COVID-19 MOBILITY SURVEY

FINAL PROJECT REPORT

by

Anne Vernez Moudon and Jeff Ban
Principal Investigators
University of Washington

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Pacific Northwest Transportation Consortium (PacTrans)
USDOT University Transportation Center for Federal Region 10
University of Washington
More Hall 112, Box 352700
Seattle, WA 98195-2700

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16. Abstract

The study seeks to contribute to programs in Transportation Demand Management (TDM) and Commute Trip Reduction (CTR), with the specific aim to reduce vehicle miles traveled (VMT) and to increase related co-benefits in the forms of reduced traffic congestion and environmental pollution. The study explores lessons learned from the Covid-19 pandemic when a large proportion of the population was forced to work from home as the result of lockdown policies implemented at the beginning of the outbreak. The pandemic-induced natural experiment on teleworking afforded rich information on who future commuters might be who could be targeted to continue to telework successfully after the pandemic subsides.

Data come from a 4,506-respondent survey administered in the Spring of 2020. Of those, 2,174 lived in Puget Sound and had been forced to switched from working away from home to working from home. Respondents who reported being equally or more productive as they worked from home were *older professionals, living with a partner but not with children, and not working in the education sector*. From the TDM and CTR perspectives, it was promising to find out that respondents who drove to work before Covid were more likely to report being equally or more productive when working from home. In contrast, respondents who walked to work were less likely to be more productive when working from home. The study provides useful information on the types of commuters who could be encouraged to continue working from home once the pandemic is under control.

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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)		
°F	Fahrenheit	5 (F-32)/9 or (F-32)/1.8	Celsius	°C
		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)		
°C	Celsius	1.8C+32	Fahrenheit	°F
		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

*SI is the symbol for the International System of Units. Appropriate rounding should be made to comply with Section 4 of ASTM E380. (Revised March 2003)

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LIST OF ABBREVIATIONS

CTR = Commute trip reduction

PacTrans = Pacific Northwest Transportation Consortium

PPO = Partial proportional odds

PSRC = Puget Sound Regional Council

TDM = Transportation demand management

UW = University of Washington

VIF = Variance inflation factor

VMT = Vehicle miles traveled

WSDOT = Washington State Department of Transportation

ACKNOWLEDGMENTS

EXECUTIVE SUMMARY

Background

This project was part of long-standing work program by the team on approaches to Transportation Demand Management (TDM), with the specific aim to reduce vehicle miles traveled (VMT) and to increase related co-benefits in the forms of reduced traffic congestion and environmental pollution. Covid-19 early lockdown in Washington State presented a unique opportunity for the team to study telecommuting as a promising aspect of broader Commute Trip Reduction (CTR) programs. Generally, the lockdown would help understand the effects of working from home on and individual's daily life, including work conditions and performance, on family and other social relations, on routine activities such as food shopping and using social media, and on general well-being. Specifically, this understanding would help identify those persons who would be the better candidates for teleworking *after* the pandemic had subsided. Having a profile of teleworkers who could not only remain productive in their work, but could also live a harmonious and healthy life while working from home, would guide transportation planners and policy makers in the development and promotion of effective telecommuting programs under "normal" (non-pandemic) circumstances.

Survey

We developed and administered a 20-minute on-line survey, consisting of several sets of questions: on commute mode and duration before Covid; on working conditions during Covid (time spent working, time spent and media used communicating with co-workers, perceived productivity and related reasons); on changes in lifestyle after Covid (travel behaviors, activities carried out outside of the home, food acquisition, physical activity, sleep, social interactions, social media use, personal hobbies, etc.); and on general changes in well-being (frequency and duration of such mental states as anxiety, depression, fear, etc.). All respondents provided information on sociodemographic and economic characteristics (age, gender, income, employment, education, housing status, living arrangement, dog ownership, car ownership).

Results

Data were collected over the course of six weeks from April to June 2020. Of the 4,506 respondents, 80 percent reported working away from home before Covid-19, and 86 percent reported working from home during the lockdown period.

The sample of respondents living in the Puget Sound included 2,174 surveyed adults who were teleworking following the implementation of the Covid-19 work-from-home policy. Of those, 23.8 percent reported an increase in productivity, 37.6 percent no change, and 38.6 percent a decrease in productivity in comparison to working at their workplace. A minority of these respondents reported having problems with home equipment or the internet and with having to do additional housework tasks.

Food acquisition patterns changed, with some impact on travel behavior. The frequencies of restaurant take-out and curb-side pickup increased for almost half of the sample, suggesting likely increases in food-related trips. There were decreases in physical activity and increases in screen time for leisure. Positive and negative changes in the amount and quality of sleep seemed to be equally distributed. The population reported being moderately nervous (38 percent), tense (45 percent), or fearful (54 percent), while only a minority reported being scared, panicked, or restless. Overall, living during lockdown clearly affected activity and well-being.

A novel outcome of the study was the ability to identify the characteristics of individuals who would be more likely to feel either more or equally as productive when working from home in comparison to working away from home. Models of the Puget Sound population helped to sketch a profile of persons able to be "successful" at working from home. We found that teleworkers who were more likely to report no change or an increase in productivity when working from home were older professionals, living with a partner but not with children, who had average educational attainment and were not working in the education sector. Furthermore, longer drives as a pre-pandemic commute mode were associated with a higher likelihood of reporting being more productive after transiting to working from home. This suggested that appropriate targets for post-pandemic teleworkers could positively reduce traffic congestion with few if any repercussions on the quality of work being produced. In contrast, those teleworkers who walked to work before the pandemic seemed to be less likely to work more productively from home, suggesting that a portion of the working population should be encouraged to continue to walk to work. Pre-pandemic commute numbers were attractive: 35 percent of workers drove and 17 percent walked to work three or more days per week. Therefore, in addition to using sociodemographic characteristics to identify likely successful teleworkers, Commute Trip Reduction programs could target potential teleworkers on the basis of their principal commute mode.

### Subsequent Fall 2020 Survey and Tech Transfer

A second survey was administered in Fall 2020 to probe for any changes in behaviors or perceptions as the pandemic continued to restrict everyday life and to require teleworking for a much longer period than had been originally anticipated. Parts of the original survey were replaced by new questions to capture information on essential workers (those workers who had continued to commute to work during the pandemic) because it became increasingly evident that essential workers were more numerous than had been anticipated. New questions also probed the housing conditions in which people lived, as those would clearly affect the convenience and comfort of working from home. Finally, we wanted to probe the potential changes in residential location and characteristics of commute trips once Covid-19 subsided.

Reports on the Spring and Fall waves of the COVID-19 Mobility Survey have been posted by the Puget Sound Regional Council at https://www.psrc.org/covid-19-mobility-survey.

CHAPTER 1. INTRODUCTION

Teleworking has long been considered an effective approach for reducing traffic congestion during commute times. Both public and private agencies have either encouraged or accommodated their employees to work from home for at least part of the week. However, this form of work had not been widely practiced until the Covid-19 pandemic spread globally in March 2020. At that time, governments in many countries—but especially those in Asia, Europe and the Americas—instituted policies that required every employed person who could do so to work from home in order to control the spread of the disease. Work-from-home mandates were accompanied by restricted social relations and movement beyond home. These so-called lockdowns were extended incrementally, based on data on rates of infections, hospitalizations, and deaths. In many places, schools were also closed. However dire, the situation presented a unique opportunity to study people of all ages, statuses, and affiliations as their reduced mobility reshaped—and often radically changed—their relationship to work and workplace, as well as to public life and public spaces and places. The lockdowns were natural experiments that could not have been constructed under "normal" circumstances" (Organisation for Economic Co-operation and Development 2020).

