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Course Correction

Reversing Wage Erosion to Restore Good Jobs at American Airports

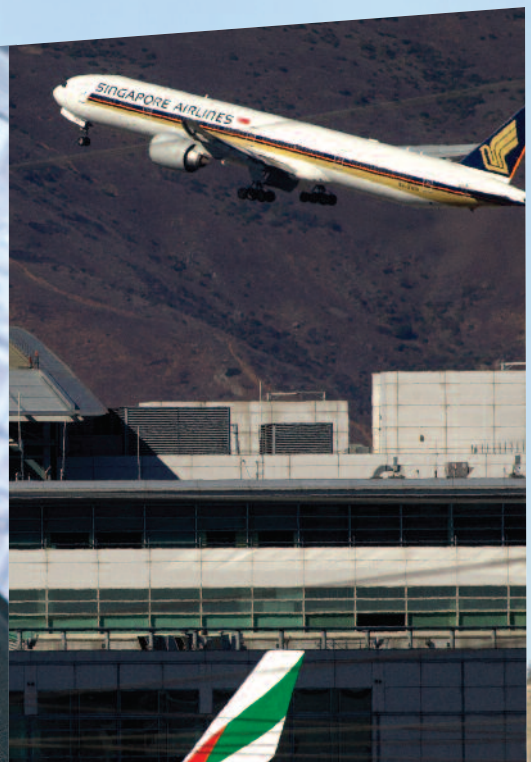


Table of Contents

Executive Summary	1
1. Introduction	2
2. National Trends in Aviation Employment and Wages	4
Employment trends	4
Wage trends	7
3. Raising Wages and Standards for Airport Workers	16
The benefits and costs of raising wages and standards	17
Airport finances and the cost of raising standards	20
Evidence from San Francisco International Airport	21
4. Conclusion	23
Appendix A. Hourly Wage Distribution for Outsourced Workers, 2012	25
Technical Appendix B. Selection of Airport and Baggage Workers from the ACS	26
Technical Appendix C. Cost of Public Programs	27
Bibliography	27
Endnotes	29

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Executive Summary

In recent decades the airline industry has seen a substantial increase in outsourcing which has undercut job security and lowered wages. This wage erosion has been particularly dramatic for private-sector workers employed in ground-based jobs in America's airports. The transformation of self-sustaining middle-class airline careers to low-wage outsourced jobs not only hurts workers and their communities, but also may negatively affect the safety, security, and efficiency of airports.

This report examines the extent of outsourcing in the airline industry; trends in wages over the last 20 years; the implications of these trends for workers, customers, and other stakeholders; and the costs and benefits of improving job standards in this industry.

Main Findings:

- Certain airport occupations faced both substantial increases in outsourcing and dramatic decreases in wages between 2002 and 2012:
 - ▲ Outsourcing of baggage porter jobs more than tripled, from 25 percent to 84 percent, while average hourly real wages across both directly-hired and outsourced workers declined by 45 percent, from over \$19 an hour to \$10.60 (in 2012 dollars).
 - ▲ Outsourcing of vehicle and equipment cleaning jobs doubled, from 40 percent to 84 percent, while wages fell from the equivalent of over \$15 an hour to \$11.40, a drop of 25 percent.
 - ▲ Today, even the highest paid outsourced workers in these ground-based airport occupations earn less in real terms than the average directly-hired worker in the same job a decade ago.
- More than one-third (37 percent) of cleaning and baggage workers at airports, both directly-hired and outsourced, live in or near poverty. Because of low wages and benefits, a similar share of these workers and their families must rely on public benefit programs to make ends meet.
- Average weekly wages in the airport operations industry generally (excluding air traffic control) did not keep up with inflation, but fell in real terms by 14 percent from 1991 to 2011. Wages for these workers not only grew more slowly than the average rate across all industries, but also grew more slowly than wages in the low-paying food services and retail industries. In 2011, workers in airport operations made an average of \$545 a week.
- Airports can take steps to address these wage declines. Existing programs to improve airport labor standards have enhanced worker performance and lowered turnover without harming employment or air traffic. Thus far only a small number of airports have made this course correction to reverse the steep decline in wages for airport workers.

1 Introduction

In June 2000, the U.S. Government Accountability Office (GAO) issued an alarming report on the performance of airport screeners in the United States. The GAO attributed long-standing performance problems of outsourced airport security screeners to “low pay and few, if any, benefits,” “rapid turnover,” and “few experienced” staff. One of the key reasons cited by the GAO for the high turnover rates was low wages: starting wages for security screeners were even below those of fast-food workers located at the same airports.

Following 9/11, security screening at American airports was transferred from privately contracted providers to the federal government. Under the newly created Transportation Security Administration (TSA) the positions paid higher wages with full benefits. In 2006 the TSA reclassified the jobs and provided access to career ladders in a further effort to reduce turnover.

While labor standards were improved for security screeners, pay continued to decline in real terms at most airports across the United States for other ground-based airport occupations. Following deregulation in 1978, airlines had pursued a variety of strategies to cut labor costs, resulting in substantial losses in compensation to airline workers.¹ One such strategy—outsourcing—allowed airlines to both reduce wages in lower skilled occupations and improve their ability to lay off workers during slow times. As a result, pay and job security eroded across a range of occupations. Jobs that once were performed by workers directly hired by the airlines, and that provided family-supporting wages, were now contracted out at much lower pay.



Wage erosion at airports raises particular concerns for airline passengers and also in the wider public interest, because its corrosive effects on workforce professionalism can undermine the safety, security, and efficiency of the air transportation system.

The public sector invests heavily to ensure that airports are efficient, safe, and well-connected to the cities they serve. Privately-owned passenger and cargo jets are guided by publicly-run air traffic control as they move people, documents, packages, and commercial goods between publicly-owned airports to support private commerce. Publicly-provided roads and transit link airports with their surrounding regions. Public partnerships in major capital and social infrastructure are required for the industry to exist.

Communities are being asked to support these investments while significant numbers of airport workers and their families are living in or near poverty and must rely on safety net programs to make ends meet. Recognizing the problems caused by low-wage jobs—for airport workers, their communities, and the traveling public—some forward-thinking airport authorities have implemented local oversight and standards for hiring, training, and compensation. The most comprehensive program was created at the San Francisco International Airport in 2000, which established minimum compensation and training standards for airport workers whose jobs impact safety and security. The policy went well beyond screeners to include baggage handlers, cleaners, fuelers, skycaps, customer service agents, and any other workers with access to secure areas of the airport.

This paper considers the consequences of outsourcing air transportation-related work. We begin by laying out the trends in employment within the sector, including the extent of outsourcing. Next, we look at wages for airport workers, examining changes within different industry classifications and focusing in on specific occupations. We then turn to arguments for raising wages and standards at airports, from the costs associated with low-wage work to the benefits for safety, security, and efficiency. Finally, we examine the evidence from San Francisco International Airport’s comprehensive set of wage and standards raising policies.

2 National Trends in Aviation Employment and Wages

Faced with price competition following the Airline Deregulation Act of 1978, airlines initially emphasized reducing labor expenses over improving management of capital or fuel costs. Two-tiered contracts, which set lower compensation for new workers, were negotiated in the 1980s and led to a decline in wages for workers hired directly by airlines. Even when two-tiered wage systems began to disappear, outsourcing continued to create downward pressure on wages. Today, some air transportation-related jobs still offer middle-class salaries, while others have seen sharp declines in wages and benefits, the result of lowest-bid subcontracting.

This section examines in detail the trends in employment, outsourcing, and wages in air transportation over the past two decades, and especially since 2001. It shows that wages in the industry sector that includes many outsourced airport workers continued to decline despite the increased concern about air safety and security following 9/11.

