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Living Wages and Economic Performance: The San Francisco Airport Model

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LIVING WAGES AND ECONOMIC PERFORMANCE

THE SAN FRANCISCO AIRPORT MODEL

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SUMMARY AND MAIN FINDINGS

In response to low pay for workers and low service quality for taxpayers, about 100 local governmental entities in the United States have instituted living wage ordinances. Generally, these ordinances apply wage and benefits mandates for employees of contractors conducting services for a municipal government. Some of the ordinances also apply to employers who conduct business on government-owned property.

An innovative and far-reaching living wage ordinance has been implemented at San Francisco International Airport (SFO). Nearly two years before September 11, 2001, SFO adopted a Quality Standards Program (QSP), which was designed to improve safety and security at SFO as well as improve the conditions of the SFO labor market. The program went well beyond the FAA regulations in place at the time, establishing compensation, recruitment and training standards for a wide range of airport employees whose performance affects airport safety and security. Two additional policies in San Francisco in 2000 also restructured the labor market at SFO: a Labor Peace /Card Check Rule and a Minimum Compensation Ordinance (MCO), which places living wage mandates into airport leases and service contracts not covered by the QSP.

In this study we examine the determinants of low-wage labor markets at the airport, the scope of the new policies at SFO, and the impacts of those policies on workers, employers, consumers and taxpayers, with special attention to the effects on airport safety and security. This study constitutes the first examination of the impacts of the policies. In this summary of our findings, we focus on the main findings of our study. The document that follows provides our full report.

To conduct the study, we carried out detailed surveys of airport employers and workers in the summer and fall of 2001, and we interviewed labor, management and airport officials. We also drew upon government documents and census datasets, the airport's own security badge data, and FAA data on security at major U.S. airports.

1. Low pay in the SFO labor market

- *SFO, the fifth largest airport in the U.S., comprises a major multi-employer labor market with substantial pay inequality and a large proportion of low-wage workers.*

  Over 140 different private employers do business at SFO—approximately 60 airlines, 40 airline service firms and 40 passenger service concessions—with a workforce of nearly 30,000 people. Average pay growth in the air transportation industry has lagged other sectors, including even retail, since deregulation began in 1978. Nonetheless, as of 2002, many airport workers--including the public sector employees, the pilots, computer technicians, the flight attendants, and the large number of mechanics who work at the SFO United Air Lines service facility-- are paid at rates near or well above the national average of about $15 per hour.

  The remaining workforce at SFO consists of the ground-based, non-managerial workers, including: customer service and ramp workers, baggage handlers, screeners, cabin cleaners, and

restaurant and retail workers. Most of the 11,000 workers in this group were paid less than $10 per hour.

- *Airline service contractors employed a substantial portion of the low-wage labor at SFO.*

  In the 1980s, the airlines increasingly contracted out services that used to be performed by direct airline employees. Employees of the airline service firms receive lower wages and benefits, receive less training and have fewer opportunities for advancement than direct airline employees. For example, average pay for airline service employees ranged from fifty-nine to seventy-three percent of pay for direct airline employees in the same job classifications.

- *Low pay at SFO became associated, as at other airports, with inadequate training and high turnover as well as lower service quality and low security standards.*

  Airport screeners illustrate this pattern. Prior to the QSP, pre-board screeners at SFO were paid very close to the minimum wage, received only a few hours of training, and had turnover rates of about 80 percent. Turnover among screeners at 19 major airports averaged 110 percent.

2. The proposed policy solutions

- *The new policies cover a wide spectrum of employees at SFO.*

  The QSP covered all employees who work in secure areas of the airport. The MCO will eventually cover most of the remaining employees. In contrast, living wage ordinances in other localities cover a very small segment of the local labor market.

- *The new policies set standards for pay and benefits as well as enhanced training.*

  The QSP established a minimum pay standard of $10 per hour plus full benefits, or $11.25 without. It also established a 40 hours of training standard.

3. The impacts on workers

- *The Quality Standards Program and other living wage policies had a large impact on pay at SFO.*

  Over 9,700 low-wage workers at SFO received substantial pay increases after the QSP was implemented. The direct beneficiaries of the QSP and MCO included 5,400 workers who had previously earned less than the mandated $10 an hour. Entry-level pay for these directly-covered workers rose by an average of 33 percent after the policies went into effect.

- *The QSP had a broad impact on the low-wage airport labor market, reaching beyond those firms directly mandated to increase pay.*

Firms raised pay for low-wage occupations not covered by the QSP to compete for workers at SFO. We estimate that this spillover from the program resulted in additional pay increases of at least ten percent for 2,550 workers who were not directly covered by the QSP or MCO (but are among the 11,000 ground-based non-managerial work force).

- *The pay increases were most marked among the lowest paid airline service workers, including security screeners, baggage handlers, fuel agents, customer service agents, ramp workers and cabin cleaners.*

  While 55 percent of the ground-based non-managerial workforce was paid less than $10 an hour before the QSP, only 4.9 percent were paid less than $10 after the QSP. Security screeners, who averaged $13,400 a year with no benefits prior to the QSP, earned $20,800 plus full benefits by January 2001, which amounts to a 55 percent increase in pay, and a 75 percent increase in total compensation. These increases substantially reduced the pay differentials between direct airline workers and service contract workers in the same jobs.

- *All workers in QSP-covered jobs now receive a package of health benefits and paid days off or an extra $1.25 per hour. Yet many non-covered workers still receive no effective health benefits.*

  Approximately 2,000 workers in firms that did not previously offer employer-paid health benefits are now receiving the wage premium or the full QSP-mandated benefits package. Additional workers gained access to health benefits as firms eased eligibility requirements and reduced the employee share of out of pocket expenses. Seventy percent of QSP-covered firms—accounting for 75 percent of the workers covered by the QSP—chose to provide health benefits and paid days off over increasing wages by an additional $1.25 an hour.

4. Costs of the Quality Standards Program

- *The cost of the QSP and living wage ordinance to airlines and airport travelers amounted to about $1.42 per passenger.*

  The direct cost of the QSP to employers consists of increased wages, payroll taxes, health benefits, paid time off and training costs. These costs approximate $42.7 million a year. Including the spillover effects to other workers and employers at SFO adds $14.9 million to employers' costs. The total cost amounts to 0.7 percent of the fare revenue received at SFO in one year. If the airlines passed these costs directly to the customers, the cost increase would average $1.42 per airline passenger. This cost estimate does not take into account any savings from increased productivity and other employer savings.

5. Adjustments that reduced business costs and improved service quality

Following implementation of the QSP, workers and firms adjusted their behavior in ways that reduced its costs.

- *Employee turnover rates fell dramatically.*

  Turnover fell by an average of 34 percent among all surveyed firms and 60 percent among firms that experienced average wage increases of 10 percent or more. The greatest reduction in turnover occurred among airport security screeners, from 94.7 percent a year in April 2000 to 18.7 percent fifteen months later, an 80 percent decrease. Cabin cleaning firms reported a 44 percent reduction in turnover, and ramp workers a 25 percent reduction.

- *Reduced turnover saved employers $ 6.6 million per year.*

  Every time an average worker has to be replaced employers pay about $4,275 in turnover costs. The turnover reductions therefore saved employers $ 6.6 million each year.

- *Employees improved overall work effort and performance.*

  Significant percentages of employees covered by the QSP reported that they are working harder at their jobs (44 percent), that more skills are required of them (50 percent), and that the pace of work increased after the implementation of the new rules (37 percent).

  Average job performance by QSP-covered workers improved substantially. One-third of all SFO employers, accounting for over half of all employees, reported improved overall job performance among workers covered by the QSP. The proportion of employers who reported improvements in employee morale was 47 percent, decreases in employee grievances (45 percent), decreases in employee disciplinary issues (44 percent), and decreases in absenteeism (29 percent). In each category most of the remaining employers reported no change; few employers reported any deterioration in performance.

- *The QSP mandates increased worker training, which helped improve worker performance. By increasing pay, the QSP also made training more desirable to employers.*

  Twenty-five percent of QSP-covered employers increased the training programs they were providing their workforce. Among non-QSP firms, the comparable figure was eleven percent. None of the firms reported a decrease in training.

- *Service levels improved, as did indicators of security.*

  The benefits of the QSP for airport customers include higher security and improved quality of service. Almost half (45 percent) of all employers reported that customer service improved; only 3 percent thought it had worsened. Our analysis of FAA data for 19 large airports found that lower turnover is associated with higher rates of detection of security breaches.

- *The labor-management environment improved at SFO following implementation of the policies.*

  The new policies reduced employee grievances and employer-initiated disciplinary cases and improved employee morale. The policies also minimized disruptions during labor organizing

campaigns. Following implementation of the policies, 2,400 workers gained union representation in 21 airport firms with no significant disruptions of business.

6. Level and composition of employment

- *Employment levels did not decline as a result of the QSP.*

  Employment in QSP-covered jobs in the airline and airline service firms grew by up to 15 percent between 1998 and 2001. The observed expansion in employment occurred despite the fact that the effects of the recession on airport activity were apparent by the beginning of 2001. Employment at SFO began to decline only after the sharp drop in airport activity subsequent to September 11.

- *The composition of the workforce did not change significantly with the QSP.*

  We find some evidence of small displacement effects as a result of the program. The QSP allowed employers to hire screeners with slightly more education, although increased training mandates and worker protections ensured that few incumbent workers were displaced. While the overall proportion of women to men in the SFO workforce did not change, the QSP did result in more hiring of men than women in certain low-wage occupations. There is no evidence of changes in hiring patterns by age and race.

7. SFO as a model

The Quality Standards Program constitutes a model for improving airport safety and security. Security at airports should involve all the workers with access to the tarmac, aircraft and baggage areas. By raising pay and standards even before September 11, and for most airport workers, not just the screeners, SFO set the national pace in improving security and safety.

SFO remains an innovative laboratory-- the FAA has selected the airport for a pilot program that retains contract screener status rather than federalizing the screener workforce.

CHAPTER 1 INTRODUCTION

Since 1994 living wage ordinances have been passed and implemented in about 100 local governmental entities in the United States; about one-fifth are in California. Living wage ordinances establish wage and benefit standards for employees of municipal service contractors and/or recipients of tax subsidies at a level substantially above the minimum wage.[1]

Although the number of living wage ordinances is still growing, most ordinances cover a very small number of workers. While individual workers have benefited substantially, the ordinances generally have very little impact on the local labor market, including the low-wage sectors. Moreover, the implementation of the ordinances by local officials often involves the granting of numerous waivers and exemptions, which further reduces their impact.

The living wage policies instituted in San Francisco cover a much larger portion of the low-wage labor market than most living wage policies. The policies extend to workers in non-profit organizations and for-profit firms with city contracts, to home care workers, and to employees at San Francisco International Airport (SFO). SFO constitutes a geographically distinct microcosm of urban labor markets, with over 30,000 workers and 140 employers. The broad coverage of living wage policies at SFO and the great density of workers affected by the policies means that the entire airport's labor market structure may well be substantially different from before. If so, the SFO experience will be instructive for other broad labor market interventions.[2]

The living wage experience at SFO is also pertinent to nationally prominent questions of airport security. The Quality Standards Program was explicitly designed to improve safety and security at SFO. After September 11, the low pay and high turnover among screeners nationally was recognized as a major weakness of airport security systems and became the focus of the Aviation and Transportation Security Act, signed into law in November of 2001. The changes in pay, training and supervision now being instituted at airports across the country were already in place at SFO on September 11. The SFO experience prior to September 11 therefore provides lessons for all major airports. Moreover, SFO remains innovative: as part of a national experiment it will continue contract status for its screeners while all other very large airports federalize their screeners in 2002.

This study examines the impact of the living wage policies at SFO with these issues in mind.

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[1] Living wage ordinances in San Francisco and in California are tabulated in Appendices A and B below. Previous surveys of living wage policies include Pollin and Luce (1998) and Luce (2002). Neumark and Scott (2000), although claiming to study the impacts of living wage policies, do not have any direct data on workers or employers covered by living wages.

[2] For "blueprints" of such proposed interventions, see Osterman et al (2001).

1.1 The problem: low pay, high turnover and security standards at U.S. airports

Until the federalization in 2002, private security companies, carried out baggage screening at U.S. airports, operating under subcontracts with airlines. Airlines routinely awarded contracts to the lowest bidder. In order to compete for contracts, security companies kept wages at a minimum and offered few, if any, employment benefits. As a result, low wages and high worker turnover had become the norm at airports throughout the country.

At SFO, and at many other airports in the late 1990s, pre-board screeners and other security workers earned an average of $6.25 an hour, less than the starting wage in many local fast food restaurants. In 1999, according to the General Accounting Office, annual turnover among the nation's 8,000 screeners exceeded 125 percent. At this rate, the average screener had been on the job for only four and one-half months. Officials at SFO expressed concerned about the impact of such high turnover on security. Airport officials reported screeners taking on multiple jobs at the airport to make ends meet, and raised concerns about their ability to stay alert on the watch.

1.2 The solution at SFO: living wage mandates and related policies

A Quality Standards Program (QSP) and other living wage policies were crafted as a result of a campaign in San Francisco to bring living wage standards to the city's contractors and leaseholders. Spurred by the rapidly rising costs and increasingly precarious situation for low-wage workers[3], labor, religious and community organizations joined together in 1998 to press for a living wage ordinance in San Francisco.[4] San Francisco International Airport, which was undergoing significant expansion, was of specific concern to organized labor. The QSP was approved by the San Francisco Airport Commission in January 2000.

The QSP constituted only one of a related set of policies that substantially restructured the institutions regulating pay, benefits and labor relations policies at SFO between 1999 and 2001.Tthe San Francisco Airport Commission and the San Francisco Board of Supervisors also passed far-reaching health care and labor peace/card-check programs.[5] At the same time, a multi-union organizing drive conducted under the labor peace agreement at SFO led to union recognition in 21 firms, covering about 2,400 workers.[6]

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[3] By 1999, according to an estimate by the National Low-Income Housing Coalition, a full-time worker in San Francisco needed to earn a minimum of $17.50 an hour in order to be able to pay rent on a studio apartment and still make ends meet.

[4] The coalition leading the effort included the Bay Area Organizing Committee, the San Francisco Labor Council, Service Employees International Union Locals 790 and 250, Hotel and Restaurant Employees Local 2, Office and Professional Employees Local 3, the International Brotherhood of Teamsters Local 665 and several immigrant and welfare rights organizations.

[5] Labor peace agreements refer to compacts that modify National Labor Relations Board standards for employer and union conduct in an organizing campaign. Card check agreements essentially permit "instant" elections rather than a long and often complex procedure involving the NLRB electoral machinery.

[6] The San Mateo and San Francisco Labor Councils, along with ten member unions, formed the SFO Organizing Project, reaching common agreements on resources and organizing jurisdictions.

This unusual mix of policies, which we discuss in more detail below, could arise because of the role that the airport plays in the regional economy as well as an institution that reflects regional political structures. The airport's governance arrangements give it the authority to make employment policy, in concert with other decision-makers. SFO is a quasi-public entity, located in San Mateo County but owned by the City and County of San Francisco, and operated as a separate enterprise department. A five-member Airport Commission is appointed by the Mayor to four-year terms.[7] In this way, the Airport is held to some degree of public accountability, and it is subject to regulation through City and County Ordinances, including ordinances regulating employment in the City of San Francisco.

The financial arrangements that govern the airport provide it with some degree of independence. The Airport is financed by rents and fees charged to users through leases, concession and use agreements and other contractual arrangements. Airport revenues are held in an Airport Revenue Fund, separately from the City and County General Fund.

Transfer of airport revenues to the city is limited. In a 1981 agreement with the major airlines, transfers of airport revenue to the City for fire, policing and other services are capped at 16 percent of concession revenue or $5 million per year, whichever is greater. As a result, in 2001 the Airport contributed $38 million in general fund revenues to an overall city budget of $4.5 billion. The airport's contribution to city finances is thus modest, while long-term tenants, especially the airlines, have a significant interest in the day-to-day administration of the airport.

This landscape of actors, interests and governance arrangements makes the airport an especially fertile site for policy innovation. In other contexts, private interests diverge and often preclude significant local policy-making. But the political pressures on the airport and the powers of the commission make it an unusual regulatory body. It can mediate among competing interests and provide a vehicle for the development of regional public goods. Institutions like SFO can thereby play an influential role in structuring local private labor markets through public policy.

1.3 The mix of living wage policies at SFO

The *Quality Standards Program* was passed by the Airport Commission in January 2000 and set the pattern for the broader city living wage ordinance. It was followed shortly thereafter by the C*ard-Check/Labor Peace Rule*. The living wage law, renamed as the *Minimum Compensation Ordinance,* was passed in August of the same year.[8] The *Health Care Accountability Ordinance* became law in July 2001.

[7] The City Charter empowers the Commission as the policy-making body responsible for construction, management, supervision, maintenance, extension, operation use and control of all the property and assets of the Airport. Day-to-day operation of the Airport is the responsibility of an Airport Director, employed by the Commission. The Commission has the exclusive right to issue revenue bonds for capital expenditure subject to approval, amendment or rejection by the Board of Supervisors.

[8] An agreement on the living wage ordinance developed after the Living Wage Coalition collected signatures to put the law on the November ballot. Previous negotiations among the Mayor's Office, the business community and living wage supporters had broken down over disagreements about coverage. With the threat of a ballot fight looming, a compromise was reached by removing the Port of San Francisco from coverage under the living wage law, but including it under the proposed health care ordinance.

Table 1.1 Selected pay, benefit and labor standards policies at SFO

Policy	Jurisdiction / Phase-in Dates	Coverage at SFO	Conditions
Quality Standards Program (QSP)	SFO only April 2000: Airline service firms June 2000: Skycaps and wheelchair agents October 2000: Airlines	Covers all workers in security areas or performing security functions.	$9 an hour minimum compensation with benefits or $10.25 an hour without; increased to $10/$11.25 in January 2001; indexed annually to the Bay Area CPI.
Labor Peace/Card Check Rules	SFO only Food and Beverage 1999; Other February 2000	Covers all employers where airport has a proprietary interest.	Requires employers to follow card check agreements for union recognition.
Minimum Compensation Ordinance (MCO)	City/County and SFO Phased in at SFO from October 2000 as contracts renew	Covers all employees working on service and property contracts.	Requires employers to pay a minimum of $9 an hour increasing to $10, January 2002; 12 paid days off annually.
Health Care Accountability Ordinance (HCAO)	City/County and SFO Phased in from July 2001 at SFO as contracts renew	Covers all employees working on service and property contracts.	Requires employers to provide health benefits or pay $1.50 per worker hour into a city fund for the uninsured.

Note: See Appendix A for further details and documentation.

The Quality Standards Program

The QSP was passed by the Airport Commission in January 2000 and its implementation began the following April. The program establishes hiring, training and compensation standards for all employers with workers in security areas or performing security functions. The standards, which exceeded those set at the time by the FAA, cover some 8,300 workers in over 80 firms, including baggage screeners, skycaps, baggage handlers, airplane cleaners, fuelers and boarding agents—anyone whose performance affects airport security and safety.

With the QSP, airline service contractors that had previously evaded regulatory oversight have to be certified by the Airport Commission; the quality standards are a condition of certification. The implementation of the program was phased in over the course of 2000, first going into effect for airline services contracts on April 1, and airline employees on October 1. It was later amended to include skycaps and wheelchair agents, starting June 1, 2000.

The program established minimum compensation levels of $9 an hour with benefits, $10.25 an hour without benefits, which increased to $10 an hour with benefits, $11.25 without benefits on January 1, 2001. This amount is adjusted annually in accordance with the Bay Area CPI. Benefits are defined as company-paid membership in a group medical plan, twelve paid days off and ten unpaid days off a year. Firms must also satisfy a range of hiring, training and performance standards, many of which were designed to exceed FAA regulations. These standards included high school diplomas and substantially greater training, approximately 40 hours for airport screeners under the QSP, compared to about 8 hours under then-existing FAA regulations.

The QSP policy departed from previously issued but not implemented FAA proposals in five important respects. First, it extended coverage well beyond pre-board screeners to include all airport workers employed in safety and security-related positions. Second, it addressed wages and benefits, establishing minimum compensation levels for covered workers. Third, for security-related employees, the QSP established higher standards for hiring, specifically in the areas of English language competence and ability to deal with contingencies on the job. Fourth, it extended standards for entry and recurrent training in security and safety topics. Fifth, the QSP established a regulatory relationship between the airport and the airline service contractors that previously had evaded oversight.

Labor Peace/Card Check Rule

The Airport Commission passed two Labor Peace/Card Check rules governing different classifications of workers in 1999 and 2000.[9] The rules, which are designed to protect airport revenues from labor disruption, require employers operating at the Airport to enter into card check agreements with any registered labor organization that requests such an agreement.[10] Card check procedures call for immediate recognition of the union as the bargaining agent if fifty per cent plus one of the workers have signed union cards. In return, the union agrees not to strike prior to recognition. A card check agreement bypasses the lengthy and often-contentious process of representation elections conducted by the National Labor Relations Board.

To date, twenty-one airport employers, with a total of 2,400 employees, have recognized unions through the card check procedure. By early 2002, nearly 2,000 workers in twelve firms had achieved collective bargaining agreements.

The Minimum Compensation Ordinance

San Francisco's living wage law, the Minimum Compensation Ordinance (MCO), was passed by the San Francisco Board of Supervisors in August 2000 and went into effect in October 2000. The MCO requires private contractors performing services for the city, or operating at the San Francisco International Airport, to meet specified minimum wage and benefit requirements. The law also

[9] In April 2001, Aeroground, an airport cargo services firm operating off-site, requested an injunction against the rule, arguing that federal labor law preempts it. The U.S. District Court issued an injunction in July of 2001 prohibiting the airport from applying the rule to Aeroground. The court argued that the airport does not have specific proprietary interest in airline service firms such as Aeroground.

[10] Employers governed by the Railway Labor Act are exempt.

covers home care workers employed through the In Home Support Services Public Authority (IHSS). The MCO exempts contracts of less than $25,000 with for-profit businesses and $50,000 with non-profit agencies. Contracts with small businesses that have fewer than 20 total employees in all affiliated entities are also exempt from the ordinance.[11]

The pay provisions of the MCO are slightly different from those of the QSP. The required minimum pay rate in the MCO was set initially at $9 an hour, increasing to $10 on January 1, 2002, and with a 2.5 percent cost of living increases in each of the following three years. Compensation must also include 12 paid days off a year for vacation and sick leave and 10 uncompensated days off for family emergencies.[12]

The Minimum Compensation Ordinance goes into effect for any given firm at the time a lease or service contract is renewed or amended. Over time it will cover all employees at SFO and the SFO rental car facility. An October 2000 lease amendment made United Airlines the largest firm to be affected. United's 100 or so customer service agents who, unlike the customer service representatives, were not covered by the QSP had previously earned an average of $8.20 an hour.

Unlike most other living wage ordinances, there is no health care differential pay in the San Francisco MCO. Instead, a separate ordinance—the Health Care Accountability Ordinance—addresses health benefits.

The Health Care Accountability Ordinance

The Health Care Accountability Ordinance (HCAO) was passed by the San Francisco Board of Supervisors and became law in July 2001. Known more popularly as the Living Health Ordinance, it is the first local law of its type in the United States. Standard living wage ordinances allow employers to pay a somewhat lower mandated wage if they offer health benefits; such a differential is contained in the QSP. San Francisco's approach to non-QSP employers is different.

The HCAO requires covered employers to provide their employee's health benefits that meet standards set by the San Francisco Health Department, or pay $1.50 an hour into a city fund for the uninsured. The ordinance also directs the Health Department to establish a program to provide a low cost health insurance alternative to covered businesses. These features make the HCAO unusual.

The HCAO applies to service contracts and leases with the City and County of San Francisco, including businesses operating at SFO. In the first year it covers employees working 20 hours a week or more; beginning on July 1, 2002, the HCAO covered employees working 15 hours a week. Like the Minimum Compensation Ordinance, it is a contract condition that applies to specific contracts

[11] The San Francisco Redevelopment Agency also approved comprehensive living wage and health care policies in October 2001. These policies are the first to be instituted at a redevelopment agency in California.

[12] The Airport Commission also approved a Worker Retention Policy in June 2001. The policy applies to contracts with third party service providers subject to the QSP, as well as contracts for parking garage, curbside management operations, and information booths. When these contracts are terminated, any successor contractors are required to retain workers who have been on the job for a minimum of six months for a 90-day trial period. It was amended in 2002 to cover food and beverage leases.

as they are renewed, let or amended. For this reason, the first airport firms began to be covered by the law only in July 2001.[13]

1.4 Purpose, methods, and outline of this study

Our primary focus is on the living wage policies at SFO and their impacts upon workers, airport businesses, airport security and safety, consumers and taxpayers. We first examine the scope of the policies, then look at the structural causes of low pay at SFO, and then consider the impacts and consequences of the QSP and the card check agreement. Our purpose is to examine whether the ordinances are having their desired impact on pay and benefits and on safety, security and service quality. We examine how they more generally affected the airport labor market. We also include a discussion of the post-September 11 changes and their implications at the end of the report.

Following a standard evaluation methodology, we compare business and working conditions and performance at SFO before and after the implementation of the policies. One methodological challenge was to isolate the impacts of the program from other changes also taking place. In an ideal experimental situation, a researcher has confidence that very little changed besides the intervention, or that the effects of other changes can be controlled for by comparison with a non-effected group.

At the time of our survey the MCO had gone into effect for a relatively small number of workers at SFO, and implementation of the HCAO had not started. For this reason we will primarily discuss the QSP as the main policy setting wage and benefit standards at the Airport. The QSP also set the general wage rate in collective bargaining agreements reached for workers covered by the program during this time period. The Labor Peace/Card Check policy had a major impact on unionization at the airport in this period, which likely influenced the non-monetary results found in this study.

We anticipated that we would need to control for the downturn in the economy that began in early March 2000 and for the airport terminal expansions that occurred simultaneously with the QSP. Our data collection was largely completed before September 11, 2001, while the effects of the sharp decline in air travel are discussed in the study, they do not affect our main findings.

Our primary pre- and post-QSP employment data comparison dates are June 1998 and June 2001. Both dates occur during summer peak-period employment, ruling out seasonality effects. When possible, we have also sought to compare developments at SFO to those at other Bay Area airports. To address the question of controls more fully we also collected data from a variety of sources to increase our confidence in the findings.

We present a summary description of our data sources below.

Pre-QSP employment data

The pre-QSP employment data for this study refers to mid-1998; the wage data refer to mid-1999. These data are occupation and employer-specific. We collected the employment and wage data in a previous study conducted by the authors (Reich and Hall 1999).

[13] In San Francisco, where it will have its main impact, the HCAO is anticipated to result in benefits for 16,000 low-wage and previously uninsured workers.

Post-QSP employment data

The QSP was phased in during the period April 1, 2000 to October 1, 2000. The majority of covered employees began to receive increases from June 1, 2000. In the early summer of 2001 (June to August) we conducted a survey of employers to generate a post-QSP employment and wages database comparable with the pre-QSP data. In this survey we also asked evaluation questions that allowed employers to reflect on the implementation effects of the QSP.

Our second major data source on post-QSP employment conditions was the SFO Badge Office's database of employees as of June 1, 2001. This database provided detailed firm and occupational employment counts, as well as data on demographics and employment tenure, for about 17,500 workers.

