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This paper evaluates the costs, benefits and related impacts of living wage policies implemented at the San Francisco Airport (SFO). Unlike other living wage ordinances, the policies at SFO cover a large proportion of the low-wage labor force in a distinct labor market. We find that about 73 percent of the ground-based non-managerial workers at SFO received substantial wage increases as a direct or indirect result of the policies; the proportion of these workers earning under $10 per hour fell from 55 percent to 5 percent, significantly reducing earnings inequality. Other benefits to workers included enhanced health benefits and an arrest of declines in quality of life indices. The costs of the policies to employers amounted to an average of 0.7 percent of revenue, or $1.42 per airline passenger. We observe a series of dynamic adjustments that reduced those costs, including dramatically reduced turnover, improved worker morale and greater work effort. We find some limited evidence of worker-worker substitution, but no evidence of employment decline.

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Living Wage Policies at San Francisco Airport

Impacts on Workers and Businesses

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Living Wage Policies at San Francisco Airport

Impacts on Workers and Businesses

Abstract

This paper evaluates the costs, benefits and related impacts of living wage policies implemented at the San Francisco Airport (SFO). Unlike other living wage ordinances, the policies at SFO cover a large proportion of the low-wage labor force in a distinct labor market. We find that about 73 percent of the ground-based non-managerial workers at SFO received substantial wage increases as a direct or indirect result of the policies; the proportion of these workers earning under $10 per hour fell from 55 percent to 5 percent, significantly reducing earnings inequality. Other benefits to workers included enhanced health benefits and an arrest of declines in quality of life indices. The costs of the policies to employers amounted to an average of 0.7 percent of revenue, or $1.42 per airline passenger. We observe a series of dynamic adjustments that reduced those costs, including dramatically reduced turnover, improved worker morale and greater work effort. We find some limited evidence of worker-worker substitution, but no evidence of employment decline.

Introduction

Since 1994 living wage ordinances have been passed and implemented in over 100 local governmental entities in the United States. Most such ordinances establish wage and benefit standards in the $8.50 to $11 per hour range and some are indexed to local price indices. Typical ordinances also include incentives for employer payment of employee health benefits and provisions for paid time off. Most living wage ordinances cover only employees on municipal service contracts; however, in some cities, the ordinances also cover employees working for employers who are themselves tenants on city-owned land or who are recipients of local business assistance tax subsidies; the number of employees actually covered by such clauses is thought to be very small. The early implementation of the ordinances typically involved the granting of numerous waivers and exemptions, which often reduced their impact. Consequently, the ordinances are thought to have small spillover impacts on the local low-wage labor market.

In 1999, San Francisco enacted a series of living wage policies, covering city service contractors, homecare workers and virtually all the low-wage workers at San Francisco International Airport (SFO). At the airport the most important of these policies-- the Quality Standards Program (QSP)--affected about one-third of the 30,000 employees at SFO.[1] The SFO policies, which represent one of the largest living wage experiments in the nation, are unusual also in that they included raised educational standards for new hires, training mandates that were intended to improve airport security and customer service, and also a large-scale labor peace/card check agreement. Given this great density of workers affected and the broader scope of these living wage policies, SFO provides a laboratory for observing the impact of grander labor market interventions.

[1] The 1999 living wage ordinances set comparable pay and benefits mandates for over 6,000 workers in the homecare industry and an equal number of employees of the city's service contractors. Together with the SFO group, these workers represented approximately half of all the workers in the U.S. who were covered by living wage ordinances in 1999. See Reich et al (1999) for more details. Our focus in this paper is on SFO, as data on service contractor impacts was not yet available and Howes (2003) was conducting a parallel study of the impacts on the homecare sector.

Indeed, the SFO policies contain major components of what some commentators have labeled the "high-road" path of economic development.[2] The high road program promises to raise low pay while also improving workers' skills and productivity, and to reduce economic inequality while also enhancing economic performance. But can we get back on the high road?

This paper examines the impact of the living wage policies at SFO with these issues in mind. In the following section we review recent research on living wage and minimum wage impacts. We next describe the scope and coverage of the living wage and related local labor market policies enacted at SFO. Then we discuss our research strategy for identifying the effects of the policy and describe the data sources we collected to conduct a before- and- after comparison.

The main portion of the paper is devoted to identifying the benefits and costs of the policy and the dynamic adjustments that occurred. The benefits we examine consist of the number of workers receiving pay increases, directly and indirectly, as well as additional health insurance benefits, paid time off and quality of life effects. The costs consist of the increased payroll costs to employers and the incidence of these costs. The dynamic adjustments that we examine concern first, changes in turnover, worker effort and productivity; and second, effects on aggregate employment and activity at SFO and specific effects on low-wage employment

Previous literature on living wages

To date, most of the living wage research papers have been *prospective studies*, in the sense that they estimate the magnitudes of the costs and benefits of the policies, prior to their adoption. Prospective studies often are undertaken to provide guidance to policy makers; as such, their quality and findings vary considerably, depending in part upon the quality of the data that they are able to collect. Generally, the more systematic studies rely upon local governments' contract databases,

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

combined either with regional input-output data and CPS data on pay by industry and occupation, or with researchers' own surveys of the affected contractors. We review here these more systematic studies.

The first major such study, by Pollin and Luce (1998), revealed how the national minimum wage ceased to function as a "living" wage in the 1980s. Pollin and Luce then provided some initial estimates of how alternative living wage policy choices might affect Los Angeles workers, employers and taxpayers. Their approach has been repeated for other jurisdictions.[3] Although individual workers are predicted to benefit, these prospective studies generally find likely limited impacts upon other workers, employers and taxpayers in most of the cities with such ordinances. In a typical finding, Pollin and Luce estimated that less than three percent of low-wage workers in Los Angeles would be covered or affected by the living wage ordinance.[4]

More recently, we have seen a number of what might be dubbed *adoption studies*. Luce (2002) has documented the growing number of cities that have adopted living wage ordinances; she finds that the policies have been gradually broadening in coverage and scope over time. Using an early sample of cities with such ordinances, Martin (2001) examined the political and economic characteristics of cities that have adopted living wage ordinances. He finds that political mobilization variables provide an important independent determinant of adoption (see also Nissen 2000). Levi, Olson and Steinman (2003), while differing in some respects with Martin, also examine the characteristics of living wage campaigns that result in policy adoption. None of these studies examine the actual impact of the policies.