This project was part of long-standing and ongoing work by the team on approaches to transportation demand management (TDM), with the specific aim to reduce vehicle miles traveled (VMT) and increase related co-benefits in the forms of reduced traffic congestion and environmental pollution. The early lockdown in Washington state was an opportunity to study telecommuting as part of broader commute trip reduction (CTR) programs. The situation in which large parts of the population were not commuting because they were working from home and were restricted in their travel for social and leisure purposes could benefit the transportation system by reducing vehicular traffic congestion, as well as the associated environmental costs of high traffic volumes (Hook et al. 2020) (figure 1-1).
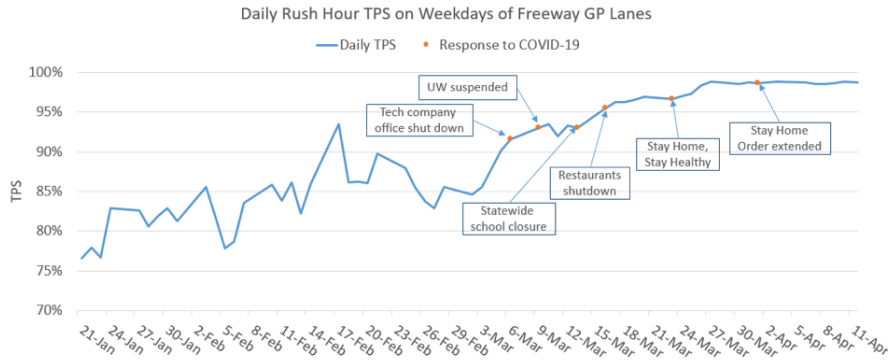
Figure 1-1. Detailed trend of the Traffic Performance Score (TPS) since Governor Inslee announced the "Stay Home, Stay Healthy" mandate, after which the TPS remained around 98 percent (Source: STAR Lab 2020 https://www.ce.washington.edu/news/article/2020-05-12/measuring-traffic-performance-during-covid-19)

Furthermore, the lockdowns provided the opportunity to understand the effects of working from home on individual daily life, including work conditions and performance (Ruth and Imran 2008), family and other social relations, activities including use of social media (Vithayathil et al. 2020), and well-being.

Following the example of colleagues who had experienced Covid-related lockdowns in China a few months earlier, as well as that of colleagues in public health interested in the effects of lifestyle changes on well-being, we designed a study of the effects of working from home on travel behavior, well-being, and work productivity (Neufeld and Fang 2005; Nakrošienė et al. 2019). The specific premise was that the Covid lockdown offered a window through which we could identify those who would be the better or best candidates for teleworking *after* the pandemic had subsided. Having a clear profile of teleworkers who could not only remain productive in their work (Ruth and Chaudhry 2008) but could also live a harmonious and healthy life while working from home would be extremely useful for transportation planners and policy makers. It would guide them in developing and promoting telecommuting programs under "normal" (non-pandemic) circumstances.

To assemble information on such productive and healthy teleworkers, we constructed a survey intended to extract information on travel behavior, work-related productivity, and physical and mental well-being from respondents. Parallel information on the socio-demographic

characteristics and residential locations of individuals working from home would complete the construction of the "successful" teleworker's profile.

CHAPTER 2. METHODS

2.1. Survey

A survey instrument was assembled at the end of March 2020. Exclusion criteria included being younger than 18 years and no interest in participating. Survey questions were directed to participants grouped by their employment status: (1) before the Covid lockdown (those not employed, not a student, working from home; employed, a student, working away from home); and (2) after the Covid lockdown was implemented (those who started working from home, who continued working away from home, were no longer employed). The survey was structured into four parts to address the participants' different working situations and capture the characteristics of their daily lives in different *domains*:

- For those who the Covid lockdown forced into working from home: their *conditions while working* (time spent working, time spent and media used communicating with co-workers; perceived productivity and related reasons); and their pre-Covid *commute mode and duration.*

- For all who worked from home (before and after Covid), the general *changes in their lifestyle* after Covid: mode, purpose, and frequency of trips taken from home; changes made to activities outside of the home, social distancing and other protective ways to avoid infection; changes in means of food acquisition; changes in the amount and duration of activities (physical activity, sleep, social interactions, social media use, personal hobbies, etc.) (Kucharczyk et al. 2012); and general *changes in well-being* such as frequency and duration of different mental states (anxiety, depression, fear, etc.).

- For all respondents, their *sociodemographic and economic characteristics* (age, gender, income, employment, education, housing status, living arrangement, dog ownership, car ownership).

Some of the questions on mobility were borrowed from surveys by colleagues at Tongji University, Shanghai. Questions on well-being were from a Washington State University Twin Registry survey using validated questions (Kroenke et al. 2005; Duncan et al. 2020). We used these questions to potentially facilitate cross-comparisons between studies.

The survey was fitted into the Catalyst WebQ software of the University of Washington. Two waves of piloting were conducted, first to check the efficacy of the questions' wording and

second to test the logic of the flow of questions asked. To probe the conditions and reactions to working from home under mandated conditions (as distinct from self-selected conditions), we purposefully focused on respondents who had worked away from home before the pandemic and were constrained to work from home after the lockdown mandates. Note that in the second deployment of the survey (Fall 2020), we included so-called essential workers (see Further Work and Tech Transfer).

The survey instrument was piloted with doctoral students and associated faculty in university departments of Transportation Planning and Engineering and Urban Design and Planning. The final version of the instrument (found in Appendix A) and the survey protocols were approved by the University of Washington Human Subjects Division. Data sharing agreements were developed with all researchers and colleagues who asked to have access to the data (Appendix B).

Outreach for the survey was conceived of as yielding a convenience sample of commuters in the Puget Sound region. We aimed to reach out to as many commuters as possible. We also shared the survey instrument with colleagues in other parts of the state and the country.

The survey was deployed between April and June 2020 to a target population of adults older than 18. There was no financial incentive for participation. It was distributed through professional email lists of public agencies, non-government organizations, universities and colleges, and other public community groups. Each list had its own survey output.

2.2. Analyses

Descriptive statistics were first developed, with summaries focusing on the behaviors of respondents who had transitioned to working from home. We also estimated models to identify the factors most closely related to respondents' reports of no change or an increase in their work productivity. Hypothesized predictors of productivity change were from four domains: socioeconomic status (SES) and family structure, previous commute trip mode and duration, lifestyle changes (sleep quality, food consumption, amount of exercise, time spent on social media or personal hobbies), and mental well-being.

The unit of analysis was the respondent. We first tested univariate models for all hypothesized predictors. A full partial proportional odds (PPO) model was then estimated, including all the predictors significant in the univariate models (Williams 2016). A final, reduced model included only the variables that had remained significant in the full model. Variance

inflation factor (VIF) scores showed no issue with collinearity. For each model, we used list-wise deletion by which only observations with complete information were included.

CHAPTER 3. RESULTS

3.1.   Descriptive Statistics

      Data were collected over the course of six weeks from April to June 2020. Of the 4,506 respondents, four-fifths (80 percent) reported working away from home before Covid-19, and 86 percent reported working from home during the lockdown period. The majority (97 percent) reported practicing social distancing. Puget Sound residents accounted for 76 percent (3,405) of the sample. The statistics below are drawn from the Puget Sound sample. A detailed description is available from the Puget Sound Regional Council (2020).

