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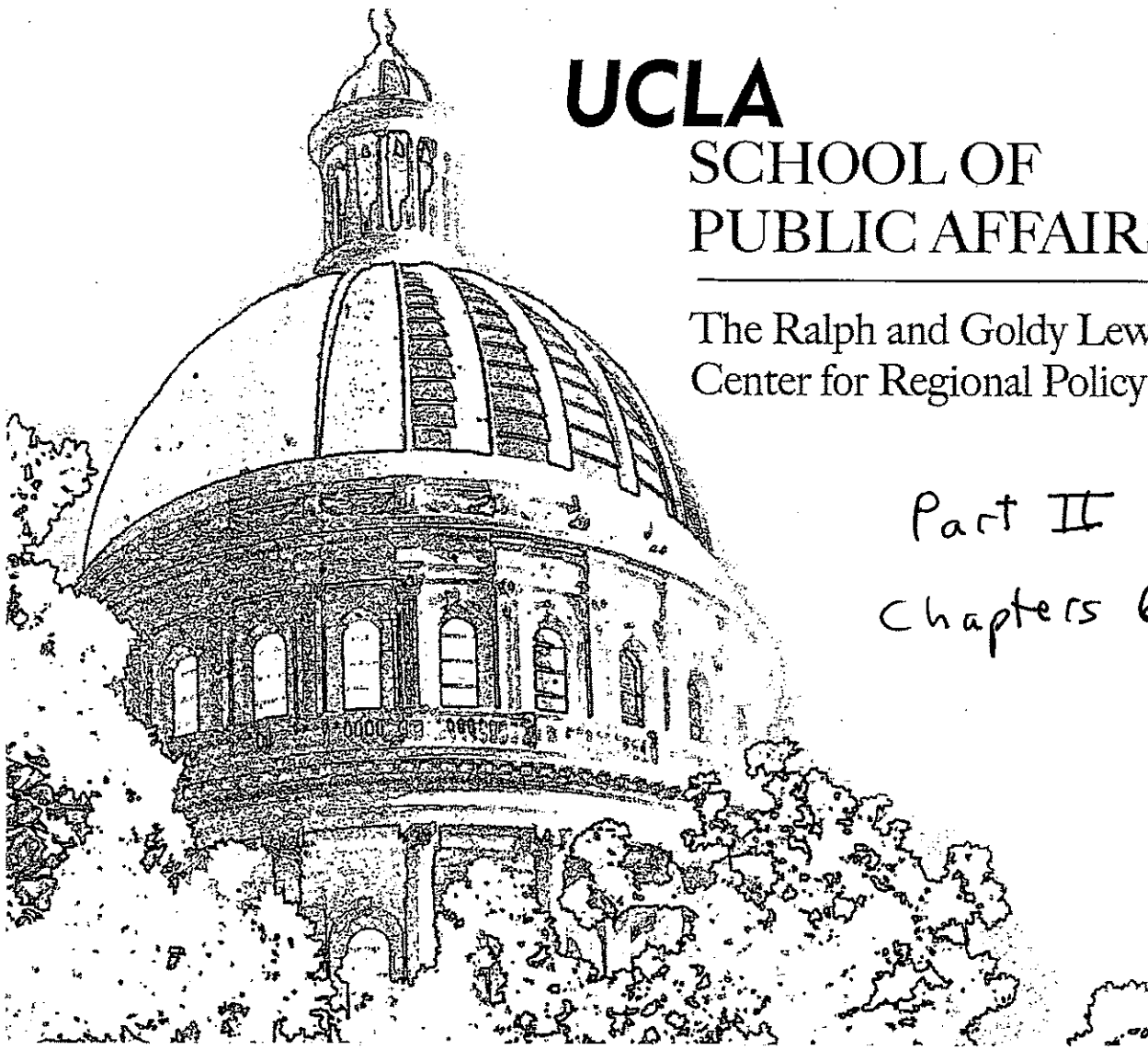
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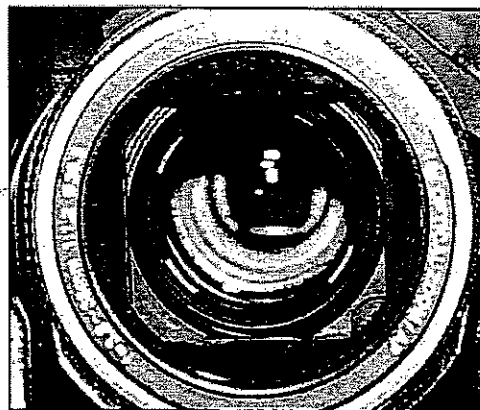
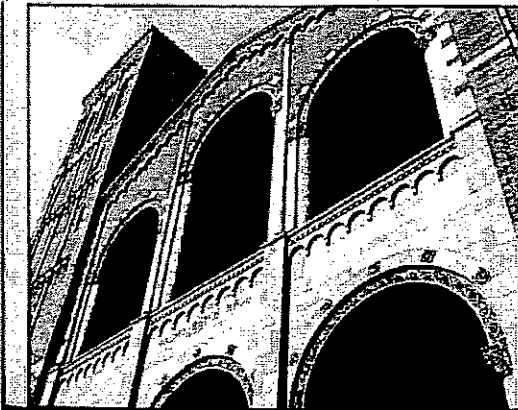
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**SCHOOL OF
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The Ralph and Goldy Lewis
Center for Regional Policy Studies

Part II
Chapters 6-9

California Policy Options 2009



**CALIFORNIA
POLICY
OPTIONS
2009**

**Edited by
Daniel J.B. Mitchell**

The School of Public Affairs
University of California, Los Angeles
and
The Ralph and Goldy Lewis Center
for Regional Policy Studies

California Policy Options 2009
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THINKING OUTSIDE THE BUS: UNDERSTANDING USER PERCEPTIONS OF WAITING AND TRANSFERRING IN ORDER TO INCREASE TRANSIT USE

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Efficiently and effectively run public transit systems in California are essential components of and crucial contributors to the proper functioning of a region's overall transportation network. Rising gasoline prices have raised public awareness of transit systems as alternatives to the personal automobile. However, travel by public transit is a complex process that involves more than simply people moving about on buses and trains. A typical door-to-door trip involves walking from one's origin to a bus stop or train station, waiting for a vehicle to arrive, boarding the vehicle, traveling in the vehicle, alighting from the vehicle, and then walking to one's final destination. In many cases, the trip involves transfers; travelers alight from one transit vehicle, move to a new stop or platform, wait for another transit vehicle, board that vehicle and continue this process until they reach their last stop or station at which they walk to their final destination.

Transit travelers, in other words, expend a great deal of their time, energy, and patience outside of buses and trains, which contributes greatly to both their actual and their perceived burden of transit travel. This perceived burden, in turn, helps to determine travelers' decisions whether or not to take transit in the future. Given the relative convenience of door-to-door travel by foot, bicycle, taxi, or private vehicle for many trips, public transit systems are often at a competitive disadvantage when competing for passengers. Accordingly, this chapter examines ways to increase the attractiveness and to reduce the perceived burden of the time spent outside of vehicles during transit trips.

Reducing the Burden

As California's cities have grown more dispersed and auto-oriented, the out-of-vehicle portion of transit trips has grown. In an effort to accommodate increasingly dispersed patterns of trip-making, many transit systems in U.S. metropolitan areas now require transit users to make frequent transfers among lines, modes, and operators. As such, transit stops and stations are integral parts of transit networks, playing an important role in connecting multiple transportation modes and systems. The effectiveness of these connections governs waiting and walking times at transit stops and stations, and, in turn, travelers' choices whether or not to take a particular transit trip. Given the effect of travel time on travel choices, good connectivity at transit stops and stations is critical to overall transportation network effectiveness.

Thus, reducing such burdens can contribute significantly to enhancing the attractiveness of transit as a travel mode resulting in increased transit ridership. Nonetheless, despite the importance of out-of-vehicle transit travel, the in-vehicle travel experience has tended to capture the lion's share of attention from transit managers. For managers, acquiring, maintaining, and, in

particular, operating vehicles is the core mission of any transit system.

Methods

Our primary objective in this chapter is to determine the best ways to reduce out-of-vehicle travel burden and improve transit users' experience at stops, stations, and transfer facilities. To achieve our objective, the authors initially developed a theoretical framework to understand how improvements at stops, stations, and transfer facilities affect people's travel behavior. Clearly, California transit systems' primary foci are their passengers and their perceptions and needs are central. Beyond passenger needs, however, transit stops, stations, and transfer facilities also must meet operational needs of transit systems. Additionally, transit stops, stations, and transfer facilities affect and are affected by stakeholders from their neighboring communities, such as businesses – both owners and patrons – and residents. We therefore explored the perspectives of these three stakeholders – passengers, transit managers, and stop-adjacent residents and business owners.

In our investigation of each of the three stakeholder perspectives, we employed a variety of research methods. We designed and administered a user survey based on the five principal transit stop and station attribute categories thought in the literature to affect transfer penalties: Access, Connection and Reliability, Information, Amenities, and Security and Safety. Our objective was to provide an accurate portrait of transit riders at the system-wide level, by service-type, by time of day and day of week, and by location.

For each of the five attribute categories, the research team crafted a series of specific questions. The resulting survey, which was made available in English and Spanish, consisted of 29 questions and was self-administered to 749 transit users at 12 transit stops and stations around metropolitan Los Angeles. In total we approached 1,023 transit users and 274 of them refused to participate in the survey yielding a 73% response rate. Moreover, the 749 surveys were not entirely completed as some users had to stop providing responses to catch their bus or train.

We also designed a transit system manager survey to collect the following information on operators' estimation of how important various evaluation factors are to their own passengers, and operators' views of what evaluation factors are important from their own perspective. The survey was administered by means of a web-based online nationwide survey of transit managers. The survey instrument was designed to both mirror many of the questions in our user survey, and to ask about political and operational concerns not directly related to passenger use of stops or stations.

From the Federal Transit Administration's 2005 National Transit Database we selected all 400 transit operators with at least one fixed-route/fixed-schedule transit line in service in the United States. We sent the general manager of each an electronic invitation to either respond to our survey or to designate a member of his/her staff to do so. We received a total of 175 completed responses, for a 43% response rate.

Finally, we developed a set of questions that were used during telephone interviews with a representative sample of transit operators in the United States in order to gain further insight

into the transit operators' perspective, as well as to gather illustrative anecdotes about transit stops and stations. Twenty agencies were selected by a weighted sampling methodology, with the probability of inclusion in our sample weighted by the agency's annual ridership figures. Of these, 8 agencies participated, for an effective response rate of 40%. During these interviews, we also gathered data on the role of stop and station neighbors – both private and commercial – in shaping the design, location, and operation of transit stops and stations. These interviews focused in particular on community advocacy for and against the location, re-location, and/or expansion of transit stops and stations.

Findings

From our analysis of the passengers'/users' perspective, one principal finding stands out clearly:

The most important determinant of user satisfaction with a transit stop or station is frequent, reliable service in an environment of personal safety, and only indirectly the physical characteristics of that stop or station.

In other words, most transit users would prefer short, predictable waits for buses and trains in a safe, if simple or even dreary, environment, over long waits for late-running vehicles. This is true even if such long waits occur in the most elaborate and attractive transit stations and especially so if users fear for their safety. While this finding will come as no surprise to those familiar with past research on the perceptions of transit users, it does present a contrast to much of the descriptive and design-focused research on transit stops and stations. California's transit operators would do well to consider this key finding in allocating resources.

Transit User Perceptions

In total, we surveyed approximately 750 transit users at 12 transit stops and stations in metropolitan Los Angeles about their perceptions of 16 stop/transfer facility attributes. We used a technique known as Importance-Satisfaction Analysis to identify which of these attributes passengers found most important (importance) and which needed the most improvement (satisfaction). Initially we grouped the 16 attributes into the following five categories:

- **Access:** Management of passenger flow control and directional information
- **Connection and Reliability:** Distance and time to make connections; on-time performance/frequency of bus/train
- **Information:** What, where, and how passengers acquire information
- **Amenities:** Comfort, service, weather protection, and cleanliness of station/stop
- **Security and Safety:** Station/stop equipment, infrastructure, or personnel that provide passengers with a safe and secure environment

Respondents' reported level of satisfaction with their wait/transfer experience indicates that, in general, they are least happy with factors related to access, followed by some factors related to security and safety and connection and reliability. When we considered the level of satisfaction and importance ratings in tandem, factors that require improvement at the 12 stops and stations surveyed pertain most to security and safety and connection and reliability, and least to amenities. Regardless of satisfaction levels, however, users ranked safety and service quality factors as most important (the top six of sixteen attributes) as is shown in the following list:

Most Important

1. I feel safe here at night (78%)
2. I feel safe here during the day (77%)
3. My bus/train is usually on time (76%)
4. There is a way for me to get help in an emergency (74%)
5. This stop/station is well lit at night (73%)
6. I usually have a short wait to catch my bus/train (70%)

In contrast, the following stop and station-area attributes were ranked as least important (bottom six of sixteen attributes) by users:

Least Important

11. It is easy to get route and schedule information at this stop/station (62%)
12. There is a public restroom nearby (59%)
13. This stop/station is clean (58%)
14. It is easy to get around this stop/station (57%)
15. There are enough places to sit (50%)
16. There are places for me to buy food or drinks nearby (34%).

However, when we related users' satisfaction statistically with various stop/station attributes with their overall satisfaction with their wait/transfer experiences we got similar, though not identical, results:

Most Important

1. It is easy to get around this stop/station.
2. I feel safe here during the day.
3. Having security guards here makes me feel safer.
4. It's easy to find my stop or platform.
5. The stop/station is well lit at night.
6. My bus/train is usually on time.

Least Important

11. This stop/station is clean.
12. There is shelter here to protect me from the sun or rain.
13. There is a way for me to get help in an emergency.
14. There are enough places to sit.

15. There are places to buy food or drinks nearby.
16. There is a public restroom nearby.

These findings revealed the power of station/stop attributes to increase overall satisfaction with the transfer experience.

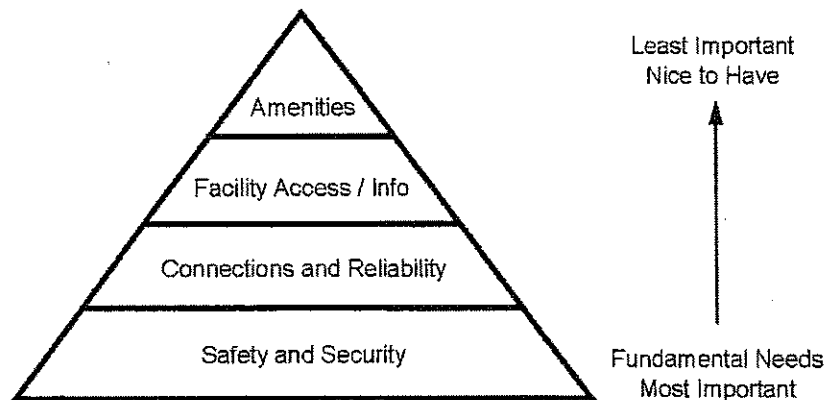
While informative, rank-ordered lists like these can be problematic if users “split their votes” among similar, though important factors such as “I feel safe here at night” and “This stop/station is well-lit at night.” To correct for this problem, we employed an ordered-logit regression model to measure the independent influence of each of 16 wait/transfer attributes on overall user satisfaction. This sort of analysis tends to eliminate all but one of closely related factors, while elevating ostensibly less-important factors that independently influence users’ overall levels of satisfaction. The results of this modeling exercise are telling:

Most Important

1. My bus/train is usually on time.
2. Having a security guard here makes me feel safer.
3. This stop/station is well lit at night.
4. I feel safe here during the day.
5. It is easy to get around this station/stop.
6. The signs here are helpful.

Of our 16 stop and station attributes evaluated, transit users assigned the highest importance to factors related to security and safety, and then to factors related to connection and reliability. In contrast, stop and station-area amenities were ranked as least important by users. We do not claim that amenities are not important to travelers; more than half ranked information, the presence of public restrooms, cleanliness, and ease of navigation as important attributes. However, travelers prefer safe, frequent, and reliable service over these factors. From this analysis, we have developed what we call the *Hierarchy of Traveler Wait/Transfer Needs* (Figure 1) to summarize the findings of this research succinctly.

Figure 1. A Hierarchy of Transit User Needs



A companion part of our analysis compared how transit managers and neighboring communities viewed transit stops and stations. Perhaps reassuringly, our principal finding precisely matches that of the transit user investigation:

For operators, safety- and security-related factors far outweighed other attribute factors at transit stops, stations, and transfer facilities.

Following safety and security (#1), ten other factors cluster relatively closely as important factors in the views of the transit managers surveyed – some of which obviously relate to factors beyond the experience of transit travelers. They are, in order of priority:

2. Pedestrian/vehicle conflicts
3. Schedule coordination
4. Operating costs
5. Stop/station equipment reliability
6. Comfortable environment
7. Adequate stop/station space
8. Inter-agency coordination
9. Facilitate passenger flows
10. Accommodate vehicle movements
11. Protect passengers from weather.

Transit Operator Perceptions

We also compared transit managers' views of what was important to their riders with riders' own views from our previous analysis of Los Angeles County transit riders. While transit operators appear to have a fairly accurate understanding of what attributes are important to their riders at transit stops and transfer stations, there are several points of disparity. The transit managers surveyed correctly assumed that safety and security were very important to riders, but they tended to underestimate the importance of specific safety-related factors, such as the presence of security guards and emergency assistance.

It also appears that, controlling for other factors, transit managers overestimate the importance of station cleanliness and schedule information to their riders. We note, however, that there was a mismatch in geographical coverage for this comparison; our riders' survey collected data from Los Angeles County transit riders, while our operators' survey collected data nationwide. It is possible that this mismatch has overemphasized some disparities, while downplaying others. For that reason, these findings should be considered preliminary; our future research will examine both subgroups that cover the same general location to circumvent this problem.

Finally, we spoke with eight transit operators in telephone interviews regarding the role of stop/station-adjacent stakeholders in planning, operating, and maintaining transit stops and transfer facilities. Many of those interviewed reported community opposition to the

development or expansion of stops and stations as a significant issue, with this opposition often coming indirectly through elected officials and community leaders. During the course of this phase of the research we determined that municipal and county governments control most of the land on which bus benches, shelters, and stations sit; moreover they are an integral, and often overlooked part of the transit stop/station planning process. Transit agencies, in other words, often have surprisingly limited control over the siting and design of stations and stops. Accordingly, we intend to examine the roles and perceptions of local governments in the development and operation of transit stops and stations in a subsequent phase of this research.

An Assessment Tool

Based on the projects' findings we developed a Preliminary Assessment Tool whereby transit managers in California and elsewhere can employ a 3-step process to guide them as they consider making improvements to already existing transfer facilities or developing initial plans for new facilities.

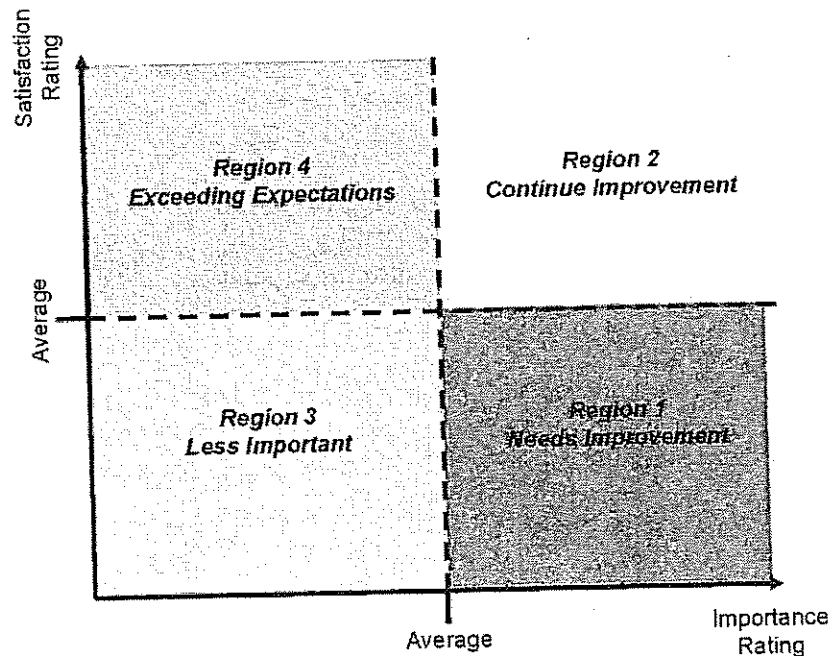
Step 1: Use the Hierarchy of Traveler Wait/Transfer Needs above to determine the priority of improvements to any stop or station. We endeavored in this research to produce generalizable findings from our analysis by surveying a large number of transit users at a wide variety of facilities.

Step 2: For transit stops and stations serving particular user populations (children, immigrants, the elderly, etc.) or for stops/stations in unique environments (adjacent to airports, amusement parks, hospitals, etc.), the user perception survey instrument developed and tested in this study can be used to survey the perceptions of passengers.

Step 3: Analyze the survey results with respect to produce a ratings matrix with respect to the importance and satisfaction levels for the users and/or stops surveyed.