[3] Other examples include Reich, Hall and Hsu (1999); Zabin, Reich and Hall (2000). See also the survey in Reich (2003).
[4] The prospective studies have expanded recently to include research on possible municipal-wide minimum wages. Pollin, Brenner and Luce (2002) study the potential impact of $6.15 minimum wage in New Orleans, while Reich and Laitinen (2003) study the potential impact of an $8.50 or higher minimum wage in San Francisco. Both papers take up questions of business relocation.

With the passage of additional time since their adoption, we are beginning to have *impact studies* that evaluate the effects of living wage ordinances in individual cities some time after they have been adopted and implemented. We already can discern three different approaches to studying these impacts. One approach, represented by Zabin and Martin (2001) and by Luce (2003), relates the effectiveness of living wage laws to the monitoring and enforcement processes that are instituted following their passage, which in turn are related to the continuing involvement of activist organizations. This approach demonstrates through case studies that the "social movement" effects that are prominent in the adoption studies do influence implementation as well. This literature relies on interviews, often with local officials and does not seek to measure with quantitative data the impacts of the policies on workers and employers.

A second approach to examining impacts, represented by Neumark and Adams (2000), uses national Current Population Survey data to examine the effects of the ordinances through a cross-sectional regression methodology. Their findings suggest that some types of living wage ordinances create benefits that accrue widely to low-income families in the city. These effective ordinances are the ones that cover employees in firms receiving business assistance from the city. However, their large econometric effects are unreasonably large, relative to the small number of affected contracts found in the case studies, unless spillover effects are incredibly great. [5]

A third approach to impact studies uses before and after comparisons of surveyed firms and workers in an individual living wage city. The papers by Brenner (on Boston) and by Fairris (on Los Angeles) in this symposium provide excellent examples of such work. [6] Both Brenner and Fairris find substantial positive wage and turnover effects for covered workers.

[5] See the critique by Brenner et al 2002.

[6] A study by Brenner and Luce (2003), which examines firm data for Boston, Hartford and New Haven, constitutes another example.

These impact studies draw upon survey data collected by the authors, including firms that contract with the city as well as a control group of firms that do not. The advantage of this approach lies in this treatment and control design. The approach assumes that city service contractors and their workers who are subject to the ordinance are not a select group among the large population of firms in these industries. Fairris sheds some light on whether this assumption is valid for his analysis.

These papers constitute important advances in living wage impact research and represent the current state of the art. They are limited, however, in how much their methods can be applied to study the impact of policies such as those in effect at SFO. At SFO, spillover effects are likely to be larger and the treatment versus control methodology consequently is less applicable. At the same time, employment activity is derived from a single source activity. While city service contractors have the option of not providing services to the city, firms at SFO do not have the same choice not to play, so selection issues are less salient.

The recent literature on state minimum wage increases perhaps has greater relevance to our study, since state minimum wage laws typically cover most workers in one or more labor market. The findings of Card and Krueger (1995) and Reich and Hall (2001) are especially pertinent because of their focus on California. Both studies drew upon Current Population Survey data.

Card and Krueger's analysis of the 1988-89 increase in the California minimum wage, presented in their 1995 volume, essentially compared California's experience to a control group consisting of southern states that did not increase the minimum wage in this period. Card and Krueger found no measurable adverse employment impacts and some, although short-lived, real wage gains for low-wage workers. Using a similar difference-in difference methodology as Card and Krueger, Reich and Hall (2001) examined the impacts of the 1996-98 California minimum wage increases—from $4.25 to $5.75—by comparing employment trends in high wage and low wage

industries in California. Reich and Hall found longer-lasting wage compression effects than did Card and Krueger and also could not detect any negative employment effects.

More recently, the California Budget Project examined the impacts of the 2001-02 California increases—from $5.75 to $6.25 and then to $6.75—and found that employment in California grew faster than in the rest of the United States (CBP 2002). Indeed, from 1996 to 2002, California's minimum wage increased nearly sixty percent, while at the same time California's employment growth rate was higher than that of the rest of the nation--18.3 percent versus 12.6 percent.[7]

In sum, previous research on the impacts of living wages utilizes a treatment and control group design and finds generally that the benefits exceed the costs. However, this research is based upon cities that have the very limited coverage of low-wage workers discussed above. The most pertinent recent minimum wage research on California examines a policy that has much broader coverage and also finds benign effects, but at mandated wages that are much lower than in typical living wage ordinances.

The Living Wage Policies at SFO: Scope and Coverage

Prior to the living wage policies, the employment and pay structure among SFO's 30,000 workers was typical of most large U.S. airports. As Table 1 shows, passenger and cargo airlines accounted for approximately two-thirds of private sector employment, with the remainder concentrated among airline service companies (catering, security, skycaps and such aviation services as fueling and maintenance) and passenger service companies (retail and food concessions, airport parking lots and rental cars). Average pay growth in air transportation had lagged other sectors, including even retail, since airline deregulation began in 1978. Table 2 shows that the low-wage workforce at SFO was concentrated among the 11,000 ground-based, non-managerial workers,

[7] For a more detailed discussion, see Reich and Laitinen (2003), as well as the survey article by Brown (1999).

including: customer service and ramp workers, baggage handlers, screeners, cabin cleaners, and restaurant and retail workers.[8] By 1999, over half of the ground-based non-managerial workers were paid less than $10 per hour.

Subcontracting accounts for a disproportionate share of the low-wage workforce.[9] As Table 3 shows, employees of the airline service firms received lower wages and benefits. They received less training and had fewer opportunities for advancement than direct airline employees in the same occupational categories.

In an effort to raise wages and improve working conditions for all the workers, the San Francisco Airport Commission passed the *Quality Standards Program* (QSP) in January 2000. The QSP initially established a minimum pay standard of $9 per hour plus full health benefits, or $10.25 without, and it mandated 12 days per year of paid time off. It also established a high school completion hiring requirement and a training standard of forty hours for new employees. It was fully implemented by October 2000. The QSP wage became $10 in January 2001, and is indexed for inflation.

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. We identified the following group of beneficiaries from the QSP: United Airlines employees in the customer service, ramp and cabin cleaning divisions[10]; all ground-based non-managerial employees of other airlines; and all non-managerial employees of airline services firms. Adding these groups together, we find that there are approximately 11,000 workers in these jobs. In practice, this means that one-third of all airport workers were potentially affected by the living wage policies.