Employment trends

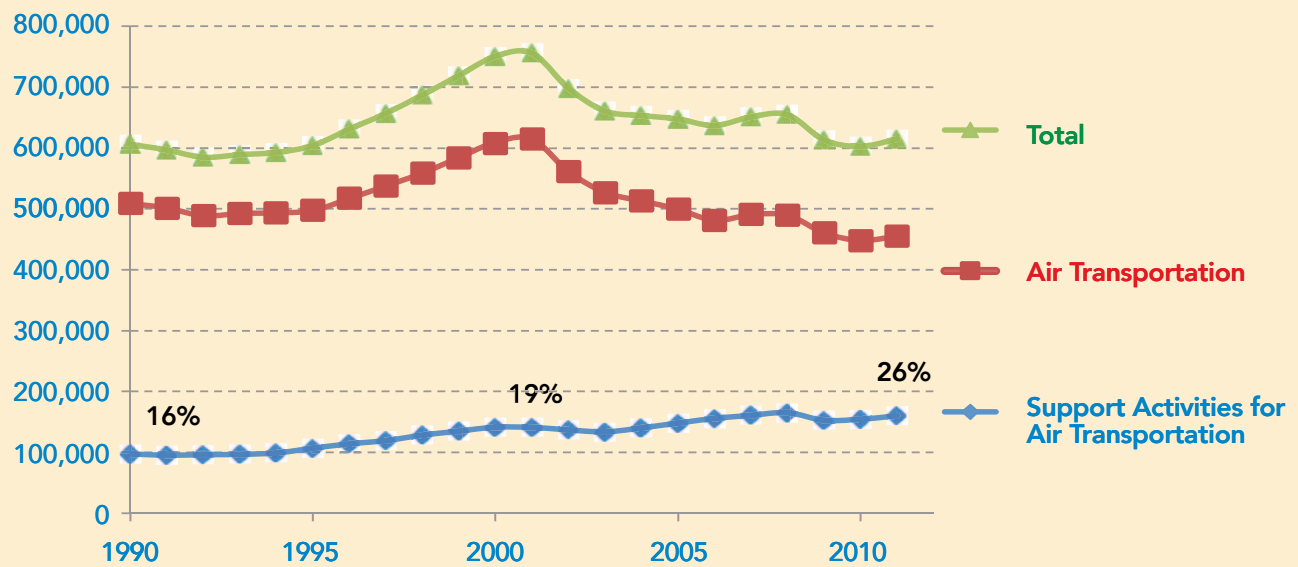
Direct employment at airlines fell by 160,000 workers, a quarter of the workforce, between 2001 and 2011 (QCEW 2013). Over the same period, passenger traffic among major U.S. airlines grew by more than 30 million, an increase of 6 percent.² To understand how the industry managed the increased workload from growing passenger traffic one must look beyond the workers employed directly by air carriers and also consider jobs outsourced by airlines to service contractors.

To calculate the number of air transport-related workers we use government statistics—the Quarterly Census of Employment and Wages (QCEW)—which classify establishments by industry. There are two relevant industry categories: ‘Air Transportation’ and ‘Support Activities for Air Transportation.’ Airlines comprise the first category³ and we refer to these workers as direct hires. We refer to workers in Support Activities for Air Transportation as outsourced. These two categories undercount air transport-related workers as there are some airport workers whose employer falls into a non-air transport industry category. Employees at airport restaurants, for example, would be classified in the ‘Restaurant’ industry. Likewise, airport janitors who work for janitorial firms that operate at the airport would be classified in the ‘Janitorial Services’ industry, rather than in the Support Activities for Air Transportation industry. In addition, these data capture U.S. workers for private companies only and so do not include employees outsourced overseas or security work transferred to the federal government.⁴

Combined employment in the two industry categories of Air Transportation and Support Activities for Air Transportation peaked in 2001. Since then, the number of workers directly employed by airlines

Figure 1. Average Employment by Industry, 1990-2011 (QCEW)

Total employment in the two air transport-related industry groups peaked in 2001; the share of workers outsourced grew from 16% to 26%.



(Air Transportation) fell by 160,000, but the number employed in Support Activities for Air Transportation rose by 20,000, so combined employment in these two industry groups has fallen by 140,000 (19 percent) since 2001, to 615,000 in 2011 (QCEW, 2013). To some extent this change reflects changes in airline management that achieved greater economies of scale, for example by flying fuller, larger planes. Passenger load factors, measured by the share of available seat-miles taken, increased from an average of around 70 percent in the late 1990s and early 2000s to 80 percent and above ever since 2006 (MIT Airline Data Project 2012).

Outsourcing occurs when a company (i.e., an airline) decides to take work formerly done by direct employees and instead contracts with another firm to provide those goods and services. The impetus for outsourcing can be efficiency—a contracting firm may bring economies of scale or specialized skills that increase worker productivity. Outsourcing can also be pursued for cost savings without efficiency gains—for example by paying lower wages, offering fewer benefits, or avoiding unionization. This cost-savings-based outsourcing is typical for relatively lower-skilled services (Dube and Kaplan 2010, 304-05, Reich, Hall and Jacobs 2003, 27-28).

Traditionally, airlines directly hired many of the people who worked in airports. Skycaps, wheelchair attendants, ticketing and gate agents, baggage handlers, plane fuelers, de-icers, and mechanics were usually hired by airlines. In recent decades these positions have increasingly been contracted out to other companies, even though some of these workers may wear airline uniforms (McGee 2012, 121, Rubery, et al. 2003, 273).

Though overall employment in air transport-related industries fell, outsourced employment increased, as noted above. Not only has the absolute number of outsourced jobs increased, the share of outsourced jobs has also increased substantially, from 16 percent in 1991, to 19 percent in 2001, to 26 percent by 2011, as shown in Figure 1 (QCEW 2013).

One of the better documented trends in the 2000s has been the outsourcing of aircraft maintenance work. A report by the Department of Transportation's Office of the Inspector General found that over 70 percent of heavy airframe maintenance checks were performed by contractors in 2007, compared to just 34 percent in 2003 (Dobbs 2008, iii).⁵ During this period, United Airlines won labor concessions from maintenance workers forced by bankruptcy proceedings, and Northwest Airlines began major outsourcing in response to a maintenance worker strike (McGee 2012, 188-189). Today about half of United's maintenance expenses are outsourced, and the industry average for major carriers is 45 percent (MIT Airline Data Project 2012). This trend in maintenance has led to serious concerns about oversight and safety as Federal Aviation Administration (FAA) inspections, data reporting requirements, and industry licensing guidelines have failed to keep up with the new industry structure (McGee 2012, 169-97). The Inspector General raised critical questions about the ability of the FAA to properly monitor and oversee these outsourced facilities, citing cases where an overseas facility overhauling engines was not inspected for five years after it was certified for use, and another where "serious" weaknesses at an outsourced repair facility were not detected by FAA inspections, an air carrier audit, or the repair station itself (Dobbs 2008, iv-v).

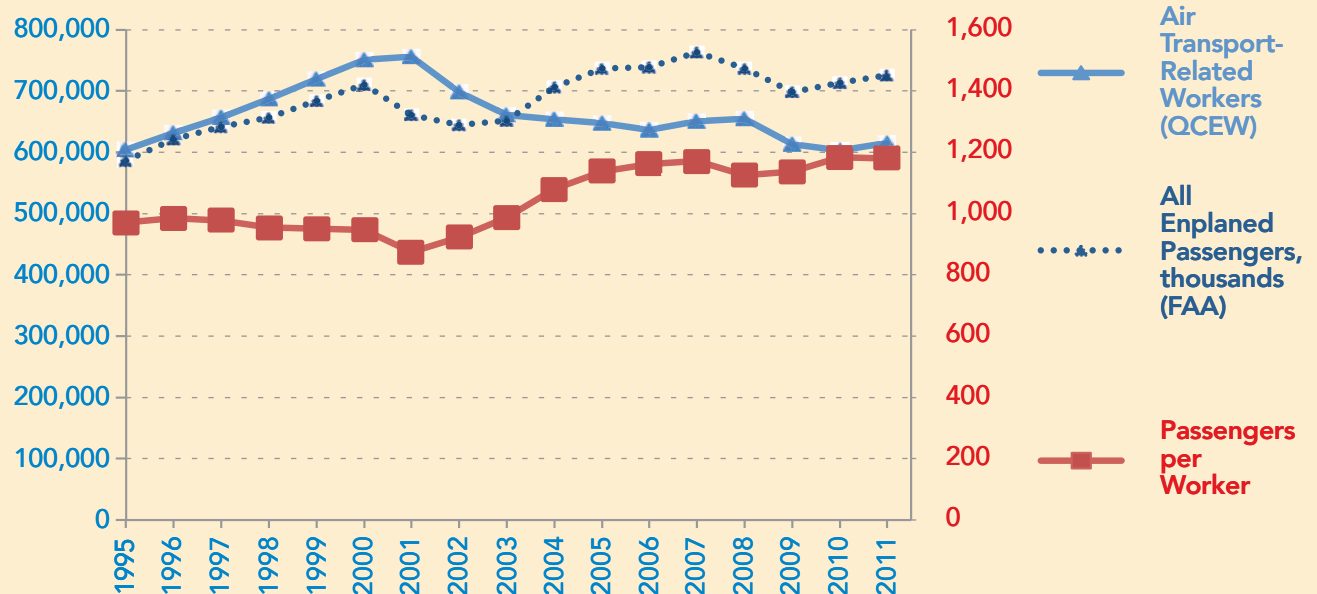
Along with outsourcing of maintenance has come outsourcing and mechanization of ticketing, reservations, customer service, and other ground-based positions. Mechanization of ticketing and reservation agents took off in the late 1990s, and the trend continues. An employer survey at San Francisco International Airport (SFO) in 2001 found that over 60 percent of the workers in cargo, ramp, cabin cleaning, fuel, and catering positions were outsourced (Reich, Hall and Jacobs 2003, 28). Airlines are currently experimenting with customers checking their own baggage and scanning their own boarding passes at the gate (Nicas and Michaels 2012). In contrast to maintenance, FAA oversight for most airport service contractors is at best indirect, with the contractor being held accountable through the client airline.



