THE LABOR MARKET EFFECTS OF CITYWIDE COMPENSATION FLOORS

Evidence from San Francisco and Other "Superstar" Cities

Aaron Yelowitz
University of Kentucky

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Employment Policies
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Executive Summary

San Francisco is known as the City by the Bay, but for progressive advocates of wage and benefit mandates, it's a city on a hill. San Francisco has the highest compensation floor in the country, with (in 2012) a $10.24 minimum wage, a mandatory health care expenditure of as much as $2.20 an hour, and one hour of mandatory paid sick time for every 30 hours worked.

Left-leaning economists at the Institute for Research on Labor and Employment (IRLE) and the Center for Economic and Policy Research (CEPR) have argued that the city's wage mandates have had few consequences other than raising employees' wages, and promoted a higher minimum wage as a policy worth exporting elsewhere—such as cities like San Jose, CA.

But new research calls into question the earlier consensus on the lack of consequences from San Francisco's wage policy. In this study from economist Aaron Yelowitz of the University of Kentucky—who's previously studied the impact of a citywide minimum wage in Santa Fe—a careful analysis of Census Bureau data finds that compensation mandates like those in San Francisco have caused a substantial reduction in both weeks and hours worked by young adults, as well as a significant increase in unemployment for this vulnerable group.

Though touted as authoritative by advocates, the two earlier studies on San Francisco had shortcomings that cast doubt on their conclusions. For instance, both studies rely on data which only measures the total number of people employed at a business and doesn't permit analysis of the hours and employment of directly-affected employees (e.g. teens.) Nearby suburbs of San Francisco are also used as a control group, instead of a broad range of metropolitan areas that possess employment markets more similar to San Francisco.

This new study corrects the shortcomings present in the previous research. It uses the Census Bureau's American Community Survey, which has detailed data on the labor market experiences of teens and other workers in urban areas. The study also compares San Francisco with other "Superstar" cities—a term popularized by an earlier academic study—with which it shares important urban characteristics instead of comparing it to nearby suburbs.

The study results force younger employees are striking: Each one-dollar increase in a city's compensation floor—via wage or benefit mandates—increases unemployment among this group by nearly 4.5 percentage points (with all else being equal). It also causes a 26-hour reduction in the number of hours worked per year, and a 2 percentage point drop in labor for participation. (These findings are robust to a number of different valuations of San Francisco's paid benefit mandates.)

Dr. Yelowitz's study suggests that, though San Francisco considers itself a unique outpost of progressive thought, the laws of economics still apply. A double-digit compensation floor that affects employees at businesses with single-digit profit margins is guaranteed to create unintended consequences, no matter the political climate in which it occurs. It's a lesson that policymakers in San Francisco and elsewhere would do well to heed.

Introduction

In 2003, voters in San Francisco approved one of the only citywide minimum wages laws in the country; it was enacted in 2004. Although advocates have argued that citywide regulation of wage rates are a new trend, only four cities currently have such regulation, and no city has enacted a new minimum wage ordinance in the past five years.[1] In the years following the minimum wage increase, San Francisco added an employer health insurance mandate ("San Francisco Health Care Security Ordinance", implemented in 2008) and a paid sick leave ordinance ("San Francisco Paid Sick Leave Ordinance", implemented in 2007). With all three ordinances in place since 2008, the compensation floor—that is, the minimum expenditure for a typical employee in the city boundaries—is $12.38/hour in 2011, consisting of a wage floor of $9.92/hour, a health insurance contribution of $2.06/hour, and a paid sick leave contribution of roughly 1/30th of compensation (approximately $0.39/hour).[2] In contrast, the federal minimum wage stands at $7.25/hour, and the highest state-level minimum wage (as of 2012) is $9.04/hour.[3]

The goal of this study is to examine the labor market effects of rising compensation floors. To do so, we rely on publicly-available household data from the Census Bureau spanning the 2005-2010 period, and focus on 24 superstar cities.[4] Of these cities, San Francisco experienced a dramatic rise in its compensation floor over this period, while the other cities experienced more modest increases (in part due to federal or state laws, not city laws). We examine the overall effects on labor market activity, as well as the effects on teenagers—a group that may be particularly impacted by rises in compensation floors. The results strongly suggest that rising compensation floors adversely affected the labor market for teenagers, but not other workers. For teenagers, increasing the compensation floor by $1.00/hour (in constant 2010 dollars, and substantially smaller than the actual increase in San Francisco from 2005-2010) leads to (all other things being equal) a reduction in hours of work of 26 hours per year, a reduction in labor force participation of roughly 2 percentage points, an increase in unemployment of 4.47 percentage points, and a reduction in current work activity of 3.2 percentage points. In contrast, the labor market results on all adults are statistically indistinguishable from zero. The results for teenagers are from an econometric model that carefully accounts for city-specific factors, time-specific factors, and city-specific time trends. The results are robust to including alternative representations of San Francisco's compensation floor, when we vary assumptions on the costs of the health insurance and sick leave mandates. Although citywide compensa-

[1]The other cities that have citywide minimum wages are Santa Fe, NM (effective 2004), Albuquerque, NM (effective 2007), and Washington, DC (effective 1993). As of 2011, the minimum wage was $9.85/hour in Santa Fe, $7.50/hour in Albuquerque, and $8.25/hour in Washington, DC. See http://brennan.3cdn.net/61d71f6dc9f7116f1d_phm6bx3n9.pdf.

[2]The expenditure on health care reflects employees working in firms with 100 or more employees at all locations. According to data from 2007:Q3, approximately 51% of employees in San Francisco worked at a firm with 100 or more employees. Approximately 27% worked at a firm with between 20 to 99 employees, and 22% worked at a firm with less than 20 employees. Both mandates for health care and paid sick leave make distinctions by firm size. The Bureau of Labor Statistics (2011) estimates that employer costs for paid leave (vacation, holiday, sick leave and personal leave) averaged $1.90 per hour worked (or 6.7 percent of total compensation). Their estimate is substantially higher than the 3.3 percent of total compensation assumed in our study. The effective compensation floor would be $12.78/hour in San Francisco in 2011, if the BLS percentage was applied. We have re-estimated the models using a 6.7 percent adjustment to compensation rather than 3.3 percent; the labor market results are similar in magnitude and significance to what is presented. See http://www.bls.gov/news.release/pdf/ecec.pdf. We have also estimated models where we assume all employees only take 4 days of sick leave (even if they are entitled to more), which results in an adjustment to compensation of 1.5%. Again, the results are substantively unchanged.