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[8] For additional detail, see Reich, Hall and Jacobs 2003.

[9] In the 1980s, the airlines increasingly contracted out various ground-based services that used to be performed by direct airline employees. As a result, pay in these job categories declined. We review this evolution in Reich, Hall and Jacobs, 2003.

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. The San Francisco Airport Commission and the San Francisco Board of Supervisors also passed a Minimum Compensation Ordinance (MCO), a Health Care Accountability Ordinance (HCAO) and a labor peace/card-check program. At the time of our study, the MCO and HCAO had only affected approximately 100 workers. While these policies cover most of the about 2,700 ground-based non-managerial workers, including passenger service workers and employees of concession holders, not covered by the QSP, they go into effect only when leases are renegotiated.

The Labor Peace/Card Check policy did go into effect in February 2000; it had a substantial impact on labor relations at SFO.[11] Approximately 2,000 workers in the sample were organized into unions during the period of study. However, since the QSP set the general wage rate in collective bargaining agreements reached for workers covered by the program during our time period, we will regard it as the main policy that set wage and benefit standards at the airport.[12]

In summary, the scope and coverage of the living wage policies at SFO are much greater than in most other such ordinances. Moreover, as we discuss below, the costs cannot be transferred to the city, as they can for service contractors. These parameters constitute an unusual set of conditions that distinguish the SFO case from most municipal ordinances, but which might contain valuable lessons for other area-based living wage ordinances, including those at large airports, and for city-wide minimum wage ordinances".

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[10] In this study, we treated United Airlines separately from other passenger airlines surveyed because of its dominant presence; United Airlines accounts for approximately half of all employment and airport activity at SFO.

[11] The Labor-Peace/Card Check policy requires employers operating at the airport to enter into card check agreements with unions that request such an agreement. Card check procedures call for immediate union recognition from the employer if a majority of employees sign cards. In exchange the union agrees not to strike for recognition.

[12] Of course, this focus on the QSP was not always apparent to all the actors. They experienced all the policies, along with increased unionization and worker expectations that were altered by the union and living wage organizing

Methods

Following a standard evaluation methodology, we surveyed businesses about working conditions and performance at SFO before and after the implementation of the policies. Our focus is on aggregate changes in the airport labor market as opposed to changes within individual firms and occupations. We nonetheless faced the usual challenges of isolating the impacts of the program from other changes also taking place. Since we did not have a large enough sample to employ multivariate controls, our method for identifying policy effects relies on a series of first-difference comparisons.

Our main comparisons involve differences before and after the QSP was implemented. These comparisons were made easier because all (but one) of the firms were operating at the airport at both points in time and because they all faced the same changes in the airport's business environment. We were able to obtain data from representative samples of the airport firms both before and after the policy went into effect. We also make a series of adjustments to control for effects that are not directly related to the QSP in the period 1998-2001, such as any changes in passenger volume, the opening of the new International Terminal, improvements in management-labor relations and the overall strength (weakness) of the national and regional economy. When possible, we have also sought to compare developments at SFO to those at other Bay Area airports, and with employment in low-wage sectors in the Bay Area similar to those found at the airport.

Since the living wage ordinance covered all employers and low-wage workers at SFO, we cannot compare covered firms and workers with a control group of noncovered firms and workers. As an alternative differencing technique we estimate the impacts of the QSP by comparing the firms in which the policy change had a small impact on wage costs to those in which it had a large impact.

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campaigns as a totality that changed the economic and labor relations environment at the airport. Small sample sizes do

[13] Table 4 indicates the sectoral distribution of the low and high impact firms. This technique is similar to comparisons in minimum wage impact studies that examine differences between low wage and high wage industries.

We collected the post-QSP data for this study soon after the ordinances went into effect and just prior to September 11, 2001. Consequently, while they reflect the implementation of the ordinances, they are not affected by the subsequent and more turbulent conditions of the airline industry. Our primary pre- and post-QSP data comparison dates are June 1999 and June 2001. Both dates occur during summer peak-period employment, ruling out seasonality effects. As we discuss below, we do control for the downturn in the economy that began in early March 2000 and for the airport terminal expansions that occurred simultaneously with the implementation of the QSP.

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.

Pre-QSP data: The pre-QSP employment and wage data for this study are based upon an employer survey that we conducted in June1999. We had already collected airport employment and wage data in a previous study conducted by the authors (Reich and Hall 1999). In that study the Airport Commission's 1998 Economic Impact Report provided an initial employment baseline. We then conducted a telephone survey of airport employers for wage and benefit coverage information as of June 1999. This survey produced a response rate of 24 percent of the employers. The sample was biased towards large employers and the surveyed firms accounted for 85 percent (9,200) of

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not allow us to separate the impacts of these factors.

[13] Since the universe of firms at SFO basically did not change during our study period, we do not face the selection issues that arise in Brenner and Fairris' studies. Brenner and Fairris also are concerned with variation in the number of years that living wage contractors were covered by the ordinance; this was uniform among all our firms.

ground-based non-managerial workers. The survey findings indicated that airport employment in mid-1999 had not changed significantly since mid-1998. For this reason we weighted the survey responses in seven employer categories so that the weighted sample estimate of the number of employees matched the sectoral and aggregate levels of employment reported in the Airport's 1998 report.[14]

Post-QSP data: The principal post-QSP data for this study comes from an employer survey that we conducted in 2001. We also drew upon SFO Badge data and several supplementary sources. Each of these is described more fully below.

Employer Survey: In the early summer of 2001 we sent a mail survey to all of the covered employers to generate a post-QSP database comparable with the pre-QSP data. The survey instrument included questions on employment and wages by occupation, as well as evaluation questions that allowed employers to reflect on the implementation effects of the QSP. The mailing was followed by phone and in-person interviews and resulted in a response rate of 35 percent. The responding firms employ approximately half of the ground-based non-managerial airport workers (5,626 out of an estimated 11,000). 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 size or sectoral categories.