The outsourcing trend has gone so far that carriers have even outsourced the actual flying and operation of planes. Codesharing agreements, in which two or more airlines sell tickets for the same flight under their own brand, enable an airline to sell tickets on planes which may be owned, flown, and operated by a completely different airline than the one from which consumers think they purchased a ticket. Some 53 percent of the commercial airline departures in the U.S. are operated by the regional airlines that partner with major carriers through codesharing agreements (McGee 2012, 140). In addition to the accountability and transparency issues of outsourcing flights, these regional airlines have different training requirements and pay scales for their crews. When a Continental Airlines flight operated by Colgan Air crashed near Buffalo, New York, the subsequent National Transportation Security Board hearings revealed that the co-pilot's annual salary was \$16,200 and that she had previously worked a second job at a coffee shop to make ends meet (McGee 2012, 140).

Figure 2. Workers, Thousands of Enplaned Passengers, and Passengers per Worker, 1995-2011 (QCEW, FAA)

Productivity increased as enplanements rose but the number of workers declined.



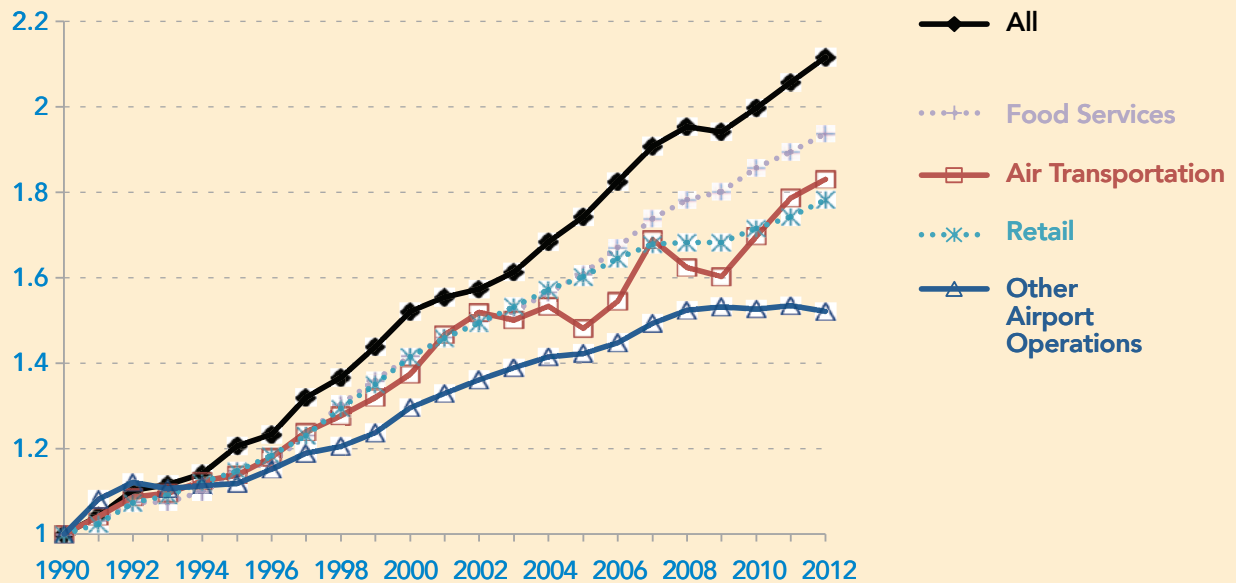
As the industry has cut employment and outsourced jobs, fewer workers are enplaning more passengers. Despite fluctuations in the economy and in ticket prices, and world events such as the 9/11 attacks and the SARS outbreak, use of air transportation has increased since deregulation. The number of airplane passengers in the U.S. climbed steadily during the 1980s and 1990s, dipped after 2001, and then peaked again in 2007 before the onset of the Great Recession. As the economy has slowly recovered, so too has air traffic, though the number of passengers in 2012 remained below the 2007 peak. After 2001, even as air traffic recovered and more and more passengers returned to the skies, the number of workers associated with air travel did not climb. During the late 1990s, the number of enplanements per worker was just under 1,000. Since 2004 the number of enplanements per worker has grown, reaching 1,180 in 2011 (see Figure 2).

Wage trends

Despite the increases in worker productivity shown in Figure 2 (above), wage growth in air transport-related occupations has lagged behind the average across all industries. Within the industry group Support Activities for Air Transportation, the subgroup ‘Other Airport Operations’ in particular has experienced stagnant wages. This industry includes activities such as operating the airport and providing baggage and cargo handling services,⁶ and most closely captures the lowest paid contracted-out airport jobs. As previously mentioned, wage growth in this industry over the last two decades fell behind the average across all industries and was even behind the wage growth in food services and retail. Data in Figure 3 are indexed to 1990, and therefore already incorporate the decline in wages that took place in the 1980s directly after deregulation (Reich, Hall and Jacobs 2003, 25).

Figure 3. Nominal weekly wages by industry indexed to 1990, 1990-2012 (QCEW)

Pay growth in Other Airport Operations lagged behind other sectors.



In addition to comparing wage growth across different industries, we can also compare actual wages. Average weekly wages in the Other Airport Operations industry generally did not keep up with inflation, but fell in real terms by 14 percent from 1991 to 2011, with the average worker making \$545 per week or about \$28,000 per year in 2011 (see Figure 4). In contrast, over this same time period average real weekly wages across all industries rose by 18 percent,⁷ and even wages in the ‘Transportation and Warehousing’ sector (which encompasses the Air Transportation and Other Airport Operations industries) rose by 2 percent (QCEW 2013).

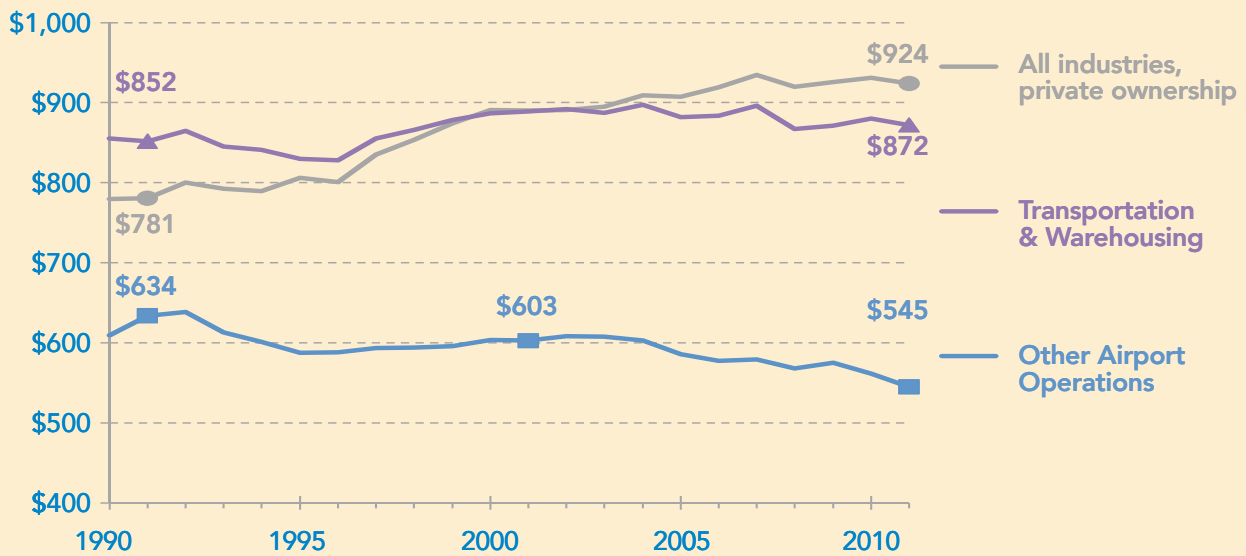
These data, however, do not allow us to control for the characteristics of these workers or the particular mix of occupations within an industry. For example, it is possible that mostly lower-wage occupations were outsourced from the Air Transportation industry, thus making the remaining workforce more heavily weighted to higher wage occupations. This may account for some of the relative improvement in Air Transportation industry wages from 2005-2012 seen in Figure 3. The question remains whether the slower growth (and decline in real terms) of wages for Other Airport Operations workers was due to a change in the occupational mix within that industry, or if wages fell even within a given occupation.⁸ To explore the role of outsourcing and to help disentangle the issue of wage declines from changes in occupational mix, we next look at specific occupations using Occupational Employment Statistics (OES).

Wages in specific occupations

By looking at specific occupations within air transport-related industries we can compare the same job classifications when they are directly-hired and when they are outsourced.⁹ The OES also provides

Figure 4. Real weekly wages by industry, 1990-2011 (QCEW)

Average real weekly wages fell 14 percent over two decades for workers in the Other Airport Operations Industry



hourly (rather than weekly) wages, allowing for a more direct comparison not confounded by changes in the number of work hours per week. While a detailed year-by-year analysis is limited given the methodology of the OES, we can still get a sense of the scope of changes in pay and employment over time.¹⁰ Table 1 shows average hourly wages for the most common low-wage occupations in 2002 and 2012, for both directly-hired airport workers (Scheduled Air Transportation)¹¹ and outsourced airport workers (Support Activities for Air Transportation).