3.1.1.   Sample Sociodemographic, Employment and General Living Characteristics

      Respondents' background included age, gender, education, income, and other characteristics.

- The sample was biased toward working age individuals (ages 30-69) in comparison to the general population of the Puget Sound region.
- Two-thirds of respondents were female (66 percent vs. 50 percent in the region).
- The sample was biased toward individuals with higher educational attainment (52 percent had graduate degrees or above vs. 32 percent in the region) and higher household incomes (69 percent of our respondents had a household income higher than the region's median).

Employment and living conditions:

- Two-thirds of respondents categorized as previously working away had transitioned to working from home after Covid-19 (67 percent).
- Living with a partner was the most common among respondents (39 percent).
- Living with (a partner and) children was the second most common among respondents (27 percent).

3.1.2.   Work from Home

Working patterns after transitioning to a work from home set-up:

- The majority of respondents reported keeping regular work hours (55 percent), using video and conference calls (41 percent), and being productive every workday (48 percent).
- Those living with children or friends and relatives were least likely to keep regular hours.

- Approximately one-quarter of respondents reported feeling more productive (24 percent).

- Those living with partners reported higher rates of feeling more productive.

- Those living with children or friends and relatives reported feeling less productive.

- Feeling more productive was attributed to have more time without having to commute and less interference from coworkers.

- Feeling less productive was attributed to less efficient communication with office teammates.

3.1.3. Other Changes in Life

Respondents' lifestyle adjustments, including daily activities, food services, and changes in emotional well-being:

- Many individual-level daily adjustments were made voluntarily.

- Almost half of respondents reported using restaurant take-out more frequently (48 percent), while over half of respondents reported not using other food services.

- Respondents reported a decrease in physical activity (50 percent), an increase in screen time for leisure (60 percent), and a decrease in sleep quality (41 percent).

- Respondents who experienced a change in their employment status were more likely to report feeling negative emotions and experiencing some form of negative well-being.

3.1.4. Commute Trips before Covid-19

Respondents' previous work commute patterns:

- Respondents had utilized non-driving modes at high rates before Covid-19.

- Commuting trips under 30 minutes had occurred most frequently by single-occupancy vehicles (SOV).

- Commuting trips over 30 minutes had occurred most frequently by transit.

### 3.1.5. Other Trips after Covid-19

Respondents' reasons for leaving home and the modes used to do so:

- Bulk and occasional shopping were the most popular reasons for leaving home after Covid-19.

- Respondents leaving home for shopping most frequently drove (alone or with others).

- Exercise was the one type of trip for which over half of the respondents reported spending more than 30 minutes (52 percent).

3.2. Model Results

Detailed information on the modeling results was reported by Shi et al. (2021). Briefly, of 2,174 surveyed adults who were teleworking following the implementation of the Covid-19 work-from-home policy, 23.8 percent reported an increase in productivity, 37.6 percent no change, and 38.6 percent a decrease in productivity in comparison to working at their workplace. After feelings of depression and anxiety likely caused by pandemic-related circumstances were controlled for, the socioeconomic characteristics found to be associated with no change or an increase in productivity after the shift to telework included being older; not being employed in higher education; having lower educational attainment; and not living with children (figure 3-1). The characteristics of the commute trip before Covid-19 appeared to have an impact on productivity. Respondents with longer commute trips in single-occupancy vehicles before teleworking were more likely to report being more productive, but those with longer commutes on foot were not. Lifestyle changes also mattered as respondents described their productivity; changes associated with increased productivity included getting better sleep, spending less time on social media, and spending more time on personal hobbies.
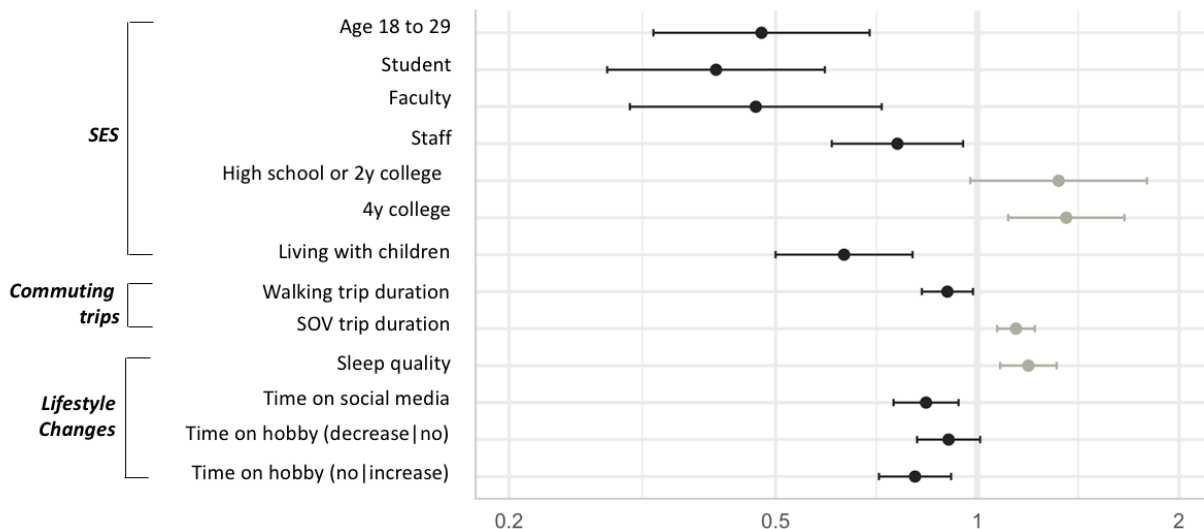
Figure 3-1. Odds ratio and 95 percent confidence interval of factors associated with no change or an increase in productivity (Source: Shi et al. 2020 https://doi.org/10.32866/001c.181955)

CHAPTER 4. DISCUSSION AND CONCLUSION

The reasonably large number of Puget Sound residents who responded to the survey came from more than 83 percent of the region's ZIP Codes. As with most surveys, the population was biased toward an older employed population with a somewhat higher household income and higher educational attainment than the corresponding Census population. As expected, respondents who reported no change or higher work productivity attributed it to saving time by not having to commute and by experiencing less interference from co-workers. In contrast and somewhat contradictorily, respondents attributed being less productive to having less efficient communications with co-workers. Problems with home equipment or the Internet and with additional housework tasks were mentioned by only a minority of respondents.

Food acquisition patterns changed, with some impact on travel behavior. The frequencies of restaurant take-out and curb-side pickup increased for almost half of the population (48 percent and 38 percent, respectively), suggesting likely increases in food-related trips. There were decreases in physical activity and increases in screen time for leisure (50 percent and 60 percent of the population, respectively). Positive and negative changes in the amount and quality of sleep seemed to be equally distributed. Being moderately nervous (38 percent), tense (45 percent), or fearful (54 percent) was reported by the population, while being scared, panicked, or restless were reported by only a minority. Overall, living during lockdown clearly affected activity and well-being. These changes warrant more research and follow-up to better understand whether the same patterns continued and changed (positively or negatively) as lockdowns persisted.

An important and novel outcome of the study was the ability to identify specific characteristics of individuals who would be more likely to feel either more or equally productive when working from home in comparison to working away from home (Baert et al. 2020; Kazekami 2020). Being able to sketch a profile of persons able to be "successful" at working from home will be essential for devising and shaping future teleworking programs. It will help in targeting those specific portions of the population that should be encouraged to continue to work from home, for at least a portion of their working hours. We found that people who were older professionals, living with a partner but not with children, had lower educational attainment, and were not in the education sector were more likely to report no change or an increase in productivity.