Supplementary data

We supplemented our pre- and post-QSP employment data with information from the following sources:

- The Airport employment office – we collected information on working conditions, wages and benefits and job descriptions for various occupations from an archive of employment advertisements maintained by the SFO Employment Office.

- Airline passenger numbers – SFO officials provided us with data for the period 1998-2000 on the numbers of flights, passengers and cargo by airline for SFO.

- Structured interviews with eleven union organizers from six union locals and the AFL-CIO.

- A short self-administered questionnaire that was completed by a sample of 100 workers.

For a fuller description of our methods and data sources, see Appendix C.

Outline of this report

In the next chapter we discuss the sources of low pay among the segments of the airport workforce. Chapter 3 reports our findings of the impacts of the living wage policies on workers' pay, benefits, quality of working life and employee voice. Chapter 4 discusses the impacts on businesses, consumers and government. In Chapter 5 we examine the adjustments made by workers and employers that followed the implementation of the policies, with attention to changes in employee turnover, worker performance and employer practices. Chapter 6 considers the impacts on employment levels at SFO as well as on the composition of employment. Chapter 7 discusses the impacts on airport security, and we present brief concluding comments in Chapter 8.

CHAPTER 2 AIRPORT LABOR MARKETS: STRUCTURE AND EVOLUTION

San Francisco Airport officials adopted the Quality Standards Program in response to failures in private labor markets and federal policy. Although airport security constitutes a relatively small proportion of total business costs, airlines have acted aggressively to reduce this expense. Why were the employees responsible for safety and security at U.S. airports paid and trained so poorly? Why didn't legitimate safety and security concerns lead the Federal Aviation Administration (FAA) to correct these patterns?

In this chapter we address these questions by examining the structure and evolution of airport labor markets. We begin with a baseline description of employment and pay inequality in the airport labor market. We then discuss the impacts of airline deregulation and the current dimensions of labor market segmentation at the airport. In particular, we examine the role of outsourcing, which became widespread in many parts of the airport economy.

Finally, we consider how low pay results from a particular evolution of institutional arrangements that put further pressure on already low-paying jobs at airports. Although low pay led to substantial declines in security and safety levels, before September 11, 2001 the FAA was unable to reverse these patterns.

2.1 Employment and pay at SFO

In our previous study of SFO (Reich and Hall 1999), we estimated that there were approximately 34,000 permanent jobs at the airport in 1998. This large number makes the airport one of the most important employment sites in the regional economy (SFO 1998; for more, see Appendix F1). The airport provides job opportunities for a diverse group of Bay Area residents. In many respects, the airport labor market constitutes a geographically distinct yet representative microcosm of many urban labor markets.

The total airport workforce includes many public sector employees who work directly for the Airport Commission or for other agencies with a permanent presence at the airport, including the federal government, the City and County of San Francisco (police and firefighting services), and the U.S. Postal Service. Others work at the airport on a temporary basis, such as construction workers or transportation consultants. Counting just the permanent private sector employees, we estimated a workforce of about 28,000 in 1998.

These 28,000 workers are employed by over 140 private firms that do business at SFO. The firms include 60 different passenger and cargo airlines, 40 companies that provide services to airlines--such as security, fueling and maintenance, and in-flight catering; and 40 companies that provide services to airport passengers—food and other retail concessions, parking, and rental cars. Table 2.1 shows the number of employers and employees by sector in 1998. The airline sector is dominated by United Airlines, which accounts for about half of all the flights and passengers at SFO, and just over half of all private employees working there. United Airlines' central maintenance base is housed at

SFO, employing six thousand mechanics. The remaining employers are mainly of medium and small size.

Table 2.1 Private sector employers and workers at SFO, Pre-QSP

Sector	Workers	Employers
AIRLINES[1]		
Passenger airlines	21,800	45
Cargo airlines	240	15
AIRLINE SERVICES		
Airline catering	1,340	3
Security/Skycaps[2]	1,000	4
Aviation services	1,070	33
PASSENGER SERVICES		
Retail concessions[3]	800	19
Food concessions[3]	870	10
Airport parking	150	1
Rental cars	1,040	10
TOTAL	28,310	140

Sources: Author's own analysis and adjustments of *The Economic Impact of San Francisco International Airport*, March 1998; CLRE Airport Study, 1999. Employment data are for 1998. All figures have been rounded.

Notes: 1. This includes airlines with active permits to land at SFO but not currently operating. There were 39 active passenger airlines and 10 active cargo airlines at the time of the SFO Employer Survey.
2. Most skycaps are subcontracted by the airlines.
3. Retail and food concessions figures together conform to those in the Economic Impact report; classification of firms into these categories may differ in other sources.

The jobs at the airport vary considerably with respect to pay, skill levels, training, worker voice and other conditions of employment. In our 1999 study of the likely impacts of the then proposed Living Wage Ordinance, we estimated that approximately 9,500 private sector airport workers earned less than $11 per hour. The occupations of these workers and their approximate numbers are presented in Table 2.2 below. Using this $11 benchmark, about one-third of the SFO workers were low-paid.

Table 2.2 Selected low-wage employment at SFO before the QSP

Job titles	Number of workers	Entry wage	Average wage
Customer service agents	3,700	5.75-10.00	10.15
Administration/ clerical	200	7.40-12.90	10.90
Baggage/ ramp agents	2,500	6.95-9.40	10.50
Cabin cleaners	700	6.00-8.00	9.95
Screeners	1,000	5.75-7.00	6.50
Skycaps	200	5.75-6.50	6.35

Sources: Reich and Hall (1999); UCB-SFO Employer Survey, 2001, conducted by the authors.
Note: All amounts have been rounded to nearest 100 employees / $0.05. Low-wage job titles not listed here include wheelchair agents, fuelers, car rental service agents, restaurant workers, bartenders, dishwashers, drivers and retail cashiers.

The dispersion in pay is apparent even within United Airlines, the single largest employer, as Table 2.3 demonstrates. Although United is a relatively high-wage employer, offering careers and benefits, there is a distinct wage hierarchy within the firm. Many of the low-paying jobs at United are unionized, with the exceptions of administrative support and crew schedulers.

Table 2.3 Pay dispersion among United Airlines workers at SFO, 1999

Job classification	Employment	Average pay
HIGH-WAGE EMPLOYMENT(>$20)		
Pilots	500	40.00
Computer technicians	250	30.10
MEDIUM-WAGE EMPLOYMENT ($13-$20)		
Flight attendants	4,000	19.10
Mechanics	6,100	15.10
LOW-WAGE EMPLOYMENT(<$13)		
Customer service representatives	950	11.85
Maintenance	400	10.50
Ramp	1,800	12.90
Cabin service	400	10.80
Total United Airlines Employment at SFO (All occupations)	16,000	-

Source: Amended from Reich and Hall (1999b), Table 1.5. Wage data are for 1999.

The demographic characteristics of the SFO workforce as of June 2001 are outlined in Table 2.4. Female workers are more likely than the overall workforce to be low-wage. However, the majority of low-paid workers are male.

The diversity of the airport's workforce is most apparent along the dimensions of race and ethnicity. White workers constitute one-fourth of the ground-based workforce and only one-fifth of the low-paid workers. Filipinos constitute the single largest ethnic group of low-paid workers. Many of them work as security screeners.

As is to be expected, there are slightly more young workers in the low-wage occupations than in the SFO than in the workforce as a whole. However, the differences are insubstantial: the median age of all airport workers is 43 years, while it is 41 years for those in low-wage occupations. Over two-thirds (68 percent) of workers in low-wage occupations are aged 35 years or older.

Table 2.4 Demographics of the airport workforce, June 2001

	All airport workers[1]	**Ground-based non-supervisory workers** [2]	**Low wage occupations** [3]
Number of badges[4]	22,064	11,516	7,422
Gender			
Female	26.4	31.7	32.2
Male	73.6	68.3	67.8
	100.0	100.0	100.0
Race/ethnicity [5]			
White	34.9	23.1	20.0
Hispanic	14.7	16.1	16.6
Filipino	20.4	28.8	32.0
Black	7.8	7.9	9.2
Asian	21.8	23.8	21.7
Native American	0.4	0.2	0.5
	100.0	100.0	100.0
Age			
Up to 24	6.9	9.3	10.6
25-34	19.0	21.1	21.5
35-44	28.6	27.5	27.1
45-54	26.4	24.5	23.3
55-64	15.1	14.2	13.9
65 and up	4.0	3.3	3.6
	100.0	100.0	100.0

Source: Authors' analysis of SFO Badge Office Data.

Notes: 1. Does not include pilots, flight attendants and rental car agents.
2. Corresponds to survey population; excludes United Airlines mechanics.
3. Customer Service Representatives and Assistants, Ramp, Cabin Cleaners, Screeners, Skycaps and Wheelchair attendants.
4. The number of badges may over-estimate actual employment (see Appendix C).
5. These figures should be interpreted cautiously since a significant proportion of SFO Badge Office records did not indicate race/ethnicity.

In general, low-paid workers are less educated than higher-paid workers, but this pattern does not always apply. At SFO, large numbers of security screeners were relatively well-educated, in part because they were immigrants who were unable to utilize educational credentials obtained in their home countries to obtain better paying jobs in the United States.

Although we were not able to obtain education data on the entire SFO workforce, the union representing the screeners—SEIU Local 790—conducted a survey of their members in July 2002. We have analyzed their results and present the findings in Table 2.5. In 2002, 79 percent of the security screeners at SFO had education above a high school diploma and 38 percent had a bachelor or higher degree. Most of these workers had been employed as SFO screeners before September 11.

Table 2.5 Security screeners' education levels, 2002

	Citizens	Legal permanent residents	All
High School/GED	25	17	21
Some College	29	25	27
AA or Technical Degree	16	8	12
BS or BA	27	44	36
Advanced Degree	2	3	2
No response	1	2	2
Total	100	100	100

Source: Authors' analysis of SEIU Local 790 member survey, 2002. All figures are percentages.

In contrast to patterns among other low-wage workers elsewhere, the legal permanent residents had higher education levels than citizens. Nationally and at SFO, a large percentage of airport screeners were not citizens. The new law requires that they become citizens as one condition of retaining their jobs. We return to this issue in the last chapter of this report, as part of a discussion of changes at airports since September 11.

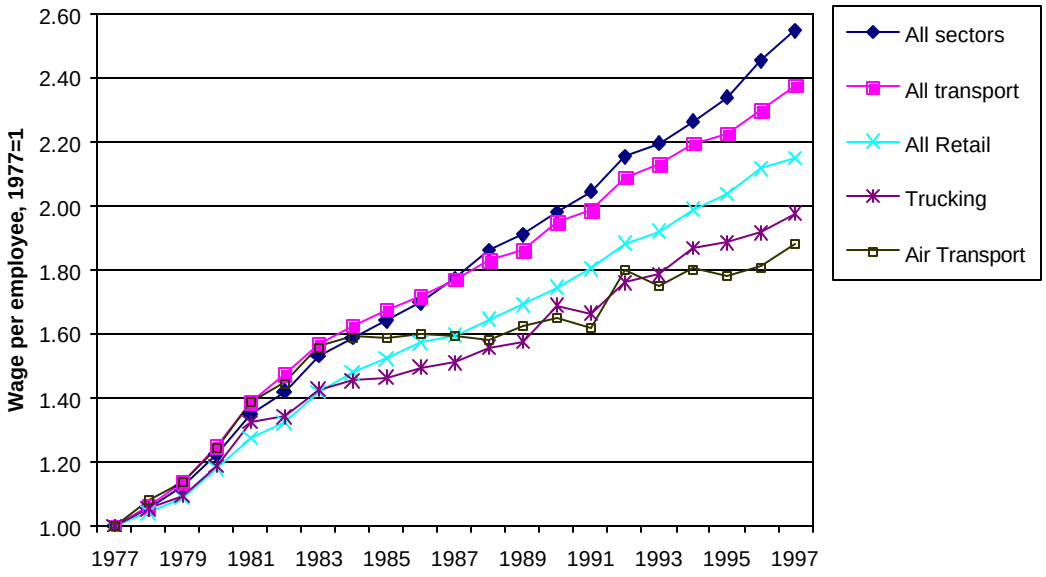
2.2 The segmented structure of airport labor markets

The SFO airport labor market exhibits a considerable concentration of employers and unevenness in pay and working conditions. While pay continued to grow in recent decades for the higher-paid tiers of the airline industry, real wages fell for many ground-based airline service workers. This trend mirrors similar patterns of greater pay inequality in the entire U.S. economy since the 1970s, and so to some extent reflects national developments. Yet, two specific circumstances of the industry are also important: airline deregulation and the subsequent impact on labor negotiations, and the specific institutions of airports that led to widespread outsourcing.

Airline deregulation

Airline deregulation began in 1978 and by the early 1980s the resultant intense competition, consolidation, and cost cutting generated sector-wide downward pressure on wages. A key moment occurred in 1981 when striking air traffic controllers were permanently replaced. As Figure 2.1 shows, pay in air transportation began to lag behind pay trends in other economic sectors at that point. This lag appears when air transportation is compared to transportation overall, as well as when it is compared to trucking, a sub-sector that was deregulated in 1980s and then experienced a decline in pay growth (Peoples 1998). In the 1990s, pay growth in air transportation even fell below pay growth in retail, a traditionally low-paying industry.

Figure 2.1 Pay in Air Transportation has lagged behind other sectors since 1983



Source: County Business Patterns

As we show below, the distribution of pay rates at SFO is described by a segmented labor market model. In such a model, employers and workers interact within distinct labor market segments. The

determinants of pay and working conditions vary among the segments, with low pay, dead-end jobs and little training in one segment and higher pay, career progressions, internal labor markets and more training in the other. The process of segmentation generates pay inequality over time (Gordon, Edwards and Reich 1982; Reich 1984).

Today, airport employment is increasingly segmented along two major dimensions: one involves differences between firms – the direct employees of the airlines versus employees of contracted-out airline service companies; the other dimension involves differences within firms—between workers with some bargaining power and those who are without bargaining leverage.

The history of contracting out among airlines and at SFO

Although labor market segmentation has long been present in the U.S., the current pattern of segmentation in airport labor markets is of more recent origin, dating mainly from the widespread adoption of two-tier wage systems in the industry in the 1980s. Two-tier wage systems arose in the industry after competition from unregulated low-wage airlines expanded in the years following the Airline Deregulation Act of 1978. American Airlines, in 1983, became the first airline to implement a two-tier wage system, one that reduced pay of new employees 30 to 50 percent below existing employees in the same job titles.[14] Existing employees were given long-term job security guarantees to eliminate their fear of being replaced by new second-tier employees. After a month-long strike, United Airlines implemented a similar system in 1985; most other major airlines also adopted similar systems.

By the late 1980s, the two-tier systems were falling out of favor because of employee resistance to pay inequities. In 1987, American Airlines agreed to merge pay scales for senior pilots after 10 years, and moved to eliminate two-tier wages for other employees, including in-flight attendants and ground staff. Other factors that contributed to the decline in two-tier wage systems included the general tightening of labor market conditions in the late 1980s and the mergers that were eliminating many of the low-cost airlines.

The legacy of the two-tier system has not disappeared entirely, however. As one analyst predicted in 1988:

> Two-tier systems will remain on the American scene. What you will start seeing are more hidden two-tier systems, low-cost subcontracting, temporaries, part-timers, leased employees and so forth (Richard Belous, cited in Swoboda 1988).

In retrospect, Belous' observations seem on the mark. The use of lower-cost subcontractors did grow in the 1980s and 1990s at SFO. The declining real value of the minimum wage in the 1980s increased the pressure to outsource work and to replace unionized employees by minimum wage, nonunion employees.

[14] Levine (1989) traces the growth and decline in two-tier wage systems in the airline industry. See also Gesell (1986). For more on the decline in the two-tier wage system see O'Connor (2001); on mergers see Goetz (2002).

The history of contracting-out policies at SFO is instructive.[15] By the early 1980s, airline deregulation and its consequences had generated intense conflict between the airlines and the SFO Airport Labor Coalition. In 1983, three airlines attempted to contract out ground-based services, precipitating a labor relations crisis at the airport. The specific events included contracting out of skycaps working for United Airlines and mechanical services by Quantas Airlines, and a change in the contract for janitorial services from a union to non-union firm by one of the large airlines.

In response, the San Mateo Central Labor Council and the Airport Labor Coalition pressed for a prevailing wage policy to maintain pay and benefits for contracted out workers. The policy was approved by the San Francisco Board of Supervisors in 1984. As the Board's findings at the time put it, the practice of contracting out:

> …is increasingly being used to undermine the pay and benefit levels previously paid for the performance of these personal services, which leads to a constant turnover in the workforce, lower skill levels, poor employee morale, and ongoing labor strife… and has already resulted in job losses for hundreds of long-term experienced workers including janitors, security guards and various other occupations, and has led to drastic reductions in pay and benefit levels for others… (City Ordinance 140-84, p. 2)

The prevailing wage policy was intended to cover all employees of concession- and leaseholders, and their contractors. The airlines, most of whom had signed the 30-year leases in 1981, challenged the prevailing wage policy in court.[16] In the end, the airlines won the case, arguing that the prevailing wage constituted a change in lease conditions. With changes in city administration and turnover in labor leadership, the policy was not enforced, even on new leases and concessions, and it was eventually removed from the City Administrative Code.

Outsourcing: direct versus indirect airline employees

This dimension of segmentation divides the direct employees of the airlines from those who work for them indirectly as employees of airline service firms. The airline service firms provide ground-based services—such as ticketing and other passenger services, ramp services, cabin cleaning, fueling, and catering of in-flight meals. In many cases, these services formerly were provided in-house by the airlines, but they have now been contracted out.

Outsourcing, which we refer to synonymously with contracting out, is distinct from privatization, which refers to a shift away from a publicly provided service. In the airport case, the services were already provided by a private entity, so privatization was not at issue.[17]

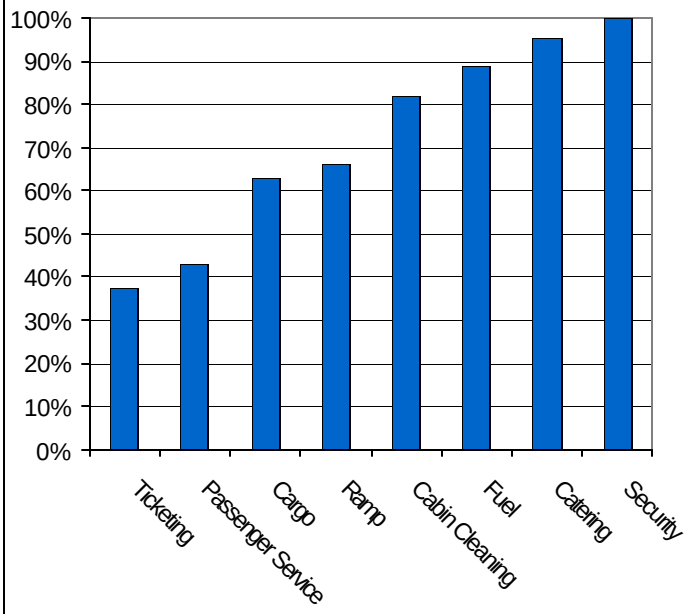
Outsourcing can develop for efficiency reasons. For example, there may be scale economies in having one specialized firm provide services to a number of companies simultaneously. The threat

[15] The following account is based on our examination of three decades of Airport Commission archives as well as interviews with the participants.
[16] We argue in Section 2.2 below that these long-term leases are partly responsible for the intense pressure on airlines to reduce fixed airport operations costs.
[17] Some systematic datasets (Warner and Hefetz 2000) show a modest increase in privatization of local services in the 1980s and 1990s.

to outsource can provide an incentive to entrenched internal groups to not fall below maximum productivity. A previous literature has examined such outsourcing primarily in the contexts of manufacturing, where the boundary of the firm is often determined by a "make or buy" decision, and high-paid business services, such as consulting.[18]

Outsourcing can also develop for cost-saving reasons that are profitable but are not efficiency-based, such as when contractors can pay lower wages to workers but do not improve productivity. This type of outsourcing is especially relevant in services that are performed by relatively less-skilled workers.[19] As we previously mentioned, many living wage advocates have argued that outsourcing of such work is motivated primarily by opportunities to reduce worker pay.

Figure 2.2 Airline Outsourcing by Service



Source: UCB-SFO Employer Survey, 2001

At SFO, contracting out occurs unevenly. Aircraft maintenance, which is relatively well paid, generally is carried out directly by the airlines. The concentration of contracting out is greatest among non-mechanic ground-based services, which are the lower-paid sectors (see Figure 2.2). Although airlines account for almost four-fifths of all airport workers, they employ directly only two-fifths of the non-mechanic ground-based employees. Although not shown in Figure 2.2, contracting-out of these services is also more prevalent among smaller airlines, as one would expect. On balance, it appears that most of the outsourcing occurred for cost-saving rather than efficiency-promoting reasons.

Many of the direct employees—managers, pilots, mechanics and flight attendants especially-- have access to career ladders and other benefits of working in the internal labor markets of large employers. Even among workers performing the same jobs, airline service employees were likely to be paid less than in-house employees and to face flatter pay profiles (see Table 2.6). Employees of airline service firms are also more likely to be employed on a contingent basis, with little training or long-term career prospects. These patterns are similar to outsourcing effects in other contexts.[20]

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[18] For reviews of this earlier literature, see Grossman and Helpman (2002) and Sclar (2000), who also provides a good introduction to the privatization debate.

[19] We do not know how much private firms outsourced low-wage services in the U.S. during the past two decades. The only study using systematic time series (Dube 2002) is limited to janitors and security guards. For these two groups, Dube finds a considerable increase in outsourcing from 1983 to the present. Autor (2000) is also pertinent.

[20] Dube (2002) finds that outsourced janitors and guards get lower pay, even when firm size, unionization and skill and demographic composition of the workforce are held constant. Using longitudinal data, Dube shows that workers who switched between direct and contracted out status also experienced switches in their wages, suggesting that the workers' unobserved skill or attitudinal differences do not explain the outsourcing wage penalty.

Table 2.6 Pre-QSP pay, in-house and contracted out jobs

	Airline employees (in-house)		Airline services employees (contracted out)	
	Entry wage	Average wage	Entry wage	Average wage
Customer service	8.65	11.25	7.25	8.25
Ramp	8.70	12.10	7.10	7.10
Cabin cleaner	7.85	10.80	7.20	7.20

Source: Reich and Hall (1999b).
Note: Data are for pre-QSP period. Includes only cash wages and not benefits and only jobs with complete wage data; all figures rounded to nearest $0.05.

United Airlines provides a good example of the advantages of working in a large company that maintains career ladders, pays health benefits and provides training to its workers. By creating rewards for longer-term employment, each of these components of United's employment policies generates mutual gains for the employer and the workers. Table 2.7 shows that United Airlines employees received more training and were paid more than other workers in the same jobs. United Airlines employees also receive better benefits than most other airport workers.

Table 2.7 Pay and training, United Airlines versus other employers

	United Airlines		All other employers	
	Hours of initial training	Average wage	Hours of initial training	Average wage
Customer service	280	$11.85	41	$9.50
Baggage / Ramp	80	12.90	37	8.80
Cabin cleaner	80	10.80	3	7.20

Sources: Reich and Hall (1999b); UCB-SFO Employer Survey, 2001 conducted by the authors.
Note: All figures rounded to nearest $0.05. Pay rates are *prior* to the QSP.

Further pay differences are related to differences among employees in the same firm or sector that derive from their occupation-specific bargaining power. Unionized employees generally receive higher wages and better benefits than nonunionized workers, but the effects depend strongly upon the bargaining power of each union. Cremieux (1996) shows that while deregulation in the airline sector reduced pay for pilots and flight attendants, it did not have the same effects on the earnings of mechanics. According to Cremieux, the mechanics had greater bargaining power, a consequence of their job opportunities outside the airlines. The hub-and-spoke system that emerged in the 1980s may have been particularly beneficial to the large unionized carriers (Peoples 1998), also contributing to segmentation between unionized and non-unionized workers.

The persistence of some pay differentials at United (see Table 2.3) may result from the reduced bargaining leverage of the occupational groups that have lower union density elsewhere in the industry and that experience significant use of outsourcing by competing firms.

Part-time workers

Part-time work has become common at SFO. Table 2.8 reports the percentage of workers in part-time (less than 35 hours per week) and full-time (35 or more hours per week) jobs at SFO, by sector. About one-third of direct airline employees are part-timers, a much higher rate than in the U.S. workforce. Part-timers are just as common among the subcontract-intensive airline service employees as among the carriers themselves.

As is well established, most forms of transportation involve peak-load congestion at specific times in the day. Airlines are no exception and part-time employment may be more common at SFO for such a reason. Our survey data did not permit estimating whether the part-time workers were more likely to be lower-paid or uninsured, as has been found in other studies.

Table 2.8 Employee hours worked per week

Hours	Airlines	Airline services	Con-cessions	Average
5 to 14	0.2	0.0	0.5	0.2
15 to 24	27.0	3.2	2.1	13.1
25 to 34	6.2	34.7	13.8	17.4
35 to 44	64.3	58.8	81.7	66.7
45+	2.4	3.3	1.9	2.6
Total	100.0	100.0	100.0	100.0

Source: UCB-SFO Employer Survey, 2001, conducted by authors.
Note: All figures are percentages.

To summarize, the deepening of segmentations in the airport labor market reflects the confluence of both economy- and sector-wide forces. The real value of the minimum wage fell every year over the period 1978 to 1989. Despite some increases in the state and federal minimum wages in the 1990s, considerable incentives were created for outsourcing and downward wage pressure. Deregulation resulted in further downward wage pressure, although these pressures were not evenly distributed (Card 1989; Cremiux 1996; Peoples 1998).

2.3 Airport economics and further sources of wage pressure

While outsourcing has put pressure on worker pay in many areas of the economy, to understand the further downward pressures on the pay of ground-based airport workers, we examine airport economics more closely. In this section we argue that U.S. airlines have faced particular pressures to reduce the overall fixed costs of airport operations at the major or hub airports, but that they have faced institutional constraints in being able to do so. As a result, the airlines are especially interested in reducing wages of ground-based airport workers, and in particular the wages of those employed in federally mandated airport security positions.

Airline travel demand is characterized by peak load patterns that provide strong incentives to reduce fixed costs. The phenomenon of peaking refers to the fact that people prefer to fly at particular times of the day, week and year. A key business challenge for airlines is to maintain sufficient capacity to meet the demand at peak periods, without losing too much money during the low demand periods. At the same time, airports themselves involve large infrastructure investments that are essentially fixed.

Together, these structural conditions create a tension between the need for capacity to meet peak demand and to reduce fixed costs, but they need not necessarily result in low wage labor markets. In the next paragraphs we discuss how low wage pressures were generated by the specifics of how airports have come to be managed in the United States.

The airport-related costs of U.S. airlines have become even more fixed at some airports.[21] This shift occurred because most gates at most major U.S. airports are leased through long-term contracts that specify exclusive or preferential usage rights. At SFO, as at many other airports, 82 percent of the gates are secured by long-term exclusive agreements (NRC 1999). Long-term tenancy is desirable both from the point of view of the airports (it provides guaranteed revenue streams against which airports can borrow) and the airlines (it guarantees runway access during peak hours at hub airports). But if an airline wants to secure exclusive or preferential gate access at SFO, or similar airports, the airline has to enter into a long-term agreement with the Airport.[22] This long-term agreement effectively becomes a fixed cost that the airline has relatively little power to reduce.[23]

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[21] As O'Connor (2001) notes, in comparison to flight operations, terminal operations are particularly labor-intensive despite technological advances.