[3]See http://www.dol.gov/whd/minwage/america.htm.

[4]Gyourko, Mayer and Sinai (2012, Appendix Table B, July 21, 2012) provide a list of superstar cities. Accessed from https://real-estate.wharton.upenn.edu/files/?whdmsaction=public:main.file&fileID=4393 on September 10, 2012.

tion floors might be proposed with good intentions, we find that they disproportionately harm precisely those individuals whom they are intended to help.

The remainder of the study is arranged as follows. Section 2 provides background on citywide compensation policies, and contrasts them to state policies and living wages. Section 3 reviews related literature. Section 4 provides a data description, and Section 5 sets up the empirical framework. Section 6 presents the results, and Section 7 concludes.

Background on Citywide Minimum Wages, Living Wages, and Statewide Policies

Unlike so-called living wages and statewide minimum wages, citywide minimum wages are a relatively new policy tool, and cities have been much more apprehensive to adopt them. They often run into resistance from other levels of government; for example, when Wisconsin raised its statewide minimum wage in June 2005, it also preempted cities from passing their own minimum wage ordinances.[5] The statewide legislation removed relatively new citywide minimum wage ordinances that had been enacted in Eau Claire, Lacrosse, Madison and Milwaukee.[6] At least 15 states either preempt or have considered preemption.[7] When New Orleans voters passed a ballot initiative on February 2, 2002 raising the minimum wage in the city to $6.85/hour, the Louisiana Supreme Court struck it down several months later, finding that it violated the 1997 state law that bans local wage standards.[8] Despite these failures, citywide minimum wages have been enacted in a handful of communities. Washington, DC passed a citywide minimum wage nearly two decades ago that mandates a wage floor $1 above the federal minimum wage. San Francisco passed a citywide minimum wage in November 2003 (and followed up with additional interventions, discussed below). The city council in Santa Fe, NM passed a citywide minimum wage ordinance of $8.50/hour in February 2003 for larger businesses, and after litigation, it was enacted in June 2004.[9] It is currently $9.85/hour, and applies to businesses of all sizes.[10] After voters in Albuquerque, NM rejected a citywide minimum wage in October 2005, the Albuquerque City Council passed a citywide minimum wage of $6.75/hour in April 2006 (effective January 2007).[11] It is currently $7.50/hour.[12]

In contrast to the limited adoption of citywide minimum wages, living wage ordinances are more widespread. One group that advocates for raising wage floors notes that there are approximately 125 municipalities with "living wage" laws.[13] These laws often have very high wage floors relative to the federal minimum. For example, in a number of localities, the wage floor is more than $15/hour. Yet the reach of such laws is fairly limited, because they tend to be restricted to workers whose employers have certain interactions with the local government. For example, the living wage ordinances may be restricted to local government employees, firms with public contracts, or businesses that receive economic development assistance.

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[5]See http://www.scfl.org/?ulnid=1077 and http://www.brennancenter.org/page/-/d/inaf_17.pdf .
[6]See http://www.brennancenter.org/content/resource/madison_wisconsin_passes_minimum_wage_law/
[7]See http://www.brennancenter.org/page/-/d/inaf_17.pdf .
[8]See http://www.dsausa.org/lowwage/newsitems/NewOrleans.html .
[9]See Yelowitz (2005a, b) for more details on the legislation and employment effects. See http://epionline.org/study_detail.cfm?sid=90 and http://epionline.org/study_detail.cfm?sid=91 .
[10]See http://www.santafenm.gov/index.aspx?NID=84 .
[11]See http://www.cabq.gov/council/documents/minimum_wage/o_06_20.pdf , http://www.cabq.gov/council/news/minimum-wage-increase/, and http://www.nmbar.org/AboutSBNM/sections/EmploymentLaborLaw/Enewsletters/ABQMinimumWageOrdinance.pdf .
[12]In addition, Sandia Pueblo, NM (an Indian reservation near Albuquerque, NM) passed an $8/hour minimum wage in 2006. See http://www.abqjournal.com/news/apsandia05-02-06.htm.
[13]See http://nelp.3cdn.net/868ea671a716946d7d_vrm6i214o.pdf , National Employment Law Project, July 2011.

TABLE 1: Compensation Floors in Superstar Cities Expressed in Constant 2010 Dollars			
Year	San Francisco Compensation Floor	Los Angeles Wage Floor	Boston Wage Floor
2010	$12.14	$8.00	$8.00
2009	$11.83	$7.87	$7.87
2008	$11.35	$7.90	$7.90
2007	$8.98	$7.13	$7.13
2006	$8.43	$6.24	$6.24
2005	$7.98	$6.05	$6.05

TABLE 2: More Details on San Francisco Expressed in Nominal Dollars			
Year	Wage Floor	Health Insurance Floor for Large (100+)/Medium Size (20-99) Business	Sick Leave Floor (Assuming Employee Uses all days) Multiple of 1/30
2010	$9.79	$1.96 / $1.31	(3.3% of compensation) multiple of 1/30
2009	$9.79	$1.85 / $1.23	(3.3% of compensation) multiple of 1/30
2008	$9.36	$1.76 / $1.17	(3.3% of compensation) multiple of 1/30
2007	$9.14	0	(3.3% of compensation) multiple of 1/30
2006	$8.82	0	0
2005	$8.62	0	0

Minimum wage levels above the federal minimum have been adopted by many states in the northeast and western parts of the US.[14] In 2011, 17 states have minimum wages higher than federal level of $7.25/hour; the highest is in Washington State at $9.04/hour.