Furthermore, driving as a pre-pandemic commute mode—and specifically longer drives—were associated with a higher likelihood of being more productive after the transition to working from home. This suggests that appropriate targets for post-pandemic teleworkers could positively reduce traffic congestion with few if any repercussions on the quality of work being produced. In contrast, those teleworkers who walked to work before the pandemic seemed to be less likely to work more productively from home, suggesting that a portion of the working population should be encouraged to continue to walk to work (Paez and Whalen 2010). The numbers were attractive: 35 percent of workers drove and 17 percent walked three or more days per week. Therefore, in addition to using sociodemographic characteristics to identify likely successful teleworkers, commute trip reduction programs could target potential teleworkers on the basis of their principal commute mode.

Finally, the findings suggested that behavior changes that could increase workers' likelihood of being productive included spending less time on social media (Priyadarshini et al. 2020) and more time on personal hobbies.

CHAPTER 5. FURTHER WORK AND TECH TRANSFER

This report focuses on a survey deployed in Spring 2020. A second survey was administered in Fall 2020 to probe for any changes in behaviors or perceptions as the pandemic continued to restrict everyday life and to require teleworking for a much longer period than had been originally anticipated. Many of the same questions were used in both surveys to accommodate longitudinal analyses. However, parts of the original survey were omitted and replaced by new questions to capture more information on essential workers (those workers who had continued to commute to work during the pandemic) because it became increasingly evident that essential workers were more numerous than had been anticipated. New questions also probed the housing conditions in which people lived, as those would clearly affect the convenience and comfort of working from home. Finally, we wanted to probe the potential changes in residential location and characteristics of commute trips once Covid-19 subsided.

Appendix A also contains a copy of the Fall survey.

Reports on the Spring and Fall waves of the COVID-19 Mobility Survey have been posted by the Puget Sound Regional Council at https://www.psrc.org/covid-19-mobility-survey. This site also includes a link to the article "Factors Influencing Teleworking Productivity – a Natural Experiment during the Covid-19 Pandemic," by Shi, Xiao, Anne Vernez Moudon, Brian H. Y. Lee, Qing Shen, and Xuegang (Jeff) Ban (2020) (https://findingspress.org/article/18195-factors-influencing-teleworking-productivity-a-natural-experiment-during-the-covid-19-pandemic).

A second article comparing the results of the Spring and Fall surveys is under review at the time of this writing—tentatively entitled "Changes in perceived work-from-home productivity during the pandemic: Findings from two waves of a Covid-19 mobility survey."

A blog about the surveys is available at https://www.psrc.org/whats-happening/blog/survey-captures-feelings-about-work-home-life

An article from *UW News* is available at https://www.washington.edu/news/2021/06/01/regional-survey-reveals-work-leisure-habits-during-the-pandemic/

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APPENDIX A SPRING AND FALL 2020 SURVEY INSTRUMENTS

Print view of 'COVID-19 mobility survey v8.1 final'

[Print]

Dear Survey Participant,

       We are a group of researchers at the University of Washington and staff at the Puget Sound Regional Council, whose research focuses on mobility patterns for the purposeof reducing traffic congestion, air pollution, and ambient noise.

       This survey follows on an earlier survey, which we sent last April at the beginning of the COVID-19 pandemic, to learn about how people were coping with the limited mobility related to social distancing and shelter-in-place policies. The results of the April survey are available at https://www.psrc.org/covid-19-mobility-survey. We nowwant to find out how you are sustaining the unexpected long period of partial shut- down and seek to better understand the pros and cons of "teleliving"
       (including working and playing).

Question 1.

       All information collected in this survey will be kept private and confidential.

       Please note that you must be <u>18 years of age or older </u>to respond to this survey.

Are you able to and interested in <u>completing this survey</u>?

	Logic destinations
○ Yes, I am 18 years or older and interested in this survey	➡ Don't skip (default)
○ No, I am not 18 years old or not interested in this survey	➡ Question 43: Thank you for taking the ti...
No response	➡ Question 43: Thank you for taking the ti...

Question 2.

Are you in <u>quarantine* or in total isolation*</u>?

* Being in quarantine or total isolation means not having contact with any person due to the following circumstances: (1) you have been diagnosed as having COVID-19; (2) you have tested positive for COVID-19; (3) you suspect you may have COVID-19; (4) you have been exposed to someone who has COVID-19); OR (5) you belong to a high-risk class of people.

	Logic destinations
○ I AM in quarantine or total isolation from any person	➡ Question 43: Thank you for taking the ti...
○ I am NOT in quarantine or total isolation from any person	➡ Don't skip (default)
No response	➡ Question 43: Thank you for taking the ti...

Question 3.

       COVID-19 has required many people to stay at home. **This has brought major changesin mobility patterns for both those people who used to travel to work and those who continue to do so.**

In the upcoming set of questions, you will be asked about your employment situationand commuting habits *in February* **(i.e. before the spread of COVID-19),** *March* **(i.e. after stay-at home orders came into effect), and** *now***.**

What was your <u>employment </u>situation *in February 2020 -- before the spread of COVID-19***?**

Logic destinations

○ I was not employed/not a student	➡ Question 6: What was your employment si...
○ I was employed/a student working from home	➡ Question 6: What was your employment si...
○ I was employed/a student working away from home	➡ Don't skip (default)
No response	➡ Question 43: Thank you for taking the ti...

Question 4.

In February (before COVID-19), **what** <u>mode(s) of transport</u> **did you use to** <u>commute towork</u> **and how often did you use them** <u>on an average week</u>**?**

Rows

Walk

Bicycle or scooter

Transit (bus, rail, or ferry walk-on)

Carpool or vanpool (2 or more persons)

Uber, Lyft, taxi

Driving (alone)

○ One to 2 days per week

○ 3 or more days per week

○ Never

Question 5.

<u>On an average day</u> *in February (before COVID-19),* **how long was** y<u>our one-waycommute </u>**to work by mode?**

Rows

Walk

Bicycle or scooter

Transit (bus, rail, or ferry walk-on)

Carpool or vanpool (2 or more persons)

Uber, Lyft, taxi

Drive (alone)

○ Less than 30 minutes

○ 31 to 60 minutes

○ More than one hour

○ Not applicable

Question 6.

What was your <u>employment</u> **situation** *in March 2020 -- after the COVID-19 stay-at-home orders came into effect* **?**

Logic destinations

○ I was not employed/not a student	➡ Don't skip (default)
○ I was employed/a student working from home	➡ Don't skip (default)
○ I was employed/a student working away from home	➡ Don't skip (default)
○ I was employed/a student working partly from home and partly away from home	➡ Don't skip (default)
No response	➡ Question 43: Thank you for taking the ti...

Question 7.

COVID-19 has had a longer than expected impact on working and everyday life.

What is your <u>employment</u> situation *now*?

Logic destinations

◯ I am not employed/not a student   ➡ Question 18: Many of us have adjusted ho...

○ I am employed/a student working
   from home

○ I am employed/a student working
   away from home

○ I am employed/a student working
   partly from home and partly away
   from home

⇨ Question 12: Working from home since COV...

⇨ Don't skip (default)

⇨ Question 10: When you commute to work, w...

No response   ⇨ Question 43: Thank you for taking the ti...

Question 8.