Relative to both the average importance and satisfaction levels, stop/station attributes may fall in to one of the following four regions:

Thinking Outside the Bus



- **Region 1** is an area where – for the surveyed users or stops – facility attributes have above-average importance but a less than average level of satisfaction, meaning that these attributes should be high priorities for improvement.
- **Region 2** is an area where attributes have above-average importance and above-average level of satisfaction, meaning that priority should be given to maintaining the quality of these attributes.
- **Region 3** is an area where attributes have less than average satisfaction levels and less than average importance ratings; improvement to such attributes are warranted only at low cost or if all of the attributes in Regions 1 and 2 have been fully addressed.
- **Region 4** is an area where attributes have above average levels of satisfaction and importance ratings less than average; such attributes exceed expectations and warrant no further attention.

The next step in our Preliminary Assessment Tool is to identify each attribute within each of these four regions beginning with Region 1 and continuing in sequential order through Region

4. Within each Region attributes are identified in the following order consistent with the above Hierarchy of Traveler Wait/Transfer Needs and based on users' priorities:

1. Safety and Security
2. Connections and Reliability
3. Facility Access and Information
4. Amenities

So, starting with Region 1, we will first identify any "Safety and Security" attributes. Any such attributes should be improved in increasing order of satisfaction beginning with the lowest satisfaction level. If there are no "Safety and Security" attributes in Region 1, then we identify any "Connections and Reliability" attributes in Region 1 and continue this process for Region 1. After completing this process for Region 1, repeat the entire process for Region 2's attributes, followed by Region 3's attributes.

Conclusion and Next Steps

Our evaluation framework has provided us with a strong theoretical foundation to expand our study of transit users and facilities beyond Los Angeles County, which we are now doing in the next phase of this research. We aim to expand our inventory of stops and stations from 12 to 50 across California, with a goal of surveying approximately 2,000 users. This expanded approach will help make the findings of this effort considerably more generalizable to cities and transit operators in large and small cities around California. Moreover, by field testing the findings of our Phase I and II work at specific transit stops and stations, we can conduct before and after testing to determine if, indeed, this research can help the state's transit operators attract more riders by cost-effectively addressing the specific aspects of waiting for and transferring among transit vehicles that transit users find most burdensome.

Acknowledgements

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For Further Reading

Taylor, B.D., H. Iseki, M.A. Miller, and M. Smart. 2007. *Thinking Outside of the Bus: Understanding User Perceptions of Waiting and Transferring in Order to Increase Transit Use*. Final Report to the California Department of Transportation, UCLA Institute of Transportation Studies, December.

Iseki, H., B.D. Taylor, and M.A. Miller. 2006. *The Effects of Out-of-Vehicle Time on Travel Behavior: Implications for Transit Transfers*, Report to the California Department of Transportation, UCLA Institute of Transportation Studies, January.

Iseki, H., M. A. Miller, A. Ringler, M. Smart, and B.D. Taylor. 2007. *Evaluating Connectivity Performance at Transit Transfer Facilities*, Report to the California Department of Transportation, UCLA Institute of Transportation Studies, February.

Iseki, H., A. Ringler, B.D. Taylor, M.A. Miller, and M. Smart. 2007. *Evaluating Transit Stops and Stations from the Perspective of Transit Users*, Report to the California Department of Transportation, UCLA Institute of Transportation Studies, August.

Smart, M., M. A. Miller, and B. D. Taylor. 2007. *Evaluating Transit Stops and Stations from the Perspective of Transit Managers*, Report to the California Department of Transportation, UCLA Institute of Transportation Studies, September.

PUTTING CALIFORNIA'S CITIES BACK ON THEIR FEET

Donald Shoup, Professor of Urban Planning
UCLA School of Public Affairs

Property has its duties as well as its rights.
Thomas Drummond

Public infrastructure usually decays so slowly and so invisibly that we are shocked whenever a bridge collapses, a levee breaks, or a tunnel floods. But sidewalks decay right under our feet and in front of our eyes. Sometimes we even trip over a broken sidewalk and end up in the emergency room.

In Los Angeles, for example, 4,600 miles of the city's 10,750 miles of sidewalks need some repair, at an estimated cost of \$1.2 billion. Figure 1 shows examples of these broken sidewalks. From 2002 to 2006, the city paid an average of \$3 million a year to settle lawsuits over trip-and-fall accidents on broken sidewalks. In some years, Los Angeles has paid more to settle trip-and-fall lawsuits than it paid to repair sidewalks. In the eight years since 2000, the city repaired only 67 miles of broken sidewalks per year.¹ Even if the sidewalks miraculously stopped breaking, at the current pace it would take 69 years to repair all the existing damage.

Broken sidewalks make the city less walkable and thus discourage pedestrian travel. Broken sidewalks can especially impede travel by people with disabilities. This impediment has become an important legal issue since the United States Court of Appeals for the Ninth Circuit ruled in 2002 in *Barden v. City of Sacramento* that the Americans with Disabilities Act applies to city sidewalks. In 2003 the United States Supreme Court rejected the appeal by Sacramento to overturn the Ninth Circuit ruling.²

The Americans with Disabilities Act

In *Barden v. City of Sacramento*, a class-action suit on behalf of persons with disabilities, Joan Barden and others alleged that Sacramento violated the Americans with Disabilities Act (ADA) by letting its sidewalks fall into disrepair. The Ninth Circuit Court of Appeals ruled that the city must ensure that its sidewalks satisfy the accessibility requirements of the ADA. The ADA, the Court ruled, covers "anything a public entity does" and any "normal function of a governmental entity," including sidewalks.³

After the Supreme Court denied Sacramento's appeal of the case, the city entered into a settlement that requires it to dedicate 20 percent of its annual transportation funding for up to 30 years to make public sidewalks accessible. Specifically, the settlement requires, "Changes of level of greater than ½ inch, whether caused by tree roots or any other deterioration or displacement of the surface of the Pedestrian Right of Way, will be remedied by providing a ramp with an appropriate slope or by creating a level path of travel."⁴

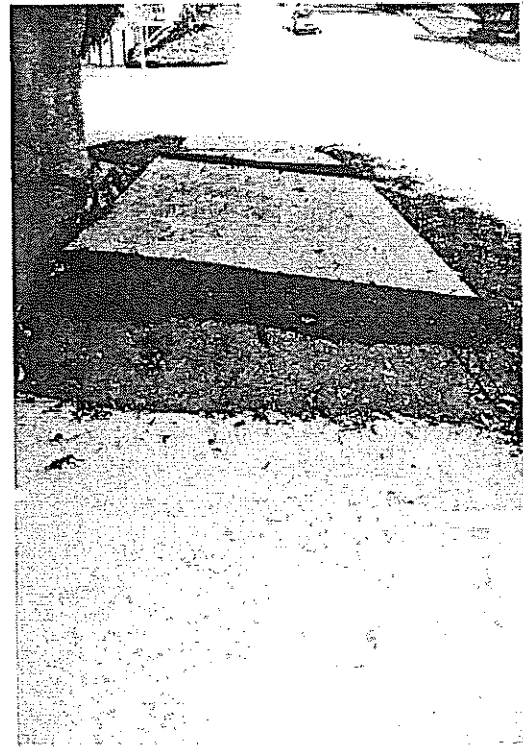
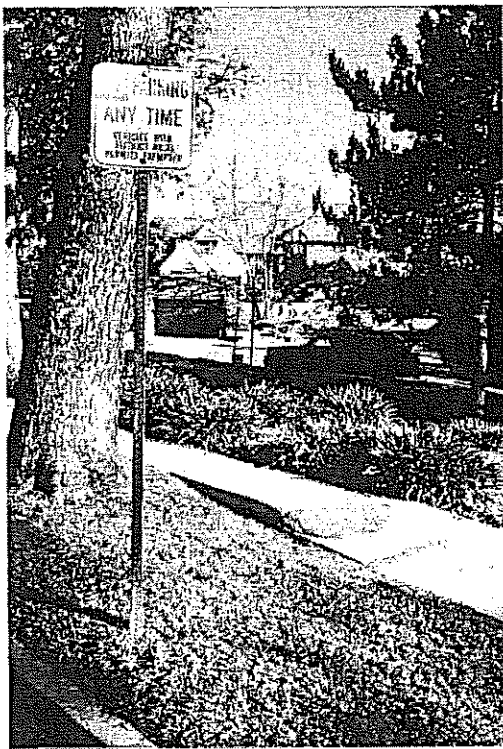
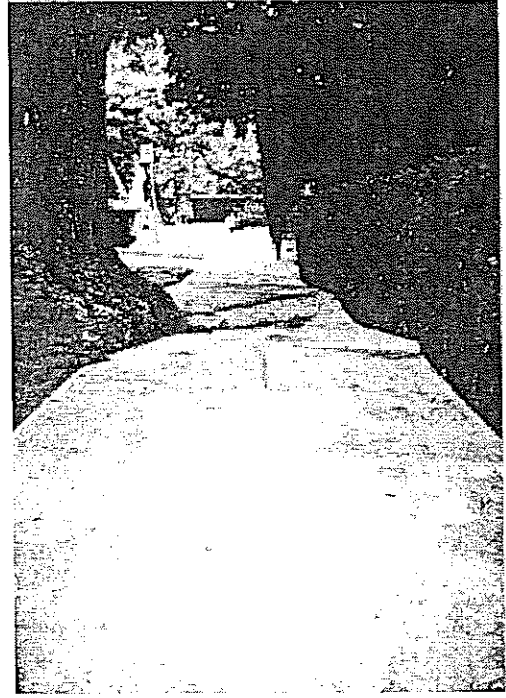
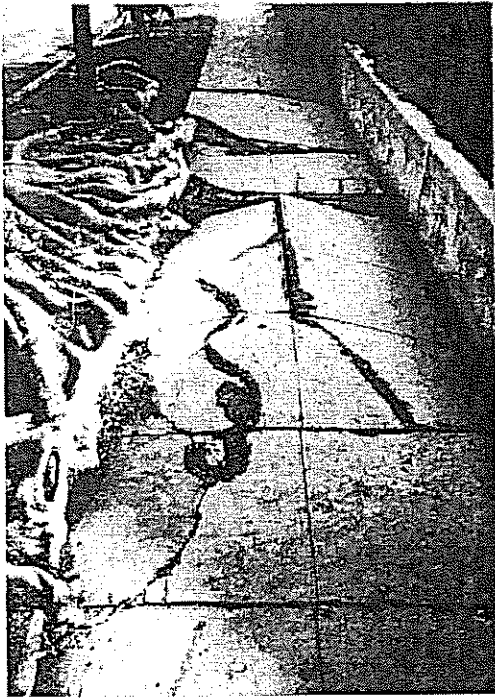


Figure 1. Broken sidewalks in Los Angeles

The plaintiffs in *Barden v. City of Sacramento* had asked the city to adopt a transition plan for its sidewalks to remove barriers to persons with disabilities. Section 35.150 of the regulations implementing the ADA requires all cities to have a transition plan that sets forth the steps they will take to make public facilities accessible. The plan shall, at a minimum:

- (i) Identify physical obstacles in the public entity's facilities that limit the accessibility of its programs or activities to individuals with disabilities;
- (ii) Describe in detail the methods that will be used to make the facilities accessible;
- (iii) Specify the schedule for taking the steps necessary to achieve compliance with this section and, if the time period of the transition plan is longer than one year, identify steps that will be taken during each year of the transition period.⁵

Other ADA lawsuits about inaccessible sidewalks have also been filed. For example, Kohrman and Nepveu (2008, 5) discuss a class-action lawsuit against the California Department of Transportation. They report that one of the plaintiffs "frequently has been required to ride in the street in his wheelchair, just inches alongside speeding vehicular traffic because of inadequate or absent curb cuts, ramps, or sidewalks. Because many curb cuts and slopes do not comply with the law, he is often in danger of tipping over on dangerously slanted rights of way."

Who Should Pay to Repair Sidewalks?

In California, property owners are liable for making sidewalk repairs, as stated in Sections 5610 and 5611 of the California Streets and Highways Code:

The owners of lots or portions of lots fronting on any portion of a public street shall maintain any sidewalk in such condition that the sidewalk will not endanger persons or property and maintain it in a condition which will not interfere with the public convenience . . . When any portion of the sidewalk is out of repair or pending reconstruction and in condition to endanger persons or property or in condition to interfere with the public convenience in the use of such sidewalk, the superintendent of streets shall notify the owner or person in possession of the property fronting on that portion of such sidewalk so out of repair, to repair the sidewalk.

Under this state code, city inspectors cite property owners whose sidewalks are damaged, and if the owner does not repair the sidewalk, the city makes the repairs and bills the owner. Property owners are similarly responsible for sidewalk repairs in many other states and cities.⁶

Until 1973, Los Angeles followed the state code. In 1973, however, federal funds became available to repair sidewalks at no cost to property owners. The City Council adopted an exception to its previous policy of requiring property owners to repair their sidewalks. Section 62.104 of the Los Angeles Municipal Code, adopted in 1973, states:

Preventive measures and repairs or reconstruction to curbs, driveways or sidewalks required as the result of tree root growth shall be repaired by the Board at no cost to the adjoining property owner.

In effect, the city assumed responsibility for most sidewalk repairs. In 1976, however, the federal funding for sidewalks ran out, and the end of three years of well-intended federal subsidies left the city with no sidewalk repair program. Then, in 1978, California voters adopted Proposition 13 to reduce property tax rates, and public funds became even scarcer. In 1980, the city attempted to reinstate the previous policy of requiring property owners to pay for sidewalk repairs, but the tax revolt was in full swing. Property owners objected to the “new” mandate for sidewalk repairs, so the city halted citations. Because the city was short of money, it began to make only temporary asphalt patches to broken sidewalks or—more commonly—did nothing at all.

In 1998, after allowing its sidewalks to deteriorate for over two decades, the city placed Proposition JJ on the ballot. It would have authorized \$679 million in bonds to repair the city’s sidewalks, and, to repay the debt, it would have increased taxes on all property in Los Angeles for 20 years—even on property without sidewalks or with sidewalks that were in good condition. Opponents of Proposition JJ argued that a citywide tax did not guarantee the sidewalks in their own neighborhoods would ever be repaired—and they had a point. Most residents would have had to wait years before their taxes paid to fix the sidewalks in front of their homes. On election day, only 43 percent of the voters supported Proposition JJ—well short of the 2/3 majority California requires for approval of municipal bonds.

In 2000, the city began to repair sidewalks using general revenue. Despite the backlog of \$1.2 billion in accumulated damage, however, the budget for repairs averaged only \$10.8 million per year up to 2008.⁷ This slow pace leads to the question: Is there another way to pay for sidewalk repairs?

A New Solution: Requiring Sidewalk Repairs at the Point of Sale

Although Los Angeles voters have rejected a tax to improve their broken sidewalks, the city can adopt a new strategy that already works well in other cities: require owners to repair broken sidewalks before they sell their property. Owners pay for sidewalk repairs when they receive cash from the sale of their property, which is often when they are leaving the city.

How does this strategy work? Before any real estate is sold, the city inspects the sidewalk fronting the property. If the sidewalk is damaged, the owner must fix it before sale. For example, the municipal code in Piedmont, CA, requires, “New sidewalks and/or driveways must be constructed if required by the superintendent of streets . . . in conjunction with the sale of real property.”⁸ Piedmont requires repairs if the vertical displacement of a break in the sidewalk is $\frac{3}{4}$ of an inch or less, and reconstruction if the vertical displacement exceeds $\frac{3}{4}$ of an inch.

A point-of-sale program like Piedmont’s has several advantages. First, owners will not have to pay for or do anything until they sell their property. The sale will then provide the cash to pay for any required repairs. Sellers will fix only the sidewalk in front of their own property, so they will know exactly where their money is going.

Second, sidewalk repairs at sale will be gradual but inevitable because about half of all properties are sold at least once every decade. The property turnover rate is similar throughout the city, so damaged sidewalks will be repaired everywhere at roughly the same rate (Shoup 1996).

Third, sidewalk repairs will increase a property's "curb appeal" and its market value. A property's value will increase not only because of its own sidewalk repairs but also because of all the neighbors' sidewalk repairs. If all the repaired sidewalks in the neighborhood increase a property's sales price by more than the owners' individual cost of repairs, the point-of-sale program will create a net capital gain for an owner. In return for accepting the obligation to repair one's sidewalk at sale, everyone will live in a city with better sidewalks. Many properties will not require any repairs, so the general increase in property values as a result of better sidewalks in the neighborhood will be net capital gains for all the owners of these properties.

Fourth, the city will not have to raise taxes to pay for sidewalk repairs. The repairs cost the city nothing, and the city even saves money because there will be fewer trip-and-fall lawsuits. Many properties are sold by owners who are leaving the city or by absentee owners, so everyone who stays in the city will enjoy better sidewalks while absentee owners and those who are moving away will pay much of the cost.

In addition to all these political and economic advantages of a point-of-sale program, the city will also have a legally enforceable ADA transition plan to make its sidewalks accessible for persons with disabilities.

Cities have been adopting point-of-sale programs for a variety of purposes. For example, Los Angeles and many other cities require owners to retrofit their property with water-saving toilets when they sell the property. The administrative, economic, and political advantages of gradual but inevitable improvements can allow cities to renew themselves without raising taxes and without trying to do everything at once. In Los Angeles it took more than 30 years of neglect for the sidewalks to disintegrate into such an appalling condition, and it will take many years to make \$1.2 billion in repairs.

How Does a Point-of-Sale Program Work?

How can a city require property owners to bring their sidewalks up to the ADA's standards? In 2007, the Los Angeles Bureau of Street Services, the agency responsible for the city's sidewalks, appointed a committee to study this issue. After considering all the options, the committee recommended a point-of-sale program. In addition, the committee recommended including street trees in the program to help achieve the Mayor's goal to plant a million trees in the city.⁹

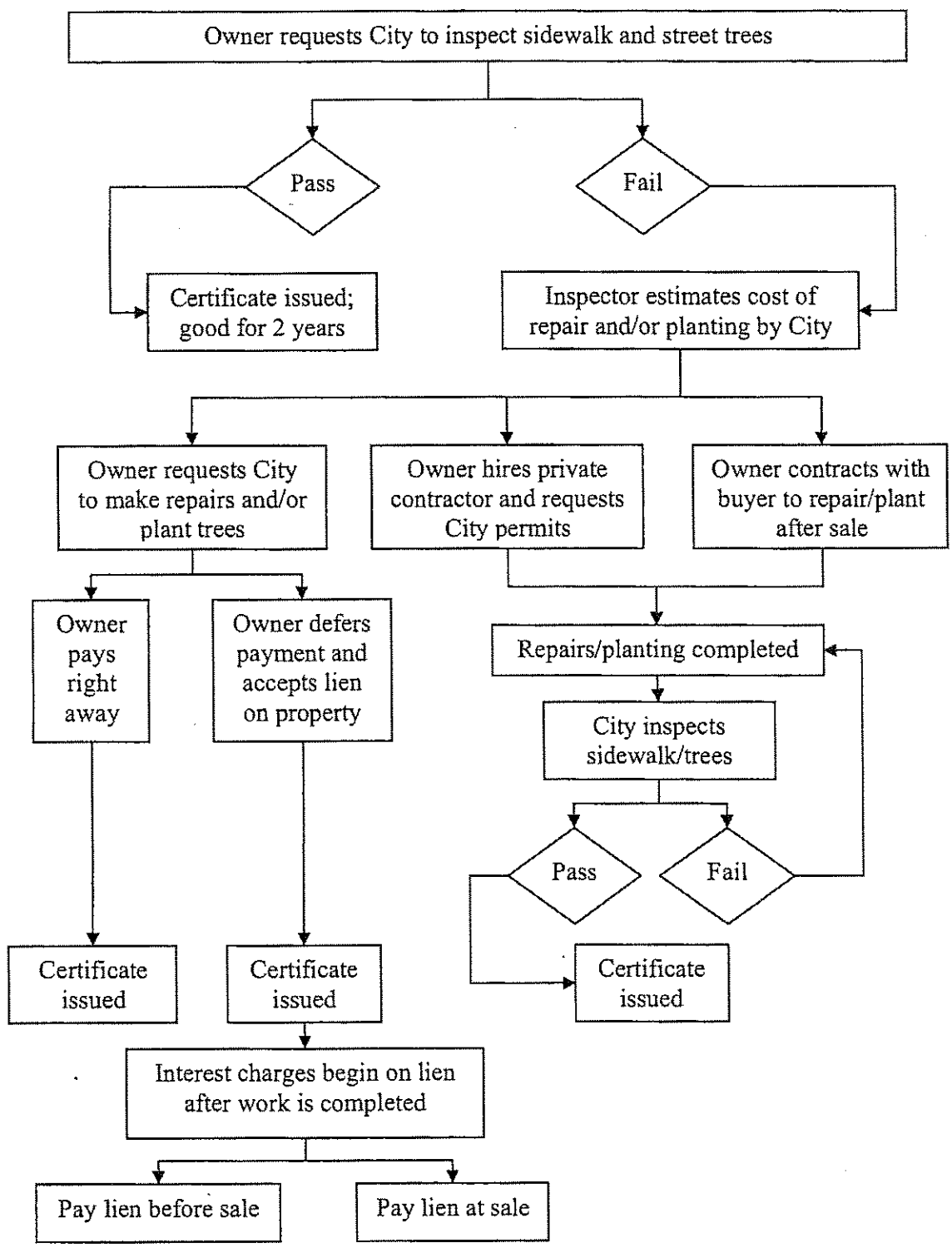
To enforce the point-of-sale mandate, the city can require that a certificate of compliance for safe sidewalks and healthy street trees must be included in the escrow documents at sale. Figure 2 shows a flowchart of the steps necessary to obtain a certificate of compliance.¹⁰ Several outcomes are possible after an owner requests the city to inspect a property before sale.