The sectoral composition in the weighted sample conformed very closely to the sectoral composition of employment at SFO, as measured by the Badge Office Data discussed below. The employer responses to the qualitative questions on the survey indicated that the respondents

[14] In addition to the employer survey, we drew on wage data compiled by the Center for Labor Research and Education at UC Berkeley, which had previously collected employment and wage data for various airport jobs, and job postings from the airport employment website. We also used occupational wage data from the Bureau of Labor Statistics to complete the wage estimates in a small number of cases.

covered the full spectrum of favorable and unfavorable views of the policies. We did not find that attitudes were correlated with the magnitude of the mandated wage gains.[15]

Badge Data: Our second major data source on post-QSP employment conditions consisted of the SFO Badge Office's database of employees as of June 1, 2001. This database derives from administrative data on security badges issued to employees at the time of hire; it includes detailed firm and occupational employment counts, as well as data on demographics and employment tenure, for about 17,500 workers. Although these badge data tend to overestimate the aggregate number of employees at SFO, because of the delay in returning badges when employment is terminated, we were able to correct for this bias and to confirm the validity of our survey data on a firm- and occupation-specific basis.[16]

Supplementary data: We supplemented our pre- and post-QSP employment data with information from the following sources:[17]

1. 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.
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. Structured interviews with eleven union organizers from six union locals and the AFL-CIO.
4. A short self-administered questionnaire that was completed by a sample of 99 workers.

[15] For a fuller discussion, see Reich et al (2003), Appendix F.
[16] Reich et al (2003), Appendix D, explains how we corrected for biases in the badge data.
[17] For a full discussion of the study methods and data sources used in this study, see Reich, et al (2003), especially Appendix C.

Observed pay increases

From the inception of the QSP in April 2000 to our data collection ending 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. The average pay of this workforce 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. The increase in the average entry wage was 33 percent for QSP covered positions compared to 10 percent for non-QSP covered positions. Table 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.

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. 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 5). 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. Not surprisingly, these differences are highly significant, as the note to Table 5 reports.

The pay increases mandated by the QSP significantly reduced the pay differences between in-house (airlines) and contracted out (airline services) ground-based jobs. Prior to the QSP, lower wages in the airport labor market were concentrated among employees of airline service contractors.

The differences in entry-level pay rates have been eliminated entirely. Indeed, in-house employees in entry-level 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.

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, net of any wage increases these workers would have received without the QSP. In calculating the net effect, we assumed that these workers would not have received any significant increases without the QSP. Records of job advertisements obtained from the SFO Employment Office showed that pay in many of these jobs tracked the state minimum wage, which did not increase during the study period (i.e June 1999 to June 2001). Also, 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. Indirect increases can result from 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 customary 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 pressure to pay workers more and/or to hire more skilled workers.

3. *General labor market-based wage increases* result from labor market tightening or general wage inflation and would have occurred without the QSP policy.

As we mentioned above, survey respondents reported a total increase of $56.6 million in annual earnings for ground-based non-management employees. Of this total, $34.6 million can be related *directly* to the living wage policies. This amount represents the sum of all wage increases paid to the 5,400 airport workers who were covered by the mandated wage increases and who previously earned below the mandated wage level.

Subtracting the direct effect leaves $22 million in wage increases generated through indirect effects of the QSP or resulting from other general labor market effects; this represents the 22 percent increase in the wages received by airport workers not directly covered by the QSP. Without the policy change, we would expect wage rates at the airport to rise at no more than the same rate as wage rates in comparable occupations in the San Francisco metropolitan area during the same period. According to available data from California's Employment Development Department, the average wage for a comparable group of service sector occupations in the area rose approximately 10 percent from 1999 to 2001.[18] Applying the ratio of 10/22 (which is 45 percent), we attribute 45 percent of the reported non-direct QSP increase in labor costs to general labor market increases and 55 percent to indirect effects of the QSP itself.

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, the only reported wage increases were those mandated by the QSP, and among airline employees, vertical indirect wage increases above the mandated minimum were limited by the fact that wage

[18] The California Economic Development Department data indicate a 17 percent increase in the wages of comparable occupations for the period 1998 to 2001, whereas our study period is from 1999 to 2001. We ascribe more of the increase to 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. Hence we assume that wages for the comparable occupations rose by 10 percent (i.e. slightly less than two-thirds of 17 percent) during our study period.

rates at United Airlines were effectively fixed during the study period. Conversely, the percentage wage increases in the non-QSP retail 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 within this localized labor market 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.

Regarding the number of workers affected, approximately 9,700 of the 11,000 ground-based non-management workers at SFO received wage increases during the study period; as previously stated 5,400 of them received wage increases as a direct result of the living wage policies. 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.[19] 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 employees who were awaiting a new contract during the study period.

Additional benefits of the QSP for employees

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

[19] Some of these indirect effects might be attributable to union organizing activity, which resulted in new wage contracts, or from the threat of such activity. We discuss the union organizing campaign at length in Reich, Hall and Jacobs (2003),

package or the wage premium. In addition, other QSP-covered workers that had previously been offered health benefits 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, effective 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 employer survey instrument 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. 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.[20]

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

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chapter 3 and Appendix E, focusing mainly on the number of workers organized. We do not have the data to estimate the wage impacts that occurred through this channel.

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. However, only 54 percent of workers in non-QSP covered firms reported that they were enrolled in employer-based health insurance after the QSP was implemented. Most of those workers reporting that they were without coverage were retail workers.

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. Our data on leave prior to the QSP are incomplete, but our worker interviews, and our review of union contracts and job advertisements, suggested that many airport workers did receive paid leave prior to the QSP. For the purposes of estimating the payroll cost increases associated with the QSP, we assumed that all employees at United Airlines and half of the remaining airport workers had received 12 days of paid leave prior to the QSP. The leave benefit resulting from the QSP 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.

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, their vacation time, their personal finances, their hours worked in all jobs, their housing situation and their health status. The results are presented in Table 6.

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[20] The detailed tables with our findings on benefits have been omitted to save space; they are presented in Reich, Hall

Relatively few workers reported improvements in the various quality of life categories that we surveyed. Workers not covered by the QSP, however, 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. Hours worked in all jobs increased somewhat among non-QSP covered workers, while remaining mainly unchanged among QSP-covered workers.[21]

Taken together, these worker-reported changes in quality of life suggest that stagnating pay, decreased benefits and increased labor market flexibility in recent years has led to significant deterioration in the quality of life among low-wage workers. It took the QSP mandate to arrest this trend. This finding is especially notable because the late 1990s represented a period of reported increases in real wage rates for low-wage workers elsewhere in the United States. In the Bay Area, however, the pay of many ground-based airport service workers had not kept up with the growth of an estimated self-sufficiency or basic needs budget.[22]

To summarize the impacts on workers, the living wage 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 Costs of the QSP

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and Jacobs (2003).