Although there are localities that pay a limited set of workers higher wages, in terms of broad coverage, San Francisco, CA has the highest "compensation" floor in the country. In addition to an indexed citywide minimum wage that reached $9.92/hour in 2011 (slightly higher than $9.85/hour in Santa Fe in 2011), San Francisco also requires employers to pay for health insurance and offer paid sick leave for employees. As Table 1 illustrates, the compensation floor—the hourly costs from minimum wages, health insurance and sick leave—reached $12.14/hour in 2010 (which is the final year of data analyzed in this study), and is currently $12.38/hour. Relative to workers in Los Angeles and Boston—two other large superstar cities—workers in San Francisco are required to be compensated at real hourly rates that are approximately 50 percent higher in 2010. And this gap has increased dramatically over time; in 2005, the relative gap in real compensation was 31 percent.

Table 2 breaks out the components of the compensation floor in nominal terms in San Francisco over time. The compensation rates in Table 1 reflect the requirements for employees in large firms (100 or more employees at all locations); the compensation floors for medium sized firms (20 to 99 employees) and small firms (fewer than 20 employees) are lower. As can be seen, the imposition

[14]See http://www.dol.gov/whd/minwage/america.htm.

[15]See Yelowitz (2004) for a discussion of the economic consequences of employer pay-or-play mandates. See http://epionline.org/studies/yelowitz_09-2004.pdf.

of an employer health insurance mandate drove up hourly costs for firms in San Francisco starting in 2008, and a paid sick leave mandate was passed a year earlier.[15]

Related Literature

The literature on citywide minimum wages is fairly sparse for two main reasons. First, there are relatively few "case studies" to analyze. Of the four cities that have increased minimum wage levels, two present serious issues for empirical work. Albuquerque, NM had increases that were small (its minimum wage in 2011 is the same as New Mexico's, and is $0.25/hour higher than the federal minimum) and Washington DC has a labor force with a disproportionate share of public workers (nearly 25% of workers were in the public sector; in contrast, around 15% of workers in the New York City metro area were public employees).[16]

The two remaining cities—Santa Fe, NM and San Francisco, CA—have both been studied by various authors. Using the Census Bureau's Current Population Survey (CPS), Yelowitz (2005a,b) examined Santa Fe's increase in minimum wage from $5.15/hour to $8.50/hour (for firms with 25 or more employees), and finds that unemployment increased and usual hours of work fell. Pollin and Wicks Lim (2005) replicate the findings on unemployment and choose not to analyze usual hours of work). The authors argue that a broader set of labor market outcomes points to no adverse effects of the Santa Fe minimum wage, yet in other studies the same authors had rejected those measures.[17]

The impacts of the San Francisco minimum wage were analyzed in Dube, Naidu, and Reich (DNR, 2007). They restrict attention to the restaurant industry and find no detectable employment loss, examining the initial increase in the February 2004 minimum wage from $6.75/hour to $8.50/hour using survey responses collected in the beginning and end of 2004. To arrive at their conclusions, the authors created a survey that was then administered to restaurants in San Francisco and the East Bay. In addition to concerns about firm-level data that will be discussed below, the DNR approach is open to other criticisms, including the non-response rate of the telephone survey (over 60 percent), the creation of sampling weights to account for non-response, and the limited time frame.[18] In addition, Colla, Dow and Dube (CDD, 2010) examine the early impacts of the 2008 health insurance mandate in San Francisco. The authors do not examine employment effects, but find that there is little evidence of firms dropping existing health insurance coverage. To arrive at their conclusions, CDD created a survey that was administered to employee benefit managers in late 2008. Respondents were asked to recall their health benefit offerings in 2007, as well as any changes in 2008. The response rate to the survey was 21 percent, which leads to many of the same concerns as in the DNR study.

In a different study that examined citywide minimum wages in San Francisco, Santa Fe, and Washington DC, Schmitt and Rosnick (2011, p. 3) conclude there is "little evidence that the three citywide minimum wages had any systematic effect on employment in low-wage establishments, including the fast-food industry, the broader food-services sector, and retail trade."[19] They analyze

[16]See http://factfinder.census.gov/servlet/STTable?_bm=y&-qr_name=ACS_2009_5YR_G00_S2407&-geo_id=31000US47900&-context=st&-ds_name=ACS_2009_5YR_G00_&-tree_id=5309&-_lang=en&-format=&-CONTEXT=st.

[17]See the discussion in Yelowitz (2005b, p. 10-11) of the Heintz, Wicks-Lim and Pollin (2005) report. The authors use the state-level unemployment rate, the rate of involuntary part-time employees and the percent of long term unemployed persons in their work, and explicitly reject using the employment-to-population ratio.

[18]Ironically, DNR criticize relatively similar data collection efforts by the Golden Gate Restaurant Association (DNR, 2007, p. 525, footnote 2).

[19]See http://www.cepr.net/documents/publications/min-wage-2011-03.pdf.

the BLS's Quarterly Census of Employment and Wages (QCEW), and in their study as a control group for San Francisco, they define "the suburbs as Marin, San Mateo, and San Francisco counties; the control city as Oakland; and the Oakland suburbs as Alameda and Contra Costa counties." (footnote 5).

Although using geographically proximate areas as a control group has intuitive appeal, it is not at all clear that one would expect similar labor market responses to changes in the minimum wage or compensation floor; put differently, these areas may not be satisfactory control groups. Indeed, Dube, Naidu, and Reich (2007) specifically examine employment responses in tourist areas of San Francisco, noting that "demand for restaurant meals by tourists may be relatively less elastic, leading to a smaller disemployment effect in restaurants serving tourists than in other restaurants" (DNR, 2007, p. 533). The main methodological point, is that there is broad agreement that San Francisco may have characteristics that make it different from many other locations, *including other geographic areas in its proximity*. As one example, the population density (people per square mile) within the city of San Francisco is much different than most other cities within the San Francisco PMSA. The 2000 Census reveals a population density of approximately 16,600 in San Francisco, compared with 7,600 in San Mateo and 6,700 in South San Francisco. Density in the entire PMSA is approximately 5,300, again suggesting that the central city differs in important ways from the rest of the metro area.