1. If the sidewalk is in good repair and street trees have been planted, the inspector issues a compliance certificate.
2. If there is no sidewalk and street trees are not required in front of the property, the inspector issues a compliance certificate.
3. If the sidewalk is damaged and/or street trees are required, the inspector estimates what the city would charge to repair the sidewalk and/or plant the street trees. There are several possible actions at this point.
 - a. The owner requests the city to repair the sidewalk and/or plant the trees and pays the estimated cost. The inspector then issues a compliance certificate, and the city repairs the sidewalk in front of the property.
 - b. The owner requests the city to repair the sidewalk and/or plant the trees and accepts a lien on the property for the estimated cost. The inspector then issues a compliance certificate, and the city repairs the sidewalk in front of the property. The lien is cleared at sale and the city is paid from the proceeds.
 - c. The owner chooses to have a private contractor carry out the work.
 - i. The owner or contractor requests a permit and completes the work.
 - ii. The city inspects the work, and if it passes, the inspector issues a compliance certificate.
 - d. If the next owner intends to redevelop the property, repairing the sidewalk at sale may be premature. In this case, the city can allow the owner to contract with the buyer to have the work done within a specific time period after sale (such as one year). The city can inspect the property at the end of this period, and cite the owner if the required repairs have not been completed.

The inspectors can enter the records of their inspections into a geographic database that shows the condition of sidewalks and street trees throughout the city. The point-of-sale program will be part of the city's transition plan to make its public sidewalks accessible, and the point-of-sale database will show the city's progress toward meeting the plan's goals.

Along with fixing the sidewalks, the point-of-sale plan can help to create a healthy urban forest. Almost everyone agrees that tree-lined streets improve a neighborhood and increase property values. Allan Jacobs (1990, 84) observed, "If, in an American city, you wanted to make a major positive impact on an existing street and had a limited budget, you might well recommend planting trees as the way to get the most impact for your money." If property owners accept the individual obligation to plant a street tree before they sell their property, the whole city will slowly become much greener.¹¹

Figure 2. Obtaining a Certificate of Compliance



Deferring Payments until Sale

A key feature of the point-of-sale program is that property owners can pay for sidewalk repairs when escrow closes for the sale. If an owner requests the city to repair a sidewalk but prefers to delay paying until sale, the owner can accept a lien on the property for the cost of the repairs. The city is repaid from the proceeds of the sale when all liens are cleared. The city charges interest on the debt, but payment of the accrued interest is also delayed until sale. The city, in effect, lends owners the money to pay for sidewalk repairs for as long as they continue to own the property. Owners can repay all or part of the debt at any time before they sell the property, but any remaining debt is due at sale. If owners pay a market interest rate on the debt, the government loses nothing by the delay.

The option to defer payment until sale has several benefits. First, the program will increase public investment without any public subsidy. The city runs no risk of borrowers' defaulting on the cost of sidewalk repairs because cash is available from the sale of the property when the debt is due. A public lien is senior to any mortgage, so even if property values decline and the owner has no equity, the city will be repaid in full.¹²

Second, allowing owners to defer payments until sale has a strong political advantage. If the city allows owners to defer paying for sidewalk repairs until cash from the sale provides the ability to pay, elected officials can vote for a point-of-sale requirement with a clear conscience. Offering owners the option to defer payment until sale can thus increase the political will to require sidewalk repairs. Finding the cash to repair the sidewalk *before* sale would be difficult for many owners, but allowing owners to pay for sidewalk repairs *at* sale will eliminate any cash-flow problem. Offering the option to defer payment until sale will also allow the city to cite property owners whose severely damaged sidewalks create an immediate danger to pedestrians and increase the likelihood of a trip-and-fall lawsuit (see the examples in Figure 1). Requiring prompt repairs in these cases will increase public safety, remove barriers to persons with disabilities, and reduce claims from trip-and-fall lawsuits, but it will not create a financial hardship for property owners.

Third, because the goal of an ADA transition plan is to make sidewalks accessible as quickly as possible, cities can allow all owners to repair their sidewalks early and defer payment until sale. The requirement to repair sidewalks *at* sale, combined with the ability to delay payment *until* sale, may spur some owners to repair their sidewalks early. They may repair early because (a) they want to enjoy the smooth sidewalk they will eventually have to provide anyway, (b) they expect it will be cheaper to repair early, (c) they want to avoid trip-and-fall accidents on the sidewalk in front of their property, (d) they want to participate in improving their neighborhood, or (e) they want to make their property more accessible to persons with disabilities.

Financing the Deferred Payments

The proposal is for the city to fund sidewalk repairs and recoup the cost plus accrued interest when properties are sold. But how can the city finance this unknown quantity of work (and therefore unknown cost) if it cannot afford a conventional sidewalk repair program? One option is to borrow the money from the city's interest-earning investment pool, and to repay the

cost plus interest at sale. If this is not possible, the city can contract with private financial institutions to fund them. If the city contracts with a private financial institution, the lenders in this public-private partnership will be repaid when liens are cleared as properties are sold. Because the property liens will pay for public investments, the interest payments will be tax exempt to the lenders. The debts will be short-term, tax-exempt, and almost totally default-proof even if property values decline.¹³ The deferred debts for sidewalk repairs should therefore be an attractive investment for many lenders, and the interest rate charged to the property owners should be low. The private lenders can administer the sidewalk debts like mortgages, and the city can also notify property owners about the debt, plus accrued interest, on their annual property tax bills. In choosing among prospective lenders for the program, cities could select the one that offers property owners the lowest interest rate on the deferred payments, or could select several lenders and let individual property owners choose the one that offers the lowest interest rate.

An interest-bearing lien due at sale resembles a low-interest credit card debt secured by real property, but with no payments required until sale. The cost of repairing a sidewalk is low in proportion to most property values, so the collateral for most loans will be high. Although sidewalk loans will be small relative to property values, the total value of the loans can be quite high if a private lender funds all the sidewalk repairs throughout a city. Lenders could even partner with local construction companies to repair sidewalks in accordance with city regulations and the ADA. The consortium could both repair sidewalks and then finance the cost until properties are sold.¹⁴

Public-private partnerships have become a major source of project finance for large public infrastructure investments, such as bridges or toll roads. Financing a collection of individual sidewalk repairs will be a new form of distributed project finance.¹⁵ The lender will finance a collection of many small projects rather than one big project. The collateral for a collection of sidewalk repairs will be much greater, the risk much lower, and the payback period much shorter than for a single large infrastructure project. Financing the deferred payments for sidewalk repairs may therefore be a profitable investment for risk-averse lenders who prefer tax-free income.

The Speed of Repairs

How fast will a point-of-sale program repair a city's sidewalks? For example, how long will it take before half of all the sidewalks have been repaired? We can answer this question by estimating how long it takes before half of the properties in the city have been sold at least once. Table 1 shows the history of property sales for the City of Los Angeles between 1977 and 2006. Column 2 shows the number of properties that were sold in each year of column 1 and were not sold again through the end of 2006, so repeat sales of the same property are not double counted. For example, 27,412 properties were sold in 2000 and had not been sold again by the end of 2006.

Column 3 shows the total number of properties that had been sold at least once between the beginning of each year in column 1 and the end of 2006; this total is the cumulated number of properties in Column 2. For example, column 3 shows that 277,396 properties had been sold at least once between the beginning of 2000 and the end of 2006.

Finally, Column 4 shows the share of all properties that had been sold at least once between the beginning of each year and the end of 2006. For example, 36 percent of all properties in the city were sold at least once between 2000 and 2006.¹⁶ If in 2000 the city had begun requiring owners to repair any broken sidewalk at sale, 36 percent of all sidewalks in the city would have been fixed over the next seven years.

Figure 3 is a graph of the property sales rates. The vertical axis shows, in 2007, the share of properties sold at least once during the previous number of years shown on the horizontal axis. The graph shows the share of the sidewalks that would have been repaired by 2007 as a function of how long ago the point-of-sale program began. For example, if the program had begun 11 years earlier (in 1995), 50 percent of all the sidewalks would have been repaired by 2007.

In addition to the sales rate for all properties (taken from Column 4 of Table 1), the graph also shows the sales rates for several categories of properties (single-family, multifamily, commercial, and industrial). Commercial and industrial properties have slightly slower sales rates than residential properties, but the results are similar for all types of property. Although a point-of-sale program might seem slow to produce results, city planning often produces slow results, and some planning produces no results at all. Compared to many planning efforts, a point-of-sale program will improve the city swiftly.

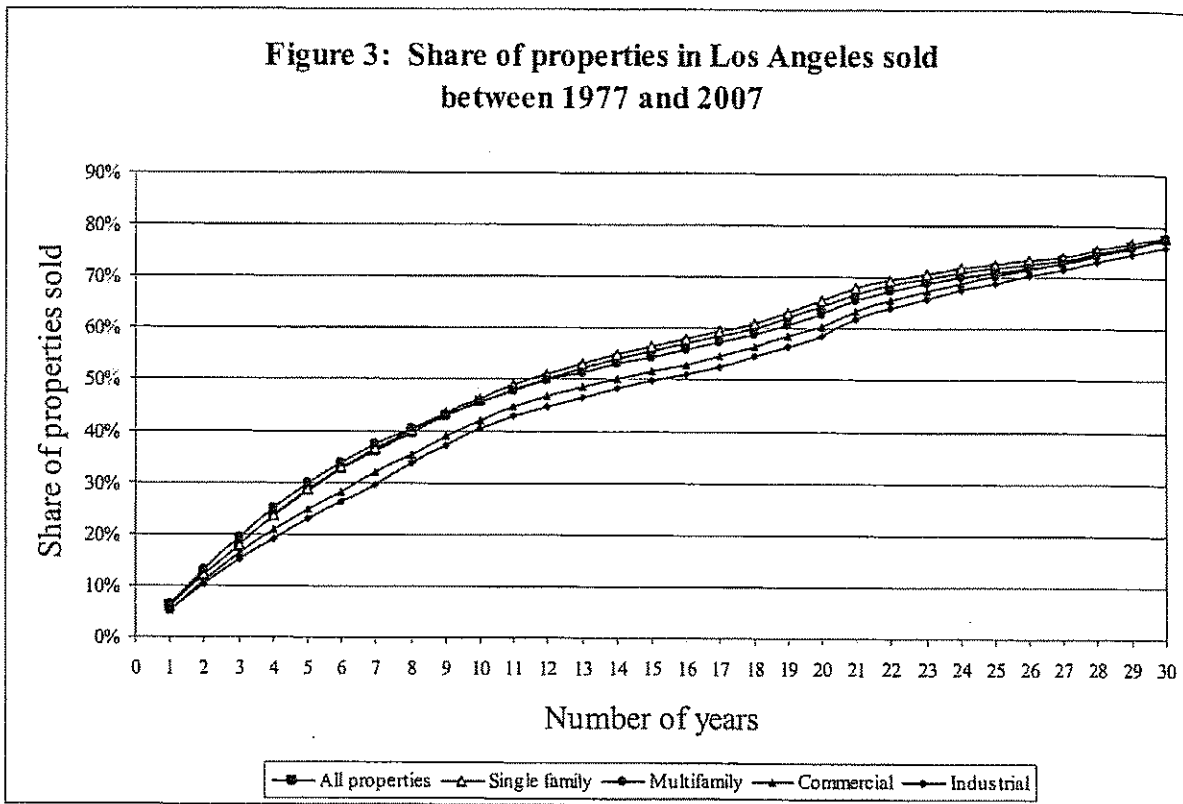
Periodic booms and busts in real estate sales will temporarily accelerate and decelerate the rate of sidewalk repairs. Nevertheless, about half of all owner-occupied housing units in both Los Angeles County and the United States are sold at least once within ten years, similar to the rate for the City of Los Angeles in Table 1.¹⁷ Because short-term fluctuations in sales have little effect on long-term sales rates, they will have little effect on the long-term rate of sidewalk repairs.

If the city allows owners to delay paying the cost until sale, some owners may repair their sidewalks early. Inspectors who require sidewalk repairs at sale could solicit nearby property owners whose sidewalks are broken and suggest they might also like to have their sidewalks repaired when work is being done on their block. If owners know the repairs will have to be done eventually, and the cost can be delayed until sale, many owners may decide to repair their sidewalks even if they don't intend to sell their property. For these reasons, the actual repair rate should be faster than the sales rate in Figure 3.¹⁸

Table 1
Share of all properties in the City of Los Angeles sold at least once
between January 1 of each year and December 31, 2006

Year	Number of properties with last sale date in each year	Total number of properties sold since each year	Share of all properties sold since each year
(1)	(2)	(3)	(4)
2006	45,327	45,327	6%
2005	47,470	92,797	12%
2004	44,921	137,718	18%
2003	43,127	180,845	24%
2002	38,155	219,000	28%
2001	30,984	249,984	33%
2000	27,412	277,396	36%
1999	27,169	304,565	40%
1998	24,982	329,547	43%
1997	21,453	351,000	46%
1996	18,964	369,964	48%
1995	16,129	386,093	50%
1994	15,679	401,772	52%
1993	13,793	415,565	54%
1992	11,930	427,495	56%
1991	11,279	438,774	57%
1990	10,970	449,744	58%
1989	12,571	462,315	60%
1988	15,359	477,674	62%
1987	16,886	494,560	64%
1986	18,873	513,433	67%
1985	13,275	526,708	68%
1984	10,259	536,967	70%
1983	8,848	545,815	71%
1982	5,967	551,782	72%
1981	6,086	557,868	73%
1980	7,118	564,986	73%
1979	10,130	575,116	75%
1978	10,369	585,485	76%
1977	10,473	595,958	78%

Calculated by Norman Wong, UCLA Center for Neighborhood Knowledge.
The Los Angeles County Assessor provided the last sale date for all properties in the City of Los Angeles.



Economic Effects of Requiring Sidewalk Repairs at Sale

How will a point-of-sale program affect the economy? Investment in sidewalks will increase local employment, but diverting money to pay for sidewalks will also reduce private consumption. Public investment, however, creates more jobs in the local economy than does private consumption because more of the goods and services that produce public investment are local rather than imported from outside the region. To investigate the question of how spending more on sidewalks and less on private consumption will affect the economy, I have used a model of the Southern California economy to estimate how a point-of-sale program will alter local employment and income.

The Lusk Center Research Institute of the University of Southern California has adapted the IMPLAN input-output model to represent the economy of Los Angeles, Orange, Riverside, San Bernardino, and Ventura Counties.¹⁹ This 509-sector model makes it possible to estimate not only the direct effects created by changes in spending, but also the indirect and induced effects created by intersectoral linkages. The model can thus estimate the net effects of increasing public investment and reducing private consumption by any given amount.

We can use the model to estimate the effects of the point-of-sale program in the first full year of operation. Table 1 shows that if the program had begun on January 1, 2006, by the end of

the year 6 percent of all the sidewalks in the city would have been inspected. The Bureau of Street Services has estimated that repairing all the broken sidewalks in Los Angeles would cost about \$1.2 billion. If 6 percent of all properties were sold in the first year of the program, and if the sidewalks in front of these properties were typical of all sidewalks in the city, the cost of the required repairs would be about \$72 million (\$1.2 billion x 0.06).

Suppose owners spend \$72 million to repair their sidewalks, and they pay for these repairs by spending \$72 million less on private consumption. We can estimate the effect of reducing private consumption by reducing the final demand for each consumption category in proportion to its share of consumption found in the Consumer Expenditure Survey conducted by the Bureau of Labor Statistics in 2002–2003. Estimating the effect of increasing public investment in sidewalks is more difficult because the input-output matrix does not have a category for repairing sidewalks. The closest analogy in the matrix is maintaining and repairing streets, which is similar in its labor demands to repairing sidewalks. Therefore, the effect of increasing spending on sidewalks is estimated by increasing spending on streets. Table 2 shows the results of shifting \$72 million from private consumption to repairing sidewalks.

Table 2
Estimated regional effects of shifting \$72 million from private consumption to public investment in Southern California

	Private Consumption	Public investment	Net change
1. Spending	-\$72,000,000	\$72,000,000	\$0
2. Jobs	-1,656	+1,750	+94
3. Average wage per job	\$30,900	\$35,600	+\$4,700
4. Total wages	-\$51,264,000	+\$62,208,000	+\$10,944,000
5. Proprietary income	-\$9,000,000	+\$14,904,000	+\$5,904,000
6. Total labor income	-\$60,264,000	+\$77,112,000	+\$16,848,000

Calculated using the 2001 IMPLAN Model for Southern California. The region consists of Los Angeles, Orange, Riverside, San Bernardino, and Riverside Counties.

- Row 2 shows that shifting \$72 million a year from private consumption to public investment will eliminate 1,656 existing jobs but also create 1,750 new jobs. Therefore, the shift will create a net increase of 94 local jobs.
- Row 3 shows that the jobs eliminated as a result of reducing private consumption pay an average wage of \$30,900 a year, while the jobs created by repairing sidewalks pay an average wage of \$35,600 a year. Not only does the shift from private consumption to public investment create more jobs than it eliminates, but the created jobs also pay \$4,700 a year more than the eliminated jobs.

- Row 4 shows that reducing private consumption by \$72 million a year will reduce local wages by \$51 million, but that increasing public investment in sidewalks by \$72 million will increase local wages by \$62 million. Therefore, the shift in spending from private consumption to public investment will increase *total* local wages by \$11 million (\$62 million – \$51 million).
- Row 5 shows that proprietary income (the income received by self-employed individuals, such as contractors) increases by \$6 million a year.
- Finally, row 6 shows that total labor income (for both employed and self-employed workers) in Southern California increases by \$17 million a year.

Why does spending for sidewalks increase local wages by more than spending for private consumption does? Many of the goods and services consumed by Southern Californians are not produced in the region (such as cameras from Japan, cars from Germany, clothes from China, gambling in Las Vegas, gasoline from Saudi Arabia, vacations in Hawaii, whisky from Scotland, wine from Napa). In contrast, sidewalks are repaired locally (we cannot import sidewalks). Therefore, shifting spending from private consumption to repairing sidewalks will increase the demand for local labor.

The sidewalk repairs are assumed to be financed by reducing local private consumption. Absentee owners who pay for sidewalk repairs when they sell their property will take less cash out of the region, and their reduced private consumption will occur elsewhere. Resident owners who sell their property and move out of the region will also take away less cash after paying for sidewalk repairs, so their reduced private consumption will also take place elsewhere. Therefore, the point-of-sale program can stimulate economic activity within Southern California even more than estimated here.

These rough estimates suggest that a point-of-sale program in Los Angeles will increase employment and income, but that is not the reason to repair sidewalks. The point-of-sale program will save money in settling trip-and-fall lawsuits, will increase property values, will be politically feasible, and will allow the city to do something that almost everybody wants—repair broken sidewalks. At the very least, the model results show that the point-of-sale program will not *hurt* the economy.

When it comes to job creation, politics are often more important than economics. Those who might lose their jobs if private consumption declines do not know who they are, and the job losses will be invisible in an economy that destroys and creates tens of thousands of jobs a month. In contrast, many of those who will benefit from increased public investment do know who they are. In Los Angeles, the 85,000-member Service Employees International Union Local 721, which represents city employees who repair sidewalks, has strongly supported a point-of-sale program. Repairing broken sidewalks will benefit almost everyone in the city, but the jobs that will be created for union members who repair sidewalks may provide a stronger incentive for political leaders to act.

Opposition to Requiring Sidewalk Repairs at Sale

Despite the advantages of requiring sidewalk repairs at sale, the proposal has aroused some opposition. When the Los Angeles City Council began to consider the point-of-sale program in 2008, four associations of realtors wrote to the Council to protest it:

We strongly protest the suggested Point of Sale mandate for sidewalk repair. . . The Point of Sale program as proposed simply will not meet the City's goal to fix the \$1 billion backlog of broken sidewalks and reduce the average \$3 million in liability settlements paid out every year due to trip-and-fall injuries.²⁰

The realtors instead proposed issuing bonds to finance sidewalk repairs: "No serious discussion has yet occurred to explore this option. Repairs funded by bond moneys will get the job done at no additional cost to the city." The realtors seem unaware that taxes must be increased to repay bonds, and that in 1998 Los Angeles voters rejected Proposition JJ to issue \$769 million in bonds to repair sidewalks.

