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TRENDS IN AIRLINE LABOR PRODUCTIVITY AND COST IN EUROPE

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ABSTRACT

Following the liberalization of air services in Europe in 1988 and more liberal agreements with countries outside Europe, European air carriers have come under increasing pressure to reduce costs. This has been in response to growing competition in their markets from fellow European carriers and the U.S. airlines. Labor has been the most obvious area of costs for airlines to tackle. This paper analyzes trends in the numbers of employees, labor wages (labor costs per employee) and labor unit costs (labor expenses per available ton-kilometer) of European carriers from 1985 to 1995. Labor costs compare average take-home pay for employees, adjusted for cost-of-living differences between countries. It also compares labor pay between airline and manufacturing. The results indicate that European airlines reduced unit labor costs by increasing productivity. When taxes and social costs are deducted from the labor costs, there appears to be a large difference in take-home pay between countries. It was also found that most airlines in the sample pay their employees, on average, more than employees working in the manufacturing industry in their respective countries. The gap between the two however, was narrowing. It is recommended that incentives policies such as profit sharing or employee share ownership could become more effective in reducing real wage levels while leading to further improvements in productivity.

THE MOVE TOWARDS REDUCING LABOR COSTS

With the passage of the first liberalization package in 1988, European airline markets became more competitive. It was not until the passage of the third liberalization package in 1993 that almost all restrictions were removed from airline markets. Such changes in the airline regulatory environment affected many aspects of the aviation industry. The economic impact of these changes has been widely discussed in previous studies (Cranfield, 1997; British Midland, 1997; and CAA, 1993 and 1995). The airlines' main response to the growing competition in Europe has been to reduce labor costs as part of a range of cost-cutting activities. The intensified level of international competition from major carriers outside Europe, mainly U.S. airlines, and the need to recover from financial deficits during economic recession have increased the need for the European carriers to reduce labor costs.

Labor costs are one of the areas over which managers can exert influence and normally account for one quarter to one third of an airline's operating costs (see figure 1). The array of measures used to reduce labor costs includes: voluntary or compulsory staff redundancy, reduction in wages, introduction of two-tier

Figure 1: Airline Labor Costs as Percentage of Total Cost—1995

wage rates, contracting out labor, increased use of part-time and temporary employees, and franchising.

Efforts to reduce costs and bring about improved working practices have met strong resistance in many European countries. Since 1993, work stoppages have affected SAS (ground staff), Austrian Airlines (flying crew), TAP Air Portugal (all staff), Air France (all staff), and Alitalia (pilots). The British Airways' pilots union recently settled a dispute after a threatened strike, and their catering staff introduced a one day strike in May 1997 following the announcement that their business was to be sold. The climate is gradually changing however, and unions are beginning to take seriously the actual or threatened withdrawal of government support. These is also evidence of unions making demands for a greater say in management, profit sharing, and share ownership—similar to those made by their U.S. counterparts in the 1980s. In one example, the pilot union Balpa demanded a U.S. style Employee Share Ownership Plan (ESOP) in exchange for considering a proposed wage freeze (Airline Business, May 1997).

This paper analyzes the trend in the number of employees, labor costs (labor costs per employee and labor costs per ATK), and labor productivity (ATK per employee) in an aggregated form over the period of 1985 and 1995. Next, the individual EU airline labor costs and productivity are compared for the three intervening years of 1985, 1989, and 1995. Another comparison is made between the average take-home pay for employees of the major EU airlines and the employees of manufacturing industries in the same countries. The focus of this paper is on the EU airlines. For a comparison of the productivity and labor costs of EU airlines with non-EU carriers (see Oum and Yu (1995), Alamdari et al. (1995), and Alamdari & Morrell (1997)).

EU Airline Employment Levels and Productivity

One important policy adopted by European carriers to reduce labor costs has involved staff reductions. Some carriers have been more successful in reducing staff numbers than others. Implementing this policy may involve factors beyond management's control, such as cultural and social influences, the strength of labor unions, and government attitudes. For example, it has been more difficult for carriers such as Iberia to in a country with over 20 percent unemployment. When Iberia offered a restructuring proposal in December 1994 that included 2,120 layoffs, they became victims of two one-day strikes that cost the carrier $16 million in lost revenue.

Figure 2 illustrates the development in the level of employment for a sample of major EU scheduled airlines between 1985 and 1995. The year 1985 is used as the base since the movement towards liberalization began in 1985 through more liberal air services agreements between EU member countries.