[22] For more details on these developments, see Appendices F.3 and F.4.

[23] The opening of the New International Terminal has heralded some changes in leasing arrangements at SFO. New gate allocations will be on a preferential but not exclusive basis. However, until the currently 30-year agreement expires in 2011, airport costs will remain fixed for most airlines operating out of SFO.

What are the implications of these institutional arrangements for airport service workers? The case of security workers is particularly instructive. Since the 1970s, the FAA has required airlines to provide security at airports. But airport security is a largely fixed expense, proportional to the number of access points to the gates used by an airline. As noted above, airlines face strong pressures to reduce the fixed costs of airport operations, but their ability to do so is limited. Hence, the incentives to reduce airport security costs became particularly strong.

Airlines achieved this cost reduction through a variety of means. They actively resisted the attempts of the FAA to impose higher training and certification standards for screeners. As we have seen, they increasingly contracted out screening and other airport service functions (see Figure 2.2). Airlines routinely awarded contracts to the lowest bidder. In order to compete for contracts, private security companies kept wages at a minimum and offered few, if any employment benefits. According to an Associated Press business report that appeared on September 12, 2001:

> In 1990 Wackenhut Corp. provided pre-departure screenings at more than 50 U.S. airports. Now, the $2.5 billion security company is in just three airports—in Maryland, Tennessee and Hawaii. "We were underbid in contract after contract," said Patrick Cannan, director of corporate relations. "The rates they wanted us to come in at were untenable." (Foss 2001)

As a result, U.S. airlines spent a lower proportion of their fare revenue on security than did European airlines, and low wages and high worker turnover became the norm at airports throughout the country (GAO 2000).

The airlines would have liked to transform airport labor costs, including security costs, into a variable expense. The scope to achieve this transformation was relatively limited, since the airport security firms themselves require annual or longer contracts to provide pre-board screening services. Casualization of the pre-board screeners' employment contract was also hard to achieve, at least in theory, because of the time required to conduct security background checks and to train staff. In practice, these requirements were not followed at many airports, as the many highly publicized instances since September 11 demonstrated. Given the structural considerations outlined here, this pattern of ignoring the rules is not surprising.

There is one dimension of the security function that airlines did succeed into turning into a variable cost. Airline travel is highly seasonal, with traffic in the summer well above winter levels. Even with a fixed number of gates and flights, more passengers fly in the summer, creating a demand for more screeners than in the rest of the year. By paying low wages and experiencing high turnover, security companies were able to hire screeners early in the summer, knowing many would quit by the fall. But the cost of having an inexperienced security workforce is also clear.

One might expect that the FAA would have stepped in to ensure safety and security standards. It failed to do so, which is what makes the Quality Standards Program so significant and interesting from a public policy perspective. We turn in the remainder of this study to examining its impact.

2.4 Summary

We have argued that the structure of airport economics, the nature of demand for airline travel, and the institutional rules governing the allocation of airport facilities, combined to put particular downward pressures on wages at the nation's airports. This occurred in the context of deregulation in the transportation sector and the declining value of the minimum wage. Faced with peaking demand, airlines try to reduce their fixed costs, but have institutional restrictions on reducing non-labor costs. As a result, the airlines had particularly strong incentives to reduce fixed labor costs, including federally mandated airport screening functions.

Airlines turned to outsourcing of airline service positions to reduce labor costs, increasing labor market segmentation. Employees of airline service firms receive lower wages and benefits, receive less training and have fewer long-term career prospects than direct airline employees. At the same time, wage differentials increased among direct airline employees, as competition from airline service firms eroded workers bargaining power in a range of job classifications. The result created a national race to the bottom in the wages and working conditions of pre-board screeners and others fulfilling important airport security functions. It was this situation that the QSP was designed to correct.

CHAPTER 3 IMPACTS OF THE POLICIES ON WORKERS

In this chapter we examine the impacts of the QSP and related policies on the workers who were covered under the programs. We begin with a discussion of the impacts on pay levels and pay inequality. In the following section we examine the impact on health benefits. We then discuss the impacts on working conditions and quality of life, and finally turn to the impacts on worker voice and unionism.

3.1 Impacts on worker pay

Who the policies covered

The first step in our analysis is to identify the relevant employment groups that were covered by the policies. At the time of our study, the QSP and MCO policies covered most, but did not yet apply to all, of the low-wage privately employed workers at the airport. The QSP covers workers who are employed in positions related to safety and security, generally those who work for the airlines or airline service firms. The MCO covers passenger service workers and the employees of concession-holders, but the coverage applies in a phased manner as the leases and concessions are renegotiated.[24]

To be more specific, we used the detailed specification in the QSP and MCO. They are:

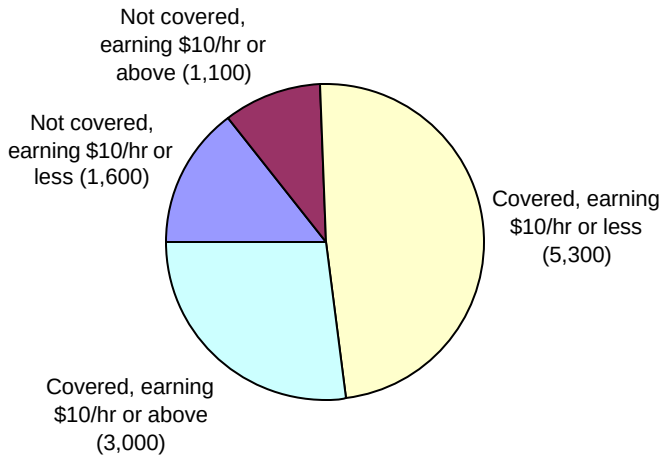
- United Airlines employees in the customer service, ramp and cabin cleaning divisions;
- all ground-based non-managerial employees of other airlines;
- all non-managerial employees of airline services firms; and
- all concessionaires, including retail, restaurants and car rental.

Adding these groups together, we find that there are approximately 11,000 workers in these jobs (for examples, see Table 3.2, and for full details on data sources and methods, see Appendix C). Of these workers, 8,300 are covered under the QSP, while 2,700 others are covered under the MCO.

Of the 8,300 QSP-covered workers, approximately 3,000 had earned at least $10 an hour prior to the program; so 5,300 workers were eligible to receive pay increases as a direct result of the QSP (see Figure 3.1). We discuss the pay increases first in terms of what we observed in our survey, and second with the purpose of distinguishing the direct effects of the programs, the indirect effects through wage pushes, and the wage increases that would have occurred anyway because of general labor market conditions.

[24] Those working off-site in airline catering and some cargo operations will not be covered by either the QSP or the MCO.

Figure 3.1 Pre-QSP wages and QSP status of ground-based non-managerial workers at SFO



Source: UCB-SFO Employer Survey, 2001, conducted by authors.
Note: All figures have been rounded.

Observed pay increases

From the inception of the QSP in April 2000 to our data collection date of June 2001, almost 90 percent of the 11,000 ground-based non-management workers at SFO -- or approximately 9,700 workers – obtained a wage increase. As a result, average pay of all workers increased by approximately 22 percent. This amount translates into a total increase of $56.6 million in annual earnings for ground-based non-management employees. The largest increases were recorded among entry-level workers in QSP-covered positions.

Table 3.1 shows that average wages for both QSP and non-QSP covered workers increased after QSP implementation, but entry-level wages for those in QSP jobs went up most dramatically, leaping from $7.78 to $10.37. The increase in the average entry wage was 33 percent for QSP covered positions compared to 10 percent for non-QSP covered positions. The increase in the average hourly wage was 22 percent for both QSP and non-QSP covered positions.

Table 3.2 shows entry-level and average pay before and after the implementation of the QSP for selected job titles. Job titles receiving the largest average wage increases include screeners and skycaps. Security screeners, who averaged $13,400 a year with no benefits prior to the QSP, earned $20,800 plus full benefits by January 2001, a 55 percent increase in wages, and a 75 percent increase in total compensation.[25]

[25] Post 9/11 benefits are estimated at $1.25 an hour in accordance with the QSP.

Table 3.1 Pay before and after QSP implementation

		Entry wage		Average wage	
		Pre-QSP	Post-QSP	Pre-QSP	Post-QSP
QSP Covered Positions (8,300)	Mean	$7.78	$10.37	$9.58	$11.72
	Standard deviation	*1.22*	*0.57*	*2.58*	*1.19*
Non-QSP Covered Positions (2,700)	Mean	8.58	9.32	9.43	11.47
	Standard deviation	*0.98*	*1.66*	*1.70*	*1.81*

Sources: Reich and Hall (1999); UCB-SFO Employer Survey, 2001, conducted by the authors.
Note: Excludes positions with incomplete wage data.

Table 3.2 Pay before and after QSP, selected job titles

Job titles	Number of workers	Entry wage		Average wage	
		Before QSP	After	Before QSP	After
Customer service agents	3,700	5.75-10.00	10.00-15.50	10.15	11.85
Administration/ clerical	200	7.40-12.90	9.00-24.00	10.90	13.45
Baggage/ ramp agents	2,500	6.95-9.40	10.00-14.00	10.50	12.35
Cabin cleaners	700	6.00-8.00	10.00-11.25	9.95	11.45
Screeners	1,000	5.75-7.00	10.00	6.50	10.05
Skycaps	200	5.75-6.50	10.00	6.35	10.00
All ground-based non-managerial employees	11,000	5.75-15.00	6.25-24.00	9.60	11.70

Sources: UCB-SFO Employer Survey, 2001, conducted by authors.
Note: All amounts have been rounded to nearest 100 employees / $0.05. Low-wage job titles not listed here include wheelchair agents, fuelers, car rental service agents, restaurant workers and retail cashiers.

Prior to the new City and Airport policies, 55 percent of the ground-based non-managerial jobs paid an average of less than $10 an hour (see Table 3.3). By June 2001, only 5 percent of these jobs were paying an average of less than $10 per hour. The proportion of entry-level positions receiving $10 per hour or more increased from less than 3 percent to over 80 percent. Even more will receive raises as more firms operating at the airport come into coverage under the Minimum Compensation Ordinance (MCO).[26]

Table 3.3 Wage distribution before and after QSP

Average hourly wage	Before QSP	After QSP
Less than $8 per hour	23.1	0.2
Less than $10 per hour	55.0	4.9
Less than $12 per hour	82.0	66.3
Less than $14 per hour	98.0	96.7
All ground-based non-managerial employees	100.0	100.0

Source: UCB-SFO Employer Survey, 2001, conducted by authors.

Of the 8,300 workers covered under the QSP, some 5,300 were paid less than $10 per hour when the QSP went into effect. These workers all received wage increases as a *direct* result of the policy. As Table 3.4 indicates, about 1,550 of these low-wage workers were directly employed by the airlines, while about 3,750 worked for airline service companies. Virtually all of the remaining 3,000 QSP-covered workers who were paid more than $10 per hour worked directly for the airlines.

Table 3.4 Distribution of QSP coverage and beneficiaries

Workers earnings pre-QSP (April 2000)	Airlines	Airline services	Total
Below $10/hr	1,550	3,750	5,300
$10/hr or more	2,950	50	3,000
Total	4,500	3,800	8,300

Source: UCB-SFO Employer Survey, 2001, conducted by the authors.
Note: All figures have been rounded.

The pay increases mandated by the QSP significantly reduced the pay differences between in-house (airlines) and contracted out (airline services) ground-based jobs. The differences in entry-level pay rates have been eliminated entirely (see Tables 3.5a). Indeed, in-house employees in entry-level

[26] Recall that the MCO will be phased in since it only applies to new contracts and to existing contracts when they are renewed or amended.

positions now earn slightly less than contracted-out employees in the same positions, since the airlines tend to offer full benefits while some airline service firms offer the $1.25 premium in lieu of benefits. The elimination of entry-level pay differentials has important positive implications for the recruitment of suitable candidates for airline service firms. In-house employees on average still receive slightly higher pay than contracted-out employees, which reflects a combination of longer tenure and steeper pay gradients in the in-house jobs (see Table 3.5b).

Table 3.5a Entry wage for airline and airline services employees before and after QSP

Entry wage						
	Before QSP			***After QSP***		
	Airline employees (in-house)	Airline services employees (contracted out)	Airline services wage as percent of airline wage	Airline employees (in-house)	Airline services employees (contracted out)	Airline services wage as percent of airline wage
Customer service	8.65	7.25	84	10.25	10.75	110
Ramp	8.70	7.10	82	10.10	11.20	111
Cabin cleaning	7.85	7.20	92	10.00	10.90	109

Sources: Reich and Hall (1999b); UCB-SFO Employer Survey, 2001, conducted by the authors.
Note: Includes only cash wages and not benefits (higher post-QSP wages for ramp workers reflects a single major employer that opted to pay $1.25 per hour premium rather than provide benefits). Includes only jobs with complete wage data; all figures rounded to nearest $0.05.

Table 3.5b Average wages for airline and airline services employees before and after QSP

Average wage						
	Before QSP			***After QSP***		
	Airline employees (in-house)	Airline services employees (contracted out)	Airline services wage as percent of airline wage	Airline employees (in-house)	Airline services employees (contracted out)	Airline services wage as percent of airline wage
Customer Service	11.25	8.25	73	12.50	10.90	87
Ramp	12.10	7.10	59	12.90	11.20	87
Cabin cleaning	10.80	7.20	66	11.65	10.95	94

Sources: Reich and Hall (1999b); UCB-SFO Employer Survey, 2001, conducted by the authors.

Attributing the wage increases: direct, indirect and general labor market effects

To what extent can we relate these wage increases to the policy change? In order to attribute the wage increases resulting from the policies correctly, we distinguish three types of wage increases:

1. *Direct wage increases* are those received by the workers who are covered by the QSP policy and who were earning less than the mandated wage level.[27] Although we define the direct increases as net of any wage increases these workers would have received without the QSP, we argue that they would not have received significant increases without the QSP. Pay in many of these jobs tracked the state minimum wage, which did not increase during the study period. United Airlines, the largest employer at SFO, did not award any increases during the study period because of ongoing contract negotiations.

2. *Indirect wage increases* are those received by workers not covered by the policy but still affected by it. Indirectly related increases may be thought of as being the results of either vertical or horizontal wage pushes. Vertical wage increases occur in firms covered by the QSP when workers earning at or above the mandated wage receive increases in order to maintain some or all of the wage differentials within the firm. Horizontal wage increases occur when employees working in firms and/or jobs not directly covered by the QSP receive increases because of competitive effects.

3. *General labor market-based wage increases* result from labor market tightening or general wage inflation and would have occurred without the QSP policy. These labor market based wage pressures generally do not affect jobs that are closely tied to the minimum wage.

As we mentioned above, we found a total observed increase of $56.6 million in annual wages for ground-based non-management employees. Of this total, $34.6 million can be related *directly* to the QSP and the MCO. This amount represents the sum of all wage increases paid to airport workers who were covered by the mandated wage increases and who previously earned below the mandated wage level. By June 2001, this group consisted of approximately 5,300 employees in jobs covered by the QSP and fewer than 100 employees in positions covered by the MCO.

This leaves $22 million in wage increases generated through indirect effects of the QSP or resulting from other general labor market effects. Our calculations suggest that just over half of this was indirectly related to the new airport policies. Without the policy change, we would expect wages at the airport to rise at approximately the same rate as wages in comparable occupations in the San Francisco metropolitan area during the same period. To estimate how much pay would have increased over the same time period in the absence of the QSP and living wage policies, we examined data from the California Employment Development Department.

Table 3.6 indicates that average wages for a selected group of service sector occupations in the area rose approximately 17 percent over the period 1998 to 2001. We estimate that pay increased about

[27] To identify these workers, our employer survey instrument asked: "How many employees in your establishment received wage increases mandated by the QSP?"

seven percent in these jobs in 1998 and by 10 percent from 1999 to 2001.[28] Median average pay for similar jobs in the Bay Area thus rose approximately 10 percent over the same period, compared to a 22 percent total increase in pay for the airport jobs in this study. We therefore attribute 45 percent (or 10/22) of the observed non-direct QSP increase in business costs to general labor market increases and 55 percent to indirect effects of the QSP itself.

Table 3.6 Average pay, selected service occupations

San Francisco MSA	Average pay
2001	$10.41
1998	8.90
Percent increase	16.9

Source: This data is based on the 1996-98 and 2000 Occupational Employment Statistics (OES) surveys, with wages updated to the 1998 annual average and the third quarter of 2001. Data accessed by web from www.calmis.ca.gov.

Note: Selected occupations included here are Guards and Watch Guards, Bartenders, Combined Food Preparation and Service Workers, Baggage Porters and Bellhops, Janitors and Cleaners, Except Maids and Housekeeping Cleaners. We included only these occupations because of changes in occupational definitions.

Our evidence suggests that vertical indirect wage increases were relatively small, and that most of the indirect wage increases were across, rather than within firms. In the airport services sector, most firms have not raised wages above mandated minimum, and among airline employees, vertical wage increases were limited by the fact that wages at United Airlines were effectively fixed during the study period. Conversely, the percentage wage increases in the non-QSP Concessions sector were only slightly smaller than those received by those directly covered by the QSP, and were substantially above the rate of wage increase in the general economy. This pattern suggests that horizontal indirect wage increases were significant. In other words, employers not covered by the QSP raised pay at a faster rate than they otherwise would have, in order to keep employees from leaving for higher-paying jobs covered by the QSP, and to match the new wage norms.

In terms of the number of workers affected, we estimate that 9,700 of the 11,000 ground-based non-management workers at SFO received wage increases during the study period (see table 3.7); 5,400 of them received wage increases as a direct result of the QSP or MCO. A further 2,550 received increases above the 10 percent general labor market wage increase. These workers received wage increases as an indirect result of the policies. Another 1,750 workers received increases as a result of the general labor market increase only. Some 1,300 workers received no increase at all; most of these were United Airlines who were awaiting a new contract during the study period.

[28] More of the increase occurred at the start of the period because in 1998 the state's minimum wage was increased by 12 percent, and because the economy had begun to cool by 2001.

Table 3.7 Workers receiving wage increases: summary

	Number of workers
Received wage increase as direct result of QSP (5,300) and MCO (100)	5,400
Received wage increase as indirect result of QSP and general labor market increase	2,550
Received wage increase as a result of general labor market increase	1,750
Did not receive a wage increase	1,300
All ground-based non-managerial workers	11,000

Source: UCB-SFO Employer Survey, 2001, conducted by authors.

3.2 Impacts on employee benefits

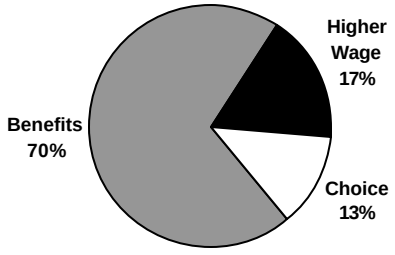
The QSP requires employers to provide health benefits and twelve paid days off a year or pay workers an extra $1.25 per hour. In response to our survey, all covered firms reported being in compliance. Of the 8,300 employees covered by the QSP, 24 percent previously were not offered any employer-based health benefits. Consequently, approximately 2,000 workers who previously were not offered employer-paid health benefits are now receiving the full QSP-mandated benefit package or the wage premium.

Other QSP-covered workers received an improved benefit package as a result of the policy. Most firms had offered some sort of health insurance to employees before the QSP was adopted. But in many cases this coverage became active only after a substantial initial waiting period and involved significant out of pocket costs to the individual worker. For these reasons, coverage rates were quite low, especially in the airline services sector where turnover rates were highest, and where many workers never qualified for coverage.

Our survey data did not probe for the quality of coverage, eligibility requirements, employee premium costs or take-up rates. Nonetheless, our anecdotal evidence suggests that firms eased initial eligibility period requirements and improved their share of out of pocket expenses, leading to higher take up rates by their employees.

QSP-covered firms could choose whether to offer benefits or a wage premium. As Figure 3.2 shows, we found that 70 percent of QSP-covered firms chose to provide benefits rather than the wage premium; these firms account for 75 percent of covered workers. This proportion was replicated in the worker survey; 69 percent of the QSP-covered workers responding to the survey reported receiving health benefits from their employer.

Figure 3.2 Firms Electing to Provide Benefits or Pay Higher Wage



Source: UCB-SFO Employers Survey, 2001

Firms' decisions on whether to provide benefits or pay the wage premium were influenced by whether they had previously offered health benefits. Surveyed firms reported that the average cost for individual health coverage was approximately $170 per month, considerably lower than the $1.25 an hour in lieu of benefits required by the QSP. Of the firms with QSP-covered employees that previously offered some sort of health benefits, 95 percent opted to provide benefits or provided employees with a choice between benefits or the wage premium. In contrast, 58 percent of the firms that had not previously offered health benefits chose to pay the wage premium. This pattern suggests that firms may have wanted to avoid the administrative and other fixed costs of establishing benefit plans.

Unlike in the case of wages, we found little evidence of a spillover effect of health benefits to non-covered firms. All the surveyed employers not covered by the QSP reported offering health benefits before and after the policy. Yet only 54 percent of workers in non-QSP covered firms reported that they were enrolled in employer-based health insurance. In other words, the effective level of coverage reported by workers is below the level reported by employers. Most of those workers reporting that they were without coverage were retail workers. Of the workers in the survey who did not have insurance from their employer, only 10 percent reported receiving coverage through a spouse or another job.

As a result of the QSP, all covered workers now receive 12 days of paid time off per year. These can be used for national holidays, vacation leave and sick leave. Evidence collected from our worker interviews, from union contracts and job advertisements suggests that many airport workers did receive paid leave prior to the QSP. To calculate the monetary value of this leave benefit, we estimated that all employees at United Airlines and half of the remaining airport workers had received 12 days of paid leave. (These assumptions are based upon the anecdotal indications.) The leave benefit is then worth an additional $3.4 million for covered workers. To be conservative, we also assumed that the leave benefit spilled over to all other ground-based workers at the airport, which would add $1.4 million per year to total employment costs.

3.3 Impacts on quality of life

Living wage policies can have effects upon workers' lives beyond the paychecks themselves. To probe for these effects we included in the worker survey a series of questions concerning the workers' quality of life. These questions asked about any changes in time spent with their family, vacation time, personal finances, hours worked in all jobs, their housing situation and their health status.

To our surprise, relatively few workers reported improvements in the various quality of life categories that we surveyed (see Table 3.8). Nonetheless, workers not covered by the QSP were much more likely to report declines in quality of life than those covered by the QSP. The differences were greatest for time spent with family, personal financial savings and housing situation, and they were smallest for vacation time and health status.

Table 3.8 Workers' reported changes in quality of life variables

Change in…	QSP			Non-QSP		
	More	*Same*	*Less*	*More*	*Same*	*Less*
Time spent with family	13	65	21	0	48	52
Vacation time	31	54	15	21	50	29
Personal financial savings	18	61	21	17	29	54
Hours worked in all jobs	19	67	14	32	60	8
	Better	*Same*	*Worse*	*Better*	*Same*	*Worse*
Housing situation	20	66	14	17	50	33
Health	13	74	13	12	68	20

Source: UCB-SFO Worker Survey, 2001, conducted by the authors. Figures are percentages.

Question wording: "Thinking back on the last two years (i.e., from 1999 till now), have any of the following aspects of your life changed? Please check the appropriate box:"

Anecdotes that we heard from labor activists suggested that some workers held more than one job prior to the QSP. We could not examine this directly, as our survey question asked about work hours in all jobs. Our data do indicate that hours worked in all jobs increased somewhat among non-QSP covered workers, while remaining mainly unchanged among QSP-covered workers.

Taken together, these worker-reported changes in quality of life following the pay increases suggest a continuing vulnerable position of low-wage service workers. Despite the substantial wage increases following the QSP, the pay of many ground-based airport service workers remains well below estimated self-sufficiency wages for the Bay Area.[29]

3.4 Worker voice and labor relations

In the two years following the adoption of the Labor Peace/Card Check Rule and the QSP in early 2000, 2,400 workers gained union representation in 21 airport firms. Together with the United Airlines customer service agents who gained union representation in 1999, these newly organized workers account for approximately one quarter of the workers in the surveyed firms.

[29] A 1999 study by the California Budget Project reported that a basic family wage of $12.92 was needed in San Francisco and San Mateo Counties with two-full time working parents, and $17.56 with one working parent. (California Budget Project, *Making Ends Meet*, October 1999.)

The new organizing of workers is concentrated in the airline service sector (see Table 3.9a), and in precisely those firms highly affected by the QSP (see Table 3.9b). Over 90 percent of the firms that were most affected by the QSP were not organized before the study period. Close to half of these were subsequently organized. Along with the mandated wage increases, newly organized workers gained improvements in benefits, formalized grievance procedures, seniority, and greater voice on the job, all of which contributed to changing the work environment at SFO.

Table 3.9a Unionization status of firms, by sector

	Not organized	Previously organized[1]	Newly organized[2]	Total
Airlines	14.3	62.7	23.0	100
Airline services	48.9	0.0	51.1	100
Total	23.8	48.7	27.6	100

Table 3.9b Unionization status of workers, by QSP impact on firm

	Not organized	Previously organized[1]	Newly organized[2]	Total
Low impact[3]	5.9	77.7	16.4	100
High impact[4]	50.2	5.8	44.0	100
Total	23.8	48.7	27.6	100

Source: UCB-SFO Employer Survey, 2001, conducted by the authors, and analysis of organizing data provided by the SFO Organizing Project. Figures may not add due to rounding. All figures are percentages. Concessions not reported because of insufficient data.

Notes:
1. Firms with employees organized before the study period are "Previously organized".
2. Firms with employees organized during the study period are "Newly organized."
3. Less that 50 percent of employees directly affected by QSP are "low impact."
4. More than 50 percent of employees directly affected by QSP are "high impact."

As expected, the Labor Peace/Card Check policy had a significant impact on union organizing efforts at the airport. Union organizing drives were initiated in 24 firms over the two years. In the 21 firms in which the rule was applied, in every case the union gained recognition, and all had reached collective bargaining agreements, or had reported progress towards reaching agreements. In the three cases in which the rule was not applied, the organizing drives were ultimately abandoned by the unions.

The Labor Peace/Card Check policy appears to have achieved the objective of minimizing business disruptions during the organizing process. The timing of our employer survey coincided with a period when many were still negotiating first contracts, which could have generated greater tension in labor relations. Yet, only one newly unionized firm in the survey did not report improvements on the majority of the labor relations questions in the survey—employee morale, absenteeism, employee grievances and disciplinary issues.[30]

Scholars generally argue that mandated wage increases, such as those in the QSP, can have two opposing effects on unions. Mandated pay increases can reduce the benefits and power of unions, since workers get pay increases without joining a union. Alternatively, by raising the floor on wages, pay increases can protect unionized employers from competition with non-union employers. Our evidence suggests that on balance, the living wage policies—and the campaigns to achieve them (see Appendix E) --appear to have improved the climate for organizing private contractors at SFO.

The benefits of living wage policies for unions are especially clear in the public sector, where contracting entities are generally required by law to grant the contract to the lowest qualified bidder. Service contractors have little flexibility in their cost structure outside of employee compensation. In order to put in the lowest bid, they are forced to keep wages and benefits to a minimum.