Realtors have consistently opposed point-of-sale requirements. For example, Los Angeles requires owners to install a gas shut-off valve when a property is sold. These motion-sensitive valves shut off the gas supply to a building after an earthquake. The city adopted this requirement after many gas pipes broke in the Northridge earthquake in 1994, and the escaping gas fueled catastrophic fires. Realtors opposed requiring gas shut-off valves at sale on the same grounds they now oppose requiring sidewalk repairs at sale, claiming "the measure will slow home sales."²¹ Nevertheless, 46 percent of all properties in the city were sold at least once in the ten years after the program was adopted in 1977. If the City Council had also adopted a point-of-sale program for sidewalk repairs in 1997, about 1,060 miles of broken sidewalks (4,600 x 46%) would have been repaired by 2007.

Two quotes from the website of the Southland Regional Association of REALTORS® help explain why they object to the point-of-sale program. (Real estate brokers often capitalize all the letters in their copyrighted name.)

REALTORS® are a special interest group working to promote and protect private property rights and to protect and promote the brokerage and management of real estate.

We are against point of sale items because it [sic] increases the work load and liability of REALTORS®.²²

It doesn't get much clearer than that. In their own words, the Southland Regional Association of REALTORS® are a special interest group who oppose point-of-sale programs because the programs increase their work load. In effect, realtors want the right to broker the sale of property that endangers pedestrians, impedes the disabled, and increases the city's liability for trip-and-fall lawsuits.

Property has its duties as well as its rights, but realtors focus on the rights, not the duties. If cities adopt point-of-sale sidewalk programs, the realtors' initial objections will probably seem, in retrospect, misguided. Sidewalk repairs will increase the "curb appeal" of properties, and thus increase both property values and the realtors' commissions on the sales. Once again we can quote the experts. According to Jim Link, chief executive officer of the Southland Regional Association of REALTORS®,

A broken sidewalk is the first sign of potentially more serious problems afflicting a neighborhood. Fixing damaged sidewalks may prevent a neighborhood from going into decline, protect property values, improve the environment, and make homeowners proud.²³

Realtors thus acknowledge that broken sidewalks threaten both the public interest and their own private interests. If I were trying to sell a property, I would not want prospective buyers to have to pick their way along a broken sidewalk to get to the front door. A point-of-sale program will require me to repair any damaged sidewalk before I sell my property, but it will also require all other owners to repair any damaged sidewalks before they sell their property. Entire neighborhoods will improve. My property value (and thus the realtor's commission) will increase not only because of my own repaired sidewalk but also because of the whole neighborhood's repaired sidewalks.

Broken sidewalks show that a city has neglected its public infrastructure for many years, and buyers may look for property in other cities that do maintain their sidewalks. Realtors who oppose a point-of-sale program that will increase the value of the properties they sell are extremely short-sighted. Part of the value realtors offer their customers is their ability to navigate municipal regulations. The addition of a socially beneficial regulation like sidewalk repairs at sale will make realtors more rather than less valuable. Realtors can become a key source of new information necessary for property owners who want to sell their property. Realtors' experience with obtaining the required certificates of compliance will improve the services they can provide for property owners.²⁴ Once realtors have become familiar with the point-of-sale program, they may be astonished by their previous complaints that it will increase their work load. After all, the work they do is what makes realtors useful in property transactions.

When real estate values are declining, mortgage lenders may also object to the point-of-sale program, at least at first. Lenders would have to pay for any sidewalk repairs when the owner has no equity. If the sidewalk repairs increase the sale prices by less than their cost, the lenders would lose money. It would be a mistake, however, to think that this is a long-term problem. Any point-of-sale program would probably not start until well after the current real estate crisis fades into history. If lenders know that the program won't start soon, and that it will be tried out first in a pilot project before going citywide, they might find that the program will increase property values. To protect lenders, however, cities can exempt foreclosures and short sales from the requirement to repair broken sidewalks at sale.²⁵

Exempting foreclosures and short sales from the point-of-sale requirement can remove a political objection to the point-of-sale program, with little effect on the long-run rate of sidewalk repairs. But how legitimate is this objection? Many recent foreclosures were caused in large part

by abuses in the real estate industry, including no-documentation, subprime loans to people who could not afford the properties they bought. Realtors and mortgage lenders are in a weak position to argue that the current spike in foreclosures, which the realtors' and mortgage lenders' own malpractices created, prevents the city from implementing a reform to fix the sidewalks, especially if the reform is necessary to avoid an ADA lawsuit.

Another possible objection to the point-of-sale program might be aesthetic. If different contractors repair the sidewalks at different times, inconsistent materials and craftsmanship could disrupt the visual unity of the streetscape. To avoid this problem, the city requires contractors to obtain a permit before repairing any sidewalk, and the permits carefully specify the texture, color, cement mix, aggregate material, depth, and surface appearance of the sidewalk. The city also inspects the sidewalk after the work is done to ensure that the contractor has complied with the permit. If the city makes the repairs, it follows the same specifications. In most cases, the repairs can carefully match the original sidewalk. After some weathering, the repairs are barely noticeable. To achieve economies of scale in the process, the city can wait until it has accumulated a substantial number of orders in a neighborhood, and then make all the repairs at the same time.

A more far-fetched objection might be that the point-of-sale program amounts to privatization of public space. Sidewalks are public space, and we normally expect public space to be public not only in use but also in construction and repair. The point-of-sale program does assign responsibility for repairs to the adjacent landowners, but the sidewalk itself will remain fully public.

A more substantial objection would arise if the required sidewalk repairs amount to a substantial share of the equity an owner receives from the sale of a property. Suppose, for example, a low-income homeowner receives only \$10,000 after paying off all a property's debts at sale, and the sidewalk repairs cost \$1,000. Unless the repairs increase the property value, the cost will reduce the owner's equity by 10 percent. If paying for sidewalk repairs does create a hardship for any low-income homeowners when they sell their property, exemptions or subsidies for these homeowners can address this issue directly.

A Pilot Project

The city can test a point-of-sale program with a pilot project in one or more neighborhoods, or in an even smaller area. To avoid the objection that the project will harm homeowners, the city could undertake the first one in a business district. Repairing broken sidewalks in a business district with high pedestrian traffic should be a priority for the city, and opponents cannot claim the pilot project will slow home sales because all the properties will be nonresidential.

A pilot project will not only show the effects of a point-of-sale program but will also enable the city to train inspectors, develop the necessary administrative procedures, and work with realtors and escrow firms to establish the best way to manage the program. By comparing the pilot project area with an otherwise similar control area, an evaluation can answer many important questions about the point-of-sale program, such as:

1. How quickly can the city inspect a property after an owner requests an inspection?
2. How many properties require repairs before sale?
3. How much do the required repairs cost?
4. How quickly can the repairs be made?
5. How many city staff are required to inspect properties and make repairs?
6. How large are the repair costs compared to the property sale prices?
7. How quickly does the city recoup the cost of making the repairs?
8. How much must the city charge to recover the cost of inspecting a property's sidewalk?
9. Does requiring a compliance certificate in the escrow process slow property sales?
10. Do repaired sidewalks increase property values or reduce the time needed to sell a property?

The answers to these and other questions will help to improve the point-of-sale program and demonstrate its effects. If the pilot project is considered a success, the requirement for sidewalk repairs at sale can be adopted in other areas, and perhaps ultimately citywide.

Four Additional Strategies for Accessible Sidewalks

Requiring sidewalk repairs at sale can be combined with additional strategies to ensure compliance with the ADA. My focus is on point-of-sale programs, but four other strategies can help cities achieve the goal of accessible sidewalks.

First, cities can cite properties with severely damaged sidewalks that are a threat to safety, and require the owners to pay for repairs, as Los Angeles routinely did until 1974. To make this option politically viable, the city can allow owners to defer paying for the repairs until they sell their property. Requiring immediate repairs will increase public safety, reduce barriers to the disabled, and reduce claims from trip-and-fall lawsuits, and allowing owners to defer payment until sale means that paying for the repairs will not impose a financial hardship on any owner.

Second, cities can require owners to fix their sidewalk when they apply for a building permit to improve their property. Pasadena, for example, requires sidewalk repairs before issuing any building permit for more than \$5,000 of improvements. Section 12.04.031 of the Pasadena Municipal Code states, "All such permits, prior to final issuance, shall require a notation that a sidewalk inspection was completed and that either the sidewalk is not in need of repair, that repair has been completed or that repair has been bonded to the satisfaction of the engineer."

Third, cities can use the revenue from parking meters to pay for sidewalk repairs on the metered streets. Pasadena has used this strategy with great success. When the city agreed to commit the revenues from new parking meters in the Old Pasadena business district to pay for replacing all the sidewalks on the metered streets, merchants and property owners strongly supported the proposal. The city borrowed against the future meter revenues and rebuilt all the sidewalks in Old Pasadena.²⁶

Fourth, cities can enforce the law against parking on sidewalks. Wheelchair users find it difficult or impossible to navigate sidewalks blocked by cars, and Section 22500 of the California Vehicle Code prohibits parking on sidewalks:

No person shall stop, park, or leave standing any vehicle whether attended or unattended, except when necessary to avoid conflict with other traffic or in compliance with the directions of a peace officer or official traffic control device, in any of the following places:

(f) On any portion of a sidewalk, or with the body of the vehicle extending over any portion of a sidewalk.

Although parking on the sidewalk is illegal, Figure 4 shows pictures of a common sight in some parts of Los Angeles—many cars parked on the sidewalks.²⁷ Enforcing the law against parking on sidewalks can be a quick way to make cities more accessible to persons with disabilities.

A point-of-sale program will not fix the sidewalks in front of properties that are not sold. Nevertheless, combining a point-of-sale program with these four other programs—(1) citing owners for broken sidewalks and deferring the payments for repairs until sale; (2) requiring repairs when building permits are issued; (3) using parking meter revenue to pay for sidewalk repairs; and (4) citing drivers who park on sidewalks—can fix all the sidewalks in a city and keep them accessible.

Putting Cities Back on Their Feet

Almost all travel involves sidewalks at the origins and destinations of trips, and some travel is entirely on sidewalks. Nevertheless, sidewalks may seem too mundane for serious academic study. After all, what topic could be more pedestrian than sidewalks?

Perhaps because we take sidewalks for granted, and because they fail gradually rather than collapse spectacularly, many cities have allowed their sidewalks to decay and their neighborhoods to become less walkable. In 2003, however, the U. S. Supreme Court ruled that the Americans with Disabilities Act applies to public sidewalks. As a result, all cities must develop transition plans that will, over a reasonable period, ensure their sidewalks are accessible. In this case, as in many others, what is good for persons with disabilities—repairing broken sidewalks—is good for everyone. The ADA will force cities to begin doing what they should have done anyway: maintain their public infrastructure.

I have used Los Angeles as an example of how a city can finance sidewalk repairs without raising taxes, but the analysis is applicable to any city. To ensure a steady flow of sidewalk improvements, cities can require property owners to fix their sidewalks when they sell their property. Before any real estate is sold, the city will inspect the sidewalk fronting the property. If the sidewalk is in good condition, the owner will not be required to do anything. But if the sidewalk is broken, the owner will be required to fix it before selling the property.

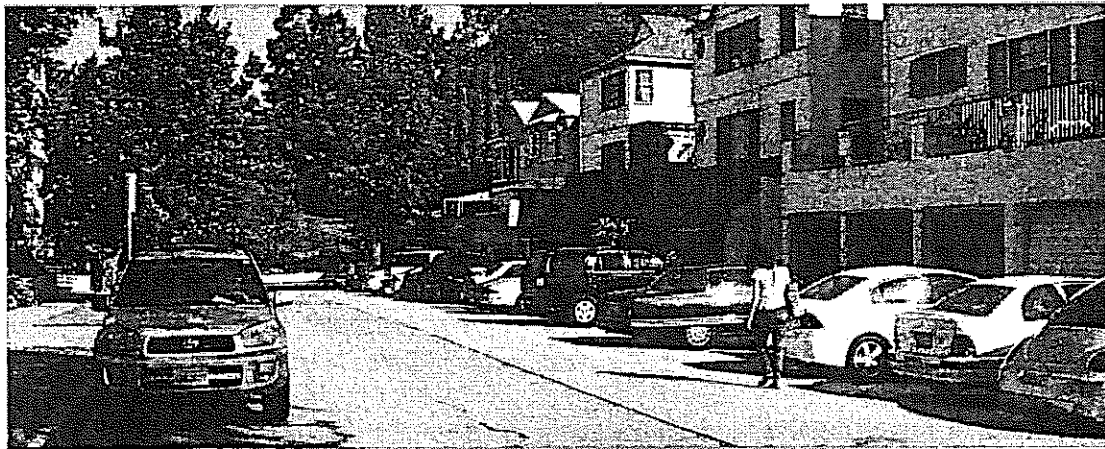


Figure 4. Cars parked on the sidewalks in Los Angeles

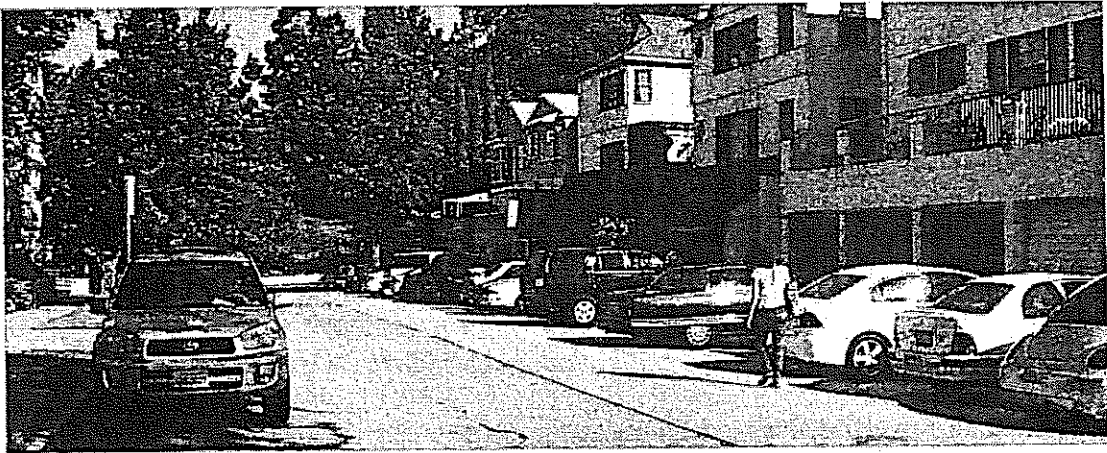


Figure 4. Cars parked on the sidewalks in Los Angeles

Deferring the obligation to fix sidewalks until sale will help to gain the voters' approval, and enforcing the obligation at sale will ensure the owners' compliance, both of which are necessary for a successful program. In return for accepting the obligation to improve one's own sidewalk at sale, the whole city will have good sidewalks. In return for accepting the obligation to plant one's own street tree at sale, the whole city will have tree-lined streets. These are both great bargains. I'll do my part if everybody else does their part, and we will all be better off.

Only the property owners whose sidewalks are broken will pay anything; owners will pay only for the cost of repairing their own sidewalks; and owners will not have to pay anything until they sell their property. With only a minimal obligation to repair sidewalks at sale, about half of all the city's broken sidewalks will be repaired in ten years. Walkable cities need good sidewalks, and requiring sidewalk repairs at sale will help put cities back on their feet.

Our sidewalks have decayed slowly, and they can improve slowly. A better world often arrives in small steps, but we need reasons to take these steps. With a point-of-sale program, all property owners will, sooner or later, have to do their part. In the words of Danish urban designer Jan Gehl, we will be able to say, "How nice it is to wake up every morning and know that your city is a little better than it was the day before."

Endnotes

1. These data were supplied by the Los Angeles Bureau of Street Services and the Los Angeles City Attorney.
2. The text of the Ninth Circuit Court's decision is available at this website: http://www.drakelegal.org/downloads/cases/barden/usca_opinion.txt, accessed on October 24, 2008.
The text of the Americans with Disabilities Act of 1990 is available at this website: www.ada.gov/pubs/ada.htm, accessed on September 21, 2008.
3. Class Action Settlement Agreement, *Barden v. City of Sacramento*, www.drakelegal.org/downloads/cases/barden/settlement.pdf, p. 3, accessed on August 12, 2008.
4. Class Action Settlement Agreement, *Barden v. City of Sacramento*, www.drakelegal.org/downloads/cases/barden/settlement.pdf, p. 13, accessed on August 12, 2008.
5. <http://www.ed.gov/policy/rights/reg/ocr/edlite-28cfr35.html#S150>, accessed on August 12, 2008.
6. New York City, for example, requires property owners to bear the cost of repairing sidewalks: <http://home2.nyc.gov/html/dot/html/sidewalks/sidewalkintro.shtml>, accessed on October 8, 2008.
7. The Los Angeles Bureau of Street Services provided the data for the miles of repaired sidewalks and the expenditure on sidewalk repairs for fiscal years 2000–2008.
8. Sections 18.26–28 of the Piedmont Municipal Code.
9. <http://www.milliontreesla.org/index.htm>
10. The Bureau can collect a cost-recovery fee to verify the condition of the sidewalk and street trees. Properties in neighborhoods that do not have sidewalks and street trees can automatically receive a certificate of compliance on request. The city's website can show all the streets that are automatically in compliance, and the owner would be able to download the certificate for the specific property at no charge.
11. Shoup (1996) analyzes the policy of requiring street trees at the point of sale. Los Angeles already requires street trees when issuing building permits in some parts of the city. For example, the Wilshire–Westwood Scenic Corridor Specific Plan requires, "No building or structure shall be erected, structurally altered or enlarged unless shade-producing street trees are planted and maintained in the adjacent public way at a ratio of one tree for every 30 feet of lot frontage." The point-of-sale program would accelerate the required planting of street trees. Requiring street trees at sale will also encourage owners to take better care of their existing trees, because owners will eventually have to replace any trees that die.

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12. Where land values are high and sidewalk improvements raise them further, most owners should have more than sufficient equity to repay the cost of repairs, plus accrued interest, at sale. They can also voluntarily pay before sale to avoid the interest expense.
 13. The liens would resemble short-term "silent" mortgages, but would be senior to other mortgages. The lien is silent in the sense that the owner does not have to make any payments to amortize the debt, but must repay the debt plus accrued interest at sale.
 14. Shoup (1980, 1990, and 1994) explains the theory and practice of deferring the payments for special assessments until owners sell their properties. An arrangement between lenders and construction companies to finance local public infrastructure might be especially well suited for developing countries where the infrastructure deficit is much greater. Shoup (1994) explains the benefits of using deferred special assessments to finance public investments in developing countries.
 15. For example, see the Harvard Business School's Project Finance Portal at: <http://www.people.hbs.edu/besty/projfinportal/>, accessed on October 9, 2008.
 16. The percent of all properties in the city that were sold at least once between the beginning of each year and the end of 2006 is calculated by dividing the number of properties in Column 3 by the 768,922 properties in the city in 2007.
 17. Shoup (1996) uses both the Los Angeles Assessor's data and U. S. Census data to analyze the long-term sales rates of real estate in Los Angeles City and County and the United States.
 18. Just as the "broken windows" theory suggests that if broken windows in a building are not repaired, vandals may break a few more windows, perhaps a "repaired sidewalks" theory would suggest that if some property owners repair their sidewalks, and all others know that they must repair their sidewalks eventually, many property owners may repair their sidewalks early. Similarly, requiring street trees at sale may also spur some owners to plant early. They may plant early because (a) they want to enjoy the tree they will eventually have to plant anyway, (b) they expect that it will be cheaper to plant early, (c) they anticipate that a mature tree will add more to the value of their property, (d) they realize that the best time to plant a tree is usually 20 years ago, and/or (e) they simply want to contribute their fair share to a plan they know will be accomplished.
 19. Scott Lindall and Douglas Olson explain the IMPLAN input-output system at this link: www.implan.com/library/documents/implan_io_system_description.pdf, accessed on September 29, 2008. I am grateful to Peter Gordon and Qisheng Pan for using this model to estimate the effects of regulating land use at sale.
 20. Memo to the Los Angeles City Council from the Pasadena-Foothills Association of REALTORS®, Glendale Association of REALTORS®, Beverly Hills Association of REALTORS®, and South Bay Association of REALTORS®, February 20, 2008, page 1.
 21. Martin (1997). See also Martin (1996). In addition to gas shut-off valves, Los Angeles requires property owners to install other items at sale, such as smoke detectors, water-

conservation devices, and impact glazing for sliding doors. These requirements are detailed in the city's report required at sale:

<www.ladbs.org/permits/permit_related_forms/9aform_Autores.pdf>, accessed on December 12, 2008. Requiring owners to fix their sidewalks at sale has many precedents.

22. Website of the Southland Regional Association of REALTORS®, Inc., <www.srar.com/members/politicalgovaffairs.php>, accessed on August 7, 2008.

23. "Public at Risk as Nearly 50% of L.A. City's Sidewalks are Unsafe and Efforts to Fix them Prove Ineffective," website of the Southland Regional Association of REALTORS®, December 5, 2007. <www.lasidewalks.org/pressreleases/120507-sidewalk2-2.php>, accessed on August 20, 2008.

24. Stockbrokers, for example, would not complain about a new complication in the law that makes do-it-yourself stock transactions more difficult. They would welcome the increase in their work load.