[21] Owing to the small sample size, we did not compute standard significance tests for first differences and discuss only those differences that clearly are large in magnitude to the naked eye.

[22] 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

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 (see Table 7). Including the spillover effects to other workers and employers at SFO adds $14.9 million to employers' costs. This cost estimate does not take into account any savings from increased productivity, reduced turnover and other employer savings, and is consistent with the cost estimates found in other prospective living wage studies.[23] The total cost amounts to 0.7 percent of the fare revenue received at SFO in one year.[24] Who bears this cost?

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 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 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, the aggregate cost of these contracts 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. Because of the structure of airport finances, these rent reductions will effectively be passed on to the airlines

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Budget Project, *Making Ends Meet*, October 1999.) In 2001, according to the ACCRA index, San Francisco had become the highest cost of living MSA in the nation.

[23] See Reich, Hall and Hsu (1999); Pollin and Luce (1998); Zabin, Reich and Hall (2000).

[24] 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

in the form of increased landing fees. The financing arrangements also imply that taxpayers and the City are largely insulated against any cost pass-through from airlines.

The financial arrangements that govern the airport are designed to 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.[25] The airport's contribution to city finances is modest, while long-term tenants, especially the airlines, have a significant interest in the day-to-day administration of the airport. Cost increases are likely to be incurred by the airlines, since there is not a mechanism by which they can be transferred to the City or Airport Commission.

Given that most of the costs are passed on to the airlines, the question then arises whether the airlines are able to pass these costs on to the consumers. If the airlines passed the total costs directly to the customers, the cost increase would average $1.42 per airline passenger.[26] Their ability to do so depends, of course, on the price elasticity of demand for air travel in general and upon the availability of substitutes for air travel through SFO in particular.[27]

Dynamic adjustment to the QSP

In this section we present evidence of dynamic adjustments by firms and workers to the higher wage, benefit and other employment mandates contained in the QSP. As the efficiency wage literature has emphasized, nonwage labor costs, such as turnover, can fall with wage increases;

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the Airport Commission of the City and County of San Francisco, $238,185,000 Second Series Revenue Bonds, December 7, 2000). We did not have access to data on airline profits.

[25] 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.

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

moreover, work effort and productivity can increase as a result of wage increases (Katz 1986). Dynamic adjustments to the QSP might therefore improve the benefit to cost ratio of the policies.

We turn first to the QSP's impacts upon employee turnover. As Table 8 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 already received wages above the QSP mandated levels and generous benefits packages, while the QSP only indirectly influenced the Concessions sector. Likewise, 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). In contrast, the turnover reduction among firms experiencing an increase in wage costs of less than 10 percent as a result of the QSP, was negligible (from 17 to 14 percent).

We examined the linkages between higher wages and reduced turnover on a job-specific basis, for selected job titles.[28] In Table 9 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.[29] While customer service agents reported a 26 percent increase in entry level wages and a decline in turnover of 5 percent, turnover was already low in these positions prior to the QSP.

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[27] The costs could also be borne by the airlines through profits reductions rather than revenue losses. We did not have any access to airline profits data and cannot evaluate this issue.

[28] 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.

[29] This analysis includes only 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.

Unlike outsourced airline service jobs, these unionized positions with United Airlines had career advancement opportunities both within the job category and to other positions in the airline.[30]

To examine the robustness of the dramatic turnover findings from our employer survey, we analyzed the implicit tenure patterns in the dataset provided by the SFO Badge Office data.[31] This data provided a snapshot of the tenure profile of current employees, which allowed us to determine the rate at which workers had been replaced in the past. 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.

We turn next to the question of whether the QSP pay increases generated improvements in work effort or productivity. The results are reported in Tables 10 and 11. Our employer survey suggested that higher wages and better benefits at SFO did translate into improved worker performance. Table 10 shows that employers were more likely to report an improvement than to report deterioration 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 all cases but one, the proportion reporting an improvement was statistically significantly higher than the proportion reporting a worsening of the condition.

[30] Reich, Hall and Jacobs (2003) provide a detailed discussion of the cost savings to employers that result from reduced turnover. Using a variety of secondary sources on the average cost per turnover in the service sector, and adjusting these using data from our survey of employers, we generated four estimates of the annual savings for airport employers from the reduction in turnover. The average of these estimate savings is $6.6m per year, which amounts to about 11 percent of the total costs cited above.

[31] For a full discussion and presentation of these findings, see Reich, Hall and Jacobs (2003), especially Appendix D.

For the most part employers had not, at least by the time we surveyed them, adjusted 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 11). Firms that were more heavily influenced by the QSP did report higher entry skill requirements and stricter hiring policies, reflecting the increases in entry-level skills that the QSP mandated. Such changes, which were reported by 8.3 percent of all firms, suggest that a small amount of substitution occurred. Other anecdotal evidence in the employer survey points in the same direction. For example, one large employer reported a substantial 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.

One-fifth (19.8 percent) of all employers did report an increase in training. In every case where employers reported a change in training, they increased the amount of initial or on-the-job training provided. Although this result is consistent with the increased training mandates of the QSP, like the other comparisons in Table 11, it is not statistically significant.[32]

Our findings from the worker interviews indicate that work in the QSP-covered jobs did involve increased skill and more effort. In our worker survey, 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."

In summary, both the worker interviews and employer survey confirm that employees are working harder, whether this increased effort is 'voluntary' or because employers are demanding

more. Our anecdotal worker interviews suggested that working harder and with more stress was generally seen as a favorable tradeoff for greater pay and the associated sense of appreciation for their work. However, we lack any quantitative survey data from workers on this question. In all likelihood the increased work effort probably reflects some combination of the two.

Changes in the level of employment and airport activity

A principal issue with wage mandates as broad as the QSP concerns whether any displacement of workers occurred as a result of the policies. Fewer workers might be hired if capital is substituted for more expensive labor, or if cost increases reduce the level of airport activity. Either channel might result in fewer employed workers after the program than before. In this section we examine first the employment effects and then consider trends in the level of airport activity.

To examine employment effects, we compared 1998 employment by occupation for selected (mainly low-wage) occupations and employers with mid-2001 employment for the same occupations and employers. The results are presented in Table 12. The 1998 estimate is based on the Airport Commission's own economic impact study, and provides a reliable baseline; our pre-QSP employer survey showed that employment levels were stable from 1998 to 1999. The data for mid-2001 come from our own employer survey, and are confirmed by very similar figures (not shown in the table) from our SFO Badge Office data for the same time period.