Similar conditions apply in the private sector when service jobs are contracted out. Under conditions of outsourcing, if any single contracting firm is unionized, they will have difficulty meeting demands for increased wages and benefits and retaining the contract, unless competing firms are subject to the same constraints on reducing compensation. In the absence of sufficiently high union density in an industry to set the wage pattern, living wage ordinances provide those constraints by taking wages out of competition, and creating a common floor for all contractors.

To the degree that living wage laws reduce worker turnover, they may provide an additional contribution to organizing. Organizing is more difficult in firms where the workforce is unstable and the workers with the greatest leadership skills are more likely to quit for another job than fight. Higher wages increase the value of job security, seniority and other benefits of unionization

At SFO, the living wage policies appear to have provided the greatest benefits to union organizing when workers were directly involved in the campaign and worker contact was made in advance of implementation of the policies. When a long period of time elapsed between the mandated raises and the initial worker contact, and workers credited the employers for the raise, the policies may have had a slight negative effect on organizing (See Appendix E).

The benefits for organizing increase when living wage ordinances are combined with other policies. Worker retention laws have been passed in San Francisco (2001), Los Angeles (1995), San Jose (1998) and Santa Cruz (2000). Such policies require successor firms to retain long-term workers for a minimum period of time when a contract changes hands. By enabling the union to remain in place under the new contractor, they remove the incentive to substitute lower wage contractors (Zabin 1999).

The benefits to workers that come about through the organizing process for the living wage campaigns may be as important as the direct benefits of the policies themselves. Living wage

[30] See Section 5.3 below for further details.

campaigns have proven a successful vehicle for building long-term relationships between unions, congregations and community organizations (Zabin 1999). The campaigns bring public attention to the plight of the working poor and the general need for a "living wage" which can serve to create a community standard that goes beyond the workers covered directly by the law.

3.5 Summary

The Quality Standards Program resulted in substantial increases in pay and benefit coverage at SFO. The QSP had a broad positive impact on the low-wage labor market at SFO that extended well beyond the firms directly covered by the program. Wages increased across low-wage occupations at the airport as employers competed for workers. These benefits reduced previous trends towards lower real wages in the airline service sector and significantly reduced the pay differential between in-house and contracted-out positions.

The Labor Peace/Card Check Rule and QSP removed major obstacles to unionization of airline service firms. Prior to the policies, none of the airline service firms surveyed were organized; within two years, half were organized. Some of these same jobs had been union positions prior to outsourcing by the airlines in the early 1980's. The increase in union organization and workers under collective bargaining agreements constitutes an important part of the change in the labor relations and employment environment at SFO.

CHAPTER 4 IMPACTS ON BUSINESSES, CONSUMERS AND TAXPAYERS

The pay and benefit enhancements described in the previous chapter result in increased labor costs, which initially fall upon employers. But additional adjustments will also occur. For example, workers might be less likely to quit, which would reduces employers' turnover costs; or firms might increase the training they offer, which could improve their workers' productivity; or firms might increase their prices.

Firms' actual responses to increased labor costs involve multiple factors, including the ability to pass costs on to consumers, workers and taxpayers; workers' adjustments to higher compensation levels; the ease of labor substitution; the relative size of the increase in business costs; the availability of strategies to increase productivity; and the time frame involved. We know from other contexts that the behavioral adjustments that workers and firms make will be especially important. In this chapter we examine the costs to airport businesses and consumers before taking behavioral adjustments into account. We then consider how businesses and workers have adjusted to these increases in the subsequent chapter.

For firms, some of the higher costs of employment have been offset by a series of behavioral adjustments, including efficiency wage effects. A question for consumers and government is whether these changes are worth the extra cost. In the latter sections of this chapter we compute the costs of the QSP as if it were entirely passed on to airline passengers. Finally, we examine how the structure of airport financing affects city finances as a direct result of the QSP.

4.1 Payroll costs

Drawing upon the responses to our employer survey, we have computed the costs of increased wages, payroll taxes, health benefits and paid time off for airport businesses. The sum of these individual components represents the direct costs of the QSP to employers, before the behavioral adjustments mentioned above.

As we show in Table 4.1, most of the total increase-- $34.6 million-- is accounted for by direct wage increases. We arrived at this amount by summing the increased costs of employing those who were covered by the QSP and who previously earned less than the mandated wage level. We also estimated the other changes in payroll costs: the increased costs of employer-paid taxes as $4.2 million, the increased health benefits as $0.5 million, and the paid time off for these workers as $3.4 million.[31] Adding these together, we arrive at an estimate of the direct costs of the QSP as amounting to $42.7 million per year.

As we discussed in Chapter 3, workers who are not directly covered by the QSP nonetheless received increases because of it; others received increases because of the general labor market

[31] Estimated using the baseline data and data collected in the firm survey; for details, see Appendix C.

conditions that were unrelated to the QSP. If we include all of the reported wage increases in our survey for employees who were not directly covered by the QSP, the total cost of the higher wages, employer-paid taxes, benefits, and paid time off that was paid by employers amounts to $68.7 million per year (again, see Table 4.1). In dollar terms, $11.1 million of the total observed labor cost increases would have occurred over the same time period in the absence of the QSP, while $14.9 million represent the indirect impact of the QSP.

Table 4.1 Increases in total payroll costs after QSP

	Wages	Payroll taxes [1]	Health benefits [2]	Paid time off [3]	Total
Directly related to QSP	34.6	4.2	0.5	3.4	42.7
Indirectly related to QSP	12.0	1.5	-	1.4	14.9
General labor market increase	10.0	1.1	-	-	11.1
Total increase	**56.6**	**6.9**	**0.5**	**4.7**	**68.7**

Sources: Reich and Hall (1999); UCB-SFO Employer Survey, 2001, conducted by the authors.
Notes: 1. Employer-paid taxes applied to wages and salaries (including paid leave but not health benefit costs), are valued at 11.15 percent of the wage costs, and include social security payments, unemployment insurance and training levies.
2. We have not estimated changes to non-QSP related health benefits, as there probably were no changes. The United Airlines jobs covered by the MCO already had full health benefits.
3. Costs of 12 days paid time off for holidays, vacations and sick leave. Estimated assuming that prior to the QSP, unionized workers had full leave benefit and 50 percent of other workers had leave benefit. After QSP, all workers have full leave benefit.
4. All figures are in $ millions and rounded.

When the increased labor costs are taken as a percentage of business operating costs, they are quite modest. If we take the total figure of observed wage increases and assume that all costs are ultimately passed on to the airlines, we find that the total wage increase amounts to 0.83 percent of Fiscal Year 2000 fare revenue.[32] If only the direct costs are passed on, the comparable figure is 0.51 percent. If we add only the indirect costs, as we argue in Chapter 3, we come to our estimate of the pass-through (without productivity increases or other cost-savings adjustments): 0.69 percent of fare revenue.

Over time, we would expect that increased labor costs for airline service firms, and to a lesser extent the concessionaires, will be passed on to the airlines. Two-thirds of the airline service firms surveyed

[32] Using data for the first nine months of the fiscal year, the Department of Transportation estimated that airlines would receive $8.31 billion in fare-revenue from flights originating and terminating at SFO (Exhibit 11.0, Official Statement of the Airport Commission of the City and County of San Francisco, $238,185,000 Second Series Revenue Bonds, December 7, 2000).

reported that all or part of the costs of the wage increases had been passed on to the airlines. These responses, coming one year after the wage increases, could be expected to vary depending on the structure of the contract between the airline and the services firm.

Where the airline pays the contractor by the person hour, the pass-through was immediate and automatic. Where service contractors are paid for services delivered, the airline service firms could be expected to absorb more of the increased costs in the short run. Over time, as contracts are re-bid and/or re-negotiated, increased costs that are not offset by increases in productivity will be passed on to the airlines. Similarly, while costs of per-hour worker contracts will be fully passed through in the short run, they might go down over time as contracts are re-bid and savings from increased productivity are passed on to the airlines.

Increased costs to concessionaires that are not absorbed through lower profit, price increases or productivity increases may result in re-negotiation of terminal rentals over time. As we have seen in Chapter 2, these rent reductions will effectively be passed on to the airlines in the form of increased landing fees.

4.2 Impact on consumers

In addition to improved security, airport customers are receiving better service as a result of the mandated wage increases. According to our employer survey, almost half (45 percent) of all employers reported that customer service improved among workers covered by the QSP, while only 3 percent reported that they got "worse" or "a lot worse." High impact firms (those in which the QSP directly raised the total wage bill by 10 percent or more) and low impact firms both reported improvements in customer service, suggesting that improvements in worker performance were widespread across the airport.

These improvements do not come free, of course. The question is how much of the additional employment costs will be passed on to consumers. We argue that most of the increased costs of employment have been absorbed by the airlines. This occurs because the options for reducing and displacing ground-based employees are limited (see Chapter 6), and because airline service firms are able to transfer most of their increased costs to the airlines (see Section 4.1).

To what extent will the airlines be able to transfer the costs to consumers? The ability of an airline to pass costs on to a consumer depends on an array of factors, including the elasticity of demand, and the costs, availability and convenience of alternative transportation modes. We expect that airlines will be able to pass on most of the costs of the QSP because the increases are modest.

If we make the unlikely assumption that there are no offsetting productivity increases and that 100 percent of the direct and indirect costs are passed through to consumers, the cost works out to be a modest $1.42 per airline passenger.[33] This amount compares favorably to a $4.50 departure tax proposed by the airport in 2001 to study options for building new runways, and the $5.00 per segment security tax approved after September 11.

[33] 41million passengers enplaned and deplaned at SFO in 2000. Source: SFO Airport Commission (accessed by web at www.flysfo.com).

Airport consumers will also pay some of the costs resulting from the wage increases received by those working in the concessions sector. The Airport Commission places controls on food and beverage prices that will prevent concession-holders from passing cost increases on to consumers in the short run. In the long run we might expect the airport to adjust the prices upward.

Note that the direct costs of the QSP incurred by the airlines cannot be recouped from airport concession sales. If airport prices were raised too high, the revenues received by the Airport Commission from concessions might fall. The Airport Commission itself operates on an annual budget of 'allowable' expenses that airlines must match through adjustments to landing fees and terminal rents. Since airlines have to meet the annual costs of the airport operation and expansion, reductions in concession revenue effectively result in higher landing and terminal rents for airlines (see Appendix F4 for more on this point).

4.3 Costs and benefits to taxpayers

Given the structure of Airport financing (as discussed in Chapter 2 and Appendix F), only a small portion of the costs of the QSP to airlines and airline service firms can be passed on to the Airport Commission and City, and therefore to the taxpayers. As we mentioned in Chapter One, transfers of airport revenue to the City for fire, policing and other services are capped at 16 percent of concession revenue or $5 million per year, whichever is greater.

Following September 11, retail and concessionaires requested and received a reduction in minimum base rents from the Airport. Concessionaire revenues were suffering from both the decline in passenger volume and the new regulations that do not allow non-passengers to pass through security gates. None of the concessionaires noted increased labor costs in their request for a reduction in the base rents. As noted above, the reductions in rent payments by concession-holders resulting from the change will largely be borne by the airlines, and the city will experience a small decrease in its annual transfer as a result.[34]

A second potential cost to the taxpayers would come from any increase in unemployment or reduction in hours that might cause an increased burden on county services. We did not find evidence of such a reduction (this is discussed in Chapter 6).

Third, the City has incurred some additional costs associated with the enforcement of the QSP and MCO. The Living Wage/Living Health Division of the City Office of Contract Administration has five full-time staff and a budget of just under $500,000 a year to enforce the MCO and Health Care Accountability Ordinances. These ordinances potentially apply to close to 900 firms that do business with the City and County of San Francisco (Hall and Reich 1999a, 1999b), of which 140 operate at SFO. The division is responsible for drafting and implementing the rules and regulations governing each ordinance, investigating complaints, conducting audits, and providing technical assistance to city contractors, departments and covered employees. The airport is directly responsible for QSP

[34] The entire transfer from the $470 million Airport budget to other city departments was $38 million in FY 2001, a small fraction of the $4.5 billion city budget. The projection for 2002 is $21 million (Glionna 2002). For City of San Francisco budget information, including the Airport Commission, see http://www.ci.sf.ca.us/mayor/budget02/index.htm.

enforcement, but has had no full-time staff dedicated to the program following the initial implementation.

The national experience with living wage laws suggests that effectiveness is highly dependent on both a dedicated enforcement mechanism in the City, and enforcement from below from the covered workers. At SFO, a primary reason for the lower cost to the taxpayers for enforcement of the living wage policies arises from the central role played by unions in educating workers about their rights, identifying problems, and providing information to the relevant enforcement agencies. This role is made possible by the relatively high union density at the airport. In effect, the Labor Peace/Card Check Rule allowed the airport to shift a large part of the enforcement costs for the QSP to business and labor.

On the positive side of the ledger, the direct increase in payroll taxes to the federal government is estimated at $6.9 million. We can also project an increase in local sales tax revenues as a result of the increased wages. To the degree that the wage increases are paid for by business travelers and tourists from outside the region, using money they would not have otherwise spent while visiting the area, it is a net gain for the local economy and local sales tax. Similarly, since low-wage workers spend more of their wages in the local economy than higher paid workers, increased costs paid for by more affluent travelers from within the region will also have a multiplier effect for the local economy and a subsequent increase in county sales taxes.

To summarize, we have considered the effects of the QSP on airport and city finances, on safety net expenses for the unemployed, on enforcement costs for the city, on payroll tax revenues and on multiplier effects. Taking these all into account, the overall tax effects are likely to be small.

4.4 Summary

In the context of the overall business revenues and expenses at SFO, the cost increases from the QSP were modest. As we shall see in the next chapters, these increases were not large enough to significantly affect employment practices and levels. Over time, we can expect the costs to airline service firms not absorbed through productivity increases to be passed on to the airlines. Increases in training costs from higher wages were partly offset by decreases in turnover. The benefits of the QSP for airport customers include higher security and improved quality of service. Even if the entire cost of the QSP had been borne by consumers, the increase in the cost of an airline ticket would have been modest. Moreover, the financing arrangements of the airport imply that taxpayers and the City are largely insulated against any cost pass-through from airlines.

CHAPTER 5 ADJUSTMENTS BY WORKERS AND FIRMS

The QSP components regarding pay, benefits, paid time off and hiring and training standards have generated a new work environment for both workers and firms. This chapter addresses the responses in the behavior of both sets of actors. We look at changes in turnover, in worker effort, in worker performance, in work schedules, and employment practices, including training. In the following chapter we examine whether there are changes in the level and composition of employment.

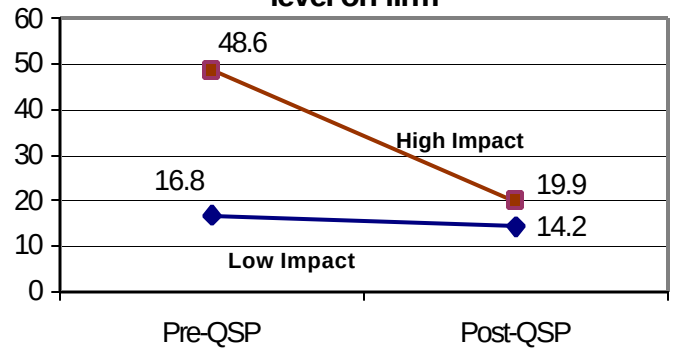
Some of these adjustments may represent further benefits that are generated by the QSP. For example, falling turnover implies a series of benefits to workers and employers. Longer job attachment implies greater opportunities to acquire on the job training, savings in recruitment and training costs, and a more stable group of employees. In addition to the obvious benefits for employers and workers, lower turnover also has important airport security benefits (as we document in Chapter 7).

5.1 Turnover

One of the most noticeable and positive impacts of the QSP has been a reduction in turnover rates. In this section we examine the relationship between higher wages and improved benefits and reduced turnover. We use the results of a series of questions in the employer survey to measure this effect, and we draw upon the evidence in the SFO Badge Office data to examine whether our findings are supported from another source.

Figure 5.1 shows that turnover fell dramatically for firms that experienced the greatest increases in wage costs. For those firms experiencing an increase in wage costs of 10 percent or more as a result of the QSP, turnover rates fell by approximately three-fifths (from almost 50 percent per year to 20 percent).

Figure 5.1 Annual Turnover by QSP impact level on firm



Source: UCB-SFO Empoloyers Survey, 2001.
High impact firms experienced a 10% or greater increase in wage costs directly due to the QSP while low impact firms experienced a less than 10% increase.

As Table 5.1 indicates, turnover fell the most among the Airline service firms, with smaller reductions in the Airline and Concession sectors. This pattern is expected, since most Airline employees received wages above the QSP mandated levels and generous benefits packages, while the QSP only indirectly influenced the Concessions sector.[35]

Almost one-third (31 percent) of all employers reported that turnover rates improved among workers covered by the QSP, while only 9 percent reported that they got "worse" or "a lot worse." High impact firms (those in which the QSP directly raised the total wage bill by 10 percent or more) reported greater improvements in turnover than other firms.

One contractor mentioned that although they have more than ten times the number of employees in San Francisco as in a nearby airport where wages remained low, their recruiters spent 75 percent of their time finding workers for the other airport. The number of open positions at the two airports was the same, but they had 10-15 applications for SFO for every 1 or 2 for the other airport.

Table 5.1 Annual turnover by sector

	Airlines	Airline services	Concessions	All firms
April 2000	12.8	42.6	13.8	23.1
June 2001	11.4	30.1	9.2	16.8

Source: UCB-SFO Employer Survey, 2001, conducted by the authors.

We also examine the linkages between higher wages and reduced turnover on a job-specific basis, for selected job titles. In general, we collected turnover rates for the entire firm rather than per job title. However, for the security screening firms and for United Airlines we collected job-specific turnover rates, and in some firms there was only one job title. We thus have been able to generate credible, but not precise, estimates of the turnover reduction for selected individual job titles.

In Table 5.2 we present data on entry-level and average hourly wages and turnover rates before and after the implementation of QSP, for selected jobs covered by the program.

[35] The small discrepancies in turnover rates for All firms in Tables 5.1 and 5.2 are the result of missing wage data.

Table 5.2 Wage and turnover rates for selected jobs covered by QSP

	Before QSP			After QSP		
	Entry wage	Average wage	Turnover (percent)	Entry wage	Average wage	Turnover (percent)
Customer service	8.30	10.30	36.2	10.50	12.00	34.6
Baggage/ Ramp	8.20	10.50	36.9	10.45	12.40	27.8
Cabin cleaner	7.70	9.95	16.3	10.20	11.45	9.2
Screener	5.90	6.45	94.7	10.00	10.00	18.7

Source: UCB-SFO Employer Survey, 2001, conducted by the authors.
Wages rounded to nearest $0.05.

In Table 5.3 these data are converted to percentage changes. Larger increases in wages are clearly associated with greater reductions in turnover. For example, the 27 percent increase in entry-level wages for ramp workers is associated with a 25 percent decline in turnover, while the 69 percent increase for screeners is associated with an 80 percent decline in turnover.[36]

Table 5.3 Change in wages and turnover rates for selected jobs

	Percent increase		Percent decrease
	Entry wage	Average wage	Turnover
Customer service	26	17	5
Baggage/ Ramp	27	18	25
Cabin cleaner	32	15	44
Screener	69	55	80

Source: UCB-SFO Employer Survey, 2001, conducted by the authors.
Note: All figures in percentages. Data covers April 2000 to June 2001.

We have tested the dramatic turnover findings from our employer survey by analyzing implicit tenure patterns in the dataset provided by the SFO Badge Office data. This analysis is presented

[36]This analysis only includes cash wages and does not include health benefits added by the QSP. This omission may have biased the reported post-QSP wages for Customer service representatives, Ramp agents and Cabin cleaners upward, since one large employer elected to pay the higher wage and not provide health benefits.

fully in Appendix D. The central challenge of this analysis was to estimate tenure changes over time from a snapshot of the tenure profile and the implicit replacement rates of current employees.

Using this dataset, we found that the QSP had positive effects on the rate at which SFO workers needed to be replaced. More specifically, QSP-covered jobs had lower replacement rates, indicating reduced turnover and/or lower growth in these jobs. Since we know that airport employment increased overall in the period leading up to June 2001, our results imply that turnover rates did indeed fall after the introduction of the program. These turnover reductions were most concentrated on the wheelchair and screener occupations, and to a lesser extent for customer service occupations, and were strongest in the Airline services sector.

Estimate of savings from turnover reduction

The decline in the average annual turnover rate translates into 1,550 fewer turnovers per year at SFO, with screeners accounting for approximately half of the aggregate decline. The lower level of turnover implies considerable savings for airport firms. These savings take the form of reduced costs of: employee separation, recruiting, selection, background security checks, training, and in the costs of reduced productivity during the new employees' learning phase.

Although turnover costs are much discussed in theoretical research, there are surprisingly few recognized empirical academic studies of the *costs* of turnover. Pollin and Brenner (2000) surveyed hotel, retail and restaurant employers in Santa Monica, California; their respondents reported an average cost of $2,090 to replace a non-managerial worker. The definition of turnover costs in this study included costs of separation, recruitment and training, but not the productivity losses. Since the appropriate economic concept should include productivity losses, we regard the Santa Monica estimates as too incomplete and suggestive only of a lower bound. We expect that replacement costs at SFO to be higher for two additional reasons: airport workers require extensive background security checks, which imply a higher fixed hiring cost, and their wages are higher. On average Santa Monica low-wage workers were paid $7.58 per hour, almost one-half lower than the entry post-QSP wage and benefits of $11.25 per hour of San Francisco airport workers.

A detailed study by researchers at the Cornell University School of Hotel Administration examined the costs of turnover among hotel employees in Miami and New York, based upon a framework they had tested among hotels in Boston and Chicago (Hinkin and Tracey 2000). These researchers were careful to include productivity costs, which they measured chiefly using the learning curve for new employees, as well as the associated disruption to peers and supervisors. Their estimated turnover costs in Miami ranged from $1,332 for room-service wait staff, to $2,077 for cooks, to $3,383 for store clerks, and $7,658 for administrative assistants. Front-office associates, whose work is similar to that of customer service agents, cost between $5,688 and $5,965 per turnover. The hourly salary and benefits of a new employee was approximately $10 per hour in Miami, one-eighth lower than the entry post-QSP wage and benefits of $11.25 per hour. Hinkin and Tracey noted that the hotel's own estimates of turnover costs were somewhat lower because, as in Santa Monica, the employers did not include the costs of reduced productivity.

The same researchers' estimates of turnover costs for comparable positions in New York hotels, arguably a labor market that more closely resembles the Bay Area, were approximately twice those found in Miami (up to $12,882 for a front-desk associate). Almost all the difference between the two

estimates arose from the different salary levels in the two labor markets, indicating that turnover costs in Miami are equivalent to those in New York once we have adjusted for wage differentials. The study also found that initial training costs accounted for no more than one-third of total turnover costs.

The ranges in the Cornell academic study correspond to the range in the estimates made by human resources practitioners and trade associations. For example, estimates of the cost per turnover for employees earning $8 per hour include: $3,500 (Society for Human Resources Management), $3,637 (Coca-Cola Retailing Research Council), $4,000 (American Management Association), $4,100 (American Hotel and Motels Association), and $8,000 (Hay Group and Superb Staff Services).[37]

Our employer survey did not include detailed questions on the full range of turnover costs. Instead, we focused primarily upon practices involving entry training. Following the usual practice, we asked only about formal training, as informal training is very difficult to measure.[38] Drawing upon employer responses to our survey, we estimated average hours of entry training for various occupations at SFO. (See Table 5.4) We combined this data with additional information on the costs of training to derive the average cost of training one person.

Table 5.4 Entry training hours and costs, by occupation

Occupation	Training hours	Cost of training ($ per person) After QSP
Customer Service	41	625
Administration / Clerical	5	70
Baggage / Ramp	38	460
Cabin cleaner	4	40
Screener	16	160
Wheelchair attendant	16	160
All occupations	26	360

Source: UCB-SFO Employer Survey, 2001, conducted by the authors.
All figures have been rounded.

[37] These estimates are summarized on the web site of a human resources company, Sasha Corporation (http://www.sashacorp.com/turncost.html accessed 10-1-02).

[38] In the U.S., formal training almost always refers to classroom-based off-the-job training, while informal training refers to on-the-job training done by co-workers and supervisors. Several national surveys indicate that the intensity of informal training is correlated with formal training, but involves five to ten times more employee time. The same economic considerations that apply to formal training will also hold for informal training. For a discussion, see Brown et al 1997, ch. 3.

Note that the average initial training cost of $360 obtained from the survey is lower than the amount implied by Hinkin and Tracey's (2000) estimate that initial training accounted for up to one third of turnover costs. This may reflect the fact that when we conducted our survey, employers were still implementing changes to their training programs. Training time may, in other words, not be constant. The QSP set standards for minimum entry training and for recurrent training, involving both security and safety. As we mentioned previously, these standards exceeded then-current FAA standards and matched levels that were long proposed by the FAA but that were never approved. In fact, since the QSP went into effect, one-quarter of QSP covered firms and one-fifth of all firms reported enhancements in their formal training programs. (This result appears in Table 5.10 below).

In addition to the direct mandates of the policy we would also expect employers to increase the training of workers over time. If workers are staying longer on the job, employers may decide to increase their training investment in their experienced workforce because they can recoup their investment over a longer time period. The ongoing training of experienced workers—which we call recurrent training-- is commonplace in Japan, where employment stays are much longer, and is thought to be central to seniority-based increments in pay. Most of the formal training in the U.S. is entry training, concentrated on new hires, and is thought to be related to the flatter pay profiles over worker careers in the U.S. (For more, see Brown et al 1997).

Taking all these factors into account, we have estimated the savings from turnover reductions at SFO using the two academic sources to provide lower (Santa Monica) and upper (Miami and New York) bounds (see Table 5.5). We have adjusted the published estimates to account for the wage differential between San Francisco airport workers and those reported in the studies. We have also prepared two estimates, the first using the adjusted academic source only. In the second estimate, we exclude one-third of the total cost to account for initial training costs, and include the (lower) training cost estimate from our survey. This provides four estimates of the savings from turnover reductions, ranging from $3.8m to $10.4m per year.

The average of these estimates, which is our best estimate of the savings from turnover reductions, is $6.6m per year.

Table 5.5 Savings from turnover reductions

		Using academic sources only	Combining survey training costs [1]
Lower bound (Santa Monica)	Reported cost of turnover	2,090	
	Adjustment factor [2]	1.484	
	Adjusted cost of turnover	3,100	2,430
	Turnover reductions	1,550	1,550
	Estimated savings	**$4.8m**	**$3.8m**
Upper bound (Miami and New York)	Reported cost of turnover [3]	5,975	
	Adjustment factor [2]	1.125	
	Adjusted cost of turnover	6,720	4,840
	Turnover reductions	1,550	1,550
	Estimated savings	**$10.4m**	**$7.5m**
Average of estimated savings		**$6.6m**	

Source: UCB-SFO Employer Survey, 2001, conducted by the authors; Pollin and Brenner (2000) and Hinkin and Tracey (2000).
All figures have been rounded.