In contrast to the sparse literature on citywide wage and compensation policies, there is a comparatively large body of literature on minimum wages in general (and statewide effects in particular). Summarizing the last two decades of research, Neumark and Wascher (2008, p. 104) state that "the preponderance of evidence supports the view that minimum wages reduce employment of low wage workers." In a recent analysis focusing mostly on statewide minimum wages, Dube, Lester and Reich ("DLR", 2010) find employment effects that are indistinguishable from zero. In their paper, they present a methodological critique of some previous studies which do not account include state-specific time trends (which would account for smooth, time-varying economic conditions across states). The DLR analysis focuses on employment (that is, a count of workers) and aggregate earnings at the firm level (mostly in the restaurant industry) using the Quarterly Census of Employment and Wages (QCEW). Although the authors apparently considered using arms-length, household data—the Current Population Survey (CPS)—they ruled it out concluding "is not well suited for this purpose due to small sample size and the lack of local identifiers." (DLR, 2010, p. 948). Neumark and Wascher (2008, p. 69) note, however, there are important reasons to believe that DLR overstate the importance of area-specific trends; they note that DLR do not control for population or overall employment, and factors like population growth could be correlated with changes in the minimum wage.

Although there are certainly some benefits from using a firm-based survey, such data has drawbacks relative to a household-based survey. First, as the authors correctly note, it is not possible to measure *work intensity* in the QCEW (e.g., hours of work). To the extent that hours are scaled back but jobs are not completely eliminated, such behaviors are impossible to detect in the QCEW. This is potentially an important concern; in previous work on Santa Fe's minimum wage increase from $5.15/hour to $8.50/hour, Yelowitz (2005) found that usual hours of work fell significantly in the CPS. Other outcomes measured at the individual-level—like labor force participation and unemployment—also cannot be measured in the QCEW. Second, the use of firm-level data makes it difficult to measure the *incidence* of rising compensation floors. The main reason that DLR focus on the restaurant

industry is that restaurants "employ a large fraction of all minimum wage workers", yet the authors note that more than two-thirds of all restaurant workers earn substantially above the state or federal minimum wage (DLR, 2010, p. 948). Thus, even in an industry where the law might be thought to have the most impact, a large majority of workers are unaffected by the law. One cannot directly analyze how the minimum wage affects certain target groups—such as the teenagers—with such data, and a number of studies focus on this age group.[20]

Our study makes a number of contributions to the literature. First, we focus on San Francisco's compensation floor increase from 2005-2010, and compare the labor market effects there to other superstar cities as opposed to surrounding suburbs. All of our specifications include city-specific time-trends, a methodological concern discussed in DLR (2010). Second, we focus our analysis on arm's length, household-based data.[21] This allows us to examine a more comprehensive set of labor market outcomes, and focus on vulnerable groups. Our approach overcomes another concern in the DLR (2010) study, where the use of the CPS was rejected due to small sample sizes and coarse geographic identifiers. Instead, we rely on the American Community Survey, which has sample sizes that are more than ten times as large as the CPS, and (since 2005) offer geographic identifiers at fairly disaggregated levels. Finally, the responses rates to the ACS are nearly 100 percent (because participation is compulsory); in contrast, the response rates are usually 40 percent or lower for firm-based surveys.

Data Description

In our empirical work, we use the one-year samples of the 2005-2010 American Community Survey (ACS) Public Use Microdata Sample (PUMS). Starting with the 2005 PUMS, the number of housing unit records contained in a one-year PUMS file is about one percent of the total in the nation or approximately 1.3 million housing unit records and about 3 million person records.[22] The ACS often asks similar questions to the now phased-out decennial Census long forms. Important for our purposes, the ACS asks numerous questions about labor market activity. Unlike most other household surveys that the Census Bureau conducts, respondents are required by law to participate in the ACS.[23] In addition to sample sizes that are more than ten times as large as that found in the Current Population Survey (CPS), the ACS also provides finer geographic coding. The Public Use Microsample Area—or PUMA—offered in the ACS often allows researchers to identify political boundaries more precisely than with other publicly available micro datasets. For example, we are able to examine labor market responses for households within the city boundaries of San Francisco, instead of the entire Primary Metropolitan Statistical Area (which includes not only San Francisco county, but Marin county and San Mateo county). In other data sets—such as the CPS—it is more difficult to identify such boundaries, and the sample sizes could be insufficient for empirical analysis (see DLR, 2010). Appendix Table 1 illustrates how the Census Bureau subdivides the city of San Francisco into seven distinct PUMAs.

To create the sample for our empirical analysis, we examine 120 PUMAs that were contained in 24 superstar cities. We rely on the definition in Gyourko, Mayer

[20]See Neumark and Wascher (2007) and Orrenius and Zavodny (2008), for example.

[21]By "arm's length" we mean that we were not associated with the data collection, in contrast to many of the studies of San Francisco. Instead, the Census Bureau was entirely responsible for designing and implementing the *American Community Survey*.

[22]See http://www.census.gov/acs/www/data_documentation/public_use_microdata_sample/

[23]Source: http://www.census.gov/acs/www/Downloads/language_brochures/ACSQandA_ENG10.pdf . See Title 13, United States Code, Sections 141, 193, and 221. The decennial Census is a notable exception in that it is mandatory.

and Sinai (2012, p. 16-17), who define "superstar" status based on whether a MSA is in the "high housing demand" category and in the top decile of the ratio of price growth rate-to-housing unit growth rate based on growth rates over the prior two decades. They further refine their measure to include MSAs that were superstars in at least two decades; this includes 21 MSAs (24 areas): Albany, Bergen-Passaic, Boston, Dutchess County, Jersey City, Los Angeles, Nassau-Suffolk County, New Haven, New London, Newark, Oakland, Philadelphia, Pittsfield, Providence, Salinas, San Francisco, San Jose, Santa Barbara-Santa Maria, Santa Cruz, Springfield and Trenton (Gyourko, Mayer and Sinai, Appendix Table B). We restrict our analysis to these areas.

The ACS asks labor force information on individuals aged 16 and older; we focus on non-elderly individuals aged 16 to 64. Although not a major problem for many questions, the ACS provides imputed values for variables when a respondent does not answer the question. We exclude individuals that have imputed values on any of the key demographic variables (including age, sex, schooling, race, ethnicity, citizenship, marital status, military service, fertility, and ability to speak English). In addition, we exclude an individual's work responses in a particular regression if that response was imputed.[24]

We focus on seven measures of work activity that span both the entire previous year as well as current behavior. The annual measures include usual hours worked per week, weeks worked per year, annual hours, and any work during the year. The contemporaneous measures include work in the previous week, unemployment and labor force participation. Appendix Tables 2 and 3 define the labor market measures more precisely.