In general, wages for outsourced workers are lower than wages for directly-hired workers in the same occupations. Between 2002 and 2012, the declining wages within both the directly-hired and the outsourced groups, combined with an increase in the share of work outsourced, resulted in a sharp decline in average wages for the occupations as a whole. In 2002, for example, directly-hired baggage porters were making the equivalent of \$22.06 an hour in 2012 dollars. Workers in the same occupation who were outsourced made less than half as much, an average of \$10.82. From 2002 to 2012, outsourcing of baggage porters more than tripled, from 25 percent in 2002 to 84 percent in 2012. By 2012, average wages for directly-hired baggage porters had also fallen, to \$11.09. Outsourced baggage porters also saw a decline in real wages, and still made less than directly-hired workers. The combination of these two trends—lower wages for both directly-hired and outsourced workers and a greater share of outsourced work—meant that average real wages for baggage porters generally fell by 45 percent over the past decade, from the equivalent of over \$19 an hour to \$10.59 in 2012 dollars (Figure 5).

The combination of these two trends—lower wages across both industries and a greater share of outsourced workers—meant that the average real wages for baggage porters fell by 45 percent over the past decade.

Table 1. Number of workers, average hourly real wages, and share outsourced for select occupations, 2002 and 2012 (OES)

Wages fell and outsourcing increased for common low-wage occupations.

Occupation*	Number of workers across direct and outsourced industries		Average Hourly Real Wage by Industry, 2012 dollars				% of Jobs Outsourced		Average Hourly Real Wage, weighted average across direct and outsourced industries 2012 dollars		
	2002	2012	Direct		Outsourced		2002	2012	2002	2012	% Change
Bellhops & Baggage Porters	16,010	10,360	\$22.06	\$11.09	\$10.82	\$10.49	25%	84%	\$19.20	\$10.59	-45%
Transportation Attendants (except Flight Attendants)	5,540	3,870	\$16.12	\$14.44	\$12.14	\$10.58	59%	65%	\$13.76	\$11.92	-13%
Cleaners of Vehicles & Equipment	8,200	5,390	\$16.48	\$13.65	\$13.20	\$10.94	40%	84%	\$15.17	\$11.38	-25%
Laborers; Freight, Stock & Material Movers	18,020	30,210	\$15.76	\$15.66	\$13.85	\$12.76	51%	43%	\$14.79	\$14.41	-3%
Cargo & Freight Agents	11,870	11,010	\$20.09	\$19.32	\$16.82	\$14.57	36%	25%	\$18.93	\$18.15	-4%
Reservation & Transportation Ticket Agents	114,110	91,880	\$19.06	\$17.22	\$13.34	\$13.23	4%	5%	\$18.82	\$17.00	-10%
Customer Service Reps	30,810	16,650	\$18.88	\$15.13	\$17.75	\$15.38	7%	30%	\$18.80	\$15.21	-19%
Total across analyzed occupations	204,560	169,370	\$19.00	\$16.82	\$13.82	\$11.26	15%	25%	\$18.22	\$15.46	-15%

* Selected occupations are the most common low-wage non-maintenance outsourced occupations in 2012, excluding 'Transportation Workers, All Other' (which is unavailable in 2002), 'Office Clerks, General' (which is unlikely to include many on-site airport workers), and 'Janitors and Cleaners' (which includes only about 2,500 air transport-related workers; most airport janitors are instead captured in the 'Janitorial Services' industry).

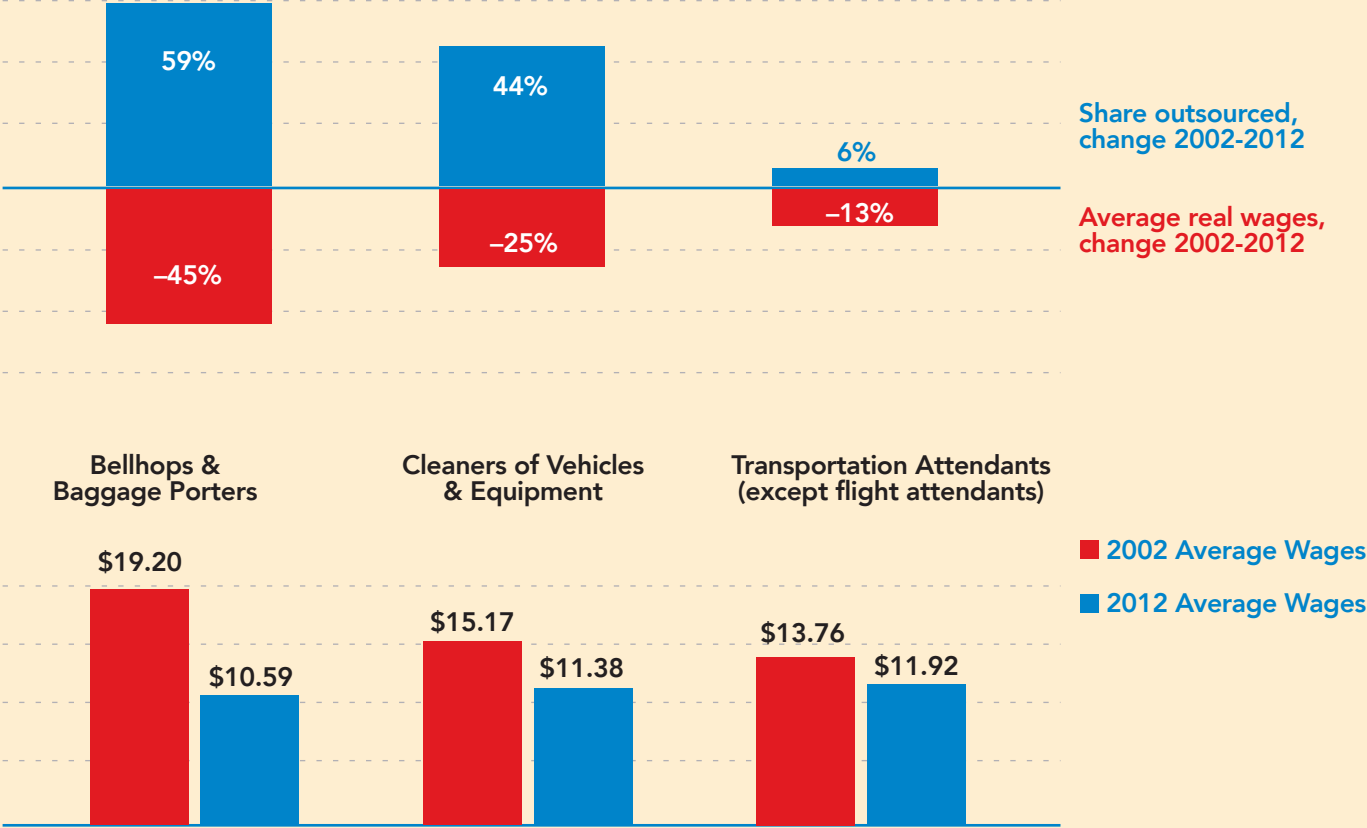
Direct = Scheduled Air Transportation industry (NAICS 481-1);

Outsourced = Support Activities for Air Transportation industry (NAICS 488-1)

The data tell a similar story for cleaners of vehicles and equipment. Wages for both directly-hired and outsourced workers declined substantially over the decade, and outsourcing more than doubled, from 40 percent to 84 percent. As a result, real wages for vehicle and equipment cleaners generally fell 25 percent, from the 2012 equivalent of over \$15 an hour to \$11.40. The trends were the same though slightly less dramatic for transportation attendants. The share of workers outsourced increased from 59 percent to 65 percent, and real hourly wages across both directly-hired and outsourced workers fell 13 percent. The consequences of downward wage pressure have been substantial for these low-paid positions at airports.

Figure 5. Change in share outsourced and decline in average real hourly wage (2012 dollars), 2002-2012 select occupations (OES)

Outsourcing increased while average pay fell from 2002-2012 among the lowest-paid airport workers.



The share of material movers and cargo agents outsourced actually decreased over the last decade. Nevertheless, a decline in wages for both directly-hired and outsourced workers resulted in slightly lower real wages overall.

The share of reservation and ticketing agent jobs that are outsourced is small and increased only slightly (to 5 percent). However, these workers faced downward wage pressure from automation as kiosks and Internet reservations became even more common. The total number of jobs in this occupation fell by more than 20,000. Again, real wages for both directly-hired and outsourced ticketing agents fell over the decade, resulting in an overall 10 percent wage decline.

Average real wages for both directly-hired and outsourced customer service representatives combined fell too, by 19 percent. However, by 2012, unlike for other occupations, average hourly wages for outsourced customer service workers were slightly higher than direct hire workers. This

may be due to the increasing complexity of tasks performed by those customer services representatives who have not been replaced by kiosks or offshore call centers, and who must be able to deal with multiple companies.