Notes:
1. Adjusted turnover cost has been reduced by one-third (as indicated in Hinkin and Tracey 2000), and then increased by $360 (as indicated in the UCB-SFO Employer Survey).
2. Adjustment factor reflects differences in post-QSP entry wages and benefits of $11.25 at SFO and those reported in the academic studies (for Santa Monica, $7.58, and for Miami / New York, $10 per hour.
3. Turnover costs for Miami and New York are the mean of the costs reported for Miami hotels and half those reported for New York hotels.

5.2 Worker effort

A variety of efficiency wage theories argue that work effort will increase when pay increases. These changes can come about because workers value the jobs more and want to be sure to hold on to them, or because they are more motivated to acquire skills through informal training methods, or because employers place greater stress on using their employees more effectively—either by reducing down-time or increasing the pace of work.

The findings from the worker interviews indicate that work in the QSP-covered jobs did involve increased skill and more effort. As Table 5.6 shows, QSP-covered workers reported that more skills are required of them (50 percent), that they were working harder at their jobs (44 percent), that that they have greater stress on the job (43 percent), and that the pace of work has increased (37 percent). In each case, the percentage reporting "more" was similar to the percentage reporting "no change," and greatly exceeded the percentage reporting "less."

Table 5.6 Worker reports of changes in job characteristics

	More	No change	Less
Skill required	50.0	43.0	6.9
Effort on the job	44.2	42.8	12.8
Stress on the job	42.8	44.2	12.8
Pace of work	37.1	44.2	18.5

Source: UCB-SFO Worker Survey, 2001, conducted by the authors using only information on QSP covered positions. Figures are percentages.

The worker survey began in the weeks before September 11 and was resumed about two weeks afterwards. It is clear that skill requirements, effort and particularly stress did increase significantly after this date. Nevertheless, the results from the sub-sample of interviews conducted before September 11 indicate that skill, effort, stress and pace all increased before that date. For example, of those surveyed before September 11, 42 percent reported working harder and 37 percent reported more stress.

Workers who experienced larger wage increases were more likely to report more skill, effort, stress and pace. In particular, Table 5.7 shows that workers who received an increase of $2 or more were more likely to report they were putting in more effort on the job, compared to those with a wage increase of less than $2.

Table 5.7 Worker reports of changes in job characteristics by size of wage increase

	Small wage changes (less than $2)			Large wage changes (greater than or equal to $2)		
	More	No change	Less	More	No change	Less
Skill required	40.9	54.5	4.5	53.0	38.7	8.1
Effort on the job	28.5	47.6	23.8	50.0	41.6	8.3
Stress on the job	42.8	52.3	4.7	43.7	41.6	14.5
Pace of work	45.4	36.3	18.1	34.0	46.8	19.1

Source: SFO Worker Survey, 2001, conducted by the authors using only information on QSP covered positions.
Note: All figures in percentages.

5.3 Worker performance

Our employer survey also demonstrated that higher wages and better benefits at SFO translated into improved worker performance. Table 5.8 shows that employers reported improvements in overall work performance (35 percent), employee morale (47 percent), absenteeism (29 percent), disciplinary issues (44 percent), equipment maintenance (29 percent), equipment damage (24 percent) and customer service (45 percent). In each case, a much smaller proportion reported any worsening of the condition.

Table 5.8 Employer reports of changes in employee performance

	"Better" or "a lot better"	"No change"	"Worse" or "a lot worse"
Overall work performance	35	62	4
Employee morale	47	37	16
Absenteeism	29	66	5
Employee grievances	45	52	2
Disciplinary issues	44	47	9
Equipment maintenance	29	67	4

Equipment damage	24	69	7
Customer service	45	52	3

Source: UCB-SFO Employer Survey, 2001, conducted by the authors.
Note: All figures in percentages and may not add to 100 due to rounding.

Question wording: "How has **employee performance** changed in the past year for those working in job titles covered by the QSP? Please check the appropriate box for each aspect of employee performance, and use the space provided below to add additional comments about any of the changes you have observed."

Table 5.9 shows that high-impact firms reported greater improvements in overall work performance, turnover, and employee morale than low-impact firms, suggesting a direct relationship to the improvements in wages and benefits. Low-impact firms reported greater improvements in grievances and disciplinary issues. This pattern may be a result of the union organizing campaigns underway during the period in many of the high impact firms. Normally, an increase in formal grievances and disciplinary procedures would be expected during a union organizing drive. Since the organizing at the airport took place in an unusual context-- under the Labor Peace Rule--it is notable that no such increase was reported. Improvements in customer service were reported across the board.

Table 5.9 Mean score for changes in performance reported by firms

	Low impact firms	**High impact firms**	**All firms**
Overall work performance	3.3	3.8	3.4
Employee morale	3.2	3.8	3.3
Absenteeism	3.3	3.4	3.3
Employee grievances	3.9	3.3	3.8
Disciplinary issues	3.7	3.2	3.6
Equipment maintenance	3.6	3.3	3.5
Equipment damage	3.4	3.3	3.4
Customer service	3.7	3.5	3.6

Source: UCB-SFO Employer Survey, 2001, conducted by the authors.
Note: Mean score is rated on a range: 1="a lot worse" to 5="a lot better." *A score of 3 implies no change.* A high impact firm is defined to be one where QSP resulted in a 10 percent plus increase in wages and health benefits.

These survey findings match the qualitative reports from employers, employees and other airport stakeholders. One employer reported, "[The QSP] changed the way we do business. We are more proactive in getting good folks and keeping them trained… If we have someone who isn't performing, we have no hesitation about letting them go. We've weeded out non-performers, so the quality goes up considerably."

Along the same lines, a long-time worker reported: "Before we could take more liberties. The job had less value; there was a lower threat of replacement. Now you have to be responsible, show up on time, look right, and do your job correctly."

Similar comments came from the union organizers: "People are more careful about committing infractions. They don't want to lose their jobs. The mentality is different now. Before people didn't care, [they] can always find another $6 job."

5.4 Changes in employment practices

As previously mentioned, employers could also adjust to the costs of the mandated wage increases by changing schedules or employment practices. Only a few firms reported changes in shift schedules, job descriptions, skill requirements or hiring practices following implementation of the QSP (see Table 5.10). All of the changes in shift schedules were reported by airlines, as opposed to the airline service firms that had the greatest relative increases in pay. Reports from the non-QSP firms indicated that none of them had made changes in any of these areas during the study period.

Table 5.10 Employers reporting changes in employment practices

Changes in	QSP firms	Non-QSP firms	All firms
Shift schedules	8.2	0.0	5.2
Job descriptions	3.3	0.0	2.1
Skill requirements	6.7	0.0	4.2
Hiring practices	13.1	0.0	8.3
Training	24.6	11.4	19.8

Source UCB-SFO Employer Survey, 2001, conducted by the authors.
Note: All figures represent percentage changes.

Question wording: Have there been any substantial changes in your firm's employment policies and practices in the last year? Please check if applicable and elaborate below:

The one significant change in Table 5.10 occurred in the proportion of firms reporting increases in training. In every case where employers reported a change in training, this entailed an increase in the amount of initial or on-the-job training provided. This result is consistent both with the increased training mandates of the QSP, and with economic theory. Higher wages provide an incentive for the employer to increase training of workers in order to raise productivity to match the new, higher wage level.

Anecdotal evidence in the employer survey points in the same direction. For example, one large employer reported a significant improvement in the trainability of new hires. In the year up to July 2001, only 2 percent failed in-company training, whereas earlier, in the calendar year 2000, 13 percent had failed in-company training. Such training failures represent a loss to the business. In the same vein, one contractor reported that it was "more proactive in getting good folks and keeping them trained."

Our survey of union organizers found a similar concentration of changes in shift schedules and job descriptions in QSP covered firms, though the sample of non-QSP firms was small. Union organizers tended to report more changes in shifts and work schedules in airline service firms than were reported by management in those same firms. This inconsistency could reflect ongoing tactical responses to organizing efforts or differences in perceptions.

Union organizers reported that only one airline service firm moved to a split shift, reducing the time workers were paid while waiting between flights, and two others reduced the hours on shifts with large amounts of dead time. Reduction in work hours appears to have affected a relatively small number of workers, and in most cases, would not have lowered their gross pay below what they were receiving prior to the wage increase.

In summary, the evidence available suggests that training increased and there were only minor changes in the other employment practices.

5.5 Summary

Workers and employers have adjusted to the QSP, reducing its costs. We found dramatic reductions in turnover as a result of the QSP, falling as much as 80 percent among the screeners. Worker effort and performance also improved, but there was very little change in job schedules. Firms are providing more training, which is not surprising given the QSP's training mandates.

CHAPTER 6 IMPACTS ON THE LEVEL AND COMPOSITION OF EMPLOYMENT

In this chapter we examine the effects of the QSP on the level and composition of employment at SFO. In theory, incumbent workers and potential new hires may be hurt by higher mandated wage increases through reduced employment opportunities. A reduced need for workers could occur through two different channels. If higher costs lead to higher ticket prices and thereby to lower demand for air travel, fewer workers will be needed and some will be displaced. As we saw in Chapter 4, cost increases were small as a fraction of revenue and this channel is unlikely to be significant.

A second channel of reduced employment demand involves labor substitution. Reduced employment levels could occur if employers now find it cost-effective to replace less skilled workers with capital equipment and/or (a smaller number of) more-skilled workers. Such substitution depends upon employers having some flexibility in their staffing requirements. This is generally more difficult to implement in the short run. Employer flexibility in adjusting workforce levels may also be restricted by institutional factors such as federally mandated staffing levels, worker retention clauses, or other employment rules and norms. For example, among airport screeners, we might not see proportional employment reductions because of mandated minimum employment ratios in some jobs (e.g., screeners per gate).

Independently of whether employment levels fall, some economists argue that mandated wage increases of the magnitudes involved in living wage ordinances could result in another unintended and undesirable outcome. In particular, an increase in pay could lead employers to substitute better-skilled workers for their existing workforce, thereby displacing current workers. Such an effect would not necessarily be an adverse public policy outcome, since it could lead to higher levels of services and the displaced workers might be able to find equivalent employment elsewhere. If, however, the displaced workers do not find alternative jobs, or if wages are bid down in other sectors, a policy such as the QSP may make some of its intended beneficiaries worse off.

Living wage policy-makers implicitly recognize these possibilities when they insert worker retention language into their ordinances. Such language is included, for example, in the Los Angeles and San Jose ordinances, and SFO has a separate worker retention policy (see Appendix A.) This policy, however, applies only for ninety days and only in the event of a successor contract award. Clauses in collective bargaining contracts that contain layoff protections and seniority systems also could restrict substitution possibilities.

Our concern is with the actual, as opposed to the potential, magnitudes of these displacement effects. We examine whether part of the incumbent workforce was displaced and/or partially replaced by more-skilled workers by considering trends in the level and in the composition of employment at SFO. We first consider the evidence on trends in airport employment. Our strategy is to examine whether the recent downturn in business at SFO results from the QSP or external factors that are not related to the QSP. We then consider evidence of displacement effects drawn from a variety of data sources.

6.1 Changes in Airport Employment levels

In Table 6.1 we compare 1998 employment by occupation for selected occupations and employers with mid-2001 employment. The 1998 estimate is based on the Airport Commission's own economic impact study, and provides a reliable baseline. The data for mid-2001 come from our own employer survey. A comparison with data from the SFO Badge Office from the same time period can be found in Appendix C. [39]

Table 6.1 Changes in employment at SFO, selected occupations[1]

	1998	2001
Airlines[2]	4,055	4,681
Airline services	3,284	3,803
Total	7,339	8,484

Sources: SFO, 1998; authors' analysis of UCB-SFO Employer Survey, 2001.
Notes: 1. Excludes concessionaires. Survey data sample too small for valid comparison.
2. Includes United Airlines ramp, customer services and cabin cleaners only; all ground-based employees of other airlines are included.

The employer survey findings in Table 6.1 indicate that employment among airlines and airline services firms rose 15.6% during the period in which the QSP was implemented. This increase is surprising given that over the same time period, airport activity declined by 9% and overall employment in the San Francisco MSA increased by only 1%.

All of the increase in airline employment is accounted for by passenger airlines other than United Airlines. The number of passengers handled by these airlines increased 13.1% from 1998 to 2000, while the number of passengers handled by United Airlines actually declined over the same period. These other passenger airlines are more likely than United Airlines to contract out customer service, baggage handling and other functions. Hence their increased activity levels account for the increase in the number of workers in the Airline Services sector.

Another factor contributing to the overall growth in airport employment between 1998 and 2001 was the opening of the new International Terminal in 2000. This had been projected to substantially increase airport activity and employment, although the basis of this optimistic projection is questionable.[40] We must nevertheless consider whether the QSP affected the overall level of airport activity and hence the rate of job growth. We address this question in the following sub-section.

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[39] The Badge Office data findings report a considerably larger employment level, which to some extent reflects a weakness in this dataset. The Badge Office data are likely to overestimate employment because of delays in the returning of badges once employment ends. This problem was more common among the passenger airlines. We compare these two data sets in more detail in Appendix C.

[40] The Airport projected 11,000 new jobs by 2005 as a result of airport expansion. No documentation was available on where the employment increases were anticipated. Through the end of 2001, airlines relocated from the old to the new International Terminals, and the old International Terminal was closed for renovations. Hence the airport expansion

Did living wage policies curtail growth?

San Francisco International Airport, the fifth busiest in the United States, served over 40 million passengers per year in the late 1990s. In 2001, however, SFO declined from fifth to tenth place in the nation's rankings, and suffered a 15.7 percent decrease in passenger volume (Wilson 2002). At the same time, other Bay Area airports fared much better. Mineta San Jose International Airport kept the same number of passengers in 2001 as in 2000, while Oakland International Airport was one of the few airports worldwide that actually increased its passenger throughput, due to the relocation of Southwest Airlines. We consider here whether these declines at SFO are attributable to the QSP, and argue instead that they are a direct result of the downturn in the Bay Area economy that began late in the fall of 2000. This downturn pre-dated the even more dramatic decline in airport activity following the events of September 11th, 2001.

Table 6.2 shows that passenger traffic at SFO was increasing steadily in recent years, from 32 million passengers in 1993 to 41 million in 2000. Cargo traffic was also increasing steadily during this period. Passenger traffic had been projected to grow even more rapidly after the opening of the multibillion-dollar international terminal project in fall 2000. The airport was expecting to handle 49 million passengers by 2006, with much of the increase consisting of Pacific Rim travelers.

Table 6.2 Passenger and cargo volume, SFO 1993-2006

Year	Enplaned and deplaned passengers (millions)		Enplaned cargo[2] (thousands of tons)
	Total	International	
1993	31.9	4.4	-
1994	33.1	4.9	-
1995	34.7	5.5	388
1996	37.2	6.3	391
1997	39.1	6.8	413
1998	40.1	6.7	414
1999	40.3	7.2	418
2000	41.0	8.0	454
2006[1]	49.1	10.7	-

Sources: Meeting the Challenges of the Next Millennium: The New International *Terminal Building Concession Program*. Brochure prepared for San Francisco International Airport by Leigh Fisher and Associates (based on SFO Airline Traffic Report and Airport Official Statement); Official Statement of the Airport Commission of the City and County of San Francisco, $238,185,000 Second Series Revenue Bonds, December 7, 2000.

Notes: 1. 2006 figure is projected
2. Includes freight and mail.

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could not have significantly increased aggregate airport employment in airlines and airline services during the study period (i.e. by the end of 2001) since it had not resulted in any net increase in airport activity levels. It is possible that the opening of the new International Terminal resulted in increased employment in the concessions sector, but our data do not allow us to draw a definite conclusion on this issue (see Table 6.1 above and related text).

However, after peaking in 2000, actual activity levels fell considerably below these projections. The decline, especially in domestic passenger volume, began well before September 11, 2001. Table 6.3 compares the percentage change from the previous year in the year-to-date activity levels, with endpoints of August 1999, August 2000 and August 2001. From August 2000 to August 2001, travel declined markedly in all categories except international passenger departures.

Table 6.3 Changes in passenger and cargo volume, SFO 1998-2001

		Percentage change per year, January to August only		
		1998 to 1999	1999 to 2000	2000 to 2001
Passengers Departing	International	7.0	10.8	2.6
	Domestic	-1.3	0.6	-10.7
	Total	0.1	2.5	-8.1
Freight outbound	International	5.8	16.4	-14.2
	Domestic	2.7	-0.3	-14.6
	Total	4.4	8.9	-14.4

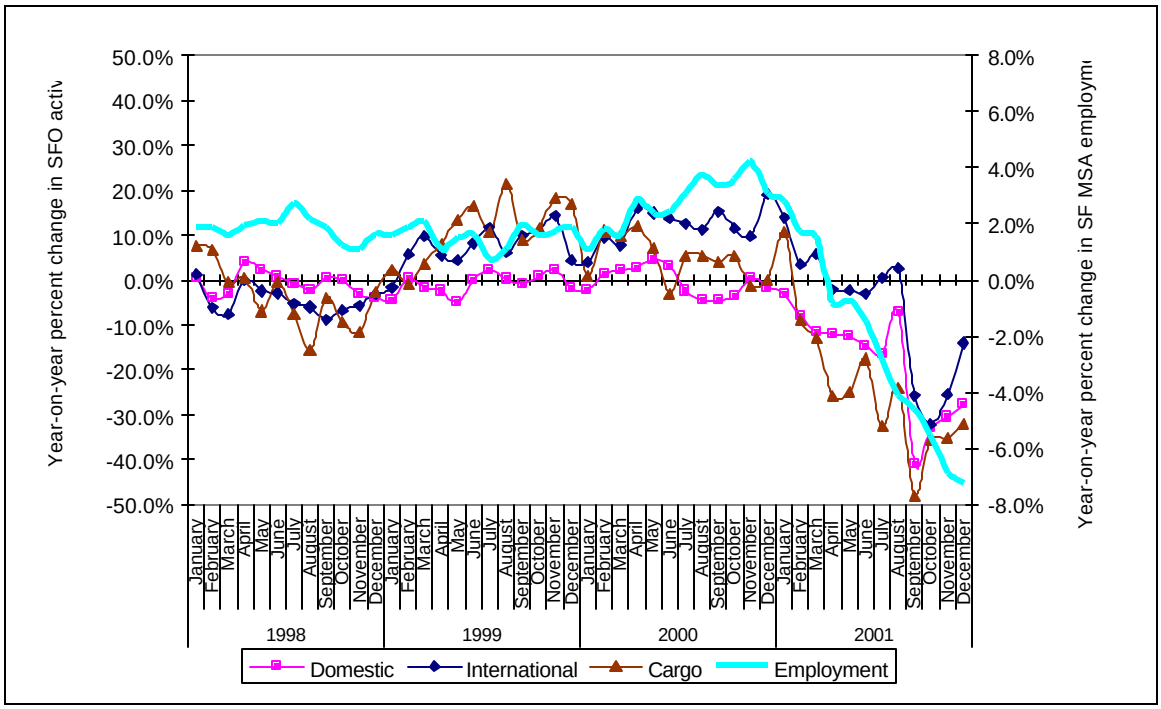
Source: SFO Airport Commission.
Note: 1. Cargo excludes U.S. Mail and is measured in metric tons.
All figures are percentage changes for January to August.

We find no evidence that these reductions in passenger volume are causally the effect of the QSP. The declines in international travel and cargo correspond to the broader decline in the Bay Area economy following the shakeout among technology firms as well as the onset of the national recession. This pattern is illustrated in Figure 6.1, which tracks the relationship between growth in activity at SFO and the economic growth in the Bay Area.

In Figure 6.1, economic growth is indicated by the annual change in employment in the San Francisco MSA. After consistent employment growth through the late 1990s, the employment growth rate began declining in the fall of 2000 and turned negative during the spring of 2001. The timing of the downturn in activity at SFO closely tracks this pattern. International passenger growth that had been strong during the late 1990s began declining at the same time as did Bay Area employment growth, while domestic passenger and cargo growth were both negative from the start of 2001.

After September 11, 2001, the steepest decline occurred among international travelers. After growing modestly at a 2.6 percent rate in the first eight months of 2001, international air travel declined rapidly, ending the year down 6.4 percent from the previous year (Wilson 2001). The volume of domestic air passengers at the end of the year fell by 18 percent.

Figure 6.1 Activity at SFO declined with the Bay Area economy, before 9-11



Source: San Francisco International Airport (www.flysfo.com); Economic Development Department, State of California (http://www.calmis.cahwnet.gov/file/indcur/sanf$pr.txt).

One Airline, Southwest, did cease operations at SFO in March, 2001, after the QSP went into effect, relocating to Oakland, San Jose and Sacramento. The change was not related to the QSP. According to a Southwest official (quoted in Armstrong 2001), the airline was "not able to secure terminal facilities, and there is limited runway capacity at SFO." Southwest's departure does not account for most of the decrease in passenger volumes at SFO, as it accounted for between 2.4 and 2.7 percent of domestic passenger departures at SFO in the years 1998-2000.

However, Southwest's move does account for the entirety of the increase in passenger volumes at Oakland International Airport. In 2000, Southwest Airlines enplaned some 440,000 passengers at SFO, representing 2.7 percent of total SFO passenger departures. This volume is more than the total increase in departures at Oakland International Airport in 2001 as compared with 2000.[41]

The evidence thus does not support the view that the QSP derailed growth in passenger volumes at SFO. As noted above, even if all the costs of the QSP had been passed on to consumers, they would not have had a significant effect on ticket prices. Both international and domestic passenger growth declined primarily as a result of the downturn in the economy, while international passenger volumes in particular turned sharply downward after September 11, 2001. Most of the relative growth at another Bay Area airport, Oakland, reflects the relocation of one airline away from SFO for reasons not related to the QSP.

[41]Departures from Oakland increased by 410,000, or 7.8 percent, in 2001 over the previous year (OIA 2002).

We have show that the decline in airport activity closely tracks the decline in economic activity in the Bay Area economy from the start of 2001. Hence, the aggregate growth in employment we found in the employer survey (conducted during the summer of 2001) probably reflects the lag between changes in airport activity and employment. Our overall conclusion – that the QSP did not result in significant disemployment at SFO – remains.

6.2 Labor-labor substitution: the composition of employment

Standard human capital theory predicts that mandated wage increases – above those set at competitive equilibrium or market-clearing levels – will lead to some employment displacement (see Becker 1964 and Mincer 1974). In a perfectly competitive situation, the firm can no longer afford to employ low skill (and hence low productivity) workers and remain profitable. Moreover, with a binding minimum wage, workers cannot accept lower pay in exchange for employer-provided training. The firm may therefore replace less productive workers with more productive ones. Economists call such a scenario labor-labor substitution.

However, the standard human capital theory makes very restrictive assumptions about the competitive character of labor markets. A newer labor economics paradigm emphasizes alternative scenarios of how labor markets function: that productivity can increase as a result of wage increases, often referred to as an efficiency wage model (Katz 1986); and that many firms hold some market power over their employees, with pay a function of market power. Under these conditions, as Acemolgu and Pischke (1999) show, a higher minimum wage may in fact lead firms to train employees rather than displace them. They draw on data from national and state minimum wage increases in the period from 1987 to 1992 and find that training increased when and where mandated pay levels rose.

These new insights are illuminating in showing how different outcomes might arise in the SFO environment. Airport labor markets certainly do depart from the competitive textbook model. We have already seen that considerable segmentation is present in the airport labor market. Moreover, screener firms at SFO historically hired older workers, many of whom are recent immigrants from the Philippines. These workers tend to be highly skilled and many have professional degrees that are not recognized in the United States.

From a public policy perspective, the main question does not concern the theoretical possibility of labor-labor substitution, but rather the extent to which it occurs in the present context. Firms that were more heavily influenced by the QSP did report higher entry skill requirements and stricter hiring policies, indicating that the mandated higher wages allowed the firm to be more selective in making new hires. In the words of one security-screening manager: "(We) raised the bar on entrance exams, with more applicants we can afford to demand higher standards. We're much pickier." Such changes, which were reported by 8.3 percent of all firms (see Table 5.8), suggest that a small amount of substitution occurred.

Employees also adjusted by working harder following the wage increases. A substantial number--approximately half of all workers— reported working harder following the QSP (see section 5.2). This evidence suggests the efficiency wage effect: the same individuals, with the same level of education and training, may become more productive when they are paid more. The additional work

effort could also be a by-product of the workers' additional training. By having more skills, workers may be able to carry out more tasks than before.

In addition to the efficiency wage effects, the QSP also entailed the intentional raising of education levels among airport security workers and additional training. The policy mandated high school completion as a condition of hiring, although this requirement was not used to displace any existing workers. At the same time, one of the innovative aspects of the QSP was a mandate for higher training standards. In fact, almost 20 percent of all firms reported increasing the amount of training they undertook, supporting the argument that upgrading the skills of the incumbent workforce was as likely as substitution.

Our survey data, then, indicate that firms and workers engaged in skill upgrading, and only very modest displacement effects or substitutions effects at the wage rates mandated by the QSP. Our analysis of the SFO Badge Office data also did not indicate any increased replacement of workers following the implementation of the QSP (see Appendix D). More firms responded to the QSP by training and upgrading their existing workers than by replacing them.

One additional consideration suggests that labor-labor substitution was likely to be relatively modest at the wage levels offered under the QSP. Unless employers can expect a substantial improvement in new workers' skills, they will not be willing to incur the turnover costs of replacing incumbent workers. Theory suggests that the turnover costs will be greater the more specific are the skills used at the workplace, as those skills are acquired on the job rather than through formal schooling. We might expect that job-specific skills are less important in routinized low-wage jobs. However, many airport jobs involve considerable job-specific skills and so the prediction of theory is more ambiguous.

In a previous study, Reich and Hall (2001) estimated the likely increase in a new hire's educational level after a change to higher mandated wages. To do so, we computed the average years of schooling at different wage levels for California respondents in the Current Population Survey. We used this result to estimate the likely substitution effects of the 1996-98 minimum wage increases in California; we found that the potential effects were relatively small (see Reich and Hall, 2001).

We use the same approach and CPS dataset to estimate the likely displacement effects of the QSP wage increase. As Table 6.4 indicates, the average schooling level of workers who earn approximately the pre-QSP entry-level wage ($7.50-8.49 per hour) is 11.6 years. At wage levels closer to the post-QSP entry-level wage ($10-10.99 per hour), the average schooling level is 12.2 years. While this difference does cross the high school completion threshold, it does not represent a substantial increase in schooling levels. At these pay levels, the higher wages generate a real but small degree of pressure to increase the average skill level of workers.

Table 6.4 Years of schooling by wage rate, California

	$7.50 - 8.49	$10 – 10.99
1994	11.9	12.7
1995	11.6	12.4
1996	11.9	12.5
1997	11.9	12.5
1998	11.7	12.6
1999	11.6	12.2

Source: Authors' analysis of CPS monthly Outgoing Rotation Groups for California 1994-99, modified from Reich and Hall (2001). We use one-dollar wage bands in order to obtain significant sample sizes in each cell.

Changes in the education level of SFO Screeners

A survey of baggage screeners conducted for the responsible union, SEIU Local 790, provided additional information that allowed us to examine whether the QSP resulted in the displacement of less educated by more educated workers. We have compared the education profile of those hired in the year before the implementation of the QSP (June 1999 to May 2000) and in the 18 months following the implementation of the QSP until implementation of the Airline Transportation Security Act (June 2000 to November 2001). The results are presented in Table 6.5.