In the past week, what <u>mode(s) of transport</u> did you use to <u>commute to work</u> and how often did you use them <u>on an average week</u>?

Rows

Walk
Bicycle or scooter
Transit (bus, rail, or ferry walk-on)
Carpool or vanpool (2 or more persons)
Uber, Lyft, taxi
Driving (alone)
   ○ One to 2 days per week
   ○ 3 or more days per week
   ○ Never

Question 9.

In the past week, how long was y<u>our one-way commute </u>to work by mode?

Rows

Walk
Bicycle or scooter
Transit (bus, rail, or ferry walk-on)
Carpool or vanpool (2 or more persons)
Uber, Lyft, taxi
Drive (alone)
   ○ Less than 30 minutes
   ○ 31 to 60 minutes
   ○ More than one hour
   ○ Not applicable
   Logic destination
Question 16: How large is your employer?

Question 10.

When you commute to work, what <u>mode(s) of transport</u> do you use and <u>how often</u> do you use them <u>on an average week</u>?

Rows

Walk
Bicycle or scooter
Transit (bus, rail, or ferry walk-on)
Carpool or vanpool (2 or more persons)
Uber, Lyft, taxi
Driving (alone)
   ○ One to 2 days per week
   ○ 3 or more days per week
   ○ Never

Question 11.

When you commute to work, how long is y<u>our one-way commute</u> by mode?

Rows

Question 11.

When you commute to work, how long is y<u>our one-way commute</u> by mode?

Rows

Walk

Bicycle or scooter

Transit (bus, rail, or ferry walk-on)

Carpool or vanpool (2 or more persons)

Uber, Lyft, taxi

Drive (alone)

- ○ Less than 30 minutes
- ○ 31 to 60 minutes
- ○ More than one hour
- ○ Not applicable

Question 12.

Working from home since COVID-19, **tell us the** <u>conditions</u> **under which you areworking and** <u>how you feel</u> **about the situation.**

Rows

I keep regular hours

I spend time on conference or video calls with co-workers

I am productive

- ○ On some days
- ○ On most days
- ○ Every work day

Question 13.

Working from home since COVID-19, **do you feel that,** <u>overall</u>**, you are** <u>more or less</u> **productive than you were** <u>prior to COVID-19</u> **or when you worked** <u>at your work place</u>**?**

Logic destinations

○ I am more productive	➡ Don't skip (default)
○ I am less productive	➡ Question 15: Tell us why you feel less p...
○ No change in my productivity	➡ Question 16: How large is your employer?
No response	➡ Question 16: How large is your employer?

Question 14.

Tell us <u>why</u> **you** <u>feel more productive</u> **working from home after COVID-19**

- ☐ I have more time because I am not commuting
- ☐ I have faster internet connection
- ☐ There is less interference from co-workers
- ☐ My tasks are more clearly spelled out
- ☐ I work more hours
- ✏ ☐ Other:

Logic destination
Question 16: How large is your employer?

Question 15.

Tell us <u>why</u> **you** <u>feel less productive</u> **working from home after COVID-19**

- ☐ I have less time to work because of housework
- ☐ I have less time to work because of interference from children or family living with me
- ☐ My internet connection is poor
- ☐ I don't have good equipment (computer, printer, etc.)
- ☐ Communication with co-workers is less efficient
- ☐ I don't have a good work space
- ✏ ☐ Other:

Question 16.

How <u>large is your employer</u>?

○ Fewer than 100 employees
○ more than 100 employees
○ I am self-employed

Question 17.

What is your work place <u>Zip or Post Code</u>?

Question 18.

Many of us have adjusted how we get food items or meals due to the risk of COVID-19.

Compared to <u>before</u> COVID-19, please indicate whether you have made <u>changes inutilizing the following services in the past two weeks</u>

Rows

Restaurant delivery services
Restaurant take-out
Restaurant curb-side pickup
Meal kit delivery services, such as Hello Fresh and Blue Apron
On-demand food delivery services, such as Door Dash or Grubhub
Grocery delivery service
Grocery order pickup
○ Using more
○ Using the same amount
○ Using less
○ Do not use

Question 19.

Compared to before COVID-19, how much has y<u>our daily life changed </u>in the followingareas?

Rows

Amount of physical activity or exercise
Amount of time spent outside in nature or parks
Amount of food consumed
Amount of alcohol consumed
Amount/quality of sleep
Use of sleep, anxiety, or stress medication
Use of cannabis/recreational drugs
Screen time for leisure (excludes work)
Screen time for work
Work hours
Household income
Yard or garden work
House work (cleaning, laundry)
Meal preparation, cooking
Time spent with children in household
Face-to-face interaction with family/friends
Electronic interaction with family/friends (e.g. Skype, FaceTime, phone calls, texting)
Time spent on social media
Time watching the news
Time spent listening to music
Time spent meditating or praying
Time spent on personal hobby
○ Increased a lot
○ Increased somewhat
○ No change
○
        https://catalyst.uw.edu/webq/build/moud

Decreased somewhat

◯Decreased a lot

◯ Not applicable to me

Question 20.

Many of us have had to adjust our daily lives due to the risk of COVID-19,

which might have impacted your feelings. **Over the past two weeks, how often have you been bothered by any of the following problems?**

Rows

Little interest or pleasure in doing things

Feeling down, depressed, or hopeless

◯ Not at all

◯ Several days

◯ More than half the days

◯ Nearly every day

Question 21.

Below is a list of problems and complaints that people sometimes have.

Read each line carefully and select the column that best describes how much discomfort that problem has caused you during the past two weeks including today

Rows

Nervousness or shakiness inside

Suddenly scared for no reason

Feeling fearful

Feeling tense or keyed up

Spells of terror or panic

Feeling so restless you couldn't sit still

◯ Not at all

◯ A little bit

◯ Moderately

◯ Quite a bit

◯ Extremely

Question 22.

Please tell us if and how many of the following vehicles you and your family have

Rows

Bicycle, e-bike, or scooter

Motorcycle

Automobile

Truck

◯ 0

◯ 1

◯ 2

◯ 3 or more

Question 23.

Have any of these vehicles been acquired since COVID-19?

Rows

Bicycle or scooter

Motorcycle

Automobile

Truck

○ Yes
○ No

Quest
ion 24.

Are you considering <u>acquiring any of these vehicles in the next 6 months</u>?

Rows

Bicycle or scooter
Motorcycle
Automobile
Truck

○ Yes
○ No
○ Maybe

Question 25.

Does your family have <u>one or more dogs</u>?

○ Yes
○ No

Question 26.

Tell us what <u>you do and what sector you work in</u>

☐ Professional services (legal, accounting, finance, insurance, etc.)
☐ Medical services
☐ Education/research
☐ Retail/ sales
☐ Transportation/logistics
☐ Government
☐ Manufacturing
☐ Construction
☐ Other

**Question
27. What is y<u>our age</u>?**

○ 18-29
○ 30-39
○ 40-49
○ 50-59
○ 60-69
○ 70 and over

Question 28.

What is y<u>our gender</u>?

○ Female
○ Male
○ Another

Question 29.

What is y<u>our highest level of education</u>?

○ Less than high school
○ High school graduate
○ Vocational/technical training
○ Associate degree
○ Bachelor degree
○   https://catalyst.uw.edu/webq/build/moud
○

Graduate degree or post-graduate studies

Other

Question 30.

What is your race/ethnicity?

☐ African American or Black
☐ American Indian or Alaska Native
☐ Asian
☐ Native Hawaiian or Pacific Islander
☐ Hispanic
☐ White
☐ Other
☐ Prefer not to answer

Question 31.