Figure 2: EU Airline Employment & Productivity

It ought to be mentioned that the reduction in the number of employees since 1991 has not always meant a loss of jobs to the industry as a whole. In some case labor moves from one organization to another. This may happen when airlines outsource some of their activities such as maintenance and catering. For example, Shannon Aerospace in Ireland carries out aircraft maintenance on behalf of a number of European carriers including its shareholders, Swissair and Lufthansa. Lufthansa transferred a significant amount of maintenance work to this company thereby transferring jobs to a lower wage country within the EU. In other cases, airlines have moved an entire function or part of it to lower cost countries outside the EU resulting in net job losses. In 1992, Swissair transferred its revenue accounting tasks to a firm employing over 100 staff located near Bombay, India (Donoghue, 1993). A recent study by Shonfield (1997) for the European Commission indicates that only isolated examples of competitive

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undercutting of pay and conditions by firms exploiting labor cost differences between countries. There is evidence from Germany however, that companies are increasingly using the threat of relocation to bargain for changes in work practices at home.

Although the level of employment by EU carriers has declined in recent years, staff productivity measured by ATKs (Available Ton-Kilometers) per employee has increased. Figure 2 illustrates employee productivity trends for EU airlines from 1985 to 1995. The increase in the labor productivity is more noticeable since 1991—three years after the passage of the first liberalization package in 1988. The decline in employee numbers was accompanied by higher labor productivity. In theory, as long as higher productivity is not matched by higher wages, the airlines should be more competitive. The economic recession of 1990–1993 may also have played a role in increasing pressure for higher productivity.

Labor Cost per Employee

Clearly reductions in the number of staff or increases in labor productivity do not necessarily translate into lower labor costs. It is possible to lower the number of employees and at the same time ask for increased productivity from the remaining staff in return for higher wages. In order to assess the aggregated EU airline labor costs, it is important to analyze the average wage and salary levels of the EU carriers per employee.

To remove the impact of exchange rates, each carrier's expenses per employee are expressed in their local currency and indexed on 1985 as the base year. Then, labor expenses (in an index form) are weighted by their staff numbers and aggregated to arrive at a composite unit to represent EU airlines' average labor costs. All figures are also adjusted by local Consumer Price Indices (CPI) to establish employee expenses in real terms expressed in 1995 prices.

It can be seen from figure 3 that carriers overall have experienced a rise in their labor costs in real terms. The average expenses per employee have risen by almost 15 percent over the entire period. This confirms the finding of an earlier study that the transformation of labor costs in Europe had not yet occurred (Robinson, 1994). Therefore, it could be concluded that airline employees have increased their productivity in return for a slightly higher salary in real terms.

Unit Labor Cost

Reducing labor unit cost without adversely affecting service levels ought to be the prime aim of the airlines in Europe, especially in the more recent years when European aviation markets have become increasingly liberalized and highly competitive. Labor unit cost measured by average labor cost per ATK, establishes the amount of labor needed to produce one ATK. Such a measure not only takes into account the wage costs but also the employee productivity.

The overall trend in EU airlines' unit labor cost as illustrated in figure 3 indicates that EU airlines have been successful in controlling and reducing their unit labor cost in real terms. This is especially true since 1991 because the rate of increase in staff productivity has been greater that the increase in average wage levels (as illustrated in figures 2 and 3). Such trends have also been affected by outsourcing of certain activities.

Figure 3: Labor Costs (1985-1995) in Real Terms

FACTORS AFFECTING BENCHMARKING AIRLINES' LABOR COST AND PRODUCTIVITY

While it is always very useful to compare air carriers' performance with one another, it is of great importance to first consider internal and external factors that can influence a carrier's performance. In assessing airline labor costs, two main components need to be analyzed:

1. Labor remuneration, and

2. Labor productivity.

Clearly, each of these is driven by a range of factors which should be considered in making judgements.

> **Remuneration levels** are affected by a variety of factors including the local cost of living, taxation system, and the nature of the broad package offered to the employees including share ownership schemes, profit sharing, health care, accommodation, education, and pensions.

Labor productivity is affected by many factors including the level of work contracted out or contracted in, level of temporary staff, duty time limitations, the nature of the carrier's network (e.g. stage length, scheduling, and hub orientation) as well as labor agreements.