Table 6.5 Education of screeners by hiring date

Time of hiring	Post-QSP, Pre-TSA (June 2000-Nov. 2001)	Pre QSP (June 1999- May 2000)
High school only	23.1	31.6
High school plus some college	23.1	16.5
AA / AS or similar certificate	11.0	11.4
BA / BS or higher degree	42.7	40.5
	100.0	100.0
Chi-square		p=0.382

Source: Authors analysis of SEIU Local 790 member survey, 2002.

As discussed in Chapter 2, the education level of screeners at SFO was higher than we expect to find among workers at this wage rate. This occurs because over half (51 percent) of all screeners at SFO were immigrants, mainly from the Philippines, and this group tends to be more educated than most immigrant workers in unskilled jobs. [42] Forty-percent of the screeners on the job in July 2002 who were hired prior to the QSP held a bachelor degree or higher; more than half had some degree or certificate above high school. Screeners hired after the QSP were more likely to have attended some college, but were only marginally more likely to have earned a degree than those hired prior to the QSP.[43]

The proportion of workers hired with only a high school diploma fell from 31.6 percent prior to the QSP to 23.1 percent immediately afterwards. While not statistically significant, this change does indicate a modest displacement effect for less educated workers.[44] The small increase in the education level of the workers corresponds to the expected small increase in years of schooling at the higher wage rate discussed above.

Note that this analysis refers only to screeners, the occupational grouping that received the largest wage increases as a result of the QSP (see Tables 3.2 and 5.3). We would expect displacement effects to be smaller for other occupations.

Changes in the demography of SFO workers

Economic theory also suggests that employers may respond to the increased wage mandate by hiring workers with different demographic characteristics. This may be regarded as an undesirable unintended consequence of the policy if it leads to the displacement of workers unable to find work elsewhere. There is some evidence that the QSP did lead to slightly more hiring of men than women, but that it did not change the hiring patterns by age and race.

The data for this analysis is the SFO Badge Office data, which presents a snapshot of the SFO workforce on June 1, 2001. We have compared the demographic profile of those hired in the year since the QSP (the period June 2000 to May 2001), with those hired in the year before it was implemented (the period June 1999 to May 2000). This comparison is shown in Table 6.6.

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[42] In August 2002, prior to implementation of the citizenship requirement, almost half (46.3 percent) of non-citizen screeners had a bachelor's degree or higher, while only one-third (30.7 percent) of citizen screeners were similarly qualified.

[43] We also examined whether the mean number of years of schooling of screeners changed when the QSP was implemented. The average number of years of schooling increased from 14.0 to 14.2 years. This increase is statistically insignificant. Note that the screener survey data did not indicate the number of years of schooling and hence this analysis is approximate. Following accepted conventions, we have assumed that a high school diploma is the equivalent of 12 years of schooling, some college is the equivalent of 13 years of schooling, an AA/AS certificate is the equivalent of 14 years of schooling, and a BA/BS degree is the equivalent of 16 years of schooling.

[44] The hiring of both less educated citizens and less educated non-citizens declined following the implementation of the QSP. In both cases the decline was not statistically significant, but was somewhat more pronounced for non-citizens than for citizens.

Table 6.6 Demographic profile of workers hired before and after QSP

	Ground-based non-supervisory workers			Low wage occupations only	
Time of hiring	Pre QSP (June 1999-May 2000)	Post QSP (June 2000-May 2001)		Pre QSP (June 1999-May 2000)	Post QSP (June 2000-May 2001)
Age at start date					
Up to 24	18.3	21.0		20.9	23.1
25-34	25.4	27.4		23.3	25.9
35-44	25.4	26.0		22.7	25.6
45-54	19.7	16.7		18.8	16.3
55-64	8.6	6.6		10.9	6.6
65 and up	2.7	2.2		3.5	2.4
Race/ethnicity					
White	17.1	18.1		11.8	14.0
Hispanic	19.1	16.9		18.9	17.7
Filipino	31.9	30.7		37.3	36.2
Black	8.2	7.8		9.6	8.4
Asian	23.7	26.6		22.4	23.7
Gender					
Female	32.3	31.8		33.4	30.3
Male	67.7	68.2		66.6	69.7

Source: Authors analysis of SFO Badge Office data.

The interpretation of this data is subject to some limitations. In particular, we do not have data on those who have already stopped working at SFO. Those who have stayed in the job longer may have a different demographic profile from those more recently hired for reasons that are unrelated to the policy change. This could especially be the case in the lowest wage jobs, where we might expect the quit rates to be higher for demographic groups with the greatest opportunities to find higher paying work elsewhere. With these caveats, we observe some patterns, by age, race/ethnicity and gender.

Age

The proportion of young workers (those aged less than 24 years old) is higher among those hired after QSP implementation. However, more than half of all low wage hires in the year following the implementation of the QSP were 35 years or older. It is unlikely that this change is related to the implementation of the QSP. There were no differences between the Airline and Airline Service sectors with respect to age at hiring, suggesting that the change was not a result of the mandated wage increase. Rather, it is likely that our data are capturing the fact that quit rates soon after being hired are higher among young workers.

Race/ethnicity

There were no differences in the ethnic/racial profile of workers hired before and after the implementation of the QSP. This finding should be interpreted cautiously because race/ethnicity data are incomplete in the SFO Badge Office data. This finding also contrasts with the reported changes in employment of screeners at other airports following the implementation of the Federal Transportation Security Administration Act (see Alonso-Zaldivar and Oldham 2002).

Gender

The QSP led firms to hire more men in a small number of 'masculine' low-wage occupations. Among all ground-based non-supervisory workers (the survey population), the overall proportion of women hired did not change (32.3 vs. 31.8 percent). However, among low-wage occupations (customer service, ramp, cabin cleaners, screeners, wheelchair attendants and skycaps only), the proportion of women hires fell from 33.4 to 30.3 percent.

To examine this gender effect further, we also compared the hiring demographics of the Airline and Airline Service sectors, as a proxy for differentiating high wage/low QSP impact and low wage/high QSP impact sectors respectively. This comparison is shown in Table 6.7.

We find that whereas the proportion of women hired into these positions by the high wage/low impact airline sector remained unchanged (34.4 to 35.5 percent), the proportion of women hired into the low wage/high impact airline service sector fell (32.5 to 25.5 percent; this change is statistically significant). If we compare across low-wage positions, we find that in low-wage customer service positions, where women account for half (51.7 percent) of employees, there was little change in the hiring of women after the mandated wage increase. Instead, the greatest changes took place in those positions already dominated by men. The proportion of women hired as security screeners, ramp workers, cabin cleaners and skycaps fell from 21.7 to 16 percent. This suggests that the mandated wage increases resulted in more hiring of men than women in selected low-wage occupations only.

Table 6.7 Hiring of women among low-wage airline service occupations

	Low wage occupations only			
	Airlines		**Airline Services**	
Time of hiring	Pre QSP (June 1999-May 2000)	Post QSP (June 2000-May 2001)	Pre QSP (June 1999-May 2000)	Post QSP (June 2000-May 2001)
Female	34.4	35.5	32.5	25.5
Male	65.6	64.5	67.5	74.5
	100.0	100.0	100.0	100.0
Chi-square		P=0.699		P=0.003

Source: Authors analysis of SFO Badge Office data.

6.3 Summary

To conclude, our evidence suggests that the QSP did not lead to any significant reduction in employment. Employment in covered positions actually increased over the period in which the QSP was implemented. This result is surprising given the reductions in airport activity during 2001. We show that the QSP did not cause these sharp reductions in airport passenger volumes. Instead, these declines are explained by the downturn in the Bay Area economy that started in late 2000, and the events of September 11, 2001.

We do find some evidence of small displacement effects as a result of the program. The QSP allowed employers to hire screeners with slightly more education, although increased training mandates and worker protection clauses ensured that few incumbent workers were displaced. While the overall proportion of women to men in the SFO workforce did not change, the QSP did result in more hiring of men than women in certain low-wage occupations. There is no evidence of changes in hiring patterns by age and race.

CHAPTER 7 IMPACT ON AIRPORT SECURITY

In the last three chapters we found that the mandated pay increases and other changes to the SFO labor market improved working conditions for most ground-based non-management airport workers. In this chapter, we examine evidence that lower turnover among airport screeners contributes to increased security detection at airports.

7.1 A brief history of airport security and screening

Until the end of 2001, the FAA, the air carriers and the airport operators had joint responsibility for airport and airline security in the United States. The FAA was responsible for assessing threats to the aviation system and establishing regulations and procedures to ensure that these threats are effectively deterred. Air carriers were responsible for screening passengers and baggage, hiring and training employees or contracting out these services, and purchasing equipment. Airport operators were responsible for providing secure airport facilities.[45]

Airline and airport security were virtually nonexistent before 1973, when getting on a plane involved no more checks than getting on a city bus does today. After a series of international hijackings in the early 1970s, the FAA had metal detectors installed at airport gates and gave the airlines the responsibility of screening their passengers. The airlines began to subcontract this work soon thereafter, with no effective oversight from airports or the FAA.

By the mid1980s, established security firms such Wackenhut were losing their airport contracts to lower-cost firms, such as Ogden and Argenbright. A further decline in security followed. For example, in 1987, a hijacker with a loaded gun walked past guards and took control of a Los Angeles to San Francisco flight, resulting in a crash and loss of life for all 43 passengers and crew. By this point, journalists were already pointing fingers at low pay and high turnover among screeners, and the importance of security measure beyond just screening passengers, but very little was done to improve the situation.[46]

Airline and airport security received renewed attention following the 1988 bombing of Pan Am Flight 103 and the 1996 crash of TWA Flight 800. This attention included two Presidential commissions and a series of rule-making actions by the Federal Aviation Administration. In particular, a 1996 Commission report recommended a series of actions to improve the performance of security screeners (GAO 1999). However, despite considerable pressure from Congress, progress on implementing proposed changes to the regulations occurred very slowly. For example, a proposed rule for certifying security firms was originally mandated in a 1996 law, while a 2000 law gave the FAA until May 31, 2001 to issue the regulations (AP 2001). The regulations still had not been issued by September 11, 2001.

[45] See Code of Federal Regulations, 14, Chapter 1-F / FAR Part 108.

[46] A Los Angeles Times headline for December 17, 1987 on this incident illustrates how long this system has been in place. “Airport Security: Low Pay and High Turnover may be the Weak Link.” (Baker 1987).

In 1999, according to the General Accounting Office, annual turnover among the nation's 8,000 airport screeners exceeded 125 percent. At this rate, the average screener was on the job for four and one-half months. At Boston's Logan Airport, the turnover rate was 200 percent; at Atlanta's Hartsfield Airport, it exceeded 400 percent. It was in this context of regulatory failure that the SFO Airport Commission implemented the QSP.

7.2 Airport security and screener turnover

The Quality Standards Program was designed to improve safety and security at SFO by improving wages and benefits for a wide range of employees across the airport. In December 2001, the Massachusetts Governor's Special Advisory Task Force on Massport cited the QSP as a model because of its broad approach to airport security. This much more comprehensive scope makes the SFO program different from the federal response to September 11, which has concentrated almost entirely on pre-board screeners. By establishing a regulatory relationship between the airport and the airline service contractors, the QSP also created accountability that did not exist at other airports.

In previous chapters, we presented evidence indicating that the QSP led to a general increase in job performance and to a decrease in turnover in particular. We saw that turnover fell a dramatic 80 percent among the screeners. We also described how high turnover has been identified as a cause of weak security.

To examine this relationship further, we analyzed FAA and GAO data for 15 major U.S. airports on screeners' detection of passenger security breaches and screener turnover rates. Holding constant the number of passengers at an airport, we found that higher turnover rates are associated with lower rates of detecting security breaches (see Table 7.1).

The relationship was confirmed by a linear regression:

Number of security breaches detected

= 134.81 – 0.615*turnover rate + 0.005*thousand passengers
[se=0.313, 90 percent sig] [se=0.002, 95 percent sig]

df = 15, R^2 = 0.390

The results show that 39 percent of the variation in the number of detections per airport in 1998 and 1999 is explained by the number of passengers in those years and the screener turnover rate in the year to April 1999. For every percentage point increase in the turnover rate at an airport, the number of detected security breaches fell by 0.62 percent. (This finding rests on the reasonable, but unproven assumption that the actual security violation rate was uniform across all airports.) In general, the longer the airports are able to retain pre-board screeners, the more likely they are to detect security breaches.[47]

[47] These results need to be taken as suggestive, however. Passenger numbers are enplanements, rather than the number of people being screened. This would bias our results towards indicating better security performance at hub airports with many connecting flights, such as Atlanta or O'Hare, as opposed to origin airports, such as Los Angeles. Also, the FAA

Table 7.1 Detection of security breaches and turnover rates by airport

AIRPORT	Turnover rate for screeners, April 1998-April 1999	Detected breaches per million passengers (1998 and 1999)
Honolulu	37.00	5.75
New York-JFK	53.00	14.01
Miami	64.00	5.82
Detroit	79.00	5.51
Los Angeles	88.00	11.13
Washington-Dulles	90.00	6.47
Orlando	100.00	4.48
San Francisco	110.00	7.02
Seattle	140.00	9.55
Dallas/Fort Worth	156.00	7.38
Denver	193.00	4.45
Chicago	200.00	2.90
Boston	207.00	9.10
Houston	237.00	3.82
Atlanta	375.00	2.94
St Louis	416.00	4.62

Source: Analysis of FAA Security Violations Database; FAA enplanement data; GAO 2000.

7.3 Post 9/11 changes at airports: San Francisco as a model

Airports and the entire airline industry are undergoing a fundamental transformation in the wake of September 11. To begin with, Congress provided the airlines a considerable financial bailout for losses incurred, and the national debate after September 11 focused significant public attention on the relationship between security screener pay and service quality. The Aviation Transportation Security Act (ATSA), passed late in 2001, made pre-board screening into a federal government function. The new federal screening employees will be paid from a $5 per passenger surcharge and a congressional appropriation instead of from contracts made by the airlines with private firms.

The federalization of airport screening and other security functions represents a radical departure from the previous system of shared responsibility. It also provides advances in standards that the FAA had attempted but failed to achieve. As we discussed in Chapter 2, the airlines had resisted the previous FAA. The new federal passenger surcharge is borne mainly by air travelers and is subsidized by taxpayers.

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data on security breaches mix together two types of incidents, those that occur at screener checkpoints, and those that occur elsewhere at the airport.

Last year SFO was selected as one of only five airports in the U.S. to be given a two-year exemption from the federalization of the screener positions. In the Congressional act, the exemption was added in order to permit observation of how private employers would compare to the Federal government in carrying out the security function. The exempted airports must still meet all the job standards for screeners that are specified by the new Transportation Security Administration of the FAA. SFO, as we emphasized in Chapter 2, has for some time already met most of these standards. Indeed, SFO was chosen for the exemption in part because of its prior QSP experience.

Whether or not they are federal employees, the pre-board screeners will now be better trained, and they have already begun to receive higher wage rates than those mandated by SFO airport management through the QSP. (See Table 7.2.) The new positions will provide significant improvements in working conditions and compensation for those who secure them. Staffing and supervision ratios will be improved, and the new jobs will also require more education and will offer some job ladders.

Table 7.2 New job ladders and training requirements for screeners

Job title	Duties and responsibilities	Training	Pay (annual)
Level 1 screener	Conduct screening of passengers, baggage, and/or cargo under close supervision of a screening supervisor.	40 hours of classroom training and 60 hours of on-the-job security screener training. Must be certified to use machines employed in job. Recurrent training and certification exams on a periodic basis.	$23,600 - 35,400
Level 2 screener	Conduct screening of passengers, baggage, and cargo.	All training and certification requirements for Level 1 screeners and at least one year of work equivalent to Level 1.	$23,600 - 35,400
Level 3 screener	May perform Level 2 screener duties. Use specialized explosives detection equipment (EDS) to screen checked baggage and cargo.	Equivalent of at least one year of experience as Level 2 screener. Additional training and certification for explosives detection equipment (EDS).	$23,600 - 35,400
Manager Level 1 screening supervisor of screeners	Direct supervision of Level 1, 2 and 3 screeners. Fill in for screeners when they must leave their posts. Handle more difficult problems. Full range of supervisory duties, including managing performance, scheduling work and approving leaves.	Experience, training and certification as screener as well as ability to supervise others. Must be certified on all screening equipment. 40 hours of classroom training and 60 hours of on-the-job training.	$36,400 - 56,400
Manager Level 2 screening supervisor	Supervise and manage Level 1 screening supervisors and subordinates.	Experience as journey level screener and as first level screening supervisor. Must be certified on all screening equipment.	$36,400 - 56,400

Source: U.S. Department of Transportation website. www.tsa.dot.gov.
Note: All positions listed are eligible for locality pay.

The new federal system does not, however, address the underlying causes of the downward pressures on wages of all the other ground-based airport service workers who are not pre-board screeners. In the absence of programs such as the QSP, we expect continued downward pressure on the wages of customer service workers, baggage attendants, cabin cleaners and others whose jobs directly influence airport and airline safety and security.[48]

The Aviation and Transportation Security Act can be criticized for being focused too narrowly on security screeners. The only changes for other airport employees—even those with direct access to the aircraft-- involve having airports conduct stricter background checks. In contrast, the SFO Quality Standards Program broadly covers all the jobs where performance affects airport safety and security and creates a direct regulatory relationship between the airport and service contractors operating in secure areas of the airport. For this reason, the QSP can serve as a better model for airports throughout the country.

[48] At the time of writing of this report, the federalized system contained fewer opportunities for worker voice. The new TSA had not clarified whether screeners will be able to join unions, or submit grievances when they are asked to operate equipment longer than is standard.

CHAPTER 8 CONCLUSIONS AND POLICY IMPLICATIONS

In recent years, changes in the organization of the airports and the airline industry, and the outsourcing of labor-intensive service jobs by government and private firms, created downward pressures on wages as firms competed to put in the lowest bids. Higher levels of government and regulatory agencies, such as the FAA, failed to reverse these forces, with a consequent decline in the level of services. In this context, city-level living wage policies create a common floor that enables employers to bid on service quality, not wages. Such policies should have positive effects on job performance and service quality.

The benefits of comprehensive coverage

This is precisely what we found at SFO, where job performance directly affects airport safety and security. The QSP did more than pay people higher wages. It also required higher training and recruitment standards, and it re-established regulatory relationships that had been broken by the out-sourcing process. Along with improved wages, the workers who now conduct security-related functions at the airport also have more job experience, skills and training.

San Francisco's combined living wage and health benefits policies are the most far reaching to date for any city or county in the country. The Quality Standards Program and other living wage ordinances in San Francisco led to improvements in wages and working conditions, both directly in jobs that were covered by the programs, and indirectly as firms that were not covered by the law competed for workers. The effects were strongest in the relatively closed labor market of SFO.

The San Francisco experience demonstrates the broader impact that wage policies can have within specific industries. Effects were also felt in the home care industry in the Bay Area, where the higher rate by the In Home Support Service Public Authority created upward pressure on wages in the private sector, and the unions leveraged better contracts in neighboring counties. Similarly, a security guard union negotiated the living wage rate into contracts in San Francisco, where only a small number of workers were actually covered by the ordinance. To the degree that living wage campaigns enable unions to increase density in any given industry, the corresponding effects on the labor market will be that much greater.

The changes in worker performance and improved security at SFO came about in the context of policies that improved wages, increased access to health benefits, and provided easier access to unionization. Labor market norms for minimum pay have changed and the extent of inequality is considerably lower than before. These policies worked in tandem to improve the overall climate of labor-management relations and worker morale at the airport.

The worker and employer adjustments to the new policies occurred smoothly and were in place before September 11. As a result, much of the costs increases that most other airports have faced since September 11 had already been absorbed at SFO. The new policies improved SFO as a place to work and as a place for travel.

The story of the QSP and other employment policies at SFO contains a wider lesson for attempts to reverse the growing inequality that has characterized the U.S. labor market since the 1970s. The

airport labor market is a microcosm of other urban labor markets, characterized in recent years by a 'low road' model of economic development that results in increasing labor market segmentation.

The SFO case, the largest living wage experiment in the U.S., shows how the regulation of local labor markets by public authorities can succeed. At SFO, the design and enforcement of these regulations resulted from concerted organizing by labor, innovative policy-making by public officials and enlightened acceptance by key employers. As we have seen, this policy was able, at a modest cost, to raise pay and benefits, increase training, improve service and security, and provide incentives to shift to a 'high road' model of economic development.

APPENDICES

Appendix A Selected San Francisco policies relating to pay, benefits and labor standards

Policy	**Jurisdiction and Effective Date**	**Applies to**	**Conditions**
Equal Benefits Ordinance	City and County, June 1997	City contracts for public works, concessions, leases, goods and services.	Prohibits entering into any contracts with an entity that discriminates in the provision of benefits between domestic partners and spouses.
Card Check Ordinance	City and County, January 1998	Hotel and restaurant developments where the City has a proprietary interest.	Employers must agree to abide by card-check procedures for determining employer preference on the subject of labor representation.
Displaced Worker Protection Act	City and County, May 1998	Janitorial, security and building maintenance contracts. *	Retention of employees for a minimum of 90 days when a successor contract is awarded.
Prevailing Wage for Janitors	City and County, May 1999	City janitorial contracts.	Requires payment of prevailing rate of wages including benefits or the matching equivalent.
Quality Standards Program	SFO Airline Service Firms, April 2000 Skycaps, Wheelchair Agents, June 2000 Airlines, Oct. 2000	Employers with workers in security areas or performing security functions at SFO.	$9 an hour minimum compensation with benefits; $10.50 an hour without; increased to $10/$11.50 in January 2001; adjusted annually thereafter by the Bay Area CPI.
Labor Peace/Card Check	SFO, February 2000	SFO Employers not covered by the Railway Labor Act.	Requires employers to follow card check agreements for union recognition.
Minimum Compensation Ordinance (Living Wage)	City and County, October 2000 Redevelopment Agency, October 2001	Condition on City Service Contracts, In-Home Support Service Public Authority, and SFO Property Contracts.	Requires employers to pay a minimum of $9 an hour increasing to $10, January 2002; provide 12 paid days off annually.

Policy	**Jurisdiction and Effective Date**	**Applies to**	**Conditions**
Worker Retention Policy	SFO, June 2001	Third party contractors covered by the QSP and certain airport contracts.	Retention of employees for a minimum of 90 days when a successor contract is awarded.
Health Care Accountability Ordinance	City and County, July 2001 Redevelopment Agency, Oct. 2001	Condition on City Service Contracts and Property Contracts including SFO.	Requires employers to provide health benefits or pay $1.50 per worker hour into a city fund for the uninsured.

Source: San Francisco Board of Supervisors and SFO Airport Commission web sites.

Note: *Applies to all contracts where the primary place of employment is in the City of San Francisco, not restricted to contracts by the City

Appendix B Living wage ordinances in California as of January 2002

City	Date passed	Wage/Benefit levels	Coverage/Thresholds	Labor relations provisions
Berkeley and Berkeley Marina	June 2000 Amended October 2000	$9.75 with benefits. $11.37 without. May be adjusted by Council.	City employees. Service contracts: $25,000. Non-profits: $100,000. Subsidy recipients: $100,000. Property contracts. All businesses in Marina Zone with $350,000 in annual gross receipts.	Anti-retaliation.
Hayward	March 1999	$8.61 with benefits. $9.95 without.	Service contracts: $25,000 Municipal employees.	Anti-retaliation. Collective bargaining supersession.
Los Angeles	March 1997 Amended 1998	$7.72 with benefits. $8.97 without. Indexed to city employee retirement benefits. 12 paid days off.	Service contracts: $25,000. Subsidies: $1 million. Property contracts.	Anti-retaliation language. Collective bargaining supersession. Worker retention (separate ordinance).
Los Angeles County	June 1999	$8.32 with benefits. $9.46 without.	Service contracts: $25,000.	Collective bargaining supersession. Worker retention. No public funds for anti-union activities. Restricts use of part time workers.
Oakland	March 1998	$9.13 with benefits. $10.50 without. Indexed to CPI. 12 paid days off.	Service contracts: $25,000. Subsidies: $100,000. Property contracts.	
Pasadena	September 1998	$7.25 with benefits. $8.59 without. $9.00 for temp. agencies.	Municipal employees. Service contracts: $25,000.	Non-retaliation. Collective bargaining supersession.
Richmond	October 2001	$11.42 with benefits. $12.92 without.	Service contracts: $25,000. Non-profits: $100,000. Municipal employees. Property contracts.	
San Fernando	April 2000	$7.25 with benefits. $8.50 without. 6 paid days off.	Service contracts: $25,000. Subsidies: $25,000	

City	Date passed	Wage/Benefit levels	Coverage/Thresholds	Labor relations provisions
San Francisco Living wage	August 2000	$10 Annual increase of 2.5 percent through 2003. 12 paid days off.	For-profit service contracts: $25,000. Non-profit contracts: $50,000. Airport property contracts. In Home Support Services Public Authority.	Anti-retaliation language. Collective bargaining supersession.
Health Care Account-ability	June 2001	Employer must provide health benefits that meet standards or pay $1.50 an hour into a fund for the uninsured.	For-profit Service contracts: $25,000. Non-profit contracts: $50,000. Property contracts.	Anti-retaliation language.
Redevelop-ment Agency	October 2001	$10.00 Annual increase of 2.5 percent through 2003 Employer must provide health benefits or pay into a city fund. 12 paid days off.	For-profit service contracts: $25,000. Non-profit contracts: $50,000. Property contracts.	Anti-retaliation language. Collective bargaining supersession.
San Francisco Airport- QSP	January 2000	$10.45 with benefits. $11.70 without benefits.	Workers whose performance affects safety or security.	Labor Peace/Card Check (separate regulation).
San Jose	November 1998	$10.10 with benefits. $11.35 without. Indexed.	Service contracts: $20,000. Direct grants: $100,000.	Labor peace. Worker retention. Collective bargaining supersession.
Santa Clara County	September 1995	$10 with benefits.	Subsidies.	
Santa Cruz	October 2000	$11 with benefits. $12 without benefits. Annual adjustment considered by City Council.	City employees. Service contracts: $10,000.	Anti-retaliation. Cannot use city funds for anti-union activity. Labor peace for city temporary workers.
Santa Monica	May 2000	$10.50 with benefits. $13.00 without. 10 paid days off.	Service contracts. Employers within the Coastal Zone with more than $5 million in annual gross receipts and 50 employees.	Anti-retaliation.
Ventura County	May 2001	$8 with benefits. $10 without.	Service contracts: $25,000.	Collective bargaining supersession.
West Hollywood	October 1997	$7.25 with benefits. $8.50 without.		

Sources: ACORN Living Wage Resource Center; Employment Policies Institute, www.epionline.org/livingwage
Notes: Property contracts – places wage conditions on leases of public property.
Collective bargaining supersession – provisions may be set aside in a collective bargaining agreement.
Anti-retaliation – prohibits retaliating against workers for reporting violations or in other ways exercising rights under the ordinances.

Appendix C Methods and data sources

We follow a standard methodology in this study, comparing employment and working conditions at SFO before and after the implementation of the Quality Standards Program in order to isolate as best we can the impacts of the program. In an ideal laboratory experiment, the researcher can say with confidence that very little else besides the intervention changed, or that the effects of this change could be completely discounted by comparison with a control group. In a real world situation, we have to make numerous comparisons that are as closely controlled as possible.