25. A short sale occurs if the lender accepts less than the total amount due on the mortgage when a property is sold. With the lender's approval, the owner who sells the mortgaged property for less than the outstanding loan balance turns over all the proceeds of the sale to the lender.

26. Kolozsvari and Shoup (2003) and Shoup (2005, Chapter 16) explain the economics and politics of using parking meter revenue to pay for sidewalk repairs.

27. This website documents the common practice of parking on sidewalks in Los Angeles: <www.its.ucla.edu/shoup/NorthWestwoodVillageDatav3.pdf>. A second website documents emails and letters to city officials about inaccessible sidewalks in Los Angeles: <www.its.ucla.edu/shoup/CorrespondenceAboutADA.pdf>, accessed on September 21, 2008.

References

- Jacobs, Allan. 1990. In Defense of Street Trees, *Places*, Winter, pp. 84-87.
- Kohrman, Dan, and Julie Nepveu. 2008. Court Allows Challenge for Safe Sidewalks, *Elder Law Forum*, Vol. XXI, No. 2, July, pp. 5-6.
- Kolozsvari, Douglas, and Donald Shoup. 2003. Turning Small Change into Big Changes, *Access*, No. 23, Fall, pp. 2-7.
- Martin, Hugo. 1996. Panel Urges Mandate on Gas Shut-Off Valves, *Los Angeles Times*, July 31, 1996. www.its.ucla.edu/shoup/shut-offvalves.pdf, accessed on December 8, 2008.
- Martin, Hugo. 1997. Gas Shut-Off Valves Mandated; Realtors Fear Action May Hurt Housing Sales, *Los Angeles Times*, February 27, 1997. www.its.ucla.edu/shoup/safetyvalvesmandated.pdf, accessed on December 8, 2008.
- Shoup, Donald. 1980. Financing Public Investment by Deferred Special Assessment, *National Tax Journal*, Vol. XXXIII, No. 4, December, pp. 414-429. www.sppsr.ucla.edu//dup/people/faculty/shoup/NationalTaxJournal.pdf, accessed on December 8, 2008.
- Shoup, Donald. 1990. New Funds for Old Neighborhoods: California's Deferred Special Assessments, Berkeley: California Policy Seminar. <http://shoup.bol.ucla.edu/NewFundsForOldNeighborhoods.pdf>, accessed on December 8, 2008.
- Shoup, Donald. 1994. Is Underinvestment in Public Infrastructure an Anomaly?, in Gareth Jones and Peter Ward (eds.), *Methodology for Land and Housing Market Analysis*, London: UCL Press, pp. 236-250. www.sppsr.ucla.edu//dup/people/faculty/shoup/IsUnder-investment.pdf, accessed on December 8, 2008.
- Shoup, Donald. 1996. Regulating Land Use at Sale, *Journal of the American Planning Association*, Vol. 62, No. 3, Summer, pp. 354-372. http://shoup.bol.ucla.edu/Regulation_at_Sale.pdf, accessed on December 8, 2008.
- Shoup, Donald. 2005. *The High Cost of Free Parking*, Chicago: Planners Press.
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FIGHTING CRIME WITH PUBLICLY-FINANCED SURVEILLANCE CAMERAS: THE SAN FRANCISCO EXPERIENCE

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I. Introduction

The direct and indirect costs of criminal victimizations are quite large. By one estimate, the direct monetary losses and the costs of pain and suffering among crime victims in the United States amounts to 0.5 to 0.7 percent of GDP (Freeman 1996). Beyond these direct costs, however, are substantial indirect costs generated by public and private expenditures designed to prevent crime, and to adjudicate and punish criminal offenders. For example, U.S. state and local government as well as the federal government spend over \$60 billion a year on corrections (Raphael and Stoll 2008). In 2005, total U.S. expenditures on police topped \$94 billion while judicial expenditures exceed \$44 billion.¹ In addition, private citizens expend personal resources and alter behavior (for example, limit outings after dark) with an aim on reducing the likelihood of becoming victimized.

Given these large social costs generated by criminal activity, policy interventions that have even small impacts on crime often generate social benefits that exceed costs. A great deal of research has been devoted to evaluating the impacts of changes in incarceration on crime rates (Levitt 1996, Johnson and Raphael 2008), impacts of the size of a city's police force on local crime rates (Levitt 1997, McCrary 2002, Evans and Owens 2007), as well as the effects of policing strategies on crime, such as community policing (Donohue and Ludwig 2007) or concentrated "hot-spot" policing efforts (Sherman 2001, Braga et. al. 1999).

II. Urban Use of Surveillance Cameras

Recently, several U.S. cities have experimented with the use of publicly financed, maintained, and monitored surveillance cameras. In California alone, 37 cities currently have some form of surveillance program in operation, with at least 18 of these cities actively monitored by the local police (Shlosberg and Ozer 2007). While the use of public surveillance cameras has been more common in other countries (in the U.K. in particular), the installation of such systems in such major U.S. cities like Los Angeles, San Francisco, and Chicago is a relatively new and little-studied development.²

III. Surveillance Analysis in San Francisco

This paper presents an empirical evaluation of the effect of crime camera installation on local crime rates for the city of San Francisco. We estimate the impact of the installation of surveillance cameras in nineteen locations throughout the city on the level of criminal activity in

areas within the cameras' view as well as criminal activity occurring in areas just beyond the cameras' view-sheds. We assess whether the installation of crime cameras affected the level of serious felony offending defined in terms of the seven Federal Bureau of Investigation "part 1" felony offenses.

Our evaluation employs a simple quasi-experimental research design to isolate the effects of this program intervention on criminal offending. We present a series of comparisons of before-after changes in crime rates in areas within the immediate vicinity of the camera and areas just beyond the purview of the cameras. Changes in crime rates within view of the cameras are driven by the impact of the cameras as well as the effects of any other changes in criminogenic conditions that determine the offending level (for example, local trends, changing demographics, local economic conditions etc). In the absence of crime displacement, changes in crime rates in adjacent areas should reflect only the effect of all other environmental factors affecting crime on the specific city block.

To the extent that surveillance cameras deter criminal activity, the before-after change in crime for the area within a camera's view should differ from the comparable change in the area beyond the camera's view, with crime declining in the area near the camera relative to crime in the adjacent area. To assess whether crime is displaced from one region to another, we choose multiple comparison regions outside of the camera's view. In the absence of a displacement effect, the relative change across different comparison regions should be similar.

To further refine these comparisons, we exploit the fact that surveillance cameras are only likely to deter criminal incidents occurring in public places. Thus, if cameras deter criminal activity within their view, we should observe declines in crimes occurring in public places but no decline in crimes occurring in private places. Thus, we present separate estimates for criminal incidents occurring in public places as well as for criminal incidents occurring in private areas, or areas unlikely to be captured by the camera. A priori, a deterrent effect would predict a decline in crime in public places, but not in private places.

The principal results of our analysis of the San Francisco program are the following:

- We find statistically significant and substantial declines in *property crime* within view of the crime cameras. Within 100 feet of camera locations, part 1 felony incidents decline by 24 percent. We do not see corresponding declines in the immediately adjacent areas nor do we observe increases in *property crime* in these areas. When we analyze incidents occurring in public and incidents occurring in private places separately, we find statistically significant and substantial declines (on the order of 30 percent) near the cameras for crimes occurring in public only, and no relationship between distance from the camera and the change in crime for *property crime* occurring in private locations.
- We find no evidence of an impact of the surveillance cameras on *violent crime*. Violent incidents do not decline in the areas near the cameras relative to areas further away, and we observe no decline in *violent crimes* occurring in public places.

IV. Description of the Evaluation Methodology

Installing surveillance cameras may influence local crime rates through several avenues. First, to the extent that those who commit crime are sensitive to the likelihood of being apprehended, the presence of a surveillance camera may deter criminal activity in the area captured by the camera. Whether such a local deterrent effect reduces overall crime rates will depend on whether the locally deterred reduce their overall offending or simply choose a location outside of the camera's view. If the locally deterred simply move down the street, crime will be displaced from the area covered by the camera to alternative areas of the city without video surveillance coverage. We will refer to this effect throughout this report as a *crime-displacement effect*.

Second, if crime cameras aid in the apprehension and prosecution of perpetrators, crime cameras may have an *incapacitation effect*. Alternatively stated, if camera surveillance is helpful in capturing and incarcerating individuals with a high propensity to offend, this additional surveillance tool may reduce local crime rates through the incapacitation of those individuals responsible for disproportionate shares of crime.

Impact by Distance from the Cameras

We evaluate whether the installation of cameras deters criminal incidents and whether any such locally deterred criminal activity is displaced to immediately adjacent areas.³ We employ a simple non-experimental estimation strategy to isolate the deterrent effects of the San Francisco crime camera program on local offending levels. Our principal strategy is to assess whether the before-after installation change in crime rates in areas receiving crime cameras depends on the physical distance of the area from the camera location. Presumably, surveillance cameras will deter crime within areas in view of the camera, but not in areas outside the camera's view. Thus, to assess whether cameras are having a deterrent effect, we estimate the change in crime rates for areas of varying distance from the camera location.

Specifically, let $Crime_{idt}$ be the number of daily criminal incidents occurring at camera location i , where $i=(1, \dots, 16)$ reflecting the sixteen location clusters that we will define below, $d=(1, 2, 3, 4, 5)$ indexes distance groups for sub-areas defined by 100-foot concentric circles drawn around specific camera locations, and t indexes specific calendar dates. Define the installation date for cluster i by the variable T_i . The before-after change in average daily crime rates for each of the distance clusters is given by the equations

$$\begin{aligned}\Delta_1 &= E(Crime_{1t} | t \geq T_i) - E(Crime_{1t} | t < T_i) \\ \Delta_2 &= E(Crime_{2t} | t \geq T_i) - E(Crime_{2t} | t < T_i) \\ \Delta_3 &= E(Crime_{3t} | t \geq T_i) - E(Crime_{3t} | t < T_i) , \\ \Delta_4 &= E(Crime_{4t} | t \geq T_i) - E(Crime_{4t} | t < T_i)' \\ \Delta_5 &= E(Crime_{5t} | t \geq T_i) - E(Crime_{5t} | t < T_i)\end{aligned}$$

where Δ_1 , Δ_2 , Δ_3 , Δ_4 , and Δ_5 give the before-after changes in average daily crime rates within 100 feet of cameras, within 100 to 200 feet of a camera, within 200 to 300 feet of a camera, within 300 to 400 feet of a camera, and within 400 to 500 feet of a camera.

To clarify our estimation strategy, we need to discuss the factors that determine these five changes in average crime rates. Beginning with the change in the immediate vicinity of the camera, Δ_1 will depend on (1) the effect of the camera on crime rates within the 100 foot circle surrounding the camera, (2) the impact of other changes in crime determinants that affect this area but not the remainder of the circle defined by the 500 foot radius surrounding the camera location under question, and (3) the effect of crime determinants that affect the entire area defined by the 500 foot radius. Based on our site visits to each of the camera locations, we concluded that the cameras' views do not extend beyond 100 feet.⁴ Thus, changes in the remaining areas (Δ_2 , Δ_3 , Δ_4 , and Δ_5) will depend only on (1) factors that impact the specific distance area only, and (2) crime determinants that influence the entire area defined by the 500 foot concentric circle.

Our estimation strategy involves comparing the change in crime within the camera's view (Δ_1) to changes in crime in the areas outside of the camera's view (Δ_2 , Δ_3 , Δ_4 , and Δ_5). All such changes will be affected by crime determinants that have a common impact on the 500 foot area. Thus, if crime in the specific area, or citywide, is trending in a specific direction, this will be reflected in each of the five crime change tabulations. However, only the crime change in location one (Δ_1) will be affected by a local deterrent effect associated with increased surveillance. Thus, our empirical test is to assess whether crime declines in region one relative to regions two through five – i.e., do we observe $\Delta_1 < \Delta_2$, $\Delta_1 < \Delta_3$, $\Delta_1 < \Delta_4$, $\Delta_1 < \Delta_5$. To the extent that this is the case, we would have evidence that something is affecting crime in region one beyond all of the other determinants of criminal activity in the larger area surrounding the camera location.

Study Limitations

The chief limitation of this strategy concerns the fact that such a comparison of changes does not permit ruling out changes in crime determinants that differentially impact each of the five distance groups that we have defined. For example, if the installation of the crime camera coincided with a change in lighting in area one or a shift of police patrolling resources to or away from area one, a relative change in crime near the camera may be attributable to these other factors.⁵ Most importantly, areas two through five may be affected by criminal activity displaced from area one, a factor that would yield a larger relative decline in crime in region one. More generally, any factors that change during the study period that will affect one of the five regions but not the other regions (beyond the new deterrent effect in region one) will not be captured by this simple differencing.

Use of Multiple Comparisons

Nonetheless, the multiple comparisons of region one to regions two through five should assuage this concern to some degree. One might argue that non-camera related factors that impact the change in criminal offending should be more similar in regions one and two than in regions one and five. In addition, one might also expect to see larger displacement effects further down the block (say 400 to 500 feet away) rather than just beyond the camera's view

(for example, 100 to 200 feet away). Changes in crime that are similar across groups two through five would be inconsistent with this speculation. In the empirical work below, we draw many such multiple comparisons.

We estimate these before-after changes in crime for all criminal incidents as well as for criminal incidents defined by the location of the incident. This latter stratification serves as a falsification check on the main before-after comparisons. The incident data provided to us by the San Francisco Police Department (SFPD) include information on the location of the incident. One might expect local deterrent effects to operate only on criminal offending occurring within public spaces visible to crime cameras. One would not expect criminal activity occurring in private areas or public areas not within the camera's view to be affected. Thus our falsification test involves defining incidents that occur in public spaces more likely to be captured by a camera and incidents occurring in spaces unlikely to be captured by a camera, and applying our evaluation strategy to each of these more restrictive dependent variables. Evidence consistent with a local deterrent effect would involve observing patterns for crimes occurring in public spaces that differ from those for crimes occurring in private spaces.

Using the incident coding provided by the SFPD, we define all incidents where the location is described as occurring on the sidewalk (30.1% of all part I felony incidents in our public spaces sub-sample), street (23.53%), San Francisco Municipal Transportation Authority (MUNI) facility (2.94%), vehicle parked on street (2.06%), parking lot (0.98%), miscellaneous outside area (0.49%), park (0.38%), alley (0.35%), Bay Area Rapid Transit (BART) facility (0.17%), and construction area (0.1 percent) or where the location was unknown (38.88%) as occurring in public places. We define all other incidents as occurring in private locations or locations unlikely to be captured by a camera.⁶ Using these definitions, roughly 72 percent of property crimes in our main analysis sample and 73 percent of violent crime occur in public places.

V. Data Description

The San Francisco Police Department provided us with a data set describing 76,930 incidents occurring within 1,000 feet of nineteen crime camera locations. The data query involved pulling all incidents within 1,000 feet of each camera location occurring between January 1, 2005 and January 28, 2008. Since many of the cameras are within a 1,000 feet of one another, the structure of this query produced many duplicate incident counts – e.g., an incident occurring in the 1700 block of Mission St. would be recorded as occurring within 1,000 feet of both, the 16th and Mission as well as the 19th and Mission locations. We tabulate that there are 59,706 independent incidents occurring within 1,000 feet of the camera (that is to say, 78 percent of the total incident count represent independent events with the remainder being duplicates).

Dealing with Double Counting

We impose several restrictions on the data set that largely eliminate this double-counting problem. First, we restrict our analysis to incidents occurring within 500 feet of one of the

19 camera locations. Given the short radius of the area in view of the camera, this gives plenty of space to define various comparison groups and to test for displacement effects.⁷ This greatly reduces the overlap in the analytical areas surrounding each location. For example, the 500 foot concentric circles around the 16th and Mission and 19th Mission locations do not overlap while the 1,000 foot concentric circles do.

Second, we restrict our analysis to incidents occurring during the 209 days prior to camera installation and the 264 days following camera installation. The length in days of the chosen pre and post period are the maximum number of days for which we have pre and post data for all of the nineteen camera locations. Since several of the cameras that are in close proximity to one another have installation dates that differ by more than a year, imposing the time restrictions eliminates many of the remaining double-counted incidents.

Moreover, since several of the locations near one another have installation dates that differ by more than 264 days, there will be many instances where it will indeed be analytically correct to count incidents more than once.⁸ Imposing these two restrictions reduces the proportional importance of incorrectly double-counted incidents from 22 percent of observed incidents to less than five percent of observed incidents.

The remaining incorrectly double-counted incidents occur near camera locations that are within 500 feet of one another and where installation dates are chronologically close. We deal with these remaining double-counted incidents in the following manner. For camera locations that are within 500 feet of one another and have installation dates that are less than three months apart we define subsuming location clusters. For criminal incidents reported more than once within a cluster, we retain the record with the minimum distance to a camera location and discard the remaining duplicates.

This specification choice means that the surveillance areas around camera clusters will be defined by the union of the surveillance areas of the individual cameras, and that more distant areas are only defined as such if they are not covered by a closer camera location. That is to say, a location within 50 feet of one camera within a given cluster but 500 feet from another camera in the same cluster is classified as being within 50 feet of the camera cluster. In addition, in order for a location to be classified as 500 feet from a camera, it must be at least 500 feet from all cameras.

Camera Location

Table 1 presents a list of the 19 surveillance camera locations along with the installation dates. The final column of the table listed our created camera clusters that we use to define the concentric circles around the camera location. Note, 14 of the 19 locations are in single-location clusters –i.e., they are sufficiently distant from other camera locations that the area swept by the 500 foot radius does not overlap with that of any other location. The remaining five locations are grouped into two geographic clusters.

Table 1**Surveillance Camera Locations, Installation Dates, and Cluster Categorization**

Location	Installation Date	Cluster
Telegraph Hill	12/18/2006	1
1050 McAllister	3/27/2007	2
16th & Mission	2/15/2007	3
19th & Mission	12/30/2005	4
24th & Mission	3/23/2007	5
26th & Shotwell	4/24/2007	6
26th & Treat	12/13/2005	7
3rd & Kirkwood	11/21/2005	8
3rd & Newcomb	1/25/2007	9
Allemany & Ellsworth	12/22/2005	10
Eddy & Buchannan	7/29/2005	11
Eddy & Pierce	12/31/2005	12
Scott & Eddy	12/31/2005	12
Turk & Scott	2/27/2006	12
Haight & Webster	5/11/2007	13
Jones & Ellis	3/7/2007	14
Turk & Taylor	3/8/2007	14
Middle Pt & W. Pt	12/6/2005	15
Mission St & Geneva	3/16/2007	16

Locations that are clustered together are those in extremely close proximity that have installation dates within three months of one another.

Table 2. Average Daily Property Crimes Before and After Camera Installation by Distance from the Camera Location

	Average Daily Crime Before	Average Daily Crime After	Change, After – Before
Panel A: All Property Crime			
Within 100 feet	0.052 (0.004)	0.040 (0.003)	-0.012 (0.005) ^b
100 to 200 feet	0.025 (0.003)	0.023 (0.002)	-0.002 (0.003)
200 to 300 feet	0.023 (0.003)	0.023 (0.002)	0.000 (0.003)
300 to 400 feet	0.073 (0.005)	0.070 (0.005)	-0.002 (0.007)
400 to 500 feet	0.060 (0.004)	0.061 (0.004)	0.001 (0.006)
Panel B: Property Crime in Public Places or Where Crime Location is Unknown			
Within 100 feet	0.044 (0.004)	0.031 (0.003)	-0.013 (0.002) ^a
100 to 200 feet	0.010 (0.002)	0.011 (0.002)	0.001 (0.002)
200 to 300 feet	0.018 (0.002)	0.016 (0.002)	-0.002 (0.003)
300 to 400 feet	0.054 (0.004)	0.053 (0.004)	-0.001 (0.006)
400 to 500 feet	0.043 (0.004)	0.042 (0.003)	0.001 (0.005)
Panel C: Property Crime in Private Locations or Locations Unlikely to be Covered by a Surveillance Camera			
Within 100 feet	0.007 (0.001)	0.008 (0.001)	0.001 (0.002)
100 to 200 feet	0.015 (0.002)	0.012 (0.002)	-0.003 (0.003)
200 to 300 feet	0.005 (0.001)	0.008 (0.001)	0.003 (0.002)
300 to 400 feet	0.019 (0.002)	0.018 (0.002)	-0.001 (0.003)
400 to 500 feet	0.017 (0.002)	0.019 (0.002)	0.002 (0.003)

Standard errors are in parentheses. Averages are based on 209 days before installation and 264 days after installation for each of the 16 camera location clusters.

a. Statistically significant at the one percent level of confidence.

b. Statistically significant at the five percent level of confidence. c. Statistically significant at the ten percent level of confidence.

IV. Empirical Results

In this section, we present the main empirical findings of our evaluation. We first investigate the deterrent effect of crime cameras on local property crime rates. We next test for an effect of cameras on the overall violent crime rate and specific types of violent offenses.

The Effect of Installing Surveillance Cameras on Local Property Crime Rates

We begin our analysis by documenting average daily property crime levels for the time period preceding camera installation and the time period following installation. We define total property crimes as the sum of burglaries (residential and otherwise), larceny theft, and motor vehicle theft. Recall, our pre-period consists of the 209 days prior to the camera installation date for all sites while the post period consists of the 264 days following the camera installation.