Across all of the occupations analyzed, airport workers saw their hourly wages fall by an average of 15 percent from 2002 to 2012. Although we cannot control for a host of other factors that influence wages, within the occupations analyzed there is a strong negative correlation between the increase in outsourcing and the change in average wage.

Outsourcing baggage handlers at SEA-TAC

A dramatic example of outsourcing and the erosion of wages took place at the Seattle-Tacoma International Airport after Alaska Airlines outsourced almost 500 baggage handling jobs in 2005. These previously union-represented positions earned an average of \$13.41 an hour. Overnight they were replaced with employees of Menzies Aviation, earning a starting hourly wage of \$8.75. Surveyed workers reported that non-supervisory baggage handlers employed at Menzies in 2011, six years later, earned an average of \$9.66 per hour (Mendoza, et al. 2012, 12-13, Keenan and Greenwich 2013, 9).

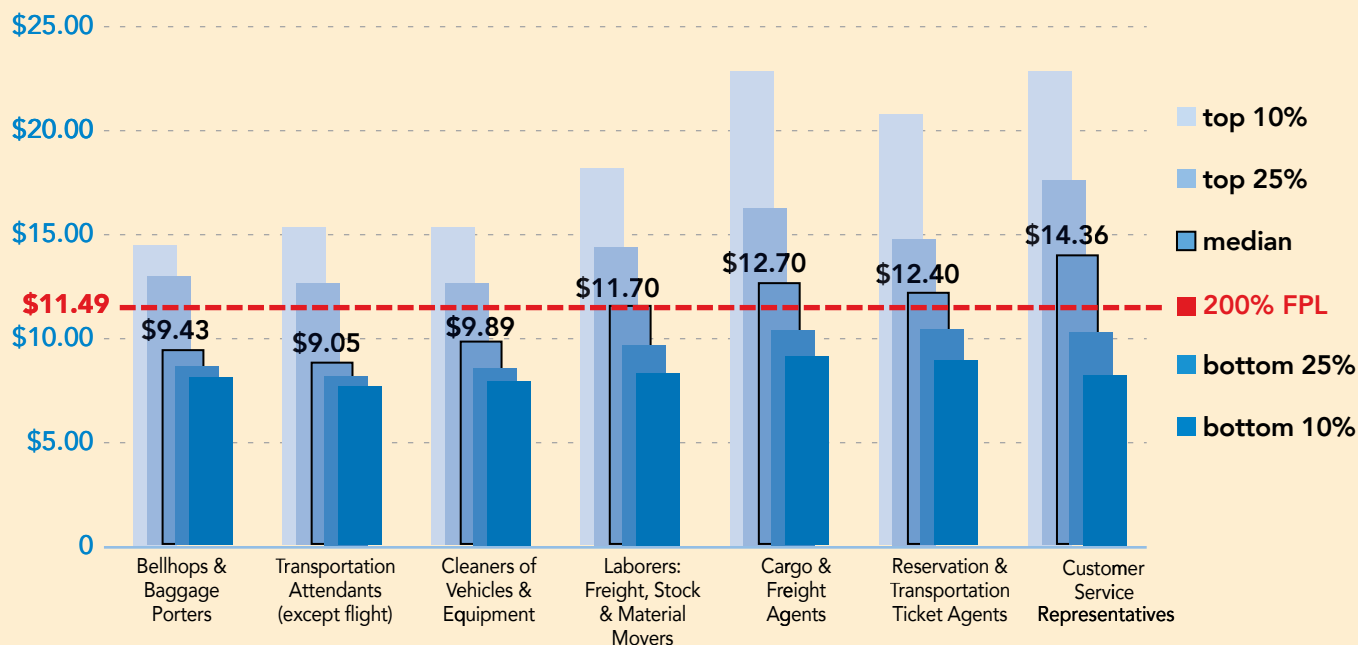
There are at least two possible mechanisms that explain the decline in average wages for direct hires as well as the decline in the weighted average of directly-hired and outsourced workers. First, the observed increase in outsourcing may have been concentrated at airports and airlines where wages in 2002 were relatively high, so that by 2012 only the lower-wage positions remained as direct hires.¹² Second, downward pressure from the threat of outsourcing and other competitive pressures could have resulted in lower real wages for direct hires. Though distinguishing the extent to which each mechanism occurred is not possible given the data, in either case the falling real wages of all these workers are linked to the trend toward outsourcing. Evidence from an analysis of outsourcing among janitors and security guards found that the wage differences between directly-hired and outsourced workers were not explained by skill differences (Dube and Kaplan 2010, 287).

Wage distribution for outsourced workers

OES data also estimate the distribution of wages within an industry and occupation. Median wages for contracted-out positions are low, below \$13 an hour for the occupations analyzed with the exception of customer service representatives. Not only are the median wages low, but the wage scale is compressed (Figure 6). The tenth percentile, the bottom of the wage scale, is close to minimum wage and below \$8 per hour for outsourced baggage porters, transportation attendants, and vehicle and equipment cleaners. At full-time, a worker earning the median wage in these three occupations would have annual earnings that would put a single individual under two times the federal poverty level, a common measure for near poverty.¹³ (See Appendix A for a complete table of the hourly wage distribution for outsourced workers by occupation.)

Figure 6. Distribution of hourly wages for low-wage occupations in Support Activities for Air Transportation, 2012 (OES)

Wage distributions are compressed for these outsourced workers; many make less than is required for even a single person to be above two-times the federal poverty line.



* Selected occupations are the most common low-wage non-maintenance outsourced occupations in 2012, excluding 'Transportation Workers, All Other' (which is unavailable in 2002) and 'Office Clerks, General' (which is unlikely to include many on-site airport workers), and 'Janitors and Cleaners' (which includes only about 2,500 air transport-related workers; most airport janitors are instead captured in the 'Janitorial Services' industry). See Appendix A for a detailed breakdown of the wage distribution by occupation.

For this same set of outsourced workers (baggage porters, transportation attendants, and vehicle and equipment cleaners), the top 10 percent of workers earn around \$15 per hour. This upper end of the wage scale for outsourced workers in 2012 is below the inflation-adjusted average wage for directly-hired workers in 2002. This means that the highest paid among today's outsourced workers in these positions make less in real terms than the average directly-hired worker in the same job a decade ago. The upper end of the wage scale, the top 10 percent of workers, gives some indication of upward mobility within an occupation. However, the data are national and so may be more reflective of the range across airports rather than actual mobility within any one airport.

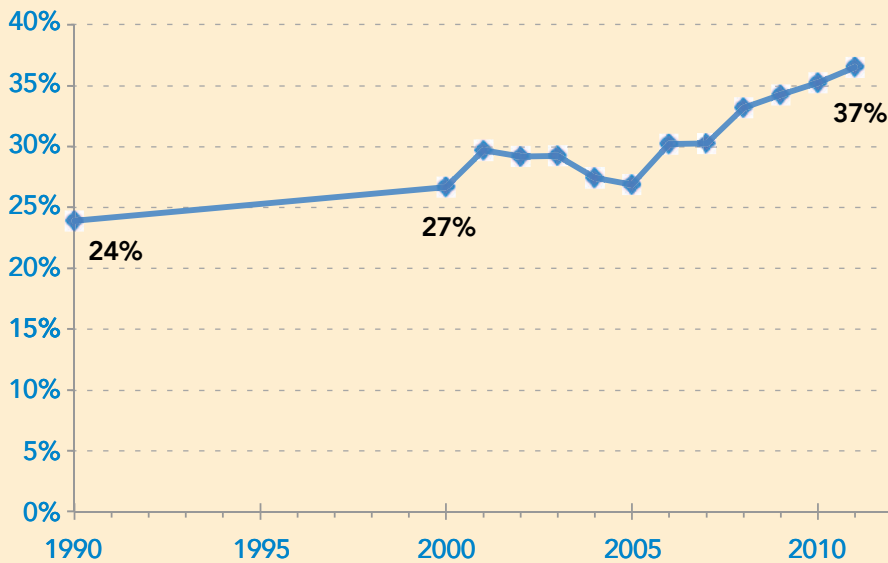
Low-wage airport work and family poverty

Not surprisingly given these low wages, many of the families of workers in these occupations live at or near poverty. Poverty rates among families of cleaning and baggage workers at the airport have increased over the past two decades. Our analysis of Census and American Community Survey (ACS) data for industries and

Even the highest paid among today's outsourced baggage porters, transportation attendants, and vehicle and equipment cleaners make less in real terms than the average direct-hire worker in the same job a decade ago.

Figure 7. Share of airport cleaning and baggage workers at or below 200% of Federal Poverty, 1990-2011 (Authors' analysis of census and ACS data 2013)

The share of airport cleaning and baggage workers in or near poverty increased over the last two decades.



occupations most closely matched to airport baggage and cleaning workers reveals that the share of workers' families in or near poverty (with family incomes at or below 200 percent of the federal poverty level) was 24 percent in 1990 (ACS 2013). By 2000 the share had risen to 27 percent, and by 2010 over a third (37 percent) were in or near poverty. One in ten had family incomes below the poverty line.



