14.7%	1,905	18.2%
Nondeficit, 2+ potential drivers	60.5%	7,098	67.7%
Deficit	22.3%	1,314	12.5%
Zero-vehicle	2.6%	173	1.6%
Note: Work journeys and commutes are the same in terms of sample size; the two differ in terms of distance and duration. See chapter 2 for more details.			
A vehicle-deficit household owns at least one vehicle, but fewer vehicles than household members ages 16+ (i.e., potential drivers). See chapter 1, Vehicle Ownership for more details.			

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