Table 2 presents average daily crime rates for the pre and post periods by distance from the camera. Within each distance band, we also tabulate the pre-post change in average daily crimes and perform a test of whether this change is statistically significant. Panel A of the table presents results for all property crimes, Panel B presents results for crime that we have deemed as occurring in a public place likely to be captured by a camera, while Panel C presents tabulations for crimes that occur in private places or locations that are unlikely to be captured by a camera.

Beginning with the results for all property crimes, we observe a statistically significant decline (at the five percent level of confidence) in the areas within 100 feet of the new surveillance cameras. The decline in average daily incidents from 0.052 to 0.040 constitutes a 23 percent decline in property crime levels. Note, we have concluded from our site visits that the view shed of the cameras do not extend beyond 100 feet. Thus, this inner area is the principal area directly treated by a new crime camera.

For more distant areas – i.e., the 100 foot concentric bands between 100 and 500 feet from the cameras – there are no measurable pre-post changes in average daily property crimes. While several sites register small declines, all are small relative to the sampling error, rendering these changes statistically indistinguishable from zero.

The results for property crimes occurring in public places are similar, yet somewhat sharper. For the areas within 100 feet of the camera, we observe a decline in average daily property crimes of 0.013 (approximately 30 percent of the baseline crime rate of 0.044). This change is statistically significant at the one percent level of confidence and is measured more precisely than the overall change in property crimes present in Panel A. Again, there are no measurable changes in the areas from 100 to 500 feet from the cameras. The results for property crimes occurring in either private places or places unlikely to be captured by a camera stand in stark contrast to the results in Panels A and B. Here, we observe no statistically significant changes in any of the areas, near or far. This falsification check provides support for the interpretation of the results in Panels A and B as a true causal impact of the cameras on local property crime rates.

Table 3. Difference-in-Difference Calculations of the Change in Property Crime Within 100 Feet of Camera Relative to the Change in Crime in More Distant Areas

Panel A: All Property Crime				
	$\Delta_1-\Delta_2$	$\Delta_1-\Delta_3$	$\Delta_1-\Delta_4$	$\Delta_1-\Delta_5$
No Controls	-0.010 (0.006)	-0.012 ^b (0.006)	-0.010 (0.008)	-0.014 ^c (0.008)
Calendar month and year effects	-0.010 (0.006)	-0.012 ^b (0.006)	-0.010 (0.009)	-0.014 ^c (0.008)
Panel B: Property Crime in Public Places or Where Crime Location is Unknown				
	$\Delta_1-\Delta_2$	$\Delta_1-\Delta_3$	$\Delta_1-\Delta_4$	$\Delta_1-\Delta_5$
No Controls	-0.014 ^a (0.005)	-0.011 ^c (0.006)	-0.012 (0.007)	-0.012 ^c (0.006)
Calendar month and year effects	-0.014 ^a (0.005)	-0.011 ^c (0.006)	-0.012 (0.007)	-0.012 ^c (0.006)
Panel C: Property Crime in Private Locations or Locations Unlikely to be Covered by a Surveillance Camera				
	$\Delta_1-\Delta_2$	$\Delta_1-\Delta_3$	$\Delta_1-\Delta_4$	$\Delta_1-\Delta_5$
No Controls	0.004 (0.003)	-0.001 (0.003)	0.002 (0.004)	-0.001 (0.004)
Calendar month and year effects	0.004 (0.003)	-0.001 (0.002)	0.002 (0.004)	-0.001 (0.004)

Standard errors are in parentheses. The first set of estimates provides simple difference-in-difference calculations. The second set of estimates come from a regression of daily criminal incidents on a dummy for being within 100 feet of the camera, a post installation dummy, an interaction term between the within-100-feet dummy and the post-installation dummy, a complete set of fixed effects for calendar month, and a complete set of year fixed effects. The reported statistics and corresponding standard errors are for the coefficient on the interaction term.

- a. Statistically significant at the one percent level of confidence.
- b. Statistically significant at the five percent level of confidence.
- c. Statistically significant at the ten percent level of confidence.

Table 3 formally tests whether the changes in property crime in the areas within 100 feet of a camera differ from the comparable changes observed in the other four 100 foot concentric areas bands. For all property crimes, property crimes occurring in public places, and property crime occurring in private places, the first row of figures presents the difference-in-differences calculated by subtracting the change in one of the comparison areas beyond 100 feet from the change in crime occurring within 100 feet. The second row of figures presents a comparable regression-adjusted difference-in-difference estimate which includes a complete set of fixed effects for calendar months and calendar years. These latter results control for seasonal crime patterns as well as year-to-year differences in the overall crime level. Since the basic results and the regression-adjusted estimates are nearly identical in all cases, our discussion will focus on the unadjusted results.

Beginning with the estimates for all crime in panel A, the relative change in crime within 100 feet of the camera are numerically comparable across all comparisons, with relative changes of -0.01 to -0.014. Given the size of the standard errors on these estimates, all of these relative changes are statistically indistinguishable from one another. These relative changes are statistically significant in the difference-in-difference estimate using the area 200 to 300 feet away as the comparison area (at the 5 percent level of confidence) and in the comparison using the area 400 to 500 feet away (at the 10 percent of level of confidence). Similar to the basic patterns in Table 2, we observe stronger evidence when we restrict our attention to crimes occurring in public places. Here the relative changes ranges from -0.011 to -0.014, with the change relative to the area 100 to 200 feet away significant at the one percent level of confidence, the change relative to the are 200 to 300 feet away significant at the 10 percent level of confidence, and the change relative to the are 400 to 500 feet away significant at the 10 percent level of confidence. With regards to crimes occurring in private places, we find no evidence of a relative changes in crime near the cameras.

Violent Crime

Tables 4 and 5 present corresponding estimation results for overall violent crime. Violent crimes are calculated as the sum of murders, rapes, robberies, and assaults. Beginning with the basic pre-post patterns in Table 4, there is little evidence that the installation of crime cameras affected the average number of violent crimes in any of the five distance groups. The results for all violent crime indicate slight increases in violent crime that are all statistically indistinguishable from zero and that exhibit no discernable pattern with regards to distance from the camera location. We find similar results when we look at crimes occurring in public places as well as violent crime occurring in private places or places unlikely to be captured by the camera.

Table 5 presents difference-in-difference calculations for the relative change in crime near the cameras and formal tests of the statistical significance of these relative changes. In all comparisons, the point estimates are small relative to the standard errors. For many, the changes are near zero. There isn't single statistically significant estimate in the table. Hence, in conjunction with the results presented in Table 4, we conclude that there is little evidence of an impact of the surveillance cameras on violent crime.

Table 4. Average Daily Violent Crimes Before and After Camera Installation by Distance from the Camera Location

	Average Daily Crime Before	Average Daily Crime After	Change, After – Before
Panel A: All Violent Crime			
Within 100 feet	0.061 (0.005)	0.065 (0.004)	0.004 (0.006)
100 to 200 feet	0.030 (0.003)	0.038 (0.003)	0.008 (0.005)
200 to 300 feet	0.022 (0.003)	0.023 (0.002)	0.001 (0.003)
300 to 400 feet	0.082 (0.006)	0.083 (0.008)	0.001 (0.008)
400 to 500 feet	0.059 (0.005)	0.063 (0.003)	0.004 (0.006)
Panel B: Violent Crime in Public Places or Where Crime Location is Unknown			
Within 100 feet	0.054 (0.004)	0.054 (0.004)	0.000 (0.006)
100 to 200 feet	0.018 (0.002)	0.023 (0.003)	0.006 (0.004)
200 to 300 feet	0.016 (0.002)	0.015 (0.002)	-0.001 (0.003)
300 to 400 feet	0.058 (0.005)	0.056 (0.004)	-0.002 (0.006)
400 to 500 feet	0.040 (0.004)	0.042 (0.003)	0.002 (0.005)
Panel C: Violent Crime in Private Locations or Locations Unlikely to be Covered by a Surveillance Camera			
Within 100 feet	0.007 (0.001)	0.010 (0.002)	0.002 (0.002)
100 to 200 feet	0.012 (0.002)	0.014 (0.002)	0.002 (0.002)
200 to 300 feet	0.007 (0.001)	0.008 (0.001)	0.001 (0.002)
300 to 400 feet	0.024 (0.003)	0.026 (0.003)	0.002 (0.004)
400 to 500 feet	0.019 (0.002)	0.021 (0.002)	0.002 (0.003)

Standard errors are in parentheses. Averages are based on 209 days before installation and 264 days after installation for each of the 16 camera location clusters.

- a. Statistically significant at the one percent level of confidence.
- b. Statistically significant at the five percent level of confidence.
- c. Statistically significant at the ten percent level of confidence.

Table 5. Difference-in-Difference Calculations of the Change in Violent Crime Within 100 Feet of Camera Relative to the Change in Crime in More Distant Areas

Panel A: All Violent Crime				
	$\Delta_1-\Delta_2$	$\Delta_1-\Delta_3$	$\Delta_1-\Delta_4$	$\Delta_1-\Delta_5$
No Controls	-0.004 (0.008)	0.003 (0.007)	0.003 (0.010)	-0.000 (0.009)
Calendar month and year effects	-0.004 (0.008)	0.003 (0.007)	0.003 (0.010)	-0.000 (0.009)
Panel B: Violent Crime in Public Places or Where Crime Location is Unknown				
	$\Delta_1-\Delta_2$	$\Delta_1-\Delta_3$	$\Delta_1-\Delta_4$	$\Delta_1-\Delta_5$
No Controls	-0.004 (0.007)	0.001 (0.007)	0.003 (0.009)	-0.000 (0.008)
Calendar month and year effects	-0.004 (0.007)	0.001 (0.007)	0.003 (0.008)	-0.000 (0.008)
Panel C: Violent Crime in Private Locations or Locations Unlikely to be Covered by a Surveillance Camera				
	$\Delta_1-\Delta_2$	$\Delta_1-\Delta_3$	$\Delta_1-\Delta_4$	$\Delta_1-\Delta_5$
No Controls	0.000 (0.004)	0.001 (0.003)	0.000 (0.005)	0.000 (0.004)
Calendar month and year effects	0.000 (0.004)	0.001 (0.003)	0.000 (0.005)	0.000 (0.004)

Standard errors are in parentheses. The first set of estimates provides simple difference-in-difference calculations. The second set of estimates come from a regression of daily criminal incidents on a dummy for being within 100 feet of the camera, a post installation dummy, an interaction term between the within-100-foot dummy and the post-installation dummy, a complete set of fixed effects for calendar month, and a complete set of year fixed effects. The reported statistics and corresponding standard errors are for the coefficient on the interaction term.

- a. Statistically significant at the one percent level of confidence.
- b. Statistically significant at the five percent level of confidence.
- c. Statistically significant at the ten percent level of confidence.

VI. Conclusion

The empirical results from this analysis are several. First, we find fairly consistent evidence that the installation of crime cameras at 19 locations throughout the city has had a statistically significant and substantial impact on property crimes within the areas in the camera's view. We observe pre-post declines in property crime in excess of 20 percent and for crimes occurring in public, as high as 30 percent. There are no comparable declines in crimes occurring further from the cameras and no increase in crime in more distant areas either absolutely, or relative to a set of comparison regions. Second, we find very little evidence of an impact of the cameras on violent crime.

Whether these results generalize to what would happen in other cities is an interesting question. The San Francisco crime camera program is in many ways unique. The system is only passively monitored and there are strict provisions in the ordinance authorizing the program against aiming the camera towards private areas and against active monitoring of the cameras. The photo resolution is not particularly high and the number of frames caught per minute is relatively small. This contrasts with systems in other cities, such as London and Chicago, where the cameras are actively monitored, resolution is higher, and camera monitors actively can pan and zoom their equipment in response to a call.

Thus, whether the disappointing results with regards to violent crime are due to an inability of video surveillance to deter such activity or to the particular manner in which the program was implemented in San Francisco is an open question. Interestingly, there is extant empirical evidence suggesting that violent crime is generally insensitive to changes in incentives, while property crime is fairly sensitive to the likelihood of being detected and to positive incentives to engage in other activity (Raphael and Winter Ebner 2001, Gould et. al. 2002). Such evidence suggests that deterring violent crime is a fairly difficult task, given the nature and motivation behind this class of offending. Nonetheless, we cannot rule out that the particulars of the program under study are behind the weak impacts on violent crime.

An additional question raised by the results presented here concerns whether the benefits in terms of reduced property crime outweigh the explicit budgetary outlays of the program, as well as the harder to measure costs of the program in terms of eroded civil liberties. The crimes affected by the cameras are indeed the lower-cost crimes in terms of the pain, suffering, and property loss experienced by victims, suggesting that while the crime reduction is substantial, the monetary valuation of the crime reduction would be much larger had violent crime been reduced. Whether these benefits exceed explicit and implicit cost of cameras depend on the citizenry's willingness to pay for these marginal security improvements. While we have not performed such a cost-benefit assessment, future research on the effects of such programs is certainly warranted given the increasing use of cameras in American cities.

Endnotes

¹ See US Bureau of Justice Statistics, Facts at a Glance, <http://www.ojp.usdoj.gov/bjs/glance/exptyp.htm>, accessed on November 1, 2008.

² Part I offenses consist of violent crimes (criminal homicide, forcible rape, robbery, assault) and property crimes (burglary, larceny-theft, motor vehicle theft, arson).

³ Assessing incapacitation effects is considerably more difficult as we wouldn't expect incapacitation to play itself out spatially within a block (proximity to cameras being a key aspect of our evaluation strategy).

⁴ The San Francisco cameras are positioned in a fixed form, are not actively monitored, and can essentially see across the street or intersection where they are located and a partial portion of the block. Our site visits to the camera and sample images shared with us lead us to the conclusion that the camera views do not extend beyond 100 feet (with 100 feet being a generous estimate).

⁵ Note difference in lighting or patrolling or any other such factor across areas within the 500 foot circle that do not change over time will not impact this estimate, since our estimation strategy is based on the change in criminal activity rather than level of activity at a given point in time.

⁶ Roughly ninety-two percent of the incidents that we define as occurring in locations outside of the camera's view have locations described as (in proportional order of importance for this sub-sample) apartment (41.59%), miscellaneous building-store (15.3%), hotel, motel (8.05%), house (6.98%), public housing (4.74%), bar (4.47%), restaurant (4.2%), liquor store (1.43%), residential garage (1.43%), house-multiple dwelling (1.25%), commercial office (0.98%), drug store (0.98%), and religious premises (0.98%). The remaining seven percent of incidents are all in categories that individually account for less than one percent of incidents. These additional categories are department store (0.89%), school, other (0.81%), flat (0.63%), grocery store (0.63%), laundromat (0.45%), public garage (0.45%), theatre (0.45%), service station (0.36%), supermarket (0.36%), bank (0.27%), hotel lobby (0.27%), residential treatment facility (0.27%), hallway (0.18%), jewelry store (0.18%), motel room (0.18%), playground (0.18%), public restroom (0.18%), taxi (0.18%), government agency (0.09%), group home (0.09%), medical office (0.09%), MUNI electric bus (0.09%), pawn shop (0.09%), school, elementary (0.09%), warehouse (0.09%), waterfront area (0.09%).

⁷ 500 feet corresponds to roughly two city blocks along the numbered streets in San Francisco (e.g., 16th and 19th streets, and slightly more than one city block along such streets as Mission and Market streets).

⁸ To illustrate this point, consider the following example. Suppose that locations A and B are 500 feet apart, and that the camera installation date for location A occurs 270 days prior to the installation of cameras at location B. Consider a criminal incident occurring 100 days after the installation of cameras at location A (thus occurring both in A's post period and B's pre period) that occurs within 500 feet of both locations. To accurately measure crime levels in area A post camera installation we must include this incident. Moreover, the post-period for A will not be influenced by the installation of cameras at B, since new cameras at B arrive six days beyond the close of the post period for A. Similarly, to accurately measure crime levels in area B prior to the installation of cameras, we must include the incident in question. Moreover, changes in surveillance at location A will not influence our pre-installation crime estimate for region B, since the installation date for region A occurs 61 days prior to the opening of the pre-period for region B.

References

- Braga, Anthony A.; Weisburd, David L.; Waring, Elin J.; Green Mazerolle, Lorraine; Spelman William, and Francisc Gajewski (1999), "Problem-Oriented Policing in Violent Crime Places: A Randomized Controlled Experiment," *Criminology* 37(3).
- Donohue, John and Jens Ludwig (2007), *More COPS*. Washington DC: Brookings Institution Policy Brief.
- Evans, William N. and Emily G. Owens (2007), "COPS and Crime," *Journal of Public Economics* 91(2): 181-201.
- Freeman, Richard B. (1996), "Why Do So Many Young Americans Commit Crimes and What Might We Do About It?" *Journal of Economic Perspectives*, 10(1): 25-42.
- Gould, Eric D.; Weinberg, Bruce A. and David B. Mustard (2002), "Crime Rates and Local Labor Market Opportunities in the United States: 1979-1997," *Review of Economics and Statistics*, 84(1): 45-61.
- Johnson and Raphael (2008), "How Much Crime Reduction Does the Marginal Prisoner Buy?" Working Paper, UC Berkeley.
- Levitt, Steven D. (1996), "The Effect of Prison Population Size on Crime Rates: Evidence from Prison Overcrowding Legislation," *Quarterly Journal of Economics*, 111(2): 319-351.
- Levitt, Steven D. (1997), "Using Electoral Cycles in Police Hiring to Estimate the Effect of Police on Crime," *American Economic Review*, 87(3): 270-290.
- McCrary, Justin (2002), "Using Electoral Cycles in Police Hiring to Estimate the Effect of Police on Crime: A Comment," *American Economic Review*, 92(4): 1236-1243.
- Raphael, Steven and Michael Stoll (2008), "Why Are So Many Americans in Prison?" in Raphael, Steven and Michael Stoll (eds.) *Do Prisons Make Us Safer? The Benefits and Costs of the Prison Boom*, Russell Sage Foundation, New York.
- Raphael and Winter Ebmer (2001) "Identifying the Effect of Unemployment on Crime," *Journal of Law and Economics*, 44(1): 259-284 (2001).
- Sherman, Lawrence W. (2001), "Fair and Effective Policing," in Wilson, James Q. and Jo Petersilia (eds) *Crime: Public Policies for Crime Control*, Institute for Contemporary Studies Press: Oakland, CA: pp 383-412.
- Shlosberg, Mark and Nicole A. Ozer (2007), *Under the Watchful Eye: The Proliferation of Video Surveillance Systems in California*, American Civil Liberties Union Foundation of Northern California, San Francisco.

THE UNION SECTOR IN CALIFORNIA: A 2008 UPDATE

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Labor unions have long played a role in California politics and public policy.* As noted in last year's edition of *California Policy Options*, their role in the state's direct democracy (initiatives) – surprisingly for organizations capable of “grass roots” campaigning – has tended to be defensive rather than pro-active.¹ However, unions have been capable of defeating initiatives that they deem harmful to their objectives and of supporting friendly candidates.

Although private sector unionization (with the exception of agriculture) is largely (but not entirely) the province of federal regulation, California does play the major role in regulating unionization in the public sector, state and local. The public sector regulatory framework was also described in an earlier edition of *California Policy Options*, with a special emphasis on dealing with public transit labor disputes.² This chapter updates a report which originally appeared annually in another university publication on the labor relations outlook in the state.³ It includes new data on the state's union sector provided by the Bureau of National Affairs, Inc., as the result of a grant by the UCLA Institute for Research on Labor and Employment, and in addition uses other publicly-available data. Also provided is a rundown of selected developments and connections to public policy by sector.

California Trends in Union Representation

As Chart 1 shows, there has been a long-term downward trend in the proportion of wage and salary workers represented by unions, both in the U.S. as a whole and in California. However, the unionization rate in California has been consistently above the national rate. There is a bifurcation in this record, however. As Charts 2 and 3 illustrate, the positive gap between California and the U.S. has been primarily a matter of the difference in public-sector unionization as opposed to private, although the California/U.S. private gap has widened somewhat in recent years.

Since the drop in the unionization rate, both nationally and in California, has been mainly a phenomenon of private employment, the leveling out of the rate in recent years – and even an uptick in 2007 – has sparked a good deal of attention. Analysts have debated whether there is the beginning of a turnaround in private unionization brewing in California and whether the uptick seen in 2007 marked the start an ongoing trend.⁴ Complicating the analysis of that possible trend reversal is the economic difficulties faced by California and the nation post-2007 and the impact that the troubled economy might have on unionization.

Although California has had a higher private-sector unionization rate than the U.S. over a long period, there is sectoral variation. As Chart 4 shows, construction has been characterized by a higher-than-U.S. California unionization rate. But the California/U.S. gap in construction

* This chapter covers developments as of late October 2008. Subsequent events and information are not reflected.

seems to have narrowed since the 1980s. In manufacturing (Chart 5), the California unionization rate has been consistently *below* the U.S. Non-manufacturing other than construction (services such as health care, certain parts of retailing) has featured a higher California unionization rate than the rest of the U.S., as can be seen on Chart 6.