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Remuneration

Cost of Living. The cost of living varies significantly from one country to another. If employees working for, say, Olympic Airways and Swissair were to receive the same levels of pay, the employees working for Olympic (who are assumed to live in Greece) would have a substantially higher standard of living that the employees working for Swissair (see Appendix A for international living costs in European countries).

Converting the salaries of employees for various airlines into a common currency using market exchange rates does not take into account these cost of living differences. By using Purchasing Power Parity (PPP) exchange rates, the analysis can be amended to compensate for the difference in cost of living between countries. Purchasing Power Parity exchange rates convert currencies on the basis of what money will buy rather than on the basis of market valuation. Converting salaries—or indeed costs—using PPP exchange rates produces differences in the results of carriers' labor costs based in different European countries (see Appendix B for the rates).

Social Costs and Taxation. The amount the employers contribute towards the social costs as part of labor costs can also vary from country to country. Even if labor unions accept a wage freeze, airlines operating in countries with high social costs and taxes are still limited in how much they can reduce their labor costs (see Appendix C for hourly wage rate and other labor costs in European countries). Sabena is one of the airlines faced with this problem. The social cost for Sabena accounts for some 30 percent of overall salary costs (Airline Business, 1997).

Taxation systems also vary significantly from one country to another. It is perfectly possible for employees working for air carriers in different countries that pay similar salaries, to receive radically different levels of net pay due to different taxation levels (see Appendix D for the average income tax rates in different European countries).

This discussion certainly does not provide a complete picture of disposable or discretionary incomes. For example, the low taxes paid by citizens in one country may reflect low levels of state involvement in providing services. For their higher taxes, those in some countries may receive some state services such as medical care not available. Nonetheless, the analysis illustrates that uniform salary levels can mask differences in take-home pay.

Employee Profit Sharing/Ownership. Some carriers have implemented profit sharing schemes which might have a significant impact on the employees willingness to accept lower wages. Ideally these should be taken into account in an analysis of employee remuneration. For example, the British Airways (BA) employees shared £66 million from the carrier's 1994/5 profits. They had a choice of receiving cash or shares (British Airways News, 1995).

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In order to reduce labor costs, a number of U.S. carriers have traded shares in the company in return for reduced wages and increased flexibility in work rules. Trade unions at United Airlines in August 1994 accepted a ten percent pay cut and a package of work-rule concessions worth $5 billion over six years in return for a 55 percent stake in the company (see Alamdari and Morrell, 1997).

Similar agreements exist between management and employees at Northwest, USAirways, Southwest Airlines, and TWA. A straight comparison of airline employee remuneration does not necessarily provide a fair analysis. Staff may be willing to accept lower levels of income in return for equity that may increase in value and pay dividends.

Pension Costs. Pension costs are normally not included in the labor cost analysis. A good pension plan however, could compensate for lower wages or more flexible working conditions. Lufthansa employees were part of the state pension plan until the airline was privatized and the responsibility returned to the airline. The government was required to pay Lufthansa DM1.6 billion so the airline could maintain the benefits and to enable the last stage of privatization to proceed (Morrell, 1997).

Other Employment Benefits. Most studies do not take into account the other costs of employment. The range of benefits offered to employees in terms of health insurance, education, accommodation, sport facilities, crèche, travel, etc. are surely not immaterial to either the airline providing such benefits or to the employees receiving them.

Productivity

Labor productivity is generally defined as the relationship between the level of employment and total output (available ton-kilometers). The major problem in relating the number of employees to an airline's production is the change over time in the share of production performed **by other firms** (contracting out) and conversely, the change in work performed by the airline's employees **for other firms** (contracting in). Maintenance, ground handling, and catering staff are categories most likely to be subjected to these distortions.

Recently, some airlines have considered contracting out all of their information technology, computing requirements, and maintenance. Lufthansa shifted its aircraft maintenance to Shannon aerospace; BA outsourced its catering and maintenance; and Air France outsourced its ground handing at London Heathrow to Servisair. Capacity pools, block space, and code-sharing agreements effectively contract out flight operations to other carriers, thereby distorting flight crew and maintenance staff numbers.

In the past, many of these outsourcing agreements involved reciprocal services, with one carrier performing ground handling at its home base for other carriers and vice versa. This might also be the case with more recent alliances with

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each airline's sales staff working for both alliance partners in their respective home countries.