What is your household income?

○ Under $40,000
○ $40,000-$59,999
○ $60,000-$89,999
○ $90,000-$119,999
○ $120,000-$149,999
○ $150,000 and over
○ Other

Question 32.

What is your current living arrangement?

Logic destinations

○ I live with one or more roommates/   ➡ Don't skip (default)
   friends/ relatives

○ I live with my child or children under   ➡ Don't skip (default)
   18 years

○ I live with my partner   ➡ Don't skip (default)

○ I live with my partner and a child or   ➡ Don't skip (default)
   children under 18 years

○ I live alone   ➡ Question 34: Please tell us about the be...

○ Other   ➡ Don't skip (default)

           No response   ➡ Don't skip (default)

Question 33.

Please tell us how many adults or children live in your household

Rows

Adults over 18 years
Children under 18 years
   ○ 0
   ○ 1
   ○ 2
   ○ 3 or more

Question 34.

Please tell us about the bedroom, bathroom, and private open space arrangement in your home

Rows

Bedroom (enclosed space with window, may be used as an office, bedroom, playroom, or any combination)

Bedroom or office nook (not fully enclosed) or windowless space

Bathroom with tub or shower, sink(s), and toilet

Room with only toilet and sink

Private balcony/terrace

Private garden

- ○ 0
- ○ 1
- ○ 2
- ○ 3 or more

Question 35.

Tell us if you moved *since COVID-19* or if you are planning to move in the next 6months

Logic destinations

- ○ I did not move but plan to move   ➡ Don't skip (default)
- ○ I did not move and do not plan to move   ➡ Question 37: Do you own or rent the plac...
- ○ I moved to a new permanent residence   ➡ Don't skip (default)
- ○ I moved temporarily but plan to return to my permanent residence   ➡ Don't skip (default)
- ○ I moved temporarily and plan to move to a new permanent residence   ➡ Don't skip (default)

No response   ➡ Don't skip (default)

Question 36.

Tell us why you moved, either temporarily or permanently, or are planning to move inthe next 6 months

- ☐ I needed/need more space or more amenities in the home
- ☐ I wanted/want to live with or close to family/friends
- ☐ I could not/cannot afford staying in my current/previous home
- ☐ I wanted/want to be closer to my place of work
- ☐ I was/am less concerned about being close to my place of work
- ☐ I wanted/want to be closer to services
- ☐ I wanted/want to have better access to open space

Question 37.

Do you own or rent the place where you currently live?

- ○ Own
- ○ Rent
- ○ Other

Question 38.

What is your current home Zip or Post Code?

Question 39.

Optional: What is the name of the street you live on?

Please write down the street name and suffix (Street, Avenue, Place, etc.) and, ifapplicable, the cardinal directions (N, S, NE, SE, etc.)

Question 40.

Optional: What is your current home street number?

Question 41.

*If you live in a condominium or an apartmen*t, what is the <u>condominium or apartmentnumber</u>?

Question 42.

Thank you for taking the time to complete this survey!

If you have any questions, comments, or additional information you'd like to provide,please use the box below.

Make sure to <u>CLICK THE SUBMIT BUTTON BELOW to register your answers</u> and you willreceive a confirmation code

Logic destination

End of Survey

Question 43.

Thank you for taking the time to consider responding to this survey!

If you have any questions, comments, or additional information you'd like to provide,please use the box below.

Make sure to <u>CLICK THE SUBMIT BUTTON BELOW to exit the survey</u>, and to receive a confirmation code

Logic destination

End of Survey

Questions or comments?

Dear Survey Participant,

This survey is administered by a group of faculty and students at the University of Washington whose research focuses on mobility patterns for the purpose of reducing traffic congestion, air pollution, and ambient noise. For most researchers, COVID-19 serves as the natural experiment that could never have been conducted under normal circumstances. With many people mandated to work from home and with only those people providing essential services being allowed to travel, traffic congestion is gone, and the air is cleaner and filled with bird songs. Of course, the price of this reduced mobility is extremely high as the pandemic not only sickens and kills, but also takes jobs away from those who need them the most and deprives many children from their education.

With this survey, we seek to learn how you are coping with your limited mobilityrelated to social distancing and shelter-in-place policies such that we can better understand the pros and cons of "teleliving" (including working and playing).

Question 1.

CHAPTER 6. *WITH THIS SURVEY, WE SEEK TO LEARN HOW YOU ARE COPING WITH THE LIMITED MOBILITY RELATED TO SOCIAL DISTANCING AND SHELTER-IN-PLACE POLICIES SUCH THAT WE CAN BETTER UNDERSTAND THE PROS AND CONS OF "TELELIVING" (INCLUDING WORKING AND PLAYING).*

All information collected in this survey will be kept private and confidential.

Please note that you must be 18 years of age or older to respond to this survey.

Are you able to and interested in completing this survey?

Logic destinations

○ Yes, I am 18 years or older and interested in this survey   ➡ Don't skip (default)

○ No, I am not 18 years old or not interested in this survey   ➡ Question 32: Thank you for taking the ti...

No response   ➡ Question 32: Thank you for taking the ti...

Question 2.

Are you in quarantine* or total isolation* or are you practicing social distancing?

* Being in quarantine or total isolation means not having contact with any person due to the following circumstances: (1) you have been diagnosed as having COVID-19; (2) you have tested positive for COVID-19; (3) you suspect you may have COVID-19; OR (4) you have been exposed to someone who has COVID-19)

Logic destinations

○ I am in quarantine or total isolation from any person   ➡ Question 17: Compared to the time before...

○ I am practicing social distancing   ➡ Don't skip (default)

No response   ➡ Question 32: Thank you for taking the ti...

Question 3.

COVID-19 has required many people to stay at home. This has brought major changes inmobility patterns, especially for those people who used to travel to work.

What was your employment situation *prior to the spread of COVID-19*?

◯ Select one...

Logic destinations

◯ I was not employed/not a student ➡ Question 12: Since COVID-19 social dista...

◯ I was employed/a student working at ➡ Question 12: Since COVID-19 social dista...
home

◯ Select one...

Logic destinations

◯ I was not employed/not a student ➡ Question 12: Since COVID-19 social dista...

○I was employed/a student working
  away from home

○Other   ➡ Question 32: Thank you for taking the ti...

No response   ➡   *Question 32: Thank you for taking the ti...*

Question 4.

Have you been working from home since social distancing **or** lock down orders wentinto effect?

○ Select one...

Logic destinations

○ Yes, I am now working from home   ➡ Don't skip (default)

○No, I continue to work away from   ➡ Question 15: Many of us have adjusted ou...
  home

○I am no longer employed   ➡ Question 12: Since COVID-19 social dista...

No response   ➡   *Question 32: Thank you for taking the ti...*

Question 5.

How long have you been working from home?

◉ Select one...
○ Less than three weeks
○ Three to five weeks
○ More than five weeks

Question 6.

Working at or from home since COVID-19, tell us the underline conditions under which you areworking and **how you feel** about the situation.

Rows

I keep regular hours

I spend time on conference or video calls with co-workers

I am productive

  ○ On some days

  ○ On most days

  ○ Every work day

Question 7.

Working at or from home since COVID-19, do you feel that, overall, you are more orless productive than you were prior to COVID-19 or when you worked at your work place?

○ Select one...

Logic destinations

○I am more productive   ➡ Don't skip (default)

○I am less productive   ➡ Question 9: Tell us why you feel less p...