Major Contracts and the Private Sector in California

The U.S. Bureau of Labor Statistics has long maintained a file of “major” union contracts – private and public contracts covering 1,000 or more workers – now with online accessibility. Charts 7 and 8 provide union and sectoral detail. The three largest sectors of major union coverage are construction, retail-wholesale food distribution, and health care. Craft unions associated with construction such as the Laborers (LIUNA), Carpenters (UBC), Plumbers (PPF), and Painters (PAT) are prominent among private-sector unions in California. (Union acronyms are shown in Appendix A to this chapter.) The Food and Commercial Workers (UFCW) is the major union in food distribution and shows up as a significant California labor organization. Similarly, the Service Employees – prominent in health care – is also a large union presence in the private sector.

As noted earlier, regulation of private-sector unionization is largely at the federal level. The National Labor Relations Board (NLRB) is the major regulatory agency (except for railroads and airlines which are covered by a separate federal regulatory process). Among the tasks of the NLRB is the conduct of union representation elections. Chart 9 indicates that the frequency of such elections in California has declined in recent years. Unions have tended to regard the NLRB under President George W. Bush as unfriendly and have experimented with organizing tactics which avoid formal elections. However, it is difficult to know whether the decline illustrated on Chart 9 reflects alternative organizing strategies or just fewer union organizing campaigns. To the extent formal NLRB elections have been held, transportation (mainly trucking) and health care have been prominent sectors, as illustrated by Chart 10.

Major Contracts and the Public Sector in California

As Chart 11 shows, major public sector contracts in California are heavily concentrated in education (K-12, community colleges, CSU, and UC) and a miscellaneous category (“all other” on the chart) of general civil service activities. The largest single union in the public sector as measured by major contract coverage is the Service Employees (SEIU). However, unions can be influential in ways other than size. The prison guards’ union (CCPOA) – although much smaller than SEIU - is often cited for its significant lobbying activities. Similarly, the California Teachers Association (CTA) has been an important factor in state politics and was the major force in the late 1980s in the passage of Proposition 98. Prop 98 earmarks roughly 40% of the state’s general fund for K-14 spending.

In the state and local public sector in California, the Public Employment Relations Board (PERB) – an agency generally modeled after the federal NLRB – is the major regulatory body. It enforces a host of statutes which vary by sector. Because of the already-high rate of union coverage in the public sector, much of PERB’s caseload consists of unfair labor practice complaints – which can be filed against unions as well as government employers. Chart 13

shows that almost a third of cases were filed against unions in the 2007-08 fiscal year. Education (K-12 and higher education) accounted for a little over a third of the caseload.

Unions and California Politics

As noted in last year's *California Policy Options*, unions have not generally followed an aggressive agenda of putting initiatives on the ballot. There was an exception in 2008; UNITE HERE – the union representing hotel workers – supported referenda on the presidential primary ballot to repeal compacts between the state and certain Indian gaming tribes. The objective was to push for more union-friendly organizing clauses in such compacts. Although the referenda failed to repeal the compacts, they did force the opposing side – essentially the Indian gaming interests – to expend considerable sums for TV and other political advertising. The demonstrated ability to force expensive campaigns when future compacts are negotiated could strengthen union's hand in terms of gaining union-friendly provisions.

The major statewide ballot proposition in the November 2008 campaign attracting union attention was a redistricting initiative (Prop 11) generally thought to favor Republicans over Democrats. The Democratic Party opposed it and some unions – notably AFSCME, CCPOA, and CFT – contributed to the No on 11 campaign. However, the No campaign was substantially underfunded compared to the Yes side – which gathered contributions from a variety of business interests and civic groups and was supported by fundraising efforts of Governor Schwarzenegger.

What was notable, however, was the fact that some major union players such as SEIU and CTA did *not* contribute to the No campaign. The argument that has often been made for taking redistricting out of legislative hands was that gerrymandered districts lead to uncompetitive seats and therefore to election of partisan extremists. For unions seeking to influence legislation, incumbents in safe seats may be less likely to respond to offers of, or denials of, support than those in marginal seats where external support is needed.

In a complex way, therefore, while not joining business and Republican interests in providing financial support in favor of Prop 11, these unions may not have seen their interests as furthered by retaining the current system of drawing district lines. The failure to support the No campaign did not seem to result from a lack of funds for political activity. CTA, in particular, gave over \$1 million to defeat Prop 8 – an initiative aimed at banning gay marriage in California – a cause not clearly related to core union economic interests.

Despite the CTA example, unions generally do focus on economic issues affecting their members. For example, construction unions have sought to have “project labor agreements” adopted by public agencies and are more likely to succeed in jurisdictions with union-friendly elected officials. Such agreements generally require union-level wages, benefits, and conditions of private contractors and typically guarantee labor peace for the duration of the project covered.

The City of Los Angeles is generally categorized politically as union-friendly; its municipal agency operating LAX extended a prior project labor agreement to cover the expansion of the Tom Bradley terminal and taxiway improvements in 2008. Hoping to achieve a

more union-friendly Board of Supervisors for L.A. County, unions heavily supported the candidacy of Mark Ridley Thomas for a seat on the Board in November 2008. His rival for the seat, Bernard Parks (former Police Chief of the City of Los Angeles and subsequently a city councilman) was supported by various business groups as a counterweight.

In 2005, the national federation of unions, the AFL-CIO, split into two factions with seven unions departing the federation and forming a separate Change to Win (CTW) group.⁵ Although the split might have caused inter-union friction on some issues, the union role in California politics seemed largely unaffected by the creation of Change to Win. Generally, unions in the state have pursued their own agendas. Where they agree, they continue to cooperate even if such cooperation crosses the AFL-CIO/Change to Win line. Where they disagree, being in the same national federation would probably not have had much effect.

The economic slump that has accompanied the mortgage/foreclosure crisis and the more general financial crisis will undoubtedly challenge unions as political actors. State and local budgets will place strains on public-sector labor relations and bargaining. Social programs linked to the labor market which unions generally support may also be put under strain. For example, in mid-2008, California's unemployment insurance program – part of the national state-federal system – was in financial difficulty. Relatively high unemployment in California as compared to the nation as a whole led to a higher rate of unemployment benefit exhaustions in the state.⁶ The ratio of the unemployment insurance trust fund to total wages in California was about half the U.S. average.⁷ Should the fund be depleted, the state would have to borrow from the federal government.

Work Stoppages in California

Strikes in the public sector in California are generally legal, in contrast with many other states and governmental jurisdictions. Table 1 shows that major work stoppages in California – those involving 1,000 or more workers – have been a mix of public and private. Health care has been prominent in the state's labor disputes although strikes in that sector have tended to be short in duration, sometimes only a day or two in length. Short strikes can be disruptive and costly to management without imposing substantial income loss on strikers.

Contract Provisions in California

Charts 14-18 summarize some common elements in union contracts in California based on two surveys, one in 2003 and one in 2008, by the Bureau of National Affairs, Inc., a private information and research group. In both cases, 100 California union contracts were characterized by various provisions they contained. On some dimensions, such as contract duration, there is little difference over the 5-year gap between the surveys. There is some indication of a cutback in more peripheral health and welfare-type benefits. For example, optical and dental insurance coverage seem to have declined. The fact that core health care costs rose significantly during this period may have been a factor. Unions may have decided that preserving core medical benefits and holding down the cost of such benefits to employees was more important than these other fringe forms of health-related insurance.

Similarly, there seems to have been a shift toward those benefits with a more predictable cost, notably holidays, as opposed to costs related to job security such as severance pay and other guarantees. Other provisions show a mix of outcomes. Two-tier provisions (lower pay and benefits for new hires) are unpopular with unions and show a decline. On the other hand, lump sum payments (one-time bonuses rather than increases in base pay) increased somewhat. The unknown element is what the reaction will be in as reflected in new contracts that will be negotiated during a period of economic distress. Most of the contracts included in the 2008 survey were negotiated in earlier years of economic expansion.

Selected Sectoral Issues: Private Contracts

Contracts negotiated in the union sector reflect industry and local conditions, as well as those of the general economy.⁸ Only one component of the private sector, agriculture, is primarily subject to state policy jurisdiction. The others are largely under federal jurisdiction, although state policy can play a role at the margin. A 2008 U.S. Supreme Court decision – invalidating a California statute forbidding private government contractors from using state funds to influence union representation elections – illustrates this limitation.⁹ In addition, the political and community climate can sometimes influence the outcomes of union organizing and negotiating campaigns.

Agriculture

Employment in agriculture in California accounts for about two and a half percent of the total. Because union-management relations in agriculture was omitted from federal regulation, that area is left to the states. In California, the Agricultural Labor Relation Board was created in the 1970s, in large part due to the organizing campaign of the United Farm Workers (UFW) under César Chávez. As Table 1 shows, the Board has a limited caseload, although filings of unfair labor practice complaints and elections for union representation show a recent uptick. (Many unfair labor practice charges are dismissed or settled, resulting in relatively few formal board orders.)

Despite the storied history of the United Farm Workers under Chávez, the union fell into Hard Times in the 1980s and there is relatively little unionization in agriculture today. According to the UFW's president, no more than 3-4% of farmworkers in California are unionized.¹⁰ An effort to make organizing easier through so-called "card check" recognition (AB 2386) was vetoed by Governor Schwarzenegger in 2008.¹¹ (A similar bill was vetoed in 2007.)

The union received unfavorable publicity when a series of *Los Angeles Times* articles appeared charging that it had become largely a fundraising entity for various charities. Attorney General Bill Lockyer eventually dismissed complaints related to these charges but noted that "the appearance of impropriety existed."¹² Since that time, the UFW appears to have re-emphasized tradition organizing and negotiating. It also took steps to involve itself in labor standards for Mexican immigrant farmworkers brought in under a special program administered by the U.S. Department of Labor.¹³ Public sentiment remains sympathetic to low-wage

farmworkers. Heat-related deaths on California farms during 2008 led to a state crackdown by Cal-OSHA and the state's Department of Industrial Relations.

Aerospace

Before the end of the Cold War, aerospace and related employment was a high-profile California industry. The decline of aerospace played a significant part in the recession of the early 1990s in the state. Today, less than half of one percent of California employment is directly in aerospace. The most prominent single aerospace manufacturing facility is in Long Beach, now a Boeing plant. Its future remains uncertain.

Although a 52-day strike at Boeing by the Machinists (IAM) in other parts of the country in fall 2008 disrupted production of other aircraft, the Long Beach plant was under a different contract with the United Auto Workers and was not directly affected. That plant – which employs about 5,500 workers – produces the C-17 military cargo “airlifter” and its continuation depends on continued orders for that aircraft. The Long Beach plant union contract was renegotiated in 2007. Contracts at smaller plants in California (Palmdale, Helendale, Sunnyvale, Palo Alto, Santa Cruz, Vandenberg Air Force Base) owned by Lockheed Martin were renegotiated in 2008 by the Machinists (IAM).

Despite the much reduced size of aerospace in California, concerns about jobs in the industry can still prompt political action by the state's congressional and senate representatives. When the Department of Defense awarded a tanker contract to a consortium led by the European Airbus firm over a bid by Boeing, there were strong congressional protests which led to a reexamination of the process. The ranking Republican on the House Armed Services Committee, Duncan Hunter (El Cajon), protested over potential job loss as did House Speaker Nancy Pelosi (D-San Francisco).¹⁴

Airlines and Related

The airline industry is inherently national/international or at least regional and its carriers are not confined to California. However, airline passenger and freight traffic is important to the state and important to California airports such as LAX and SFO which depend importantly on fees from airlines and rents and fees from private providers of airport services, e.g., restaurants and other retailers. The general economic slump, combined from the jump in jet fuel prices during summer 2008, adversely affected the economic health of airlines serving California.

Some airlines, such as Frontier (which is a small player in the California market), have negotiated concessionary contracts with wage cuts. In some cases, economic pressure has led to internal political pressure within airline unions. For example, U.S. Airways pilots voted out the Air Line Pilots Association (ALPA) and replaced it with an independent union. Mechanics at United Airlines voted out the Aircraft

Mechanics Fraternal Association (AMFA) and replaced it with the Teamsters (IBT). In 2007, American pilots voted out the incumbent leadership in their independent Allied Pilots Association (APA) and replaced it with candidates viewed as likely to be tougher on management.

Mergers, such as that of Delta and Northwest, have led to complicated union negotiations involving such issues as combining seniority rosters. In some cases, smaller airlines – such as Aloha (which connected Hawaii and California) – simply went out of business. Reductions in jobs, either by layoff or incentives to leave employment voluntarily, were common. Given the economic environment, strike action was not deemed attractive by unions seeking to protect worker interests. However, in some cases, e.g., United pilots, airlines charged that informal work actions such as sickouts were being used.

Service workers at major airports, particularly LAX and SFO, have been the target of SEIU organizing in efforts modeled partly on the Justice for Janitors campaign that began in the 1980s. Such workers are involved in various maintenance and security tasks and are also employed by the retail franchises operating within the airports. A brief strike at LAX in August 2008 resulted in the intervention of Mayor Antonio Villaraigosa and an eventual contract for some of the workers involved. SFO workers took a strike vote in September 2008 but at this writing had not called a stoppage.

Health Services

The health care sector accounts for over 7% of total employment in California. Much – not all – of this sector is difficult to outsource. There is a wide range of occupations in the sector ranging from skilled and highly paid professionals to low-paid aides of various types. Although union representation of physicians is comparatively rare, nurses have been aggressively organized by the California Nurses Association (CNA), the SEIU, and other groups.

Among these unions there is sometimes intense competition for members. And there have been dramatic internal political struggles, notably between the national leadership of SEIU and the leadership of United Healthcare Workers-West (UHW-W), a California affiliate of SEIU. The struggle seems in part based on a division between the national and local leadership over Governor Schwarzenegger's failed effort to develop a system of state universal healthcare in 2007. (The national supported the plan; the local opposed it.) But other issues seem to be involved as well and litigation surrounding the struggle for control was filed on both sides.

Despite the inter- and intraunion tensions, some notable health care agreements in 2008 involved contracts between various Sutter Health hospitals in the Bay Area and CNA, a UHW-W contract with various nursing homes owned by Sana Senior Care in Northern California, and a contract between the University of California and AFSCME. And there are certainly examples of union-management cooperation in

health care, notably a high-profile “partnership” agreement between Kaiser in Northern California and various unions.¹⁵ Nonetheless, it seems likely that health care will remain a contentious area of organizing and bargaining in California.

Hollywood

The film industry began moving from a factory model – in which studios employed staffs of writers, actors, directors, etc. – to a fluid model in which both professional (“above the line”) and technical and support (“below the line”) employees moved from project to project. Unionization in the industry is on a craft model and the crafts do not always see their interests as aligned. Two professional unions, the Writers Guild of America (WGA) and the Screen Actors Guild (SAG), have a history of complex internal battles and election contests. When strikes occur or are threatened, factional tendencies within these unions can be exacerbated.

Aggravating labor relations in Hollywood is uncertainty over the impact of new technology on the business. There is a history of corporate resistance to new technology, whether it was television in the 1950s or VCRs in the 1970s. The retail market (videos) opened up new opportunities for product distribution, but also opportunities for piracy. Internet distribution of movies now raises similar concerns. The creative unions want their share of the pie, but it is difficult to forecast what the pie will be. And the industry is famous for creative accounting and litigation over rights, contracts, and credits.

Changes in public tastes also can overtake traditional relations. For example, “reality” television shows – while more scripted than it might seem to viewers – are not written in the traditional way, leading to disputes over coverage by the WGA. Public policy can also create difficulties. Subsidies by domestic and foreign jurisdictions for movie production can lead to “runaway” (from Hollywood) production. But the impact is felt more by unions representing below the line workers than those in creative occupations. And from the perspective of producers, subsidies are a Good Thing and competition among localities can make them even better.

As Table 1 notes, a lengthy WGA strike began in early November 2007 and lasted into mid-February 2008. Revenues from, and union coverage of, new media were major factors in the dispute. With the WGA strike in progress, the management side – the Alliance of Motion Picture and Television Producers – reached a deal in January 2008 with the separate Directors Guild of America (DGA) which it hoped would set a pattern for the Writers. And ultimately a 3-year deal with the WGA was reached early enough to avoid upsetting the Oscar Awards and telecast.

The Actors’ situation remains unsettled at this writing, although both sides tentatively agreed to use federal mediation in October 2008. In the background is an on-again, off-again relationship between SAG and the American Federation of Television and Radio Artists (AFTRA). At one time the two unions were set to

merge but in this round they did not agree on a common position (although many actors belong to both) and AFTRA settled with the major TV networks in mid-March 2008.

Services to Buildings and Hotels

Although the SEIU's Justice for Janitors campaign did not begin in Los Angeles, Los Angeles is known as the place in which the campaign first succeeded. Despite a workforce which is largely immigrant and spread across an array of office buildings, the SEIU succeeded in pressuring the owners and managers of such buildings to use unionized cleaning contractors.¹⁶ The union's tactics – which mixed street theater and demonstrations with support from political and community allies – were subsequently applied successfully in other jurisdictions in California and in other states.

The most recent contract for the janitors in Los Angeles, signed in May 2008, provided a variety of wage and benefit improvements over a 4-year term. The new settlement was reached after a brief strike and intervention by Mayor Villaraigosa. Shortly after the L.A. contract was announced, a related agreement was signed in Orange County. More generally, the union has seen its janitorial bargaining as part of a national pattern even though particular contracts are settled locally. Often, despite differences across cities, the same owners, managers, and cleaning contractors are involved.

However, the most interesting recent developments in building services involved not janitors but building guards – “security officers” as the union prefers to call them.¹⁷ Such officers must be licensed by the state and thus citizenship or legal residence with entitlement to work is a job requirement. Because of the licensing element, officers are less likely to be immigrants and the guard workforce is much more heavily black than the Latino janitorial workforce.

Labor relations with regard to security officers is somewhat complicated by a provision in the federal Taft-Hartley Act of 1947 that instructs the NLRB only to certify units of guards that are totally independent of other unions dealing with the employer. However, the Act does not forbid employers from recognizing units voluntarily which contain guards who belong to the same union as other workers in the same establishment. In the case of building guards, the SEIU was able to obtain such voluntary recognition in Los Angeles in late 2006 and it now represents both guards and janitors there, although in separate locals.

A 5-year pact covering guards was reached in early 2008, raising wages and benefits. On the employer side, an important player in reaching the initial recognition deal in L.A. County with SEIU for guards was Robert F. Maguire III. Maguire Properties is a major owner of commercial real estate in L.A. and remains so (although Robert F. Maguire was replaced as CEO in 2008 as part of the general financial turmoil in real estate).¹⁸

The support workforce in hotels is similar in ethnic composition to janitors but UNITE HERE, the union representing hotel workers, was slower than SEIU in adopting tactics similar to Justice for Janitors. However, it did ultimately adopt similar strategies in its "Hotel Workers Rising" campaign. A notable element in this campaign involved lobbying to have the City Council of Los Angeles adopt a "living wage" statute covering hotels near LAX. (Traditional living wage campaigns have involved government contractors as opposed to private employers without a direct government linkage.) Once the statute was adopted, hotels – particularly the Hilton near LAX – challenged the statute in court. Initial efforts to obtain an immediate court injunction against city enforcement failed and the matter remains unsettled at this writing.

Maritime

California has a major maritime shipping industry. With the general decline of unionization in the private sector, strikes that could have major economic ripple effects have declined. However, two sectors, railroads and maritime (longshore), are strategically placed so that strikes or lockouts can have rapid and wide-ranging economic impacts. When strikes have occurred in the railroad industry, federal injunctions under the Railway Labor Act (which covers railroads and airlines) have sometimes been used to halt the stoppages. The federal Taft-Hartley has a similar national emergency dispute provision for other areas of the private sector which allow the President to obtain similar court injunctions. President George W. Bush imposed such an injunction on a West Coast lockout in longshoring in 2002.

In 2008, however, although a one-day West Coast walkout by the ILWU occurred on May Day – ostensibly a protest over the Iraq War – and although there were employer complaints of slowdowns subsequently – no presidential injunctions were invoked and a new 6-year contract was reached in July. Perhaps more public attention was devoted to land-based cargo delivery, largely by truck, at the Ports of Los Angeles and Long Beach. The two adjacent ports combined are the largest seaport in the U.S. Trucks that service them are typically owned by independent truck driver/owners who contract with shipping firms. Both ports adopted tight truck air pollution standards in 2008 that would require replacement of many existing older trucks for new cleaner models.

The Los Angeles version of the plan would have pushed the independents to become employees of the shipping firms that would then own the new trucks. Such an arrangement would make unionization of the truckers easier. Shipping firms have resisted both ports' new truck requirements and the matter remains in dispute at this writing. A container fee that was to assist in financing the acquisition of new trucks was vetoed by Governor Schwarzenegger in fall 2008.

Selected Sectoral Issues: Public Contracts

Public employment in California is concentrated at the local government level rather than direct employment by the state. However, the economic slump, financial turmoil, and related state budget crisis have an impact at both the state and local level. Despite the slump, not all labor relations issues have revolved around purely economic matters. The Legislative Analyst was especially critical of the state's relation with its prison guards, represented by CCPOA, which it characterized as "dysfunctional."¹⁹ At issue was managerial control of the prisons.