The results in Table 12 indicate that employment among airlines and airline services firms *rose* 15.6 percent during the period in which the QSP was implemented.[33] Over the same time period, airport activity rose by 4 percent, indicating that employment grew faster than activity. The most likely source of the greater increase in employment derives from the opening of a new International

[32] Our sample size is not large enough to permit testing whether the increase in training is causally related to the increase in wage rates.
[33] These figures are for ground-based airline and airline service positions only.

Terminal in late 2000 and associated expectations of increases in Pacific Rim traffic. As Figure 1 indicates, a substantial growth in international activity levels had already begun in 1999; the expansion in terminal capacity had generated optimistic forecasts of further sharp increases in passenger levels. Employers then hired more workers during their migration from the old to the new International Terminal and staffed up in anticipation of higher activity levels.

We have examined the airport activity trends more closely over the 1999 to 2001 period. Table 13 compares the percentage change, over the previous year, in 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. These reductions in passenger volume do not appear to be causally related to the QSP. Rather, the declines in domestic 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 correspondence is illustrated in Figure 2, which tracks the relationship between growth in activity at SFO and the economic growth in the Bay Area.

In Figure 2, 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 growth was negative from the start of 2001.

One carrier, Southwest Airlines, did cease operations at SFO in March 2001, after the QSP went into effect, relocating to Oakland, San Jose and Sacramento.[34] 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. In 2000, Southwest Airlines enplaned some 440,000 passengers at SFO, representing 2.7 percent of total SFO passenger departures. This volume exceeded the total increase in departures at Oakland International Airport in 2001 as compared with 2000.[35]

The evidence thus does not suggest that the costs of 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. 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.

Changes in employment of low-skilled workers

What about labor-labor substitution? Standard economic theory predicts that mandated wage increases that are set above competitive equilibrium levels will lead to some employee displacement. In a perfectly competitive situation, the firm can no longer afford to employ low skill (and hence low productivity) workers and remain in business. 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.

However, the standard economic theory makes very restrictive assumptions about the competitive character of labor markets. Airport labor markets certainly do depart from the competitive textbook model. Screener firms at SFO historically hired older workers, many of whom were recent immigrants from the Philippines and who were not able to compete for more skilled

[34] 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."
[35] Departures from Oakland increased by 410,000, or 7.8 percent, in 2001 over the previous year (OIA 2002).

jobs. These workers tend to be highly educated and many have professional degrees that are not recognized in the United States. For these reasons, skill-based substitution would be unlikely.

In addition to its wage mandates, 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 implemented by finding alternative employment positions at the airport for those without the requirement, rather than to disemploy any existing workers. The mandate still cannot entirely prevent displacement because firms could still use normal attrition to substitute more skilled workers.

A survey of baggage screeners conducted for the 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 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 the implementation of the Airline Transportation Security Act (June 2000 to November 2001). The results are presented in Table 14.

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 the proportion of workers hired with high school plus some college rose from 16.5 percent to 23.1 percent. This change indicates a relatively small displacement effect for less educated workers, since the "some college" group includes workers that may have enrolled in as little as one college-level class.[36] Moreover, it is not statistically significant.[37]

[36] 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.

[37] This analysis refers only to screeners, the occupational grouping that received the largest wage increases as a result of the QSP. We expect displacement effects to be smaller for other occupations.

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. 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 the same approach and CPS dataset to estimate the likely displacement effects of the QSP wage increase (details are provided in Reich, Hall and Jacobs 2003). 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.[38]

Finally, we consider whether employers responded to the increased wage mandate by hiring workers with different demographic characteristics. The displacement of workers who are then unable to find work elsewhere would be an undesirable and unintended consequence of the policy. As Table 15 shows, we found, using SFO Badge Office data, 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 or race.[39]

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

[38] These data do not tell us whether the policy helped the incumbent low-skilled jobholders or protected the number of low-skill jobs.

[39] The proportion of workers in different racial/ethnic groups did not change with the implementation of the QSP. The proportion of young workers (those aged less than 24 years old) is higher among those hired after QSP implementation. 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.

proportion of women hired did not change (32.3 versus 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 summarize, we find 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 or race.

Conclusions

Unlike most other living wage policies, which typically cover only a small number of workers and have limited spillover impacts on the local labor market, the policies examined in this paper had a major impact on the labor market at San Francisco Airport. About 8,000 of the 11,000 low-wage ground-based non-managerial workers received wage increases as a result of these policies. Other benefits to workers included new health benefits for approximately 2,000 workers and improved health packages or a wage premium for all 8,300 workers covered by the QSP.

Hence, the living wage policies at SFO effectively established a binding minimum wage norm in this distinct labor market. Prior to the implementation of the wage policies, 55 percent of ground-based non-management jobs paid an average of less than $10 per hour; by June 2001, only 5 percent fell below this level. These wage increases substantially reduced the overall level of wage inequality in the airport labor market.

The total costs of the wages, health benefits, leave and employer-paid taxes that are directly or indirectly attributable to the living wage policies cost $57.8 million per year, equivalent to 0.7

percent of airline revenues. We argue that these costs are, for the most part, incurred by airlines operating at SFO. If these costs were passed on to consumers, they would average $1.42 per airline passenger.

We also identify a series of dynamic adjustments by firms and workers that generated cost savings and improved productivity. Large turnover declines occurred among jobs that received the largest wage increases; turnover rates fell by 80 percent for airport screeners and by 44 percent for cabin cleaners. The cost savings associated with lower turnover amounted to 11 percent of employers' costs. More employers reported improvements than reported deterioration in: overall worker performance (35 percent versus 4 percent), morale (47 percent versus 16 percent) and customer service (45 percent versus 3 percent), as well as less absenteeism (29 percent versus 5 percent), and fewer disciplinary issues (44 percent versus 9 percent) or problems with equipment maintenance (29 percent versus 4 percent). Consistent with the higher training standards mandated in the QSP and the decrease in turnover, one fifth of employers reported increases in employer-provided training . These dynamic adjustments offset the total costs of the policies.

The employment data do not suggest that the living wage policies resulted in disemployment at SFO. Employment of ground-based airline and airline service workers rose 15.6 percent during the period in which the living wage policies were implemented. Data on airport activity levels also show that they were not affected by the living wage policies; we show that airport activity declined in concert with the downturn in the Bay Area economy, and then turned sharply downward after September 11, 2001. It was only after this shock that airport employment declined.