○ No change in my productivity   ➡ Question 10: Before the COVID-19 pandemi...

No response   ➡ *Question 10: Before the COVID-19 pandemi...*

Question 8.

Tell us why you feel more productive working at or from home after COVID-19

☐ I have more time because I am not commuting

☐   https://catalyst.uw.edu/webq/build/moud

☐

I have faster internet connection

There is less interference from co-workers

My tasks are more clearly spelled out

I work more hours

I have faster internet connection

There is less interference from co-workers

My tasks are more clearly spelled out

✏ ☐ Other:

Logic destination

Question 10: Before the COVID-19 pandemi...

Question 9.

Tell us why you feel <u>less productive</u> working at or from home <mark>after</mark> COVID-19

☐ I have less time to work because of housework

☐ I have less time to work because of interference from children or family living with me

☐ My internet connection is poor

☐ I don't have good equipment (computer, printer, etc.)

☐ Communication with co-workers is less efficient

✏ ☐ Other:

Question 10.

Before the COVID-19 pandemic, **what <u>mode(s) of transport</u> did you use to <u>commute towork</u> and how often did you use them <u>on an average week</u>?**

Rows

Walk

bicycle or scooter

e-Bike or e-scooter

Bike or scooter share

Transit (bus or rail)

Car or vanpool (2 or more persons)

Uber, Lyft, taxi

Driving (alone)

○ Every day of the week

○ 4 days per week

○ 3 days per week

○ 2 days per week

○ One day per week

○ Never

Question 11.

Before the COVID-19 pandemic, <u>on an average day</u> how long was <u>your one-waycommute</u> to work by mode ?

Rows

Walk

Bicycle or scooter

e-Bike or e-scooter

Bike or scooter share

Transit (bus or rail)

Car or vanpool (2 or more persons)

Uber, Lyft, taxi

Drive (alone)

○ Less than 15 minutes

○ 16 to 30 minutes

○ 31 to 45 minutes

○ 46 to 60 minutes

○ More than one hour

○ Not applicable

Question 12.

Since COVID-19 social distancing, **do you leave home? If you do, <u>what is your purpose</u>for leaving and <u>how often</u> do you do so?**

Rows

To do bulk shopping for food and goods

To do occasional shopping for food and goods

To exercise

To take children outdoors

To take care of friends or family members

To take care of an animal

Other

   ○ More than once a day

   ○ Once a day

   ○ Every two days

   ○ Once a week

   ○ Once every two weeks

   ○ Never

Question 13.

Since COVID-19 social distancing, __w__hat mode of transport do you typically use when you leave home for various trips?

Rows

To do bulk shopping for food and goods

To do occasional shopping for food and goods

To exercise

To take children outdoors

To care for friends or family members

To take care of an animal

Other

   ○ Walk

   ○ Bicycle or scooter

   ○ Bike or scooter share

   ○ e-Bike or e-scooter

   ○ Transit (bus or rail)

   ○ Car pool (2 or more people)

   ○ Uber, Lyft, taxi

   ○ Driving (alone)

   ○ I don't travel for this purpose

Question 14.

Since COVID-19 social distancing, how long are these trips, on average (one-

way between house and destination OR total trip from home back to home if your trip has no particular destination, e.g for exercise, to take children outdoors)?

Rows

To do bulk shopping for food or goods

To do occasional shopping for food or goods

To exercise

To take children outdoors

To care for friends or family members

To take care of an animal

Other

   ○ Less than 15 minutes

   ○ 16 to 30 minutes

   ○ 31 to 45 minutes

   ○ 46 to 60 minutes

   ○ More than one hour

   ○ Not applicable

Question 15.

Many of us have *adjusted our daily activities due to the risk of COVID-19*. **Here are some of the changes people have made in recent weeks, please indicate** <u>if you made these changes</u> **in response to the risk of COVID-19, and** <u>reasons</u> **for doing so.**

Rows

Canceled a non-urgent doctor or dentist appointment

Worn a face mask

Canceled or postponed work travel

Canceled or postponed personal travel

Canceled or postponed work or school activities

Kept children at home instead of attending school

Stockpiled food or water

Avoided eating at restaurants

Avoided going to bars

Canceled or postponed social activities

Avoided public places

Avoided crowds

Avoided contact with high-risk people

Practiced social distancing

Washed or sanitized hands

- ◯ I did this voluntarily
- ◯ I did this because someone or everyone else did
- ◯ I did this because of government recommendation
- ◯ I did this because of government mandate
- ◯ I did not do this
- ◯ Not applicable to me

Question 16.

*Many of us have adjusted how we get food items or meals due to the risk of COVID-19.***Compared to** <u>a few weeks ago</u> **(i.e. prior to the spread of COVID-19), please indicate whether y**<u>ou have made changes in utilizing the following services</u>

Rows

Restaurant delivery services

Restaurant take-out

Restaurant curb-side pickup

Meal kit delivery services, such as Hello Fresh and Blue Apron

On-demand food delivery services, such as Door Dash or Grubhub

Grocery delivery service

Grocery order pickup

- ◯ Using more
- ◯ Using the same amount
- ◯ Using less
- ◯ Do not use

Question 17.

Compared to the time before the spread of COVID-19, **how much has** <u>your daily life</u>**changed** **in the following areas?**

Rows

Amount of physical activity or exercise

Amount of time spent outside in nature or parks

Amount of food consumed

Amount of alcohol consumed

Amount of sleep

Quality of sleep

Use of sleep, anxiety, or stress medication

==Use of cannabis/recreational drugs==

Screen time for leisure (excludes work)

Screen time for work

Work hours

Household income

Yard or garden work

House work (cleaning, laundry)

Meal preparation, cooking

Time spent with children in household

Face-to-face interaction with family in household

Face-to-face interaction with family not in household

Face-to-face interaction with friends

Electronic interaction with family (e.g. Skype, FaceTime, phone calls, texting)

Electronic interaction with friends (e.g. Skype, FaceTime, phone calls, texting)

Time spent on social media

Time watching the news

Time spent listening to music

==Time spent meditating or praying==

Time spent on personal hobby

    ○ Increased a lot

    ○ Increased somewhat

    ○ No change

    ○ Decreased somewhat

    ○ Decreased a lot

    ○ Not applicable to me

Question 18.

CHAPTER 7. *MANY OF US HAVE HAD TO ADJUST OUR DAILY LIVES DUE TO THE RISK OF COVID-19,*

which might <u>have impacted your feelings</u>. Over the <u>past two weeks</u>, how often have you been bothered by any of the following problems?

Rows

Little interest or pleasure in doing things

Feeling down, depressed, or hopeless

    ○ Not at all

    ○ Several days

    ○ More than half the days

    ○ Nearly every day

Question 19.

Below is a list of *problems and complaints that people sometimes have*. Read each line carefully and select the column that best describes how much discomfort that problem has caused you <u>during the past two weeks including today</u>

Rows

Nervousness or shakiness inside

Suddenly scared for no reason

Feeling fearful

Feeling tense or keyed up

Spells of terror or panic

Feeling so restless you couldn't sit still

    ○ Not at all

    ○ A little bit

    ○ Moderately

    ○ Quite a bit

    ○

Extremely

Question 20.

Extremely

Please tell us <u>if and how many</u> of the following vehicles you and your family have

Rows

Bicycle
E Bike or scooter
Motorcycle
Automobile
Truck
Other

○ 0
○ 1
○ 2
○ 3 or more

Question 21.