One approach that we use to estimate the impacts of the QSP involves comparing firms in which the program had a small impact to those in which it had a large impact. This approach takes into account the other developments for workers at SFO in the period 1998-2001, such as the changes in passenger volume, the opening of the new International Terminal, improvements in management-labor relations and the overall strength of the national and regional economy.

This comparison distinguishes the firms in which wage costs rose by a high proportion due to the QSP from those with lower impacts.[1] These methods create comparison groups that permit controlling for effects that are not directly related to the QSP. Table C.1 indicates the sector of the low and high impact firms.

Table C.1 High and low QSP impacts, by sector

	Airlines	Airline services	Con-cessions	Total
Low impact	29.6	18.5	51.9	100.0
High impact	16.7	83.3	0.0	100.0
Total	27.3	30.3	42.4	100.0

Source: UCB-SFO Employer Survey, 2001, conducted by the authors.
Note: Figures are percentages of firms. A high impact firm is defined to be one in which the QSP resulted in at least a 10 percent increase in wages and benefits.

Our research was further complicated by a series of factors, not the least being the aftermath of September 11. Following September 11, large numbers of airport workers were laid off, airlines cut back their flights, state and federal agencies became directly involved in airport security, and the Bay Area economy continued to lead the national economy in a recession. In short, a great deal changed, and while we may speculate that the improved labor-management climate at SFO softened the impact of this shock it was difficult for us to continue tracing the impacts of the QSP beyond this date.

[1] We also experimented with other ways to distinguish high impact firms, such as estimating the proportion of employees that experienced wage increases as a result of the QSP. Such alternative methods did not change the findings.

Even before September 11, employment conditions at SFO were undergoing a series of changes not directly related to the QSP and its implementation. We have been able to control for some of these factors. For example, our primary pre- and post-QSP employment comparisons are between June 1998 and June 2001; both dates reflect summer peak-period employment. Where appropriate, we indicate how they are indirectly related to the QSP. For example, overall employment at SFO did increase following the opening of the new International Terminal.

The closeness in time between the opening of the terminal and the QSP agreement is no accident. The QSP was, in part, an agreement designed to ensure labor peace during the expansion phase. Similarly, the multi-union organizing drive at SFO both contributed to, and was promoted by, the QSP.

To address these complications we have collected data from a variety of sources and used standard triangulation methods to increase our confidence in the findings (triangulation involves comparing the findings obtained from a variety of data sources). In the remainder of this section we describe the data sources used in this study.

C.1 Pre-QSP employment data

The pre-QSP data for this study refers to mid-1998 for employment and mid-1999 for pay. We collected this occupation- and employer-specific wage data for a previous study conducted by the authors (Reich and Hall 1999). For this database, the Airport Commission's 1993 and 1998 Economic Impact Report provided an initial baseline.

To determine the number of covered workers who would be directly or indirectly affected by the then-proposed Living Wage Ordinance, we collected wage data by detailed occupation and tenure class. Our sources also included prior research conducted by the Center for Labor Research and Education at UC Berkeley, which had collected employment and wage data in various airport jobs.

We updated and checked wage information to June 1999 using job postings from the airport employment website, through personal interviews of tenant employees at the airport, and through follow-up telephone calls with the human resource departments of the tenant employers and union officials. We also used occupational wage data from the Bureau of Labor Statistics to complete the wage estimates in a small number of cases.

C.2 Post-QSP Employment Data

The airport phased in the QSP during the period April 1, 2000 to October 1, 2000 and the majority of covered employees received their pay increases after June 1, 2000. In the summer of 2001 (June to August) we conducted a survey of employers to generate a post-QSP employment and wages database comparable with the pre-QSP data. We also used this survey to ask evaluation questions that allowed employers to reflect on the implementation of the QSP.

To this data we added a series of additional data sources used mainly to corroborate (triangulate) the results of the employer survey. These included structured interviews with workers and semi-structured interviews with union activists, and analysis of secondary data collected from the SFO Badge Office, the FAA public access security violations database, the airport employment office and newspapers.

The Employer Survey

The purpose of the employer survey was to determine the post-QSP employment and wages profile for non-management workers at SFO in firms actually or potentially covered by the QSP and MCO. To do this we conducted a mail survey of employers as identified from the list of tenants and airline services contractors supplied to us by SFO Administration. (See Table C.2.) From the initial list we were able to identify 151 firms. This list included all airport tenants, airlines (passenger, cargo or charter), and firms providing services to airlines or the Airport Administration, and concession-holders. It did not include construction firms or firms providing professional or consulting services.

We called each of these firms to confirm that they were tenants of the airport, or that they had employees who were potentially or actually covered by the MCO or QSP. Those potentially covered by the QSP included all employees requiring security badges issued by the SFO Badge Office, while those potentially covered by the MCO included all firms that were tenants of the Airport Commission. We removed 9 firms that had ceased operating at SFO or that were divisions of other firms to be surveyed, leaving142 firms included in the survey. We label these in Table C.2 as the sampling universe.

We also used the screening call to identify the personnel officer or other person most able to answer the questionnaire. The survey instrument was mailed to this individual. We then followed the mailing with a call to confirm receipt of the questionnaire and to encourage response.

Through the initial call process, we also determined that 22 of these firms did not have non-managerial employees at SFO. We also could not contact or trace 7 firms, leaving us with 113 firms to which we distributed questionnaires.

From these 113 firms, we received outright refusals from 8 firms and no response after repeated reminder calls from 66 firms. We did receive responses from 39, of which 33 had non-managerial employees. The six firms that returned questionnaires indicating that they had no non-managerial employees at SFO mainly were cargo and charter airlines that visit SFO periodically but do not maintain any permanent presence at the airport. The firms that did respond covered the entire spectrum of employer size at SFO, as well as the entire range of friendly to hostile attitudes to the QSP. In the end, we obtained employment information from 34.5 percent of the effective population of SFO firms.

Table C.2 Sample response rates

		Firms	Response rate (percent)
Initial list of firms		151	
Firms no longer in business, or divisions of other firm		(9)	
Universe of firms at SFO		142	
Firms not contactable		(7)	
Firms indicating no employees during screening call		(22)	
Questionnaires distributed		113	100.0
Questionnaires not returned	Refusals	8	
	No response	66	
	Total non-response	74	65.5
Questionnaires returned	Firms with employees	33	
	Firms with no employees	6	
	Total response	39	34.5

The representative character of the responses to the employer survey was confirmed by our analysis of the airport's own badge data. As we discuss in the next section, our employer survey and the badge data generated similar employment estimates.

Given the dominant presence of United Airlines due to its central maintenance base at SFO, and the individual characteristics of this company, we treated the firm differently for survey purposes. United Airlines is an almost completely unionized firm with low levels of turnover, full benefits, and pay scales that extend above the minimum wage levels in the QSP and MCO. Thus, we did not attempt to collect data on the large number of mechanics and other ground-based personnel stationed at SFO. Instead, we collected data separately from the three divisions (customer service, cabin cleaning and ramp/baggage) most directly affected by the QSP and MCO. A small number of administrative employees outside these divisions temporarily received raises as a result of the QSP, but these increases were soon surpassed by increases from within the company.

For analysis purposes we weighted the responses from each firm to derive an estimate for all SFO employers. The weight factor was calculated as the inverse of the proportion of the firms actually surveyed (regardless of whether they have employees or not), in each of seven categories of firm. The seven categories of firm and the sampled proportion are listed in Table C.3 below. Note that we regarded United Airlines as one firm in its own category since employment in this firm dominates employment in all other airlines at SFO. We surveyed all the screening and skycap firms at SFO, and thus treated these firms as a separate category for analysis purposes so as not to over-estimate the number of "other airline services" employees.

Table C.3 Weights for employer survey

Firm category	Total firms at SFO	Surveyed firms	Weight
United Airlines	1	1	1.00
Cargo/Charter airlines	29	21	1.38
Passenger airlines	38	17	2.24
Car rental	8	1	8.00
Concessions	24	6	4.00
Screener / Skycap	4	4	1.00
Other airline services	38	11	3.46

Source: UCB-SFO Employer Survey, 2001, conducted by the authors.

We developed the questionnaire for the employer survey from a survey instrument that we had designed and used previously in a survey of firms at the Port of Oakland, including Oakland International Airport (see Zabin, Reich and Hall 2000). The questionnaire consisted of three parts:

(1) a section to establish the employment and wages by occupation in the firm
(2) questions on the perceptions of the employer as to the impact of the QSP/MCO on employee performance, and
(3) questions about the financial response of the firm to the QSP/MCO, including benefits offered and contracting changes.

We tailored the questionnaire slightly for airlines, airline service firms, and concessions respectively, according to whether they were covered by the MCO or QSP, and to provide pre-coded occupational and service/product categories. We then combined the data from each questionnaire variant into a single dataset for analysis purposes.

SFO Badge Data

Every person who works at SFO must wear a security badge. As a result, various personal details are recorded when the individual starts work at SFO and acquires the badge. This requirement applies to all employees, within the terminal buildings and parking garages, including both secure areas (the tarmac, baggage etc) and public areas. It does not, however, include employees of the car rental firms that have their operations some distance from the terminal.

We obtained the complete airport badge database as of June 1, 2001. This database provides an invaluable snapshot of employment at SFO, although as with all such administrative data, the data needs to be interpreted carefully.

The coverage and limitations of the badge data may be summarized as follows:

(1) For each individual, we were provided the employees' start-date, job description, gender, date of birth, race, employer, and city of residence. Additional identifying information had been removed from the data.

(2) We were given the list of all active badges, which in theory includes only those actually employed. A small portion of the individuals holding these badges was no longer working. Thus, the badge data slightly over-estimates employment levels at SFO.

(3) We were not able to determine termination dates for returned badges and hence could not measure turnover directly with this data. Rather, as described in Appendix D below, we had to infer information on turnover rates by examining job tenure profiles.

(4) Rental car agents were not included in the data. Construction workers, consultants to the airport commission and employees of state, federal and local government agencies were included but could easily be removed for analysis purposes.

(5) Missing data for specific variables was not a serious problem. The database contained 22,064 individuals, with 595 missing job descriptions, 242 missing sexes, 249 missing dates of birth, and 280 missing employers' names. Most of the missing data appears to correspond to non-employees (such as commission members) and short-term contract workers (such as construction workers for the new international terminal).

For each individual, we coded their job description and then matched these job descriptions to 31 occupational classes identified in the firm survey. Similarly, we coded each individual's employer and matched the employer codes to those used in the firm survey. This gave us two ways to compare the badge and firm survey data directly.

First, we could compare the occupation-specific employment numbers from our (unweighted) employer surveys with the same firms as recorded in the badge data. As Table C.4 shows, there are some small discrepancies between these two data sources. As we would expect, the badge data reports slightly larger numbers (approximately 14 percent more) of employees than the survey because not all badges are turned in when employees stop working.

Table C.4 Employment comparisons, selected occupations, survey data and badge data

	Employer survey	Badge data
United Airlines (Ramp, Customer Service and Cabin Cleaners only)	2,607	3,043
Cargo airlines	30	39
Other passenger airlines	854	1,113
Concessions	87	54
Screener/skycap	1,333	1,388
Service	715	810
Total	5,626	6,447

Sources: UCB-SFO Employer Survey, 2001, conducted by the authors and SFO Badge Office Data, 2001.
Note: Table includes only selected occupations. Employer survey data are unweighted.

The only major discrepancy in Table C.4 occurs among United Airlines employees. When we checked the Badge Office data, we found that a large number of United Airlines employees who were ramp workers but worked in United's Air Cargo division. This group was not included in our employer survey, but we had no means of excluding them from the badge data. This item accounts for about half of the difference between the badge and survey data.

Second, we could compare the estimated (or weighted) total employment, as derived from the sample survey of firms, with the total employment of these firms as recorded in the badge data. This comparison, which is presented in Table C.5 below, suggests that our survey data could underestimate the overall number of employees, but by no more than 10 percent. Although the estimated total employment from the weighted survey is about 20 percent below the SFO Badge Office estimate, we noted above that badges not returned and incorrectly classified employees inflated the badge data by approximately 14 percent. The under-estimate results from lower response rates among large employers in the passenger airline sector, the air cargo sector, the concessions and the catering sector. This underestimate does not substantially affect our findings with respect to the impact of the QSP and MCO. In almost all these cases, the firms involved paid wages above the QSP level.

Table C.5 Comparison of employment from firm survey and badge data

	1999 SFO estimate	Badge	Weighted survey	Comments
United Airlines (ramp, customer service, cabin)	2,770	3,043	2,607	Badge data report 350 more ramp workers than the employer survey.
Other passenger airlines	1,045	3,517	2,033	Survey estimate low due to missing some large airlines.
Charter/cargo airlines	240	378	41	Largest employers not surveyed.
Concessions	1,669	1,002	348	Large employers not surveyed.
Service	3,284	3,576	3,803	Cargo/Catering low; security coverage complete.
Car rental	1,038		2,120	Survey includes summer casuals.
Total	9,008	11,516	8,832	Excludes car rental employment.

Sources: SFO Badge Office data, UCB-SFO Employer Survey, 2001, conducted by the authors. Reich and Hall (1999b).
Note: Table includes selected occupations and employers only.

Supplementary data

In addition to the firm survey and badge data discussed above, we obtained additional information from the following sources:

1. *Airport employment office*

We collected information on working conditions, wages and benefits and job descriptions for various occupations from an archive of employment advertisements maintained by the SFO Employment Office. This was used to supplement missing survey data and to trace the timing of increases for specific jobs.

2. Airline passenger numbers

SFO officials provided us with data for the period 1998-2000 on the numbers of flights, passengers and cargo by airline for SFO.

3. Interviews with union organizers

These interviews consisted of one-hour structured sessions with eleven union organizers and AFL-CIO staff who were involved in the San Francisco Airport Organizing Project. The interviews were designed primarily to corroborate information gathered from the employer and worker surveys, while also examining the QSP from the perspective of organized labor. Each interview included both pre-coded and open-ended questions, and was structured around four sections. In the first section we obtained background information on the firms, numbers of workers in the bargaining unit, the status of organizing, and general changes for the union and its members. In the second section we asked about changes in employer policies. In the third section we asked about the effects of the QSP, labor peace and living wage policies on organizing and collective bargaining. In the final section we asked open-ended questions about general lessons from the organizing drive.

Labor organizations represented by those interviewed for the study included the SFO Organizing Project; Service Employees International Union (Local 790); Office of Professional Employees International Union (Local 3); International Brotherhood of Teamsters (Local 665); International Association of Machinists, Automotive Trades (Local 1414 and District Lodge 190); United Food and Commercial Workers (Local 101); San Mateo Central Labor Council; and the AFL-CIO Western Region.

4. Surveys of workers

These surveys consisted of a brief, two-page self-completion questionnaire designed to complement our other data sources. The surveys were administered at SFO on three different days, once before September 11 and twice following September 11. In the end, we obtained 103 completed questionnaires. The respondents included workers in most of the low-wage jobs, with over-representation of security workers and those with longer tenure. Union organizers assisted with recruiting the survey participants and we obtained cooperation from employers.

The worker survey questionnaire consists of three sections. In the first section, we obtained basic information about the employer, the worker's job tenure and hourly wage, as well as their perceptions about changes in the workplace environment before and after implementation of the

QSP. These items included questions about skill requirements, effort required on the job, level of stress on the job, pace of work, and training provided by the employer.

The second section asked the worker for information on health benefits. We asked whether or not the employer offers health insurance, whether or not the worker is covered by this insurance, and how much he or she pays for the insurance. We also attempted to ascertain any changes in employer-provided insurance coverage before and after QSP implementation.

Finally, we asked a series of basic demographic questions, including age and gender. We also asked a series of questions attempting to capture changes in various quality of life variables, including changes in hours worked, time spent with family, housing, vacation time, health, and personal financial savings. The survey concluded with a few questions about union membership.

Initially, we had hoped to interview several entire shifts in order to obtain a representative sample, but such a goal was not always possible. Despite this limitation, we did obtain a sample that we consider to provide a useful and valid comparison with our other larger datasets. Table C.6 provides a summary of hourly wages (post-QSP implementation) for this sample. Note that the standard deviations are quite low, suggesting that the wage information is relatively accurate. This uniformity constitutes a check of the internal validity of the data.

Table C.6 Worker survey: wage rates by job categories

	Mean	Standard deviation	Frequency
Customer service, check-in	11.5	1.8	12
Baggage/ramp/exit guard	10.1	0.4	12
Cabin cleaner	11.4	0.1	5
Security (screeners/skycaps)	10.0	0.2	40
Other QSP	9.9	0.9	8
Non-QSP	9.4	1.6	22
Totals	10.1	1.2	99

Source: SFO Worker survey, 2001, conducted by the authors.
Note: Total number of respondents = 99.

Appendix D Tenure analysis using SFO Badge Office data

The badge data provides us with an opportunity to analyze the length of time that SFO employees have been in their current job. However, the data only provide a snapshot of a particular moment in time. Moreover, the snapshot only contains information about the people who are still on the job, and not about those who have already left.

By making some reasonable assumptions we can utilize the detail in the badge dataset to construct a series of snapshots that illustrate dynamics over time. In particular, we find that the QSP did have some positive effects on the rate at which SFO workers needed to be replaced. A lower rate of replacement for QSP-covered positions indicates reduced turnover and/or lower employment growth. Since we know that airport employment increased in the period leading up to June 2001, we can eliminate the slower growth explanation. Consequently, our analyses of the badge data are consistent with our findings from the employer survey that turnover rates did indeed fall in response to the QSP program.

D.1 Tenure at SFO

All else equal, employees generally stay longer in jobs that pay better and that offer career advancement opportunities. This pattern can be seen in Table D.1. Employees in clerical, mechanical and cabin cleaner positions have longer tenure on average than employees in lower-paying positions, such as wheelchair attendants, cashiers and screeners.

Table D.1 Average tenure of SFO workers, by occupation

Occupation	Years in current position	Standard deviation	Total number
Customer service agents	4.4	4.1	3,100
Administration/ clerical workers	5.2	4.4	712
Baggage/ ramp agents	4.9	4.4	2,880
Mechanics	6.0	4.4	2,518
Cabin cleaners	5.3	4.7	1,097
Screeners	3.8	3.9	1,463
Skycaps	4.2	4.7	197
Wheelchair attendants	2.7	1.6	100
Fuelers	5.0	4.4	91
Shelvers/ storekeepers	4.2	4.1	696
Snack bar cashiers	4.9	4.4	327
Cashiers	3.4	3.3	505
Total	4.7	4.3	17,547

Source: Authors' analysis of SFO Badge Data, 2001.
Note: Includes all employees in firms and occupations covered by firm survey, including United Airlines.

However, at SFO tenure varies considerably among different employers and different groups of employees. This variation is reflected in the high standard deviations associated with each of these occupations. For this reason we examine the distribution of tenure within different occupations. This pattern is presented in Table D.2. For example, two-fifths of all employees at SFO have been in their current position less than two years and over half of all screeners have been in their current position less than two years. The administration, ramp and cleaner occupations all have a considerable proportion of workers with long tenure of over five years.

Table D.2 Distribution of tenure in selected occupations

Tenure (years)	Customer service	Administration/ Clerical	Baggage /Ramp	Cabin Cleaner	Screener	All occupations
0-.5	13.5	5.9	15.2	8.6	16.0	13.2
.5 – 1.0	10.8	4.4	10.4	13.2	16.9	12.0
1- 2	13.5	18.0	12.0	16.0	20.3	14.9
2- 3	10.5	13.2	9.3	9.7	11.5	10.3
3- 4	11.0	8.6	6.5	7.2	8.0	8.0
4- 5	7.6	4.4	6.6	4.2	8.7	6.4
5- 10	16.0	20.4	18.5	17.0	13.0	16.7
10 +	17.0	25.2	21.5	23.7	5.6	18.6
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: Authors' analysis of SFO Badge Data, 2001.
Note: 1. Includes all employees in firms and occupations covered by firm survey, including United Airlines.
2. All figures in percentages.

In the remainder of this appendix, we analyze how the QSP influenced tenure patterns and other improvements in working conditions at SFO.

D.2 Analysis of the Badge Office data

The Badge Office data tell us how long each currently employed individual has been working in their current position at SFO. Working backwards, we can count the number of people still working at SFO who were working there a month ago, two months ago, and so forth. For example, 11,515 people were working in the occupations and firms that formed the population for our survey. Of these, 5,720 were working at SFO in the same job three years ago. (This does not mean that total employment was 5,720 three years ago.)

Using these two data points, we can estimate is the rate at which employees were added to the current pool in the intervening years – what can be called a replacement rate, estimated with the following formula:

$$\text{Monthly Replacement Rate} = 1 - \sqrt[n]{\frac{\text{Employment 3 Years Ago}}{\text{Employment Today}}}$$

where n is the number of months (i.e., 36).

This expression is similar to that of a decay rate or quit rate. We call it the replacement rate to distinguish it from the more common meaning of the quite rate. A higher replacement rate implies that employees are being replaced more rapidly, which we take as an indicator of higher turnover (or growth – we address this issue below).

We expect the replacement rate to be higher when we compare the rate for some period ending today, as compared to some period ending six months or a year ago. This is because employees are more likely to leave a job in the first few months. By calculating the replacement rate for different firms, different occupations and for different time periods, and by comparing these replacement rates, we can develop some insights into the impact of policy changes on tenure.

D.3 Basic Results

We estimated the replacement rate over three-year periods. Thus, in Table D.3 through D.6 below, the first row refers to the replacement rate for the period May 1998 to May 2001, while the last row refers to the replacement rate for the period May 1996 to May 1999.

Table D.3 compares the replacement rate by sector and indicates the following:

1. The replacement rate varies considerable by sector – it is highest for airline services (check-in, baggage, fueling, catering subcontractors) and screeners. It is lowest for United Airlines, the employer that offers some of the best long-term career opportunities at SFO.

2. As is to be expected, the replacement rate increases overall for the most recent periods (from 19.1 percent to 25.7 percent for all sectors). For United Airlines, however, the replacement rate trends downwards. As it turns out, by May 2001 many United employees were staying on the job longer since at that time they had been waiting a year for a new contract to be signed. According to a United Airlines personnel officer, employees were expecting to receive back pay in the new contract.

3. The most interesting result concerns the decrease in the replacement rate for screeners/skycaps in the period following the implementation of the QSP. (In Table D.3, compare the 42.7 percent replacement rate in the period leading up to November 2000 with the 41.4 percent replacement rate in the period leading up to May 2001.) That the replacement rate did not rise in this period suggests a positive impact of policy upon employee retention.

Table D.3 Annual sectoral replacement rates at SFO

Three years ending	United Airlines	Cargo airlines	Passenger airlines	Con-cessions	Screener/ Skycap	Airline services	All sectors
May-01	14.5	33.6	22.3	24.2	41.4	48.0	25.7
Nov-00	14.7	35.4	19.9	23.6	42.7	39.3	23.5
May-00	15.4	33.5	16.4	19.7	40.6	34.6	21.2
Nov-99	17.6	29.3	15.1	17.6	38.4	30.4	20.3
May-99	18.6	26.0	13.3	17.7	37.0	25.9	19.1

Source: Authors' analysis of SFO Badge Data, 2001.
Notes: 1. Includes all employees in firms and occupations covered by firm survey.
2. All figures in percents.

When we examine the replacement rate by occupation, we find as expected that the lowest wage occupations (Screeners, wheelchair attendants and ramp agents) have the highest replacement rates. Tables D.3 and D.4 also indicate that while the replacement rate overall did increase, it fell considerably for wheelchair attendants. Note that these tables exclude United Airlines employees, whom we address in Table D.5 below.

Table D.4 Annual occupational replacement rates at SFO

	Customer service	Baggage / Ramp	Cabin cleaner	Screener	Skycap	Wheelchair attendant	Cashier	All occupations
May-01	31.2	39.3	44.3	40.1	10.1	40.1	30.5	25.7
Nov-00	28.0	30.9	45.5	39.2	10.9	55.1	30.9	23.5
May-00	23.5	25.8	44.7	33.9	14.9	64.2	28.1	21.2
Nov-99	21.5	21.6	43.2	33.3	11.6	71.7	33.9	20.3
May-99	18.6	17.5	36.6	34.9	9.4	149.0	32.3	19.1

Source: Authors' analysis of SFO Badge Data, 2001.
Notes: 1. Includes all employees in firms and occupations covered by firm survey, excluding United Airlines. Total column includes United Airlines employees in surveyed occupations.
2. All figures in percents.

We can also compare the replacement rate for occupations in different firms. One such comparison is among employees of United Airlines and other firms for three low-wage occupations, customer service, ramp/baggage and cabin cleaners. Here we find that United Airlines has substantially lower replacement rates than other employers.

Table D.5 Annual replacement rate by employer and occupation

	Customer service		Baggage/ Ramp		Cabin cleaner	
	United	All other employers	United	All other employers	United	All other employers
May-01	15.7	31.2	12.0	39.3	16.2	44.3
Nov-00	15.9	28.0	12.4	30.9	16.3	45.5
May-00	21.5	23.5	11.2	25.8	12.5	44.7
Nov-99	26.2	21.5	13.9	21.6	9.3	43.2
May-99	28.7	18.6	14.9	17.5	9.0	36.6

Source: Authors' analysis of SFO Badge Data, 2001.
Notes: 1. Includes all employees in firms and occupations covered by firm survey.
2. All figures are percentages.

D.4 Results after controlling for growth effects

Changes in replacement rates might partly be the results of growth or decline in the level of employment. When employment is growing, the replacement rate would be higher. We know that the overall level of employment at SFO rose in the period leading up to June 2001, and so we regard constant or declining replacement rates as evidence of reduced turnover.

One method to control for such growth effects assumes that the various occupations are growing/declining at the same rate across the entire airport. We then compare the replacement rates of different occupations to the replacement rate overall. This essentially is a first-difference calculation.

We conducted this analysis by occupation rather than by firm or sector. In Table D.6, the Difference columns represent the first difference between the *monthly* replacement rate for the occupation and for all workers in the survey population (last column). A positive difference indicates a higher than average replacement rate.

The table provides evidence of the effect of the QSP in reducing turnover rates. The difference between the replacement rate for Customer Service, Wheelchair and Cashier occupations all decreased towards that for all occupations. This trend was especially notable in the case of the wheelchair attendants. Among screeners, the trend is mixed, but generally indicates an improvement. For cabin cleaners and baggage handlers, there is no discernable change. In both of these jobs the replacement rate was, and remained, below that for all jobs.

Table D.6. Monthly occupational replacement rates and first differences

	Customer service		Baggage / Ramp		Cabin cleaner		Screener		Wheelchair attendant		Cashier		All occupa-tions
	Rate	Difference	Rate	Difference	Rate	Difference	Rate	Difference	Rate	Difference	Rate	Difference	Rate
May-01	1.8	-0.1	1.7	-0.1	1.7	-0.1	2.8	0.9	2.8	0.9	2.2	0.3	1.9
Nov-00	1.6	-0.0	1.4	-0.2	1.7	-0.0	2.7	1.0	3.7	1.9	2.2	0.4	1.7
May-00	1.7	0.1	1.2	-0.3	1.5	-0.0	2.4	0.8	4.2	2.6	2.0	0.4	1.6
Nov-99	1.7	0.2	1.3	-0.2	1.3	-0.2	2.4	0.8	4.6	3.0	2.4	0.9	1.5
May-99	1.7	0.2	1.2	-0.2	1.1	-0.3	2.5	1.1	7.9	6.4	2.3	0.8	1.4

Source: Authors' analysis of SFO Badge Data, 2001.
Note: Includes all employees in firms and occupations covered by firm survey, including United Airlines.