One concern with living wage laws is that they may lead to the displacement of intended beneficiaries of the policy. There is some evidence that the living wage laws slightly changed hiring patterns of firms, specifically the hiring of more male workers in some low-wage occupations. The QSP also entailed the intentional raising of education requirements for screeners but this

requirement was not used to displace any incumbent workers. There is no evidence that the QSP changed hiring patterns by race and age.

The SFO case, one of the largest living wage experiments in the U.S., shows how an ambitious public intervention in a local labor market can succeed. But how generalizable is the SFO experience? The impressive scale of the impacts at SFO reflects three distinct characteristics that differentiate this policy experiment from living wage policies enacted elsewhere. First, the wage policies at SFO were binding for a very large proportion of the workers in the airport labor market, unlike contractor-focused living wage ordinances that typically benefit only a small number of workers. The SFO experience consequently suggests that area-based living wage ordinances or local minimum wage ordinances may be able to deliver benefits to workers on a wider scale. Second, beyond simply improving wages and benefits, the SFO policies addressed a wider range of employment standards and regulations, notably in the hiring and training requirements, the labor peace/card provisions, and the worker protection clauses. Such an institutional context might be more conducive to improved labor-management relations and to generating the observed efficiency wage-type effects. 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. Third, the policies were implemented in a context that maximized the likelihood that their costs would be borne by consumers, rather than through reduced levels of business or contractor effort, or through increased costs to taxpayers.

The story of the QSP and other employment policies at SFO provides some encouragement for attempts to reverse the growing wage inequality that has characterized the U.S. labor market since the 1970s. As we have seen, this policy was able to raise pay and benefits for low-wage workers without adverse impacts on employment or business conditions. Whether it can do so in other comparable environments, such as other airports or urban labor markets more generally, constitutes

an important topic for further research.

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Table 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 figure 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.

Table 2 Pay before and after QSP, selected job titles

Job titles	Number of workers	Minimum entry wage		Average wage	
		Before QSP	After	Before QSP	After
Customer service agents	3,700	5.75	10.00	10.15 (0.70)	11.85 (0.48)
Administration/ clerical	200	7.40	9.00	10.90 (1.07)	13.45 (1.73)
Baggage/ ramp agents	2,500	6.95	10.00	10.50 (0.78)	12.35 (0.31)
Cabin cleaners	700	6.00	10.00	9.95 (1.38)	11.45 (0.49)
Screeners	1,000	5.75	10.00	6.50 (0.33)	10.05 (0.0)
Skycaps	200	5.75	10.00	6.35 (0.38)	10.00 (0.0)
All ground-based non-managerial employees	11,000	5.75	6.25	9.60 (0.35)	11.70 (0.33)

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

Note: Standard errors shown in parentheses. 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. Sample size before QSP = 5,497 employees and after QSP = 5,827 employees.

Table 3 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 (0.42)	11.25 (0.91)	7.55 (0.72)	8.00 (1.04)
Ramp	8.70 (0.44)	12.10 (1.19)	7.10 (0.20)	7.10 (0.20)
Cabin cleaner	7.85 (0.0)	10.80 (0.0)	7.20 (1.00)	7.20 (1.00)

Source: Reich, Hall and Hsu (1999).

Note: Standard errors shown in parentheses. 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. Sample size for airline employees =1,279 and for airline service employees = 265.

Table 4 High and low QSP impacts, by sector

	Airlines	Airline services	Concessions	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. High impact firms are defined as those in which the QSP resulted in at least a 10 percent increase in wages and benefits. Sample size = 24 firms.

Table 5 Wage distribution for SFO workers, before and after QSP

Average hourly wage in nominal dollars	Before QSP (mid-1999)	After QSP (mid-2001)
Less than $8 per hour	23.1	0.2
$8 to $9.99 per hour	32.0	4.7
$10 to $11.99 per hour	26.9	61.5
$12 to $13.99 per hour	16.0	28.2
$14 or more per hour	2.0	5.5
All ground-based non-managerial employees	100.0	100.0

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

Note: Chi-squared test indicates that the before and after QSP wage distributions are significantly different (p=0.000). Sample size before QSP = 5,497 employees and after QSP = 5,827 employees.

Table 6 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. Valid sample 83 to 92 respondents.

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:"

Table 7 Increases in total payroll costs after QSP ($ millions)

	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.

Table 8 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
Paired sample t-test of difference	P=0.616	P=0.013	P=0.000	P=0.001

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

Note: Sample size = 26 firms.

Table 9 Change in wages and turnover rates for selected job titles

	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. The pre- and post-QSP entry wage, average wage and turnover rates are significantly different at the 99 percent level for all occupations reported here according to the paired sample t-test.
Data cover April 2000 to June 2001.
Sample size for customer service = 1,621 employees, for baggage/ ramp = 1,484 employees, for cabin cleaner = 553 employees, and for screener = 916 employees.

Table 10 Employer reports of changes in employee performance

	"Better" or "a lot better"	"No change"	"Worse" or "a lot worse"	Significance level
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: Proportion of firms reporting "better" or "a lot better" is statistically significantly higher than the proportion of firms reporting "worse" or "a lot worse" at the:

*** = 99 percent confidence level.
** = 95 percent confidence level.
* = 90 percent confidence level.

All figures in percentages and may not add to 100 due to rounding.
Sample size = 28 firms.

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."

Table 11 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. Sample size = 35 firms. Differences are not statistically significant.

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:

Table 12 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 as the survey data sample was too small for reliable comparisons.

2. Includes United Airlines ramp, customer services and cabin cleaners only. All ground-based employees of other airlines are included.

Table 13 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.

Table 14 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.