Table 3 presents summary statistics for the whole sample and by year. In the full sample, there are more than 500,000 individual responses across the five years and 21 PMSAs. On average, the typical respondent worked nearly 1,400 hours per year. Nearly three-quarters of the sample was in the labor force, and of those in the labor force, 8.2 percent were unemployed. Approximately 40 percent of the sample has a high school diploma or less, and less than half the sample is white. Nearly 20 percent are non-citizens. As would be expected, all labor market outcomes become worse after 2008.

With 24 separate cities, we do not show descriptive statistics by city. Although not shown, it is clear that San Francisco differs in some respects from other large cities, and from many of the smaller cities. We include city fixed effects to remove sources of heterogeneity that vary across city but remain fixed over time.

Empirical Approach

Our empirical approach estimates the effects of rising minimum wage floors by examining the effects in 24 superstar cities, including San Francisco. The "superstar city" term—popularized in a study by Gyourko, Mayer and Sinai—was meant to explain rising housing prices in some localities relative to others.[25] They argue that lack of available land combined with an attractive location may lead to above-average rates of growth in house prices as high-income individuals drive up the price. Of the superstar cities listed in the appendix of their 2012 study, only San Francisco has implemented a city-wide "compensation" floor composed of a minimum wage higher than California's, a pay-or-play health insurance mandate, and a paidsick leave mandate. Although the other superstar cities often had wage floors higher than

[24]Bollinger and Hirsch (2006) find that in the context of earnings in the CPS, coefficient bias due to the imperfect imputation is widespread and often severe. They suggest, in the context of earnings, that a simple alternative is to exclude imputations, and base estimates on a respondent-only sample.

[25]See http://www.nber.org/papers/w12355 , and the more recent version previously referenced.

TABLE 3: Summary Statistics (Standard deviations in parentheses)							
	Full Sample	2005	2006	2007	2008	2009	2010
Usual Hours Per Week During Year (Includes Zero Hours)	29.5 (19.7)	30.1 (19.7)	30 (19.7)	30.2 (19.6)	30 (19.4)	28.9 (19.6)	27.8 (19.9)
Weeks Worked Per Year (Includes Zero Weeks Per Year)	34.4 (22.4)	34.4 (22.2)	34.4 (22.3)	34.4 (22.2)	35.5 (22.1)	34.5 (22.5)	33.1 (23.1)
Annual Hours (Includes Zero Annual Hours)	1373 (1035)	1387 (1036)	1383 (1038)	1390 (1036)	1419 (1028)	1360 (1029)	1301 (1039)
Worked Last Year	77.1%	77.9	78.0	78.2	78.4	76.4	73.8
In Labor Force	74.9%	74.3	74.3	74.2	76.2	75.9	74.4
Worked Last Week	66.8%	66.3	65.9	66.0	70.7	67.1	65.2
Unemployed	8.2%	7.4	6.8	6.4	6.6	10.6	11.4
Compensation Floor (Constant 2010 Dollars, Using Sick Leave at 3.3% and Maximum for HI Madate)	$7.65 ($0.98)	7.10 (0.92)	7.19 (0.74)	7.76 (0.62)	7.92 (0.96)	7.98 (1.08)	7.91 (1.06)
Age	38.8 (13.5)	39 (13.2)	38.7 (13.4)	38.8 (13.5)	38.9 (13.6)	38.7 (13.5)	38.7 (13.7)
Male	49.7%	49.4	49.6	49.8	49.9	49.9	49.5
No Diploma	18.3%	19.6	18.7	18.2	18.1	17.4	17.8
High School Graduate	23.1%	23.8	24.6	24.8	21.5	22.0	21.7
Some College	26.7%	25.0	25.6	25.6	27.9	28.0	28.1
College Diploma	31.9%	31.7	31.1	31.4	32.5	32.5	32.3
White	47.8%	48.5	48.4	48.1	48.1	48.0	45.5
Black	12.6%	12.5	12.8	12.7	12.6	12.5	12.6
Hispanic	25.2%	24.8	24.6	25.0	25.3	25.1	26.7
Non-Citizen	18.3%	19.3	18.5	18.5	18.0	17.3	18.2
Married	45.5%	49.2	45.9	45.6	44.7	44.1	43.5
Military Service	4.4%	5.1	4.8	4.7	4.3	4.1	3.7
Moved in Past Year	14.9%	15.3	15.3	15.0	13.9	14.4	15.6
Has Own Child	3.5%	3.7	3.6	3.7	3.5	3.5	3.4
Related Child In Household	3.9%	4.1	4.0	4.1	3.8	3.8	3.7
Disabled	5.5%	9.9	10.5	10.2	7.9	8.1	7.5
Child under 5 present	4.0%	4.1	3.8	3.9	3.9	4.1	4.1
Child 6-17 present	9.3%	10.2	9.5	9.3	9.1	9.1	9.0
Both Children Under 5 and 6-17 Present	3.3%	3.6	3.2	3.2	3.2	3.2	3.2
No Own Children	31.9%	27.2	32.8	32.8	32.9	32.6	33.1
Woman Gave Birth in Past Year	2.0%	2.1	2.0	1.9	2.2	2.0	1.9
Any Difficulty Speaking English	19.3%	19.9	19.4	19.4	18.9	18.9	19.6
Potential Sample Size	507,797	82,326	85,367	85,284	81,927	85,782	87,111

the federal minimum wage, the wage levels were implemented at the state, not city, level.[26]

These superstar cities have common features that distinguish them from most other metropolitan areas. In addition to having rapid house price appreciation, the larger ones are all popular tourist destinations, having world-class dining, hotels and entertainment. Indeed, Dube, Naidu, and Reich (2007) specifically examine employment responses in tourist areas of San Francisco, noting that "demand for restaurant meals by tourists may be relatively less elastic, leading to a smaller disemployment effect in restaurants serving tourists than in other restaurants" (DNR, 2007, p. 533).