Does your family have <u>one or more dogs</u>?

○ Yes
○ No

Question 22.

Tell us what you do

◉ Select one...
○ Staff
○ Student
○ Faculty
○ Business person
○ Professional
○ Retail
○ Homemaker
○ Other

**Question
23. What is your age?**

○ Select one...
○ 18-29
○ 30-39
○ 40-49
○ 50-59
○ 60-69
○ 70 and above
○ other

Question 24.

What is your gender?

◉ Select one...
○ female
○ male
○ other

Question 25.

What is your level of education?

https://catalyst.uw.edu/webq/build/moud

◉ Select one…
◯ High school

○ College 2 yr
○ College 4 yr
○ Graduate studies
○ Post-graduate
○ Other

Question 26.

What is your household income?

○ Select one...
○ Under $40,000
○ $40,000-$59,999
○ $60,000-$89,999
○ $90,000-$119,999
○ $120,000-$149,999
○ Above $150,000
○ Other

Question 27.

What is you living arrangement?

○ Select one...
○ I live in a dormitory
○ I live with one or more roommates/ friends
○ I live with my partner
○ I live with my child or children under 18 years
○ I live with my partner and a child or children under 18 years
○ I live with one or more relatives
○ I live alone
○ Other

Question 28.

Do you own or rent the place where you live?

○ Select one...
○ Own
○ Rent
○ Other

Question 29.
Where do you live?

Please provide EITHER your address: street number, street name, street suffix, cityname

OR

the cross-streets of the nearest intersection: cross-street name and suffix 1, cross-street name and suffix 2

Question 30.

What is your Zip or Post Code?

Question 31.

Thank you for taking the time to complete this survey!

If you have any questions, comments, or additional information you'd like to provide,please use the box below.

If you have any questions, comments, or additional information you'd like to provide,please use the box below.

Make sure to CLICK THE SUBMIT BUTTON BELOW to register your answers and you will receive a confirmation

Logic destination

End of Survey

Question 32.

Thank you for taking the time to consider responding to this survey!

If you have any questions, comments, or additional information you'd like to provide,please use the box below.

Make sure to CLICK THE SUBMIT BUTTON BELOW to exit the survey, and to receive a confirmation

Logic destination

End of Survey

APPENDIX B IRB AND DATA ACCESS REQUIREMENTS

AB. 1 Citi Certification For Key Personnel

Information about the CITI PROGRAM (Collaborative Institutional Training Initiative)
https://www.washington.edu/research/hsd/training/required-training/web-based-citi-training/

Specific test to be taken: Human Subject Research
Social-Behavioral_Educational (SBE) basic
https://about.citiprogram.org/en/course/human-subjects-research-2/

Once you have completed the course, print or download a "Course Completion Report" as
evidence that you have met your institutional requirements.

AB. 2 UW Catalyst WebQ

https://idp.u.washington.edu/idp/profile/SAML2/Redirect/SSO?execution=e1s1

Access

UW NetID required to participate in Catalyst Tools and be group members.
Role as collaborator in the survey: Grader / Analyst & Code Table Viewer

Administrator, Grader/analysts can view, download, and delete results.
Code table viewers can view the code translation table, which correlates respondent IDs with
other identifying information.

AB. 3 Excerpts From IRB Application Protocol

Data sharing

**Question 5.10 Possible secondary use or sharing of information, specimens, or subject
contact information. Is it likely that the obtained or collected information, specimens, or
subject contact information will be used for any of the following:**
- Future research not described in this application (in other words, secondary research)
- Submission to a repository, registry, or database managed by the study team,
  colleagues, or others for research purposes
- Sharing with others for their own research

**Please consider the broadest possible future plans and whether consent will be obtained
now from the subjects for future sharing or research uses** (which it may not be possible to
describe in detail at this time). Answer **YES** even if future sharing or uses will use de-identified
information or specimens. Answer **NO** if sharing is unlikely or if the only sharing will be
through the NIH Genomic Data Sharing described in question 5.8.

| X | **Yes** |

→ If yes, answer all of the questions below.

    a. Describe <u>what will be stored for future use,</u> including whether any direct or indirect (e.g., subject codes) identifiers will be stored.

    We might compare some of our data with other researchers administering similar surveys in other parts of the country. However, we do not anticipate sharing any of the identifiable data. As mentioned, we store data on our own safe /separate servers. Access to the servers is provided to researchers who sign data agreements and are certified through the CITI program.

    b. Describe <u>what will be shared with other researchers or with a repository/database/registry,</u> including whether direct identifiers will be shared and (for specimens) what data will be released with the specimens.
Specific surveys answers *may* be shared. But we will NOT share addresses or cross streets.

    c. Who will oversee and/or manage the sharing?
The PI will do that

    d. Describe <u>the possible future uses</u>, including limitations or restrictions (if any) on future uses or users. As stated above, consider the broadest possible uses.

As mentioned, we might share data from some of the survey questions to compare with similar survey questions administered in other parts of the country.

9.6 Data and specimen security protections. Identify the data classifications and the security protections that will be provided for all sites where data will be collected, transmitted, or stored, referring to the *ZIPLINE* GUIDANCE: Data and Security Protections for the minimum requirements for each data classification level. *It is not possible to answer this question without reading this document. Data security protections should not conflict with records retention requirements.*

a. Which level of protections will be applied to the data and specimens? If more than one level will be used, describe which level will apply to which data and which specimens and at which sites.

<div style="border:2px solid orange; padding:10px;">

Level 3

Could cause risk of material harm to individuals if disclosed.

These data could result in harm that can have genuine impact, but the magnitude and/or duration are generally not serious, long-lasting, and/or irreversible.

</div>

AB.4 Excerpts From Guidance Data Security Protections

	USERS: The individuals who have access to, or will use, the data.		
	Requirements	**Description**	**Applies to**
U1	Limit access	Limit the access to appropriate users, except when the data are intentionally made public. Limitation is provided through the use of passwords or other access credentials or mechanisms, depending upon the nature and location of the data.	L2 – L5
U2	No shared passwords	Users' passwords and other access credentials should not be shared.	L2 – L5
U3	Protection of passwords	Passwords and other access credentials should be protected. *For example, use a password management application such as 1Password, LastPass, KeePass or iCloud Keychain that generates stores and protects long, random, unique passwords.*	L2 – L5
U4	Strong passwords	Passwords should be of sufficient length and complexity to reasonably protect them from being guessed by humans or computers.	L2 – L5
U5	Different passwords	Different passwords should be used for UW and non-UW access.	L2 – L5
U6	Changing passwords	Passwords should be changed periodically.	L2 – L5
U7	Compromised passwords	Passwords should be changed immediately if there is suspicion of compromise.	L2 – L5
U8	Report loss of data	Any actual or suspected loss, theft, or improper use of (or access to) the data must be reported immediately to the IRB and any other appropriate entities (such as the UW Medicine Privacy Office).	L2 – L5
U9	Data storage policy	Researchers should separate subject identifiers from the data, using a "key" or code to link identifiers to the data. The link between the key/code and the identifiers should be placed in a separate password protected file that is stored in a different physical location than the data.	L3 – L5
U10	Documentation of access	A written process is established and followed for documenting who has access to the data. This applies to all individuals, whether or not they are members of the study team.	L3 - L5
U11	Data disposal	Destroy, return, or de-identify data if the data are no longer needed and the applicable records retention period has ended. The method should be appropriate to the risk and sensitivity of the information.	L3 - L5