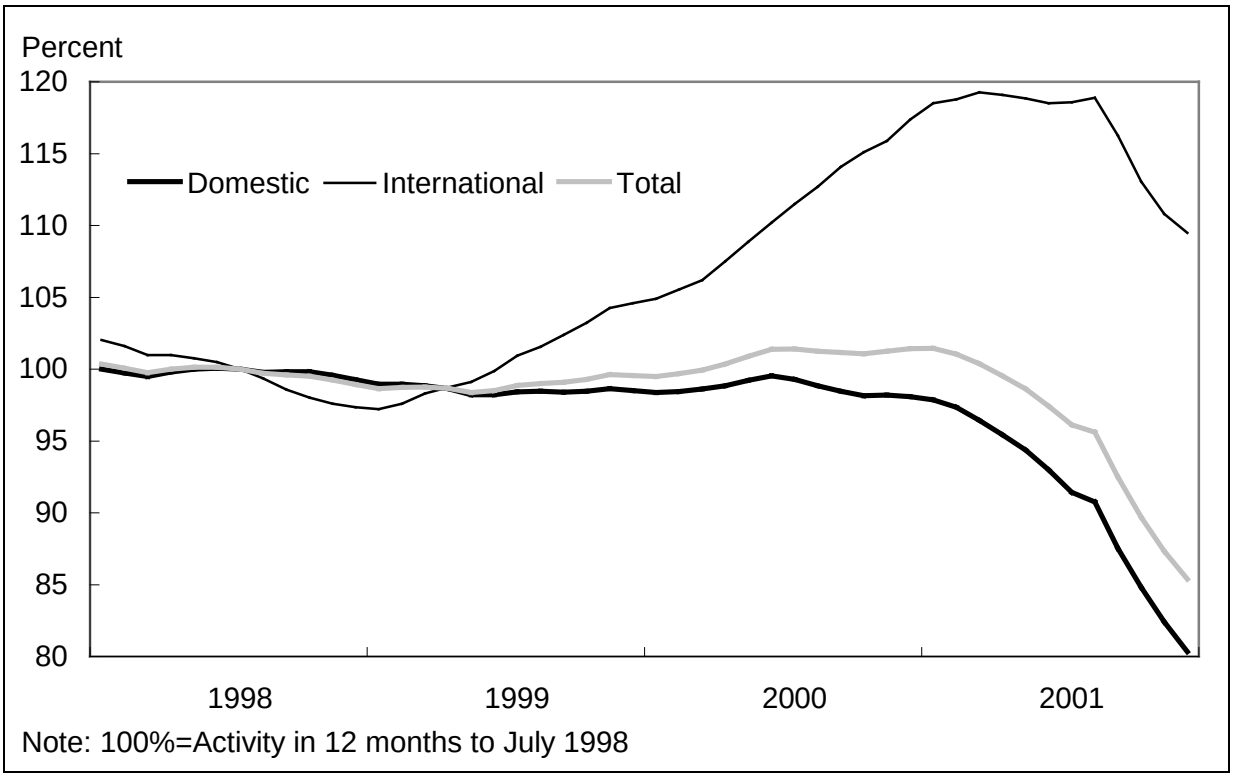
Note: Sample size Pre-QSP = 79 screeners and Post-QSP = 255 screeners.

Table 15 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
Chi-square		P=0.003		P=0.000
Valid n	1,715	2,891	1,055	1,873
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
Chi-square		P=0.651		P=0.849
Valid n	392	2,100	228	1,344
Gender				
Female	32.3	31.8	33.4	30.3
Male	67.7	68.2	66.6	69.7
Chi-square		P=0.679		P=0.079
Valid n	1,716	2,891	1,056	1,872

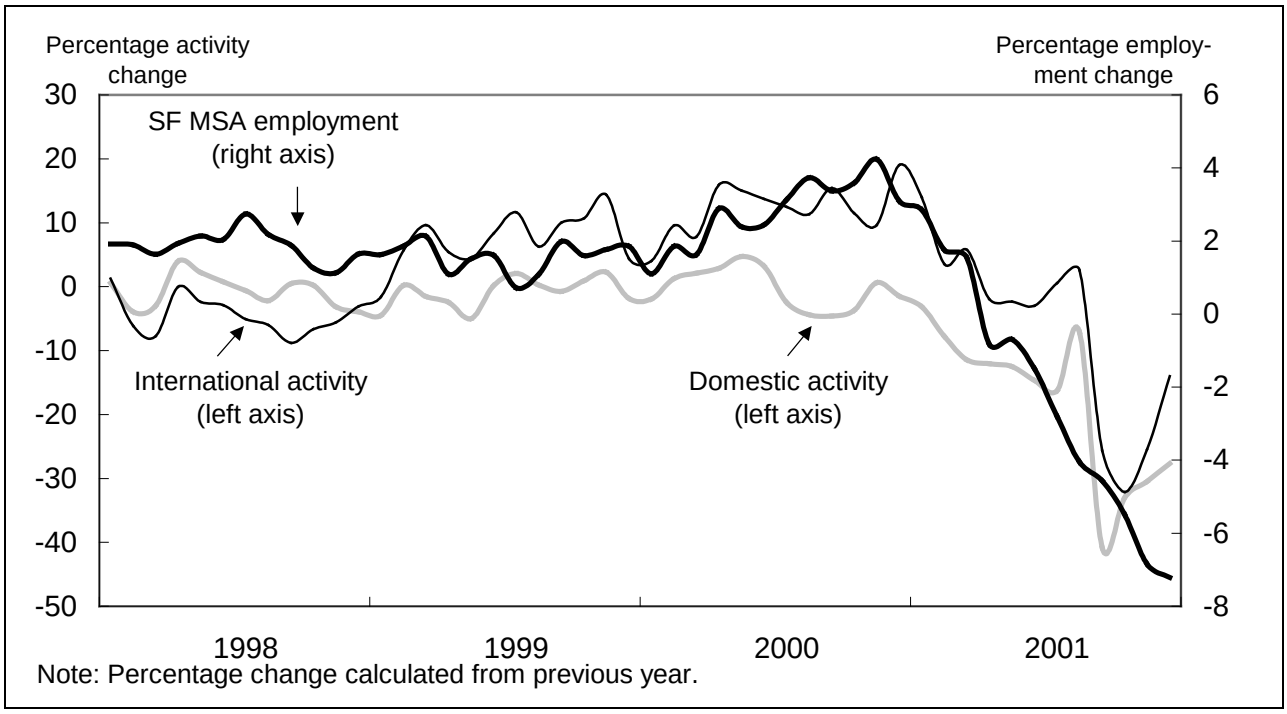
Source: Authors' analysis of SFO Badge Office data.

Figure 1 Activity at SFO was stable through early 2001 and then declined



Source: San Francisco International Airport (www.flysfo.com). Index represents Domestic, International and Total passenger enplanements and deplanements in the preceding 12 months.

Figure 2 Activity at SFO tracked the Bay Area economy: stable through early 2001, then declined



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