Because of the similarities across these superstar cities, they form the core group for our analysis on rising compensation floors. Although there is the possibility that some businesses will move outside of city borders to avoid paying higher compensation (thus shifting, but perhaps not reducing employment within the metro area), one would expect this would be difficult for the types of businesses that rely on the particular amenities of the central city to draw in customers. For example, hotels or restaurants that cater to tourists would have difficulty moving far away from where many of their potential customers congregate. In this case, rising compensation costs may make operating within the central city unprofitable, and the lack of revenue outside of the central city may make operating on the outskirts of the city unprofitable as well. In this case, one may very well expect to see higher unemployment and the loss of jobs both inside and outside of the central city.[27]

We estimate a model that takes the following form:

$$OUTCOME_{ict} = \beta_0 + \beta_1 Floor_{ct} + \beta_2 X_{ict} + \delta_c + \delta_t + City\ Trend_{ct} + \varepsilon_{ict} \quad (1),$$

where $OUTCOME_{ict}$ is defined as one of the labor market outcomes in Appendix Table 2 (including usual hours worked per week, weeks worked per year, annual hours worked, whether the person worked in the past year, whether the person worked in the past week, whether the person is in the labor force and whether the person is unemployed), $Floor_{ct}$ is the minimum hourly compensation floor (expressed in constant 2010 dollars, in levels), X_{ict} is a set of characteristics that vary at the individual or household level (age, sex, race/ethnicity, education, presence of children, etc.), δ_c and δ_t are dummy variables for city (San Francisco, Los Angeles, Boston, etc.) and time (t=2005,...,2010), respectively, and $City\ Trend_{ct}$ is a city-specific time trend. The subscript i indexes individual, c indexes cities, and t indexes time period. All models are estimated as linear models, all observations are weighted by the person weight contained in the ACS, and the standard errors are clustered at the city-year level.

The compensation floor variable in equation (1) only varies at the city-year level. It could be the case, however, that San Francisco has higher cost of living than some of the other superstar cities; if this is the case, a higher compensation floor may not necessarily be binding, and therefore may not lead to negative labor market effects.

[26]Many cities have implemented so-called living wage ordinances that pay certain groups of workers (such as employees of firm that receive business assistance or have contracts with the locality) higher wages. Only a handful of cities have city-specific minimum wages that affect private businesses that do not have economic activity with the city government. The coverage of such living wage ordinances is clearly much smaller than minimum wage and other compensation mandates described here.

[27]These employment adjustments do not rule out other mechanisms, but the logic behind some of the other adjustments is often missing. For example, it is sometimes argued that minimum wages can be passed onto consumers in the form of higher prices, with no consequences for employment or firm profitability. Clearly demand for some goods and services may be somewhat inelastic, but it is implausible to believe that consumers are completely insensitive to prices. A natural question arises: if consumers don't respond to price increases, why don't profit-driven businesses continually raise prices (which in turn, would increase profits)?

By including fixed effects for each city and each time period, the impact of rising compensation floors is identified through *changes* in the compensation floor within a city over time; by including these controls for city and time, the coefficient estimate on the compensation floor could be thought of as a "difference-in-differences" estimator. Beyond controls for fixed city effects and fixed time effects (which control, for example, for the vastly different national economic conditions over time), we *also* include city-specific time trends. That is, the effect of compensation floors is identified from deviations from other city-trends that may be occurring. Given the staggered implementation in the compensation floor in San Francisco (where compensation went up dramatically with the health insurance mandate in 2008 and the sick leave mandate in 2007), identification is still possible with city fixed effects, time fixed effects, and city-specific trends.

Results

The results from the model in equation (1) are presented in Table 4. Although all the variables discussed in the model are included in the regression, only the coefficient on the compensation floor variable is presented. The panels show, successively, the results for the entire city and then results restricted to teenagers.

In the first panel, the model is estimated on nearly 500,000 non-elderly individuals across the 5 years and 24 cities. Raising the compensation floor does not lead to economically meaningful changes in labor market activity for the full sample. In all cases, the coefficients are statistically insignificant, and the point estimates are relatively small.

The second panel restricts attention to teenagers. Although teenagers represent less than 10 percent of the full sample, it is thought that changes in minimum wages or compensation floors can have a disproportionate impact on them. The ACS provides sample sizes of approximately 40,000 teenagers in these cities. In all cases, the negative labor market effects are statistically significant and dramatically larger than for the full sample. For example, the impact of a $1/hour increase in the compensation floor leads to reductions in annual hours of roughly 26 hours. The results on unemployment are approximately an order of magnitude larger than that for the full sample.

Both panels also show two alternative specifications. In the main specification, the cost of health insurance mandate in San Francisco is computed using the mandate for firms with 100 or more employees. Data from San Francisco County reveal that the modal worker is indeed in a firm of this size. In 2007, approximately 51% of employees were in firms with 100 or more employees, 27% were in firms with 20 to 99 employees and 22% were in firms with less than 20 employees.[28] In the second row of each panel in Table 4, we have recomputed the cost of the health insurance mandate, weighting by employment in each firm size. For example, in 2008, workers in large firms faced a mandate of $1.76 per hour, workers in medium firms faced a mandate of $1.17 per hour, and workers in small firms did not face a health insurance mandate. The weighted average is $1.21 per hour in 2008 (and $1.28 per hour in 2009 and $1.31 per hour in 2010). As the results in the second panels show, the conclusions about the compensation floor for both the full sample and the teenager sample remain unchanged. Finally, we explore the sensitivity of the assumption that employees use all of their sick leave (thereby inflating compensation by 1/30th, or 3.3%). Instead, we assume that all workers take 4 days of sick leave per year, an assumption consistent with other work. In this case, we inflate the compensation floor by approximately

[28]See http://www.labormarketinfo.edd.ca.gov/Content.asp?pageid=138 .