An analysis based on the federal poverty line, which does not consider the cost of living in a particular area, ignores the high cost of living that many of these workers face. Because airports themselves tend to be in high-cost metro areas, low-wage airport workers face particular difficulties making ends meet. Many of these workers are also supporting families; almost 80 percent of airport cleaning and baggage workers live in family households with children or a spouse, and 70 percent are over age 30. Half have high school diplomas or the equivalent, and another 32 percent have a year of college or more (authors' analysis of ACS data 2013). Yet many find themselves and their families relying on public safety net programs to fill the gaps left by low wages and poor benefits.

ACS data from 2008-2011 reveal that a quarter (26 percent) of baggage and cleaning workers (both directly-hired and outsourced) have no health insurance; 61 percent have insurance through an employer or union,¹⁴ and 13 percent get insurance through a public program. Some 15 percent report receiving food stamps within the last 12 months. These rates of public insurance and food stamps are higher than the comparable rates for currently-employed workers in general, 9 percent of whom get health insurance through a public program (73 percent from an employer or union), and 8 percent of whom report receiving food stamps. The rates for cleaning and baggage workers are also significantly higher than for all directly-hired airport workers, 6 percent of whom get health insurance through a public program (89 percent from an employer or union) and 4 percent of whom report receiving food stamps (authors' analysis of ACS data, 2013).

Low Wages at Philadelphia International Airport Mean Many Workers Rely on Public Safety Net Services

A recent survey of contracted workers at PHL highlighted the challenges that low wages and poor benefits present for these airport workers. Surveyed workers had an average hourly wage of \$7.85, and 83 percent had an annual family income below \$20,000. This is well below the city of Philadelphia's living wage, which is 1.5 times the federal minimum wage, or \$10.88 per hour. It is not close to what a worker needs to get by, according to the Economic Policy Institute, which calculates that a one-parent one-child family living in the Philadelphia metro area needs more than \$56,000 per year to get by, the equivalent of \$27 an hour (Economic Policy Institute 2013).

Because of these low wages, many workers and their families reported relying on safety net programs. Over a third of families received food stamps and a similar share received or had a family member receiving public health insurance. More than 60 percent of workers lacked paid sick days, health insurance for themselves, and paid vacation days (NELP 2013, 23, 25).

3 Raising Wages and Standards for Airport Workers

Low wages, poor working conditions, and the lack of job standards in airport work negatively impact workers, their communities, and the whole range of airport stakeholders. In order to address these impacts, some airports have established policies to raise labor standards.

Living wage laws were passed for the airports in San Francisco, Oakland, San Jose, Los Angeles, Miami, St. Louis, Hartford, and to a limited extent in Philadelphia (where a living wage applies to lease-holders such as concessionaries but not subcontracted airport service workers) and Syracuse (where it currently applies to parking lot attendants and concessionaries). In order to implement such policies, some airports have instituted permitting systems for companies that operate at the airport. Because aviation service companies are contractors of airlines and may not have separate lease agreements with local authorities, such permits may be an airport's only means to identify and influence these companies' practices.¹⁵ In some cases, airports have put in place accompanying mandates for benefits, training, worker retention, and labor peace agreements.

Higher wages and job standards can reduce turnover and create a more stable, experienced workforce. Worker retention policies, which require that workers be retained for a minimum period of time when a contractor changes, can also contribute to building a more stable, experienced workforce. Training requirements can be used to improve efficiency and knowledge about safety issues and handling security threats. Health benefits and sick days may keep employees from coming to work when sick and exposing passengers and other workers to disease. Labor peace agreements

exist to ensure that services (as well as airport operations revenue) are provided without interruption from contentious labor relations. Better wages and working conditions also help to ensure that the surrounding communities that face the largest external costs from airports and airport expansion avoid the social and fiscal costs associated with low-wage work, and instead benefit from the creation of quality jobs.



This section outlines the costs of low wages and ways in which increased wages and benefits can help workers and improve airports without harming employment levels or airport viability; discusses airport financing and the channels through which airports receive public financial support, as well as the possible cost of such wage increases; and finally takes a look at the specifics of the laws implemented at San Francisco International Airport and their effects.

The benefits of raising wages and standards

Safety and security

Job quality affects safety and security through multiple channels. Higher wages and benefits are associated with lower turnover (Dale-Olsen 2006, 99). Lower turnover translates into more experienced workers, with more opportunities for training and learning on the job, which can lead to better work performance (Reich, Hall and Jacobs 2003, 52, 60). Inadequately trained and less experienced workers may be unfamiliar with hazards and safety procedures. In addition, subcontractors are less likely to identify and report health and safety hazards that could affect workers and the public (Gochfeld and Mohr 2007, 1607-09).

Before security screening was transferred to the federal government, GAO reports warned of the dangers of low wages and high turnover among security screeners (GAO 2000, 23-25). Turnover nationally exceeded 125 percent. At Boston's Logan Airport it was 200 percent, and at Atlanta Hartsfield, 400 percent (Krueger 2001). Evidence of living wage implementation leading to significantly lower turnover rates was found at SFO (Reich, Hall and Jacobs 2003, 52) as well as the Los Angeles International Airport (Fairris 2005, 100-101). Using data collected by the GAO, Reich (cited in Krueger 2001) found that airports with lower turnover generally had higher detection rates for security breaches.

Higher wages and job standards can reduce turnover and create a more stable, experienced workforce.

Organization of the airport work environment can make ensuring safety and security even more complicated. Contracted out employees are likely to be less engaged with improving safety procedures and performance; they may not know where to bring complaints, issues, or suggestions. An airport worker may perform duties for three different airlines in the course of a day (Rubery, et al. 2003, 282). In such a fragmented work environment, accountability and empowerment to fix problems are dispersed. Unionization and worker voice through union representation in safety committees has been associated with lower injury rates (Robinson and Smallman 2013, 683), but outsourcing makes unionization far more challenging (Dube and Kaplan 2010, 289). In general, in contracted-out work environments there is a greater risk that training and safety measures will get short shrift (Cummings and Kreiss 2008, 449). In numerous industries where contracting, subcontracting, and multi-employer worksites are increasingly common,¹⁶ concerns have been raised about worker safety, especially among subcontracted workers (Gochfeld and Mohr 2007, Quinlan and Sokas 2009, Azari-Rad, Philips and Thompson-Dawson 2003).

Multi-employer worksites also present challenges for gathering accurate data on training, risks, and incidents (Gochfeld and Mohr 2007, 1611). There have been no direct studies of the impact of outsourcing on health and safety incidents for airport workers, and even gathering data on comparable security incidents among TSA workers has been challenging. At airports without a

permitting process for contractors and subcontractors, it may be hard for local authorities to know or track which companies are in operation, let alone their training, health, or safety records (San Francisco International Airport 2009, 1).

San Francisco's Quality Standards Program (QSP), the first in a series of job quality standards passed at SFO, was implemented for the express purpose of "enhancing security and safety" at the airport (San Francisco International Airport 2009, 1). The airport commission recognized that a wide range of workers have a role to play in safety and security. Many of these workers perform their jobs in or travel through secure zones in the airport, often many times a day.

The commission also determined that while transportation safety regulations "set forth basic quality standards," these were neither as robust as they could be, nor did they include compensation standards. By establishing a direct relationship between the airport and airline contractors through a certification process, SFO's commission was able to establish airport-wide safety and security standards, *and* develop a means through which they could enforce those standards (San Francisco International Airport 2009, 4).¹⁷

Efficiency and higher compensation

A competitive model of labor markets holds that when minimum wage standards increase, employment declines. Empirical evidence, however, finds no negative employment effect of higher minimum wages (Dube, Lester and Reich 2010, 961). Instead, scholars have identified, both theoretically and empirically, a variety of other adjustment channels employers may use to absorb the cost of increased wages. One such channel is a decrease in turnover and associated costs; another is increased productivity of workers. John Schmitt's review of the literature summarizes it thus: by paying above market rates, employers may be incentivized to "identify, implement, and maintain" efficiency improving practices; likewise, workers may work harder, "either to ensure that they keep their job or in reciprocity for the higher wages paid" (Schmidt 2013, 12). This is supported by the evidence from SFO after implementation of the QSP, where employers and workers reported increased effort, responsibility, and quality of service (Reich, Hall and Jacobs 2003, 58-62). To the extent that improved efficiency and productivity help keep planes, bags, and cargo on schedule, these efficiency gains benefit the system as whole.

The increase in service quality may be particularly important to passengers. For many local passengers, airports have monopoly power (Gillen 2011, 7). Passengers may have no (or few) other options and cannot vote with their feet. To reach a destination in a timely manner they are often reliant on their local airport and cannot choose another one simply because they are upset or dissatisfied with service quality, safety, or security. Standards are then a way to create a high minimum of service and safety that protects the interests of the flying public.