The extent of hubbing undertaken by an airline can also affect pilot productivity. Hubbing carriers develop schedules to maximize the number of connections with aircraft and pilot utilization becoming secondary considerations. KLM's latest schedule is arranged to have many short haul aircraft stay overnight at out-stations. The aircraft arrive at the out-stations late at night and depart early in the morning in order to connect with the first wave of departures at Amsterdam. Flight time duty limitations may mean that the flight crew that flies the last flight to the outstation is not able to operate the first flight of the morning —having to wait for the midday or evening flights from the out-stations. This inevitably reduces flight crew productivity.

INDIVIDUAL AIRLINE LABOR COSTS AND PRODUCTIVITY

A number of European carriers' productivity, wage rates, and unit labor costs are analyzed and compared for the period 1985 to 1995. Where possible, factors discussed above are taken into account to provide a better comparison.

Labor Productivity

Figure 4 illustrates trends in employee productivity (ATK per employee) for a number of EU airlines (airlines are ranked according to their 1995 performance). It can be seen that the majority of airlines have continued to increase their labor productivity over the years with KLM, Lufthansa, and British Airways growing at a higher rate than other carriers. The only carrier that has not achieved growth in employee productivity in recent years is Sabena. This is largely due to a radical reduction in capacity since 1991(primarily confined to intercontinental routes). Despite the decrease in Sabena's general employee productivity, previous research showed that the airline's cockpit crew achieved the highest growth in productivity compared with other EU airlines during the period form 1983 to 1993 (Alamdari et al, 1995).

Figure 4: EU Airline ATKs per Employee

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Labor Cost Per Employee

The analyses of labor costs per employee for the three years 1985, 1989, and 1995 allows a comparison between the labor costs of different carriers and established the changes in actual labor expenses.

The average cost per employee for the study air carriers, in 1995 U.S. dollars, is illustrated in figure 5. To take into account the differences in the cost of living of different countries, the Purchasing Power Parity (PPP) exchange rates were used to convert labor costs in national currencies to U.S. dollars. This technique removes the cost of living variations from the comparison. It can be seen that in most cases, the airlines' average labor cost has increased in real terms. TAP Air Portugal was the only airline in the sample that experienced declining average labor costs.

Figure 5: EU Airline Labor Cost per Employee (1995 prices) Using Purchasing Power Parity Exchange Rates

Air France has continuously reduced average labor cost until the merger with UTA in 1992 when average labor costs rose. Cost-saving measures introduced by Air France in September 1993 met with considerable hostility from its work force. The resulting industrial action led to the government intervening to force the company to withdraw its proposed cuts. In exchange for reductions in salaries, the airline changed the holding company structure to allow up to 20 percent of the shares to be owned by staff (Air France, 1995). More recently, pilots and ground staff from Air France Europe, formerly Air Inter, went on strike to protest against the imposition of Air France mainline's less favorable working conditions.

In April 1996, Lufthansa responded to increasing labor costs by employing regional flight attendants based in Delhi, Bangkok, and Singapore. Sabena has concluded an agreement with its labor unions that specifies a two percent salary decrease, the loss of 730 jobs, and flexibility in working hours. British Airways

has recently announced that 5,000 of its employees would be offered voluntary redundancy.

Deducting social costs paid by both the employers and employees, and taxes from staff salary costs provides a slightly different picture. Figure 6 illustrates employee take-home wages for the year 1995. It can be seen that Iberia, Lufthansa, and British Airways employees take home a larger pay than those working for SAS and Sabena.

Figure 6: Airline Labor Wages after Tax and Social Security – 1995 Using Purchasing Power Parity Exchange Rates

Unit Labor Cost

Based on a survey of wages and employment in Europe by Towers Perrin (1997), the most important factor affecting pay increases was found to be individual worker performance. Therefore, labor costs per ATK of the sample airlines are used to relate airline labor costs to employee performance. It can be seen from figure 7 that, with the exception of Sabena, the airlines' labor cost per ATK has declined.

Figure 7: EU Airline Labor Cost per ATK (1994 prices) Using Purchasing Power Parity Exchange Rates

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It is apparent that the majority of EU carriers reduced unit labor costs mainly through increases in productivity. It is interesting to note that the two southern European carriers, TAP and Iberia, pay their employees much more that other airlines for producing one ATK while KLM and British airways pay the lowest for the same level of output. Sabena's high labor cost per ATK stems from its lower labor productivity rather tan average labor costs as illustrated in figures 5 and 6.