TABLE 4: Impact of Compensation Floors on Labor Market Outcomes All Individuals Within City							
	Usual Hours Per Week	Weeks Worked	Annual Hours	Worked Last Year	Worked Last Week	In Labor Force	Unemployed
Compensation Floor (Max HI)	-0.0975 (0.1542)	-0.0043 (0.1614)	-2.8218 (8.1562)	-0.0007 (0.0029)	-0.0046 (0.0037)	0.0019 (0.0032)	0.0052 (0.003)
R^2	0.2227	0.2083	0.2263	0.1848	0.1652	0.1756	0.0484
Compensation Floor (Weighted Average HI)	-0.059 (0.1608)	0.0174 (0.1678)	-0.8972 (8.2517)	-0.0004 (0.0032)	-0.0041 (0.004)	0.0024 (0.0033)	0.0044 (0.0033)
R^2	0.2227	0.2083	0.2263	0.1848	0.1652	0.1756	0.0484
Compensation Floor (Weighted Average HI & Sick Leave at 1.5%)	-0.0659 (0.1619)	0.0049 (0.1673)	-1.4586 (8.3402)	-0.0005 (0.0032)	-0.0041 (0.004)	0.0021 (0.0033)	0.0042 (0.0032)
R^2	0.2227	0.2083	0.2263	0.1848	0.1652	0.1756	0.0484
Sample Size	485,543	491,261	479,363	499,325	501,550	502,353	376,540
Impact on Teenagers							
Compensation Floor (Max HI)	-1.1922 (0.316)	-0.8451 (0.3654)	-26.9421 (12.0387)	-0.0383 (0.0097)	-0.0316 (0.01)	-0.0202 (0.0113)	0.0447 (0.0159)
R^2	0.1947	0.1683	0.1698	0.2127	0.1175	0.1259	0.0857
Compensation Floor (Weighted Average HI)	-1.2112 (0.3376)	-0.8051 (0.3839)	-25.8465 (12.7219)	-0.0397 (0.0103)	-0.0204 (0.0119)	-0.0198 (0.0118)	0.041 (0.0159)
R^2	0.1947	0.1683	0.1698	0.2127	0.1174	0.1259	0.0856
Compensation Floor (Weighted Average HI & Sick Leave at 1.5%)	-1.1998 (0.3337)	-0.8038 (0.3816)	-25.7761 (12.6207)	-0.0396 (0.0102)	-0.0302 (0.0103)	-0.0209 (0.0118)	0.0403 (0.0158)
R^2		0.1683	0.1698	0.2127	0.1175	0.1259	0.0856
Sample Size	39,563	40,509	39,130	40,485	40,809	40,878	14,727

Notes: : Results represent a "difference-in-differences" specification (dummy variables for city and time). Sample includes all individuals in the 2005-2010 American Community Survey aged 16 to 64 that reside in the 24 superstar cities. In addition to a constant term, specifications control for individual demographics (person's age, sex, ACS interview by mail, high school dropout, high school graduate, some college, race and ethnicity controls, citizenship, marital status, military service, migration, presence of own and related children, disabled, ages of children, fertility in past year, and difficulty speaking English). Specifications also include city-specific trends. Standard errors are in parentheses, and are clustered to account for correlations at the city-year level. All regressions include person weights. Individuals with imputed values for many demographic variables or labor force variables are excluded from the regressions.

1.5% (=(2080+32)/2080). As seen in the third row of each panel, the results are again unchanged. In summary, the results in Table 4 strongly support the notion that higher compensation floors harm the labor market for teenagers, even with changes to the parameterization of the compensation floor.[29]

Conclusion

This paper advances the literature on understanding the consequences of citywide labor market policies. Using arm's length, household level data from the Census Bureau's American Community Survey, this study is able to surmount a number of fundamental data collection limitations present in virtually all studies that examine firm level data. In addition, this study focuses attention on cities that might better be thought of as "control groups" for San Francisco. The findings strongly support the idea that rising compensation floors harm the labor market for teenagers: the results for work intensity and unemployment are robust across a variety of specifications. The results present a cautionary tale for cites that are considering intervening in the labor market: although well-intentioned, forcing firms to pay higher wages and other compensation harms precisely those workers that the laws are intended to help.

[29]In results not shown, we find that raising the compensation floor does not negatively affect work effort for more advantaged groups, such as those with greater levels of education, or those who are older, or both. This is consistent with the idea that higher compensation floors are the most binding for teenagers.

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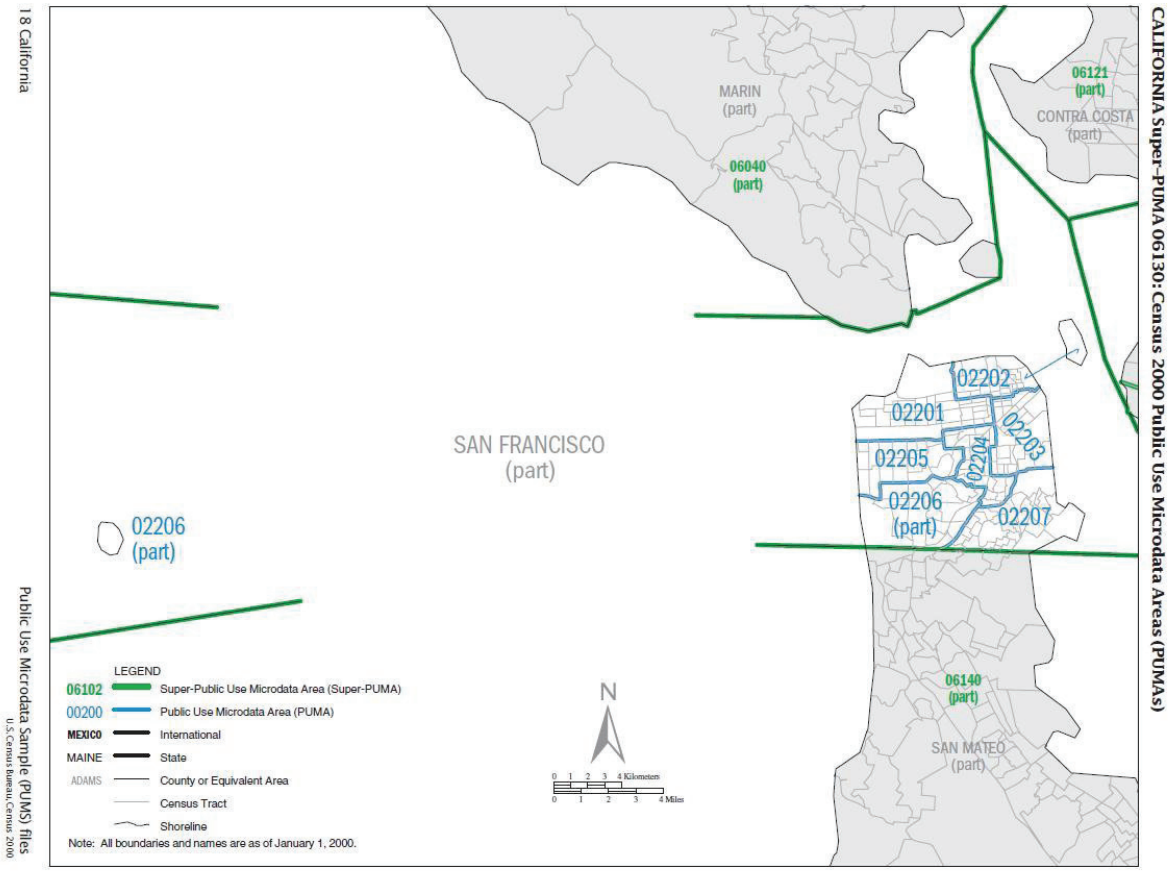
Appendix Table 1: Illustration of Census Geography Within San Francisco