Safety, paid sick leave, and health benefits

Worker access to paid sick leave and health benefits has implications for airport safety. Paid sick leave reduces ‘presenteeism’—workers showing up for work even when they are sick (Drago and Lovell 2011, 5). Presenteeism can cause the spread of disease as well as impede productivity and increase the risk of injury on the job; unsurprisingly, the Centers for Disease Control and Prevention recommends staying home when sick (CDC 2013). Research shows international airports play an important role in the spread of contagious diseases, most recently the threats from SARS, bird flu, and swine flu (Nicolaidis, et al. 2012, 1). Encouraging sick airport workers to stay home when they are ill and providing health insurance and access to medical care would protect both their fellow workers and the general public.

The cost of poverty-level jobs

Low-pay at airports creates costs for the surrounding communities. When wages are low enough to leave workers in or near poverty, it has negative consequences for their children’s education and life prospects. As the Center for American Progress reported in a comprehensive review of childhood poverty in 2007, children who grow up in poverty are more likely than their non-poor counterparts to have low earnings in adulthood, somewhat more likely to be involved in crime, and more likely to have poor health outcomes. Each of these consequences has a cost for the community and ultimately for the economy as a whole (Holzer, et al. 2007, 1). The negative consequences of growing up in neighborhoods with concentrations of poverty have also been well documented (Sharkey 2009, 2).

In addition to these societal costs of growing up in poverty are the public costs of social services and safety net programs that the working poor must rely on, such as the Earned Income Tax Credit, Medicaid, welfare, food stamps, free and reduced price lunch, rental housing, and childcare assistance. Looking at a subset of such programs and adjusting for the underreporting that is well documented in self-reported surveys, we estimate that approximately 37 percent of families of airport cleaning and baggage workers receive Medicaid, the Earned Income Tax Credit, Food Stamps, Temporary Assistance for Needy Families, or some combination, compared to 25 percent of working families as a whole (for more on the methodology, see the technical appendix C and Allegretto, et al. 2013). Overall this amounts to \$110 million per year in public assistance for these workers and their families. Raising wages and improving benefits would decrease low-wage airport workers’ reliance on public assistance.



Airport finances and the cost of raising standards

Airports in the United States are public entities, owned by cities, counties, or separate public port or airport authorities, and regulated by the FAA amongst other agencies (Graham 2004, 63-65). Airport revenues come from various aeronautical fees—for example landing, terminal, hangar rental, and fuel fees—and non-aeronautical concessionaires such as retail, parking, and other rentals at the airport (ACI North America 2012). There are also external sources of revenue for airports, primarily municipal or other governmental bonds, and two Federal programs: Airport Improvement Program (AIP) grants, and Passenger Facility Charges (PFCs). Since 2000, PFCs have been capped at \$4.50 (ACI North America 2013).

The FAA requires that airports operate on a ‘revenue neutral’ basis—they cannot make a profit on aviation, but should also charge enough to cover the costs of operation. Airports are also prohibited from using airport revenues for non-airport purposes, known as the ‘revenue retention’ requirement (Graham 2004, 65-66). This means that cities and communities surrounding the airport do not draw revenue directly from the airport, even if they incur costs from providing social services to workers and connecting infrastructure. This revenue retention requirement also makes airports much more financially stable than airlines. Although individual airlines have been consistently profitable, notably Southwest, as an industry the track record in the decades since deregulation is poor (Borenstein 2011, 2).

Not only are airports owned by public entities, they also receive government money and have access to capital at a lower cost because of their relationship to public entities. According to the Airports Council International, in North America “lower borrowing costs through municipal bonds allow airports to pass the savings to airlines through lower rates and charges, which help sustain existing and attract new air carrier service, ultimately benefiting passengers with more service choices. Air service helps generate jobs and economic development in the community” (ACI North America 2013).

The costs of airports

Airports also generate costs which are transferred to the surrounding communities: infrastructure to and from the airports, as well as the noise and pollution costs borne especially by the (often poor) communities closest to the airport (Altshuler and Luberoff 2003). These costs are even more burdensome at hub airports when passengers are just passing through because they are not offset by travelers’ spending in local communities. And while airports do create jobs, if those jobs are low-paid, below self-sufficiency level, then they create other costs for the community.

As airports need to expand they must get the consent of the community. Making the case to the surrounding community, who must bear the brunt of these costs in pollution and noise, may become easier if the communities recognize that they are benefiting from good airport jobs. Creating quality jobs is thus one way that airports can compensate the poor communities neighboring the airports that bear the brunt of the noise and pollution.

The cost of raising standards

Evidence from San Francisco indicates that the cost of raising standards is small and can be passed through from airports and airlines to customers without compromising passenger volumes. Estimates from San Francisco indicate that the cost of raising wages, even if it were all passed on to passengers and no savings were realized from lower turnover and greater productivity, would be \$1.42 per person in 2000 dollars (or \$1.89 in 2012 dollars). Even doubling this cost to \$3.78, assuming both the origin and destination airports had such standards, would be below \$4.50, the current Passenger Facility Charge levied on each passenger. An increase in fares of \$3.78 is only about 1 percent of average total round-trip price in 2012,¹⁸ likely too small to affect purchasing decisions (Airlines for America 2013).

Evidence from San Francisco International Airport

San Francisco provides an important example of the actual implementation of higher wages and standards at an airport. Because the effects of this law were studied extensively, it provides not only a model for legislation but also evidence about the actual effects such laws can have. A particularly comprehensive set of legislation was passed around 2000 creating workplace standards at the airport. The set of laws created a living wage, mandated health care and paid sick leave benefits, created a labor peace program, and set minimum education and training standards for certain workers (Reich, Hall and Jacobs 2003, 14-18).

- First was the **Quality Standards Program (QSP)**, passed by the Airport Commission in early 2000, which focused on a broadly defined set of jobs relating to safety and security. This included not just baggage screeners, but also skycaps, wheelchair agents, baggage handlers, cabin cleaners, fuelers, and boarding agents—anyone working in secure areas or performing security functions. QSP mandated that these workers be paid at least \$9 per hour, or \$10.25 without benefits. This increased in January 2001 to \$10 and \$11.25 per hour and was indexed to the Bay Area consumer price index. As of January 2013 the rate stands at \$12.93 with benefits.¹⁹ In addition to compensation, QSP required that these workers have at least a high school diploma and substantially more training than the FAA requirements at the time. To implement these conditions, airline service contractors were required to be certified by the airport commission in order to be permitted to operate at the airport.
- San Francisco's airport commission passed **labor peace** rules governing airport workplaces to protect the airport's interest in maintaining uninterrupted operations.
- In late 2000, the city's **living wage law**, the Minimum Compensation Ordinance, came into effect. This set minimum wages at employers operating at the airport or with a contract to provide services to the city of San Francisco. Exemptions existed only for for-profit companies with contracts less than \$25,000 (\$50,000 for non-profits) and employers with fewer than 20 employees. In addition to minimum hourly wages, the law required paid sick days and unpaid time off for family emergencies. The Health Care Accountability Ordinance, sometimes referred

to as the City's "living health" law, required employers to provide health benefits, or pay into a city fund for the uninsured.

- Finally, in June 2001 the airport commission passed a **Worker Retention Policy**. This policy helped protect workers from losing their jobs if a particular contractor was terminated. Instead, successor contractors had to retain any worker with tenure of six months or more for a 90-day trial period. This applied to all QSP workers, as well as contracts for parking garages, curbside management operations, and information booths, and was later extended to food and beverage leases.

The impacts of these laws, the QSP especially, have been carefully studied and found to have resulted in increases in pay, worker retention rates, and job-performance without hurting employment or passenger volume. Wage increases affected almost 10,000 low-wage workers at SFO. Worker turnover decreased substantially, especially in low-wage positions—a 44 percent reduction in turnover for cabin cleaning firms and a 25 percent reduction for ramp workers. This reduction in turnover was estimated to save employers \$6.6 million per year, just one of the ways in which employers mitigated the increased cost of worker compensation. Employers noted that worker effort and performance increased, with 45 percent reporting that customer service improved (only 3 percent thought it had worsened). Workers also reported that they were working harder at their jobs (44 percent), and that the pace of work had increased since the new rules went into effect (37 percent). At the same time, neither employment nor passenger volumes showed declines as a result of QSP (Reich, Hall and Jacobs 2003, 66-67, Reich, Hall and Jacobs 2005).

4 Conclusion

Over the past two decades, two clear trends stand out for airport workers: an increase in outsourcing and a decline in wages. Even as the total number of workers in air transport-related industries has declined since 2001, the share of workers outsourced grew from 19 percent to 26 percent in 2011. At the same time, weekly wages for those in the Other Airport Operations industry not only failed to grow, but failed to keep up with inflation. Real average weekly wages for this group fell by 10 percent from 2001 to 2011 (QCEW 2013).