Airline and Industrial Average Wage Ratio

Having compared average labor costs and productivity, it is of interest to assess how airline employee wages compare with the average industry wages. Figure 8 illustrates the average wage costs of EU airlines compared with wages in the manufacturing industry in their respective countries. On average, all countries pay their airline employees more than their manufacturing employees. With the exception of the UK, the gap between the two industries has narrowed. This is related to British Airways having carried out some of its restructuring even before 1985. BA has also out-sourced some of its labor intensive and lower paid functions. This has resulted in moving the airline's average wage up.

Figure 8: Ratio of Airline to Manufacturing Labor Costs

TAP Air Portugal pays, on average, over three times more to its employees than manufacturers pay to their employees. This may be due to very low wages paid by the manufacturers in Portugal (see Appendix C), since the airline wage rate is comparable with other European carriers (see figure 5). TAP Air Portugal also has the highest unit labor costs in relation to their productivity in comparison to the other airlines in the study (see figure 7).

CONCLUSIONS

While European airlines were not successful in moderating real wages, they were able to achieve higher productivity gains. In the period before liberalization gathered pace, EU airlines achieved more modest productivity gains. Gains have been at a much higher rates since 1991. Success in labor cost reduction should ultimately be judged in terms of trends in labor cost per unit of output (QTK). This reflects both productivity gains and the degree to which labor was compensated in higher wages. In the period 1991 to 1995, unit labor costs fell by approximately 38 percent as a result of the fast growth in productivity. In the same period, wages only increased 15 percent in real terms. It appears that the airlines were paying their staff only slightly more for proportionately greater productivity. This is possible because an increase in outsourcing has a tendency to increase the average unit labor cost by reducing the number of lower paid employees while boosting productivity.

KLM, British Airways, Air France, and Lufthansa have the lowest unit labor costs. This has been achieved through high labor productivity rather than lower wage costs. However, Sabena, Iberia, TAP, and SAS have higher unit labor costs due to low productivity levels. It has to be the ultimate goal of the latter carriers to improve their labor productivity levels in order to achieve competitive unit labor costs.

Comparing the airlines net wage rates, adjusted for social charges, taxes, and cost of living differences between countries, shows that employees working for SAS, Sabena, and KLM take home much less pay than other European airlines. On this basis, the highest paid employees are those working for Iberia. The employees of almost all airlines are paid more that employees working in the manufacturing industry in their respective countries but the gap is closing.

It could be expected that European airlines will achieve further reductions in real unit labor costs, driven by productivity gains and reduced real wages. To achieve such reductions, airline management will have to adopt policies to make the best use of employee potential while providing them with incentives for accepting lower wages and more flexible working conditions. Such incentives could include profit sharing or stock option schemes and genuine involvement and participation of employees in running their airlines.

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Appendix A: International Living Costs Index – 1997

Source: P-E International, April 1997

Appendix B

	Market Exchange Rates *national currency per U.S. $*			**Purchasing Power Parity Rates** *national currency per U.S. $*		
	1985	*1989*	*1995*	*1985*	*1989*	*1995*
France	8.99	6.38	4.99	7.27	7.47	6.66
UK	0.78	0.61	0.65	0.57	0.62	0.65
Spain	170.00	118.37	124.70	95.30	112.00	125.00
Netherlands	3.32	2.12	1.61	2.55	2.33	2.13
Germany	2.94	1.88	1.43	2.48	2.41	2.09
Belgium	59.37	39.40	29.50	44.60	44.60	37.50
Sweden	8.60	6.44	7.13	8.15	9.29	10.10
Portugal	170.40	157.40	149.90	66.20	98.90	122.00

Source: OECD Economic Outlook, December 1996

PPP exchange rates convert currencies on the basis of what money will buy, rather than on the basis of a market evaluation. Therefore they are the rates of currency conversion that equalise the purchasing power of different currencies. This means that a given sum of money, when converted into different currencies at the PPP rate, will buy the same basket of goods and services in all countries. Thus PPPs are the rate of currency conversion which eliminate differences in price levels between countries.

Appendix C: Labor Costs – 1995 Manufacturing $ per Hour

Source: The Economist, 27 April 1996
Note: The social costs for Spain and Portugal are estimates.

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Appendix D: Average Income Tax Rates – 1996

Source: Price Waterhouse
Note: Based on $60,000 income for a family with two children.

Appendix E: Average Hours Worked per Week

Source: UK Department of Employment, Labor Market Trends, 1996