APPENDIX TABLE 2: Labor Market Variables Used from the 2005-2009 ACS		
Labor Market Outcome	**Wording**	**Notes**
Usual Hours Worked Per Week	"During the PAST 12 MONTHS, in the WEEKS WORKED, how many hours did this person usually work each WEEK?"	Non-workers are assigned zero hours.
Weeks Worked	"During the PAST 12 MONTHS, how many WEEKS did this person work? Count paid sick leave, and military service"	From 2008 onward, the question was phrased in two parts: "During the PAST 12 MONTHS (52 weeks), did this person work 50 or more weeks? Count paid time off as work." And "How many weeks DID this person work, even for a few hours, including paid vacation, paid sick leave, and military service?" Respondents simply checked a box corresponding to the range of weeks that they worked (1-13 weeks, 14-26, 27-39, 40-47, 48-49, and 50-52), unlike the exact number in earlier years. We estimated average number of weeks worked from the 2005-2007 ACS's, conditional on being in a given category, and assigned that average to respondents in the 2008 and 2009 ACS. Non-workers were assigned zero weeks.
Annual Hours Worked	Usual Hours x Weeks Worked	
Worked in Past Year	"When did this person last work, even for a few days?"	Categories are "Within the past 12 months", "1 to 5 years ago", and "Over 5 years ago or never worked".
Work Last Week	"LAST WEEK, did this person work for pay at a job (or business)?" and "LAST WEEK, did this person don ANY work for pay, even for as little as one hour?"	In 2005-2007, the question read "LAST WEEK, did this person do ANY work for either pay or profit? *Mark (X) in the "Yes" box even if the person worked only 1 hour, or helped without pay in a family business or farm for 15 hours or more, or was on active duty in the Armed Forces."*
In Labor Force	Recoded from Employment Status Recode (ESR).	ESR is missing for those less than 16 years old. It is equal to 1 for Civilian employed, at work, 2 for Civilian Employed, with a job but not at work, 3 for Unemployed, 4 for Armed forces, at work, 5 for Armed forces, with a job but not at work, and 6 for Not in labor force. In labor force is defined as not being in category 6.
Unemployment	Recoded from Employment Status Recode (ESR).	Unemployment is defined as being in category 3, conditional on being in categories 1 through 5.

Source for Usual Hours:
http://www.census.gov/acs/www/Downloads/questionnaires/2010/Quest10.pdf (Question 40)
http://www.census.gov/acs/www/Downloads/questionnaires/2009/Quest09.pdf (Question 40)
http://www.census.gov/acs/www/Downloads/questionnaires/2008/Quest08.pdf (Question 39)
http://www.census.gov/acs/www/Downloads/questionnaires/2007/Quest07.pdf (Question 34)
http://www.census.gov/acs/www/Downloads/questionnaires/Quest05to06.pdf (Question 34)

Source for Weeks Worked:
http://www.census.gov/acs/www/Downloads/questionnaires/2010/Quest10.pdf (Question 39a,b)
http://www.census.gov/acs/www/Downloads/questionnaires/2009/Quest09.pdf (Question 39a,b)
http://www.census.gov/acs/www/Downloads/questionnaires/2008/Quest08.pdf (Question 38a,b)
http://www.census.gov/acs/www/Downloads/questionnaires/2007/Quest07.pdf (Question 33)
http://www.census.gov/acs/www/Downloads/questionnaires/Quest05to06.pdf (Question 33)

Source for Work Last Week:
http://www.census.gov/acs/www/Downloads/questionnaires/2010/Quest10.pdf (Question 29a,b)
http://www.census.gov/acs/www/Downloads/questionnaires/2009/Quest09.pdf (Question 29a,b)
http://www.census.gov/acs/www/Downloads/questionnaires/2008/Quest08.pdf (Question 28a,b)
http://www.census.gov/acs/www/Downloads/questionnaires/2007/Quest07.pdf (Question 23)
http://www.census.gov/acs/www/Downloads/questionnaires/Quest05to06.pdf (Question 23)

Source for Work Last Year:
http://www.census.gov/acs/www/Downloads/questionnaires/2010/Quest10.pdf (Question 38)
http://www.census.gov/acs/www/Downloads/questionnaires/2009/Quest09.pdf (Question 38)
http://www.census.gov/acs/www/Downloads/questionnaires/2008/Quest08.pdf (Question 37)
http://www.census.gov/acs/www/Downloads/questionnaires/2007/Quest07.pdf (Question 32)
http://www.census.gov/acs/www/Downloads/questionnaires/Quest05to06.pdf (Question 32)

APPENDIX TABLE 3: Converting groupings of "Weeks Worked" into Averages	
Weeks of Work Grouping (2008-2010)	Number of Weeks Assigned, Using Exact Amounts Reported in the 2005-2007 ACS
50 to 52 weeks	51.8484
48 to 49 weeks	48.1903
40 to 47 weeks	42.3805
27 to 39 weeks	33.058
14 to 26 weeks	21.2193
1 to 13 weeks	7.38004
Notes: We used the 2005-2007 ACS's to compute an estimate of the average number of weeks worked, conditional on being in a given category, and assigned that average to respondents in the 2008-2010 ACS.	

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