Evidence of this decline is supported when looking at specific occupations within aviation. In what are now the lowest-paid jobs in Support Activities for Air Transportation, there is a strong correlation between increases in outsourcing over the last decade and the decline in wages. For baggage porters, transportation attendants, and vehicle and equipment cleaners, even the highest paid outsourced workers made less in 2012 than the average directly-hired worker made in 2002. Across the occupations analyzed, the decline in average wage for the combination of directly-hired and outsourced workers was 15 percent; for some occupations the decline was as high as 45 percent (OES 2013). These wage declines are reflected in estimates of increasing poverty for these workers: among airport cleaners and baggage handlers, the share of workers living at or below two times the federal poverty line grew from 27 percent in 2000 to 37 percent in 2010 (ACS 2013).



Outsourcing and declining job quality may negatively affect airport safety and security. High turnover results in less trained and less experienced workers and lower commitment to the job. Outsourcing is associated with uneven attention to health and safety, both in training, reporting, and prevention (Gochfeld and Mohr 2007). Many airports lack formal mechanisms to regulate contract firms and control quality standards. The rise in low-wage work also has long-term consequences for workers and costs for the communities in which they live (Holzer, et al. 2007, 1).

Action by forward-thinking airport authorities and local governments is showing the way to solutions that start by stabilizing and improving airport

working conditions. As the experience in San Francisco demonstrates, raising wages and standards for airport workers can improve not only workers' lives but also the airport's quality of service, while at the same time addressing concerns about safety and security (Reich, Hall and Jacobs 2003). Such improvements are important to all the airport's stakeholders—the workers themselves, the airlines and airport operators, the FAA, and the flying public. In addition, raising standards, particularly wages and benefits, has substantial benefits for the communities that house and staff airports.

Wages and standards can be raised—San Francisco gives us a clear example of an airport passing comprehensive laws and continuing to thrive. In fact, as theory predicts and experience has shown, there are numerous ways in which the increased costs of higher wages and better standards are absorbed by employers and even benefit the airport. Setting labor standards would serve both to arrest the sharp decline in wages that workers have experienced over the last two decades, and to support better functioning airports. Communities have a direct interest in requiring that their airports are not only reliable components of the air transportation network but also good employers. Though these employers are private, airports receive significant public investment and support. Airports should adopt policies that improve wages, benefits, and training for airport employees.

Appendix A.

Hourly Wage Distribution for Outsourced Workers, 2012

Table A. Hourly wage distribution for outsourced support for air transportation workers, 2012

Occupation*	Bottom 10%	Bottom 25%	Median (50%)	Top 25%	Top 10%
Bellhops & Baggage Porters	\$7.89	\$8.48	\$9.43	\$12.86	\$14.24
Transportation Attendants (except Flight Attendants)	\$7.81	\$8.34	\$9.05	\$12.52	\$15.28
Cleaners of Vehicles & Equipment	\$7.99	\$8.65	\$9.89	\$12.24	\$15.42
Laborers; Freight, Stock & Material Movers	\$8.46	\$9.60	\$11.70	\$14.62	\$18.30
Cargo & Freight Agents	\$9.45	\$10.57	\$12.70	\$16.45	\$23.19
Reservation & Transportation Ticket Agents	\$8.84	\$10.36	\$12.40	\$14.49	\$20.56
Customer Service Representatives	\$8.64	\$10.69	\$14.36	\$18.24	\$22.93

*Select occupations are the most common low-wage non-maintenance outsourced occupations in 2012, excluding Transportation Workers, All Other (which is unavailable in 2002) and Office Clerks, General (which is unlikely to include many on-airport workers), and Janitors and Cleaners (which includes only about 2,500 air transportation workers; most airport janitors are instead captured in the Janitorial Services industry).

Source: OES

Technical Appendix B.

Selection of Airport and Baggage Workers from the ACS

Airport baggage and cleaning workers were selected by combining industry and occupation codes from the IPUMS ACS sample. We selected two industries, Air transportation and Services incidental to transportation (IND1990 421 and 432). Within those industries we chose occupations Vehicle washers and equipment cleaners; Janitors; Housekeepers, maids, butlers, stewards, and lodging quarters cleaners; Baggage porters; and Personal service occupations, not elsewhere classified (OCC1990 887, 453, 405, 464, and 469). Including the industry 'Services incidental to transportation' means that some workers may be involved in trucking, rail, or water transportation. However, using the most closely comparable occupation codes in Occupational Employment Statistics and that data set's more detailed industry classifications, we determined that most of these workers would be in air transportation. Of workers in the occupations chosen who were within the broad industry group 'support services for transportation,' over 60 percent were in support services for air transportation in 2012.

Technical Appendix C.

Cost of Public Programs

To estimate the cost of public programs used by airport baggage and cleaning workers, we followed the methodology of Allegretto, et al. 2013. Airport baggage and cleaning workers were selected by combining industry and occupation codes from the IPUMS ACS 2007-2011 sample, using the most recent coding for industry and occupation. We selected two industries, Air transportation and Services incidental to transportation (IND 6070 and 6290). Within those industries we chose occupations Cleaners of vehicles and equipment; Janitors and building cleaners; Maids and housekeeping cleaners; Baggage porters, bellhops, and concierges; and Personal care and service workers, all other (OCC 9610, 4220, 4230, 4530, 4650). These industry and occupation codes are as close as possible to the codes chosen for ACS analysis over a longer time frame outlined in Technical Appendix B. The same caveats about the inclusion of services incidental to transportation apply, as do the data checks through OES.

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5. Endnotes

1. Deregulation had other effects: overall average ticket prices fell (GAO, 1996), though the benefits were not evenly distributed geographically, and the industry has experienced waves of bankruptcies, mergers, and restructuring.
2. While the last quarter of 2001 had low passenger traffic due to 9/11, passenger totals had already recovered by 2005, whereas employment had not.
3. Passenger airlines account for the vast majority of employment in this category (89 percent in 2011), but it also includes scheduled freight, chartered passenger and freight, and aviation clubs. Anyone hired by any company in this category is considered a “direct hire.”
4. Some aspects of security at airports changed dramatically after September 11, 2001. Low-paid outsourced positions in either the ‘Security Guard and Patrol Services’ industry or the Support Activities for Air Transportation industry were moved to the federal government as the Transportation Security Administration (TSA) ramped up and hired some 45,000 screeners by the end of 2002 (New York Times 2002). Some of these workers show up in the QCEW data for contracted-out workers before 2002, but many do not because they would have been classified as being in the Security Guard and Patrol Services industry. After 2002 they would be absent from these data because almost all were now employed by the federal government rather than a private employer.
5. These numbers exclude America Airlines, which is the only major airline to continue to in-source a significant amount of its heavy maintenance, at its own facility in Tulsa, Oklahoma.
6. It excludes air traffic control and aircraft maintenance and repair, the other two subgroups within Support Activities for Air Transportation.
7. Real median income over this same period (1991-2011) rose 12 percent, though most of the increase took place during the 1990s. From 2001 to 2011, median income fell by 5 percent (CPS, 2012).
8. It is unlikely that the reduction in wages can be explained simply by a change in occupational mix given that large numbers of workers were entering this category from the higher paying Air Transportation industry, where average real weekly wages were \$1,200 compared to approximately \$600 in Other Airport Operations (QCEW 2013).
9. OES uses the Standard Occupational Classifications (SOC) to code occupations. One occupation can include different job titles and positions, and the exact composition of positions within an occupation may change somewhat over time. For example, the occupational category ‘Bellhops and Baggage Porters’ at the airport would include skycaps who check in luggage for passengers curbside, as well as workers whose job is to put passenger bags on a conveyor belt behind the check-in counter.
10. For more on the OES methodology and details on potential issues comparing data over time, see http://www.bls.gov/oes/oes_ques.htm, Question F1. Geographic changes are not relevant to our national analysis, nor are industry classification changes when looking at air transport-related industries 2002-2012. Classifications for the occupations of interest are largely static, with the exception of ‘Transportation Attendants’ which changed grouping but not definition.
11. Scheduled Air Transportation is the major subcategory within Air Transportation; it excludes chartered air transportation and aviation clubs.
12. Evidence from a study of outsourcing among janitors and security guards indicates that the shift toward outsourcing happened most with those direct-hire positions that began at the higher end of the wage scale.
13. For a single person, 200 percent of the federal poverty level equated to \$11.49 per hour in 2012, assuming a full-time job and 52 weeks of work.
14. This could be from their own employer or union, or a family member’s employer or union; the ACS does not distinguish.
15. Mandatory permitting has the added benefit of enabling airport authorities to identify management contacts for each company and communicate with them directly.
16. Construction, waste removal, and oil and gas are three such industries with both serious occupational health and safety risks and multi-employer worksites.
17. The FAA has explicit oversight and certification authority for airports and airlines, but lacks comparable direct jurisdiction over ground handling contractors.
18. Using 2000 numbers the increase of \$1.42 per airport is also about 1 percent of the 2000 average roundtrip fare of \$316.96. The 2012 average roundtrip fare was \$378.62.
19. In 2009, the QSP was merged with other city ordinances governing city contractors. Wages are set at 50 cents above the Minimum Compensation Ordinance (also tied to Bay Area CPI) and benefits are mandated by the Health Care Accountability Ordinance.



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