CCPOA made a half-hearted attempt at starting a recall of Governor Schwarzenegger in 2008, apparently aimed at pressuring the administration in collective bargaining negotiations.²⁰ The Schwarzenegger administration proposed imposing a 5 percent wage increase on the prison guards in 2007-08, less than the union was demanding but more than the Legislative Analyst recommended. At this writing, the negotiations between the state and CCPOA appear to be stalemated.

For other state employees, 18 union contracts out of 21 with the state expired on June 30, 2008 in the context of the enveloping budget crisis. At this writing, it seems unlikely that rapid progress toward new settlements will occur. Tensions between the unions and the state were heightened during the summer of 2008, when Governor Schwarzenegger – citing the absence of a state budget and a potential cash crisis – proposed cutting most state salaries to the federal minimum wage until a budget was enacted. (Thereafter, the balance due would be paid.) However, state controller John Chiang refused to make the cuts, in part arguing that cash was available and in part asserting that an antiquated state payroll computer system could not make the wage adjustments. The matter went to court but was never resolved. Once a budget was enacted in September 2008, the dispute became moot.

At the local level, the economic problems of the state showed up in such ways as a bankruptcy filing of the City of Vallejo (allowing it to renegotiate its union contracts) and voluntary and involuntary cuts in weekly hours by the City of San Francisco. More commonly, agreements that expired were not renegotiated, leaving workers without a new contract, a situation that may well persist for some time.

Another concern likely to affect both state and local workers was the unfunded liability represented in public pension plans and retiree health insurance systems. The degree of funding for pensions varied substantially from system to system. In particular, the City of San Diego became something of a poster child for underfunded pensions. However, financial market turmoil and declining stock markets in 2008 decreased the funding ratios of all pension systems. On the other hand, major stock market fluctuations and declines also provided illustration of the risk faced by employees attempting to fund their own retirements through defined contribution systems and tax-favored savings accounts, both public and private. Generally, employers with retiree health care have not pre-funded such systems at all, unlike pensions.

Proposals to check public pensions have not made it on to the state ballot, although Governor Schwarzenegger for a time endorsed such an effort as part of his ill-fated Year of Reform in 2005. At the local level, there may be more activity in this area. For example,

Measure J in Orange County on the November 2008 ballot required future votes by the electorate on public pension improvements. Unions might have been expected to oppose Measure J in an active campaign but did not do so, apparently projecting the proposition would pass regardless of any feasible active opposition campaign.

Summary and Conclusion

As in the U.S. as a whole, changes in industrial structure and de-unionization in private employment have changed the mix of union workers. The share of public employees in the union sector has grown in California. Despite the long-term drop in the unionization rate – which seemed to bottom out in 2007 – unions have continued to play a significant role in California politics. Their efforts with regard to ballot initiatives have tended over the years to be reactive. Instead, unions have focused on traditional candidate endorsement and support and on lobbying, both at the state and local levels. These efforts are sometimes in pursuit of the specific interests of their membership and sometimes in pursuit of larger social goals.

Because of federal pre-emption, major policies regarding private labor relations are made at the national level. However, since federal labor relations law largely omits agriculture, California has its own system for that component of the private sector. In addition, the public sector, also largely omitted from regulation at the federal level, is open to state policy and California has developed an elaborate system for regulating different components of state and local employment.

Depending on the outcome of the November 2008 national election, there could be significant changes in federal regulation of private-sector labor relations that would affect California over the longer term. In the short run, however, economic conditions and related state-and-local budget problems may well play a larger role in California's union-management relations than any shift in public policy, state or federal.

Table 1: Major Work Stoppages in California

2008-Through August

- *University of California and AFSCME: 7/14/08-7/18/08; 8,500 workers*
- Performance Transportation Services (CA and other states) and IBT: 6/9/08-6/13/08; 1,300 workers
- Silicon Valley (building services) and SEIU: 5/19/08-5/28/08; 1,000 workers
- Sutter Hospitals and CNA: 3/21/08-3/31/08, 24,000 workers
- Alliance of Motion Picture and Television Producers (CA and other states) and WGA: 11/5/07-2/12/08; 10,500 workers

2007

- Sutter Hospitals and CNA: 12/13/07-12/14/07; 5,000 workers
- Sutter Hospitals and CNA: 10/10/07-10/12/07; 5,000 workers
- San Francisco Bay Area Security Officers and SEIU: 9/24/07-9/28/07; 4,000 workers
- *Orange County Transportation Authority and IBT: 7/7/07-7/16/07; 1,100 workers*
- *Hayward School District and NEA: 4/5/07-4/25/07, 1,300 workers*

2006

- *Sacramento County and AFSCME & other unions: 9/5/06-9/18/06; 3,900 workers*
- *City of Los Angeles and EAA: 8/22/06-8/23/06; 7,500 workers*
- *Contra Costa County and SEIU & other unions: 6/27/06-6/28/06; 6,000 workers*
- *Santa Cruz County and SEIU: 3/14/06-3/15/06; 1,600 workers*

2005

- Los Angeles Hotel Employers Council and UNITE HERE: 6/9/05-6/11/05; 2,400 workers
- Coca-Cola (Southern CA and South Windsor, CT) and IBT: 5/23/05-6/3/05; 1,900 workers
- *University of California and UPTE: 4/14/05-4/15/05; 2,000 workers*
- *University of California and CUE: 4/14/05-4/15/05; 2,000 workers*
- *University of California and AFSCME: 4/14/05-4/15/05; 7,000 workers*

Note: Major stoppages are those involving 1,000 or more workers. Italicized entries are in the public sector.

Source: U.S. Bureau of Labor Statistics, www.bls.gov (Work Stoppages Program).

Table 2: Activities of the California Agricultural Labor Relations Board

Fiscal Year	Unfair Labor Practice Filings	Elections Held
2002-03	167	7
2003-04	171	8
2004-05	118	7
2005-06	167	5
2006-07	159	10
2007-08	274	12

Source: Reports of the California Agricultural Labor Relations Board, available http://www.alrb.ca.gov/content/formspublications/reports/reports_default.html

Chart 1

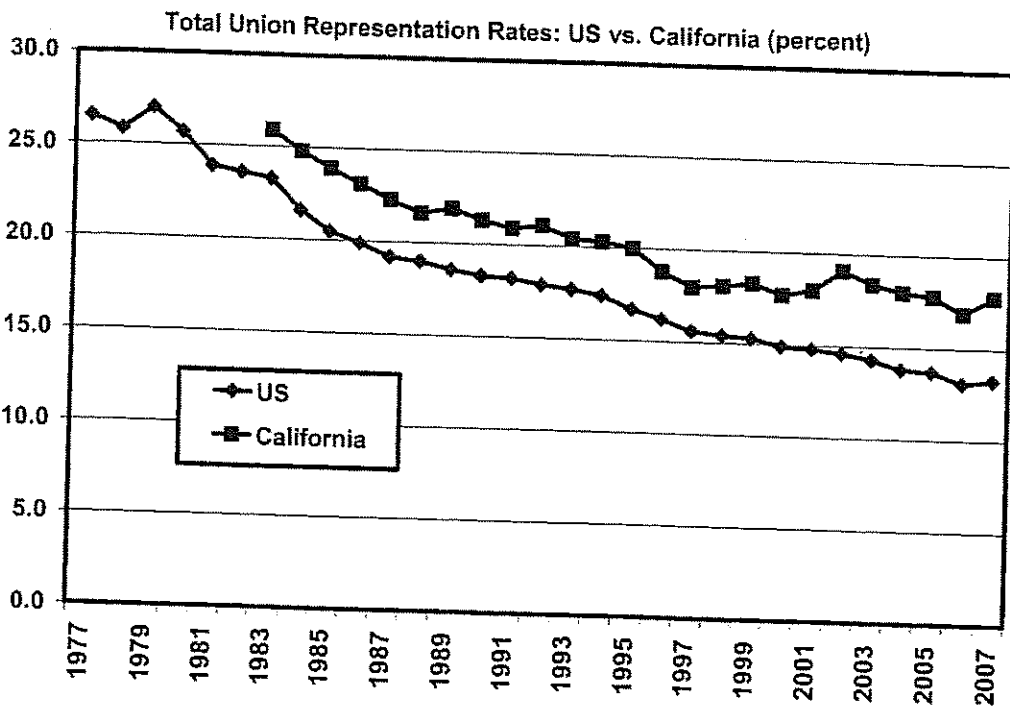
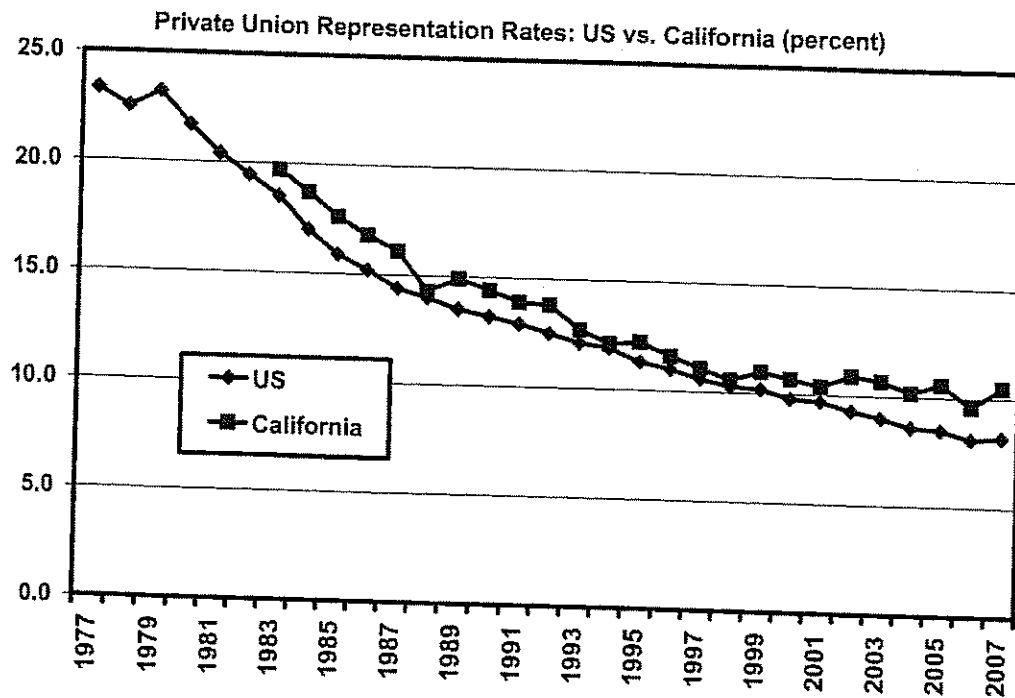


Chart 2



Source of Charts 1 and 2: Current Population Survey data as tabulated by www.unionstats.com

Chart 3

Public Union Representation Rates: US vs. California (percent)

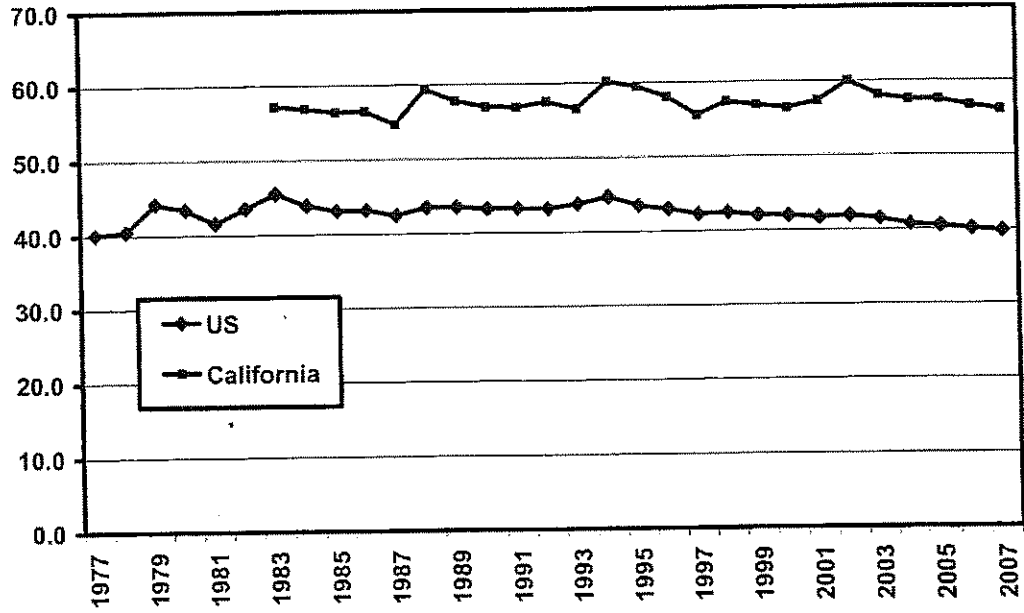
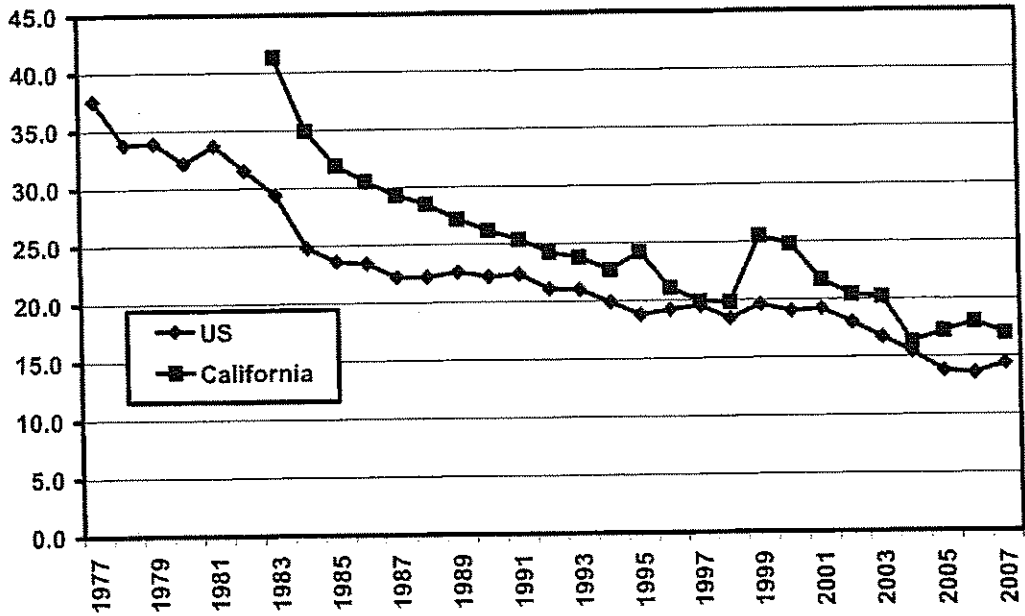


Chart 4

Construction Union Representation Rates: US vs. California (percent)



Source of Charts 3 and 4: Current Population Survey data as tabulated www.unionstats.com

Chart 5

Manufacturing Union Representation Rates: US vs. California
(percent)

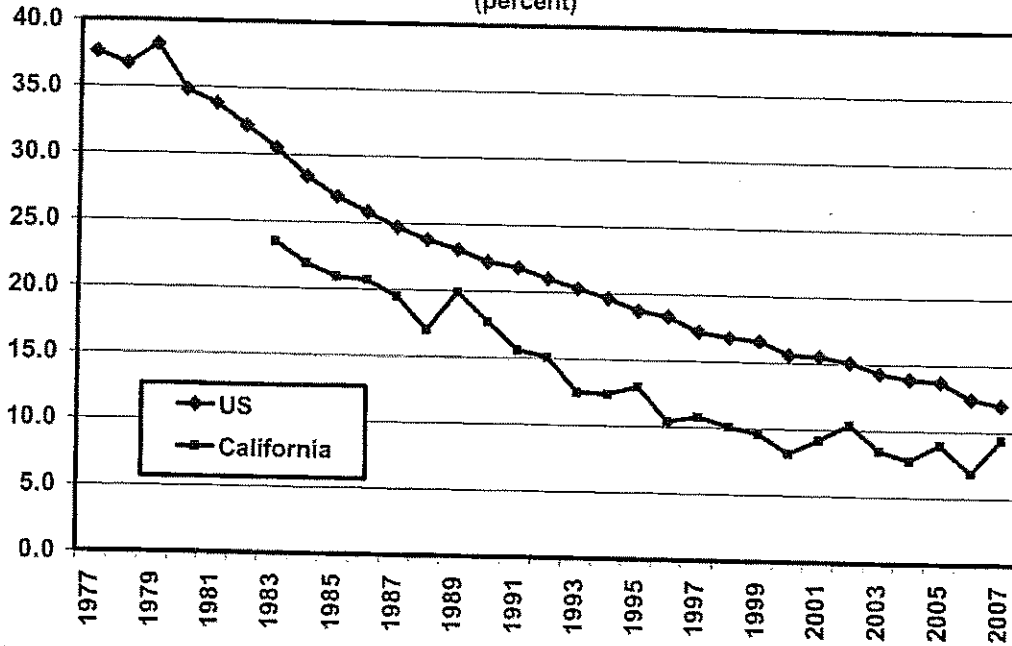
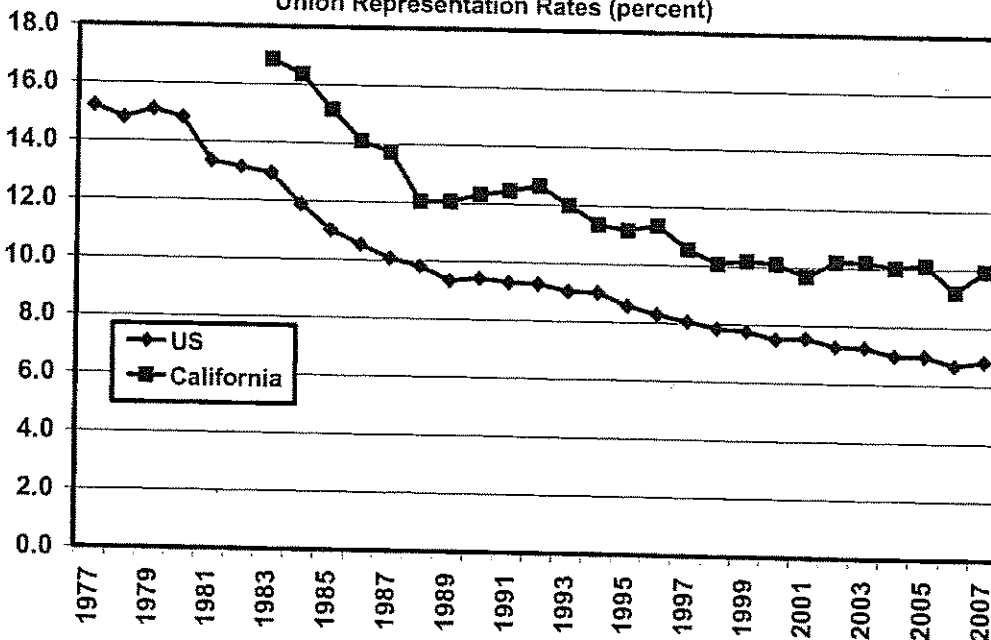


Chart 6

Non-Manufacturing Excluding Construction
Union Representation Rates (percent)



Source of Charts 5 and 6: Current Population Survey data as tabulated by www.unionstats.com

Chart 7

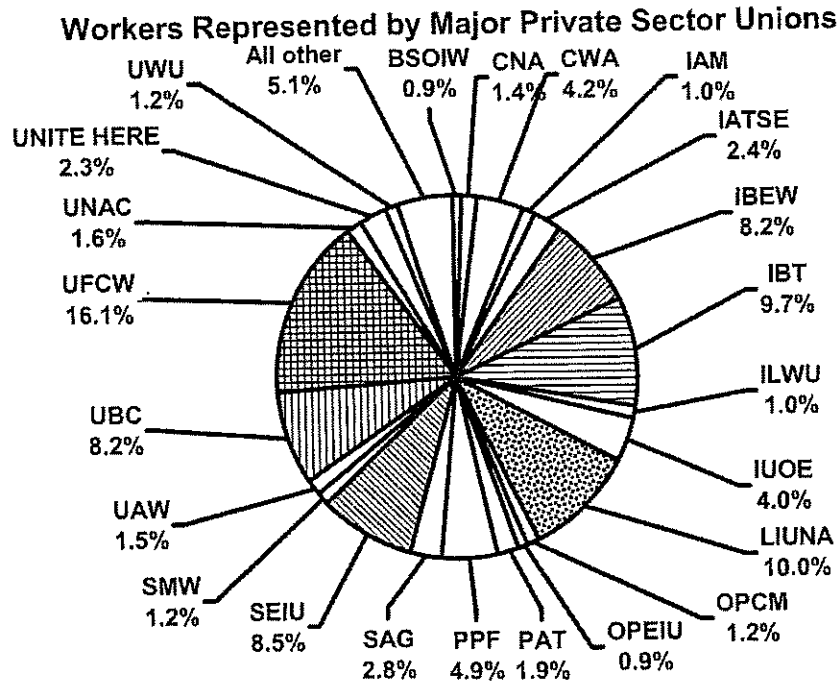