We get slightly different results when we exclude United Airlines employees. Table D.7 shows the first difference between the implied occupation-specific and overall annual percentage replacement rate when we exclude the United Airlines employees. The replacement rate for cabin cleaners did fall, but they rose for the ramp workers. There is no discernable trend for customer service employees. The positive effects on turnover for customer service jobs noted above thus probably has more to do with the fall in turnover in United Airlines, than to the effects of the QSP.

Table D.7 Changes in annual replacement rates for specific occupations, excluding United

Three years to…	Customer service	Baggage / Ramp	Cabin cleaner
May-01	0.2	8.3	13.3
Nov-00	0.1	3.0	17.6
May-00	-0.6	1.8	20.7
Nov-99	-0.2	0.0	21.6
May-99	-0.7	-1.8	17.3

Source: Authors' analysis of SFO Badge Data, 2001.
Note: Includes employees in firms and occupations covered by firm survey, excluding United Airlines.

In sum, our analysis suggests that there were indeed positive turnover effects associated with the QSP. These turnover reductions were most concentrated on the wheelchair and screener occupations, and to a lesser extent for customer service occupations, and they were strongest in the Airline service sector.

Appendix E Living wage policies and union organizing campaigns at SFO

San Francisco Airport provides an important case study of the relationships between living wage campaigns and policies and union organizing efforts. The San Francisco policies were passed in the context of the SFO Organizing Project, a multi-union organizing drive at the airport that involved ten union locals and the San Mateo and San Francisco Labor Councils. To establish this coalition, the participating unions developed common prior agreements on resources and organizing jurisdictions at the airport. The AFL-CIO and the locals contributed staff. Between the start of the organizing drive in early 2000 and the end of 2001, about 2,400 workers in 21 firms gained union recognition and nearly 2,000 workers in twelve firms had collective bargaining agreements.

The living wage policy was nonetheless controversial among the participating unions. Several of the unions in the organizing drive were at the core of the living wage campaign. But others argued that if the law set a common wage floor, workers would have less incentive to join a union. Another argument made against unions taking up living wage campaigns concerned opportunity costs: that the time spent in what can become long, drawn-out battles, with sometimes difficult coalition partners, would be better spent directly on organizing workers.

In the course of this study, we interviewed organizers from the organizing project staff, the participating unions, and several workers who played leadership roles in the organizing. The organizers that we interviewed all reported that the living wage campaign had provided moderate to strong assistance to labor organizing. Of the ten union locals involved in the SFO Organizing Project, four played a direct role in the living wage campaign. Those organizing in firms covered by the QSP also all reported that it provided moderate to strong organizing assistance.

Organizers reported that at its best the living wage campaign provided an initial context for organizing. The campaign served to identify and develop a small core of leaders, create contact lists, and educate workers and public officials. Worker contacts made by living wage organizers were highest among baggage screeners, skycaps, retail workers and security guards—many began wearing living wage buttons on the job. A small group of airport workers took on direct leadership roles in the campaign: planning actions, lobbying members of the Board of Supervisors and Airport officials, doing media interviews and talking to their co-workers.

Importantly, the campaign and policies opened the space for workers to talk among themselves about wages and working conditions. Workers involved in the effort reported that it "got us communicating with each other, raising common interests. It showed we had the collective ability to make change in the workplace." The greatest worker involvement occurred among the skycaps and wheelchair agents, who led an ultimately successful fight with the Airport Commission over including tipped workers in the QSP.

The SFO Organizing Project concentrated its initial efforts on the larger employers that were covered by the QSP. The organizing drive started with an education campaign for the workers on the new policy. Forty organizers, new leaders and union activists made contacts with workers over a two-day period in March 2000. As a part of the outreach effort, organizers informed the

workers that they would be receiving a raise, and explained the role of the unions in creating the program.

Fears that the Quality Standards Program would remove a reason for workers to join unions were not borne out during the initial phase of organizing. Organizers reported relatively few workers questioning the need for a union now that they had a raise. Issues related to working conditions, seniority, favoritism and voice on the job continued to provide compelling reasons to join a union.

Of the firms that were covered by the QSP and by the Labor Peace policies, six had workers who were involved in the living wage campaign or had contact with union organizers prior to passage of the QSP. The organizing drives in each of these firms resulted in collective bargaining agreements. These firms represent 55 percent of the workers that were organized through the project.

At five firms that were covered by the QSP, significant worker contact by organizers began after the QSP was implemented. According to the organizers, if the union had not made an early education campaign at a job site, the workers initially tended to credit the city or the employer for the raise. However, information spread quickly across companies in the relatively closed environment of the airport. Filipino and Latino workers were more likely than those in other ethnic groups to have heard about the QSP from friends or family working in other airport positions.

Two firms in this group abided by the labor peace/card check policy, and at both collective bargaining agreements resulted. Three of these firms challenged the labor peace/card check rule. None of them reached collective bargaining agreements. In two of these three cases the unions abandoned the organizing drive after losing legal actions, or determining that they would lose. In the final case, the union planned an NLRB election in spring 2002, two years after the QSP went into effect, but abandoned the plans when they realized that they did not have the votes to win.

Ten airport concessionaires were organized during the same period. All of these firms are potentially covered under the living wage policies. None provided the mandated wage increases prior to the union organizing drive, although employers had gone some of the way to match the raises in order to compete for employees. In one case, the workers petitioned the management to pay them the living wage amount, even though the company was not yet obligated to do so by law. When the employer refused, the workers went to the union for help. All of the firms were covered by the labor peace/card check rule; all eventually agreed to union recognition, and all had made substantial progress towards collective bargaining agreements.

As current union principles would anticipate, the labor peace/card check rule was a common factor in all of the successful organizing drives. The three campaigns without the card check rule in effect were eventually abandoned. The living wage policies appear to have provided the greatest benefits to organizing when workers were directly involved in the campaign and worker contact was made in advance of implementation of the policies. Where a long period of time elapsed between the mandated raises and the initial worker contract, the policies may have had a slight negative effect on organizing.

The living wage campaign and subsequent policies served in other ways to create a positive organizing climate. Public support for the organizing drive from religious leaders and city officials helped build worker confidence in joining a union, while discouraging employer resistance.

The experience at SFO demonstrates how living wage policies and the campaigns to achieve them can be useful tools for union organizing. Zabin (1999) argues, drawing especially on the Los Angeles case, that the efficacy of the tools depends on whether there is a deliberate plan to make use of them. How living wage campaigns affect organizing depends importantly upon the level of worker participation in the campaign and the degree to which workers view the policies as gifts from the government or employer, or as coming from the union and their own efforts.

Table E.1. Union recognition at SFO, April 2000-December 2001

Employer	Unit	Union	Unit size
Argenbright	Safety and Security	SEIU 790 & IBT 665	350
Globe	Safety, Security, Skycaps and Bag handlers	SEIU 790 & IBT 665	135
ITS	Safety, Security, Skycaps and Bag handlers	SEIU 790 & IBT 665	800
Pacific States Airline Services	Skycaps	IBT 665	24
Premium Services Management	Skycaps	IBT 665	33
SmarteCarte	Concessionaire	IBT 665	75
Polaris Research & Development	Passenger Service	OPEIU 3	32
Swissport	Ramp	IAM 1414	370
Host Marriott Retail	Concessionaire	UFCW 101	70
Wilson's Leather	Concessionaire	UFCW 101	12
Globe Ground North America	Ramp	IAM 1414	85
Pacific State Patrol	Parking Guards	IBT 665	50
Language Management Resources	Passenger Service	OPEIU 3	30
Il Fornaio Caffe Del Mondo	Food and Beverage	HERE 340	
Willow Street Pizza	Food and Beverage	HERE 340	
Café Bouli	Food and Beverage	HERE 340	
Café Metro	Food and Beverage	HERE 340	
Harry Denton's	Food and Beverage	HERE 340	
Harbor Village	Food and Beverage	HERE 340	
Andale Tacqueria	Food and Beverage	HERE 340	20
Lori's Diner	Food and Beverage	HERE 340	16

Source: SFO Organizing Project
Note: The services provided by Language Management Resources and PSAS were suspended by the Airport following September 11.

Appendix F Supplementary material on airport labor markets

F.1 Conventional airport economic impact studies

Airports serve two main functions: they are transportation nodes that provide connections with other places, and they are economic nodes within the regional economy. The interaction between these two functions – in essence how passenger and cargo throughput translate into local employment – are regularly studied in economic impact reports. Such impact studies trace how aviation activities result in a range of employment opportunities.

In addition to pilots and flight attendants, aircraft require a range of ground-based services. These range from highly technical maintenance activities, to relatively low-skilled jobs such as aircraft cleaning. The efficient handling of passengers and cargo requires a range of customer services, facilities and amenities and coordination among diverse firms and workers. All this activity gives rise to jobs that vary considerably with respect to pay, skill levels, training, worker voice and other conditions of employment.

Most airport impact studies are concerned only with estimating aggregate employment and income impacts. For example, SFO's own impact reports on aggregate employment, revenue, personal income and tax impacts without mentioning distributional effects (SFO, 1998). Only a few impact reports examine the education and qualification levels required in the jobs that are created (see for example, Hakfoort, Poot and Rietveld 2001). In this study we are primarily concerned with the quality of the jobs that are created through airport activity, a largely unstudied topic in the existing literature.

F.2 Workforce demographics

The workforce of SFO consists of a diverse group of Bay Area residents, although there are some ethnic and gender divisions in the workforce. This section presents a demographic profile of the ground-based nonsupervisory SFO workers in the study population June 2001, using the SFO Badge Office data. Table F.1 summarizes, by sector, the demographic characteristics of employees at SFO in 2001. Table F.2 summarizes the same information for six selected job titles that account for many of the low-wage ground-based jobs at SFO.

Gender (Tables F.1A and F.2A): Approximately 70 percent of airlines and service workers in the survey population are male, while males and females are represented approximately equally in the concession sector. Males and females are represented about equally in customer services, cabin cleaners and cashiers jobs, while men predominate in baggage handling and security/ skycap/wheelchair work.

Race/ethnicity (Tables F.1B and F.2B): Race and ethnicity data are incomplete in the SFO Badge Office data, but we find high levels of minority employment in services and concessions. This pattern is replicated across all occupations, with a particularly notable concentration (67 percent) of screener/skycap/wheelchair positions held by Filipino immigrants.

Age distribution (Tables F.1C and F.2C): Age distribution does not vary much by sector. However, baggage and customer service workers tend to be younger than screener/ skycap/ wheelchair agents.

Table F.1 Demographic characteristics of workers by sector

Table F.1A Percentage of workers in job sectors by gender.

	Airlines	Services	Con-cessions	Total
Female	30	29	49	31
Male	70	71	51	69
Total	100	100	100	100

Source: SFO Badge Office Data, 2001.
Note: Data in each of the panels of this and the following table refers to ground-based, nonsupervisory employees only.

Table F.1B Percentage of workers in job sectors by race/ethnicity.

	Airlines	Services	Con-cessions	Total
White	37	9	9	25
Hispanic	12	20	16	15
Filipino	18	39	36	27
Black	10	5	3	8
Asian	22	26	36	25
Native American	1	0	0	0
Total	100	100	100	100

Table F.1C Percentage of workers in job sectors by age classes

	Airlines	Services	Con-cessions	Total
Up to 24	7	14	9	9
25-34	22	21	19	21
35-44	30	24	25	28
45-54	25	22	27	24
55-64	14	13	16	14
65 and up	2	6	4	3
Total	100	100	100	100

Table F.2 Demographic characteristics of workers by occupation

Table F.2A Percentage of workers by occupation and gender

Gender	Customer service	Admin-istrative	Baggage /ramp	Cabin cleaner	Screener/ Skycap/ wheelchair	Bar/ cashier	Total
Female	51	31	8	45	38	60	31.7
Male	49	69	92	55	62	40	68.3
Total	100	100	100	100	100	100	100.0

Source: SFO Badge Office Data, 2001.

Table F.2B Percentage of workers by occupation and race/ethnicity

Race/ ethnicity	Customer service	Admin-Istrative	Baggage /ramp	Cabin cleaner	Screener /skycap/ wheelchair	Bar/ cashier	Total
White	29	30	21	8	5	19	23.1
Hispanic	16	11	18	31	5	14	16.0
Filipino	20	21	30	31	67	31	28.7
Black	8	10	11	10	5	5	7.9
Asian	27	27	19	20	18	30	23.9
Native American	1	1	0	0	0	1	0.3
Total	100	100	100	100	100	100	100.0

Table F.2C Percentage of workers by occupation and age class

Age class	Customer service	Admin-istrative	Baggage /ramp	Cabin cleaner	Screener/ skycap/ wheelchair	Bar/ cashier	Total
To 24	11	5	12	5	10	9	9.3
25-34	24	16	24	15	14	22	21.1
35-44	29	36	29	25	20	27	27.5
45-54	23	29	22	33	22	26	24.5
55-64	12	13	11	19	21	13	14.2
65 and up	1	2	2	4	14	4	3.3
Total	100	100	100	100	100	100	100.0

F.3 Fixed costs and variable demand for air travel

To understand the particular pressures to reduce wages of ground-based airport workers, we need to examine the underlying economics of the airports and the airline industry. Airports provide fixed infrastructure services – runways for landing and take-off, aprons on which the aircraft park, and facilities to deal with passengers and cargo - that are intermediate inputs to the meeting of variable demand for travel.

Airline travel demand is characterized by peak load patterns that provide strong incentives to reduce fixed costs. The phenomenon of peaking refers to the fact that people prefer to fly at particular times of the day, week and year. This pattern implies that airlines face constant level of demand that is low relative to the capacity they must sustain during peak periods. A key business challenge for airlines is to maintain sufficient capacity to meet the demand at peak periods, without losing too much money during the low demand periods.

Fixed costs, which must be met regardless of activity levels, are a particular problem for firms facing such demand conditions. Variable costs, for example fuel costs, which constitute a large proportion of airline expenses, are not affected by peaking demand. Of course, ticket and cargo pricing strategies that are time-differentiated help to alleviate some of these problems, but such price differentiation is not always effective in highly competitive markets. Thus, a key element of any firm strategy in a peak-loading environment is to reduce fixed costs.

At the same time, airports themselves involve large infrastructure investments that are essentially fixed. The physical elements of an airport – the number of runways and their length, the size of the apron, the number of gates – together determine a fixed handling capacity that cannot be quickly or easily expanded to meet fluctuating levels of demand.

Under such conditions, it is advantageous to share the infrastructure costs among a range of users. For this reason, airports are operated as public or quasi-public facilities in most of the world.[2] From the perspective of an individual airline, public ownership of airports provides an institutional mechanism for providing sufficient capacity to meet peak demand, while allowing sufficient operational flexibility.

F.4 Changing airport leasing arrangements

A brief review of airport leasing and pricing policies helps explain why the ability of airlines to limit the fixed costs of airport operations is minimal. Before the 1960s, airline usage at U.S. airports was allocated simply on a queuing or first-come-first-served basis. As a result of increasing airline usage relative to airport capacity, airlines began to seek ways to secure runway and gate access at airports. This trend is particularly apparent in hub airports, where pressure on

[2] Airports are also usually publicly owned because they act as natural spatial monopolies, with high barriers to entry due to enormous initial construction costs and large network externalities. However, this reason for public ownership does not explain downward wage pressures at airports, and indeed one would expect rent-sharing (and hence higher wages) under monopolistic conditions.

facilities (runways and terminal gates) is especially intense. By the 1990s, two different systems were used to allocate scarce airport usage rights in the U.S.

One of these systems makes use of slot controls.[3] Slots are specified time windows during which an airline may land at a given airport. This system is in place at four major airports in the United States (National, LaGuardia, JFK and O'Hare). Although the FAA first enacted this institutional reform in 1968, it has not been extended to other U.S. airports. At the slot-control airports, allocations are grandfathered and there have long been suggestions that major carriers hoard the prime slots to preclude competition (NRC 1999; Morrison and Winston 1990). Although the slots are tradable in theory, in order to "use it rather than lose it," airlines have to keep flying even when demand conditions might not warrant. In other words, the slot allocation system raises the airline's fixed costs of maintaining a presence at an airport hub.

A second approach involves long-term control of boarding gates. Airports often allocate scarce runway space on a first-come first-served basis. This pattern applies even in times of high congestion. As a consequence, the control of boarding gates determines *de facto* runway access. Airlines have thus sought contractual mechanisms through which to secure gate access.

Most gates at most major U.S. airports are leased through long term contracts that specify exclusive or preferential usage rights. A few airports have common use gates, but this approach has declined in importance. At SFO, as at many other airports, there is a mix of lease arrangements, with 82 percent of gates secured by long-term exclusive agreements (NRC 1999).

Long-term tenancy is desirable from the point of view of both airports (it provides guaranteed revenue streams against which airports can borrow) and airlines (it guarantees runway access during peak hours at hub airports). Long-term tenancy also gives airlines considerable say in airport management and investment decisions through so-called "majority-in-interest" clauses. But when combined with revenue-neutrality restrictions, long-term leases result in a situation in which airlines cannot easily adjust the fixed costs of airport operations.

Revenue-neutrality implies that public airport authorities cannot make profits in excess of certain allowable expenses. The motivation for this federally enforced rule is to limit the revenues that cities derive directly from airports. Each year, an airport authority's allowable expenses are met by adjustments to the landing fees and terminal (gate) lease fees that are paid by the airlines with long-term leases. In other words, if an airline wants to secure exclusive or preferential gate access at SFO, or an airport like it, the airline has to enter into a long-term agreement with the Airport. This long-term agreement effectively becomes a fixed cost that the airline has relatively little power to reduce.

Both slot-control and long-term gate leasing policies at the hub airports have contributed to turning airport operations into fixed costs for airlines. As we have already stated, individual airlines have relatively little power to reduce these costs at hub airports. The pressures to reduce fixed costs in other areas of the airline business have thus become particularly intense.[4]

[3] Riker and Sened (1996) trace the development of the slot-control system.

[4] These arguments depend on airport congestion. Without airport congestion the airlines are under less pressure to secure access to airport facilities and thus incur airport operations as a fixed expense.

To clarify the foregoing discussion, consider the actual situation at SFO. SFO receives revenue from three sources: aviation (51 percent of revenue in FY2000), concessions (43 percent) and sales and services (6 percent).[5] Most aviation revenue comes from landing fees and terminal rentals paid by airlines. Additional aviation revenue is derived from non-terminal rentals such as cargo warehouses, hangars and other aviation support facilities. Concession revenue is received from parking, car rental firms, food and beverage outlets and other retail activities. All concession contracts have a minimum annual guarantee, with revenue sharing for income in excess of the minimum. Concession contracts generally run between one month and one year, although some contracts run for up to five years.

Airports achieve revenue neutrality by balancing allowable revenue with allowable expenses on a year-to-year basis. Allowable expenses include the costs of running the Airport, debt service, and a service payment to the City of San Francisco. The service payment to the City is capped at 16 percent of concession revenue, or $5 million per year, whichever is greater. Each year residual balancing takes place, through adjustments to the landing fees and terminal rents paid by all airlines with long-term terminal leases, in accordance with a 1981 agreement. The agreement, set to expire in 2011, effectively prevents the city from generating revenue directly from airport activities. At the same time, it also shifts the risk associated with airport expansion to the airlines, which means that airport operations are a fixed expense for airlines.

[5] Sales and services revenues are relatively unimportant and refer mainly to charges for utilities and police services.

REFERENCES

Acemoglu, Daron and Jorn-Steffen Pischke 1999. "Minimum Wages and On-the-job Training." *NBER Working Paper* 7184. Cambridge, MA: National Bureau of Economic Research.

Alsono-Zaldivar, Ricardo and Oldham, Jennifer. 2002. "New Airport Screener Jobs Going Mostly to Whites". *Los Angeles Times*, 24th September 2002. (http://www.latimes.com/la-na-airports24sep24001446(0,4666565).story)

AP 2001. "Aviation Security Bill Sets Timetable." *New York Times*. November 21 (The Associated Press).

Armstrong, David R. 2001. "Southwest to Eliminate SFO Routes: Oakland, San Jose to absorb flights." *San Francisco Chronicle.* January 23: B1.

Autor, David H. 2000. Outsourcing at Will: Unjust Dismissal Doctrine and the Growth of Temporary Help Employment." Working Paper 7557. NBER.

Baker, Bob 1987. "Airport Security: Low Pay and High Turnover may be the Weak Link." *Los Angeles Times*. December 17.

Becker, Gary 1964. *Human Capital*. Chicago: The University of Chicago Press.

Brown, Clair, Yoshifumi Nakata, Michael Reich and Lloyd Ulman 1997. *Work and Pay in the United States and Japan.* New York: Oxford University Press.

Card, David 1989. "Deregulation and Labor Earnings in the Airline Industry." *Working Paper No. 24.* Industrial Relations Section. Princeton University.

Cremieux, Pierre-Yves 1996. "The effects of deregulation on employee earnings: pilots, flight attendants and mechanics, 1959-1992." *Industrial and Labor Relations Review* 49, 2: 223-242.

Dube, Arindradjit 2002. "Outsourcing and Wages in Service Occupations." Unpublished paper. Department of Economics, University of Chicago. January.

FAA 2000. *FAA issues proposed rule to improve screener performance*, Press release, FAA Office of Public Affairs, January 5.

FAA 2001. *FAA Fact Sheet: Security Actions Taken Since the TWA 800 Accident*. Press release, FAA, June. (www.faa.gov/apa/FACTSHEET/2001/fact1jun)

Foss, Brad 2001. "Airline Security Experts: security decisions often undermined by profit motives." *SF Gate*, September 12 (Associated Press report published electronically on www.sfgate.com).

GAO 1999. *Aviation Security: FAAs actions to study responsibilities and funding for airport security and to certify screening companies*. Report of Congressional Committees and Subcommittees, GAO/RCED-99-53. General Accounting Office.

GAO 2000. *Aviation Security: Long-standing problems impair airport screener's performance*. Report of Congressional Committees and Subcommittees, GAO/RCED-00-75. General Accounting Office.

Gesell, Laurence E. 1986. *The Administration of Public Airports*, 2nd ed. Chandler: Coast Aire Publications.

Glionna, John M. 2002. "San Francisco Airport Hit by Bay Area Economic Tailspin." *Los Angeles Times.* March 2: B 10.

Goetz, Andrew R. 2002. "Deregulation, competition and antitrust implications in the US airline industry." *Journal of Transport Geography* 10, 1: 1-19.

Gordon, David M., Richard Edwards and Michael Reich 1982. *Segmented Work, Divided Workers*. New York: Cambridge University Press.

Grossman, Gene M. and Elhanan Helpman 2002. "Outsourcing in a Global Economy." Working Paper 8728. NBER.

Hakfoort, Jacco, Tom Poort and Piet Rietveld 2001. "The Regional Economic Impact of an Airport: The Case of Amsterdam Schipol Airport."*Regional Studies* 35, 7: 595-604.

Howes, Candace 2002. "The Impact of Unionization and the Living Wage Ordinance on the IHSS Home Care Workers in San Francisco County." February. Connecticut College.

Katz, Lawrence 1986. "Efficiency Wage Theories: a Partial Evaluation." *Brookings Papers on Economic Activity*.

Levine, Marvin J. 1989. "The evolution of two-tier wage agreements: bane or panacea in labor-intensive industries." *Labor Law Journal* January: 12-20.

Luce, Stephanie 2002. "Labor Market Deregulation and the U.S. Living Wage Movement." Presentation at ILE conference on Living wages, UC Riverside, February 22, 2002.

Mincer, Jacob 1974. *Schooling, Experience and Earnings*. New York: Columbia University Press.

Morrison, Steven A. and Clifford Winston 1990. "The Dynamics of Airline Pricing and Competition." *The American Economic Review*, 80, 2: 389-393.

Murphy Edward and John D. Worth 2001. *Some Regulatory and Institutional Barriers to Congestion Pricing at Airports.* Research Paper 2001-01. U.S. Treasury Department.

NRC 1999. *Entry and Competition in the US Airline Industry: Issues and Opportunities*. Report of the Transportation Research Board of the National Research Council. Washington, D.C: National Academy Press.

Neumark, David and Scott Adams 2000. "Do Living Wages Reduce Urban Poverty?" Working Paper 7606. National Bureau of Economic Research.

O'Connor, William E. 2001. *An Introduction to Airline Economics*. Westport, CT: Praeger.

OIA (Oakland International Airport) 2002. "Another Record Year for Passenger Traffic at Oakland International Airport in 2001." Oakland International Airport, February 7. http://www.flyoakland.com/press_releases, accessed July 29, 2002).

Osterman, Paul, Thomas A. Kochan, Richard C. Locke and Michael J. Piore 2001. *Working in America*: *a Blueprint for a New America*. Cambridge, MA: MIT Press.

Peoples, James 1998. "Deregulation and the Labor Market." *Journal of Economic Perspectives* 12, 3: 111-130.

Pollin, Robert and Stephanie Luce 1998. *The Living Wage: Building a Fair Economy*. New York: The New Press.

Riker William H. and Itai Sened 1996. "A political theory of the origin of property rights: airport slots." In Alston, Lee J., T. Eggertsson and Douglass C. North eds. *Empirical Studies in Institutional Change*. New York: Cambridge University Press.

Reich, Michael 1984. Segmented Labour: Time Series Hypotheses and Evidence." *Cambridge Journal of Economics* 8, 1: 63-82.

Reich, Michael and Peter Hall 1999a. " Living Wages and the San Francisco Economy: The Benefits and the Costs" *(In two releases). Report of the Bay Area Living Wage Research Group,* Institute of Industrial Relations, UC Berkeley.

Reich, Michael and Peter Hall 1999b. "Living Wages at the Port and Airport of San Francisco." Institute of Industrial Relations, UC Berkeley.

Reich, Michael and Peter Hall 2001. "A small raise for the bottom." In Ong, Paul and James Lincoln, eds. *The State of California Labor*. University of California: Institute of Industrial Relations.

Reich, Michael, Peter Hall and Ken Jacobs 2001a. "Living Wages and Airport Security, Preliminary Report." ILE Working Paper No. 3. Institute for Labor and Employment.

Reich, Michael, Peter Hall and Ken Jacobs 2001b. "In airport security, we get what we pay for." *San Francisco Chronicle.* October 8: A19.

Sclar, Elliott 2000. *You Don't Always Get What You Pay For: the Economics of Privatization.* New York: The Century Foundation.

SFO 1998. *The Economic Impact of the San Francisco International Airport*. San Francisco Airport Commission.

Swoboda, Frank 1988. "Two-tier wage systems: still in use but far less visible." *Washington Post*, April 24: H5.

Warner, Mildred and Amir Hefetz 2000. "Privatization and the Market Structuring Role of Local Government." Working Paper 197. Department of City and Regional Planning. Cornell University.

Wilson, Michael 2002. "SFO takes tremendous hit in 2001 air travel counts." *San Francisco Chronicle*. May 3: A1.

Zabin, Carol 1999. "Living Wage Campaigns in the Economic Policy Arena." Center for Labor Research and Education, UC Berkeley.

Zabin, Carol, Michael Reich and Peter Hall 2000. "Living Wages at the Port of Oakland." Institute of Industrial Relations, UC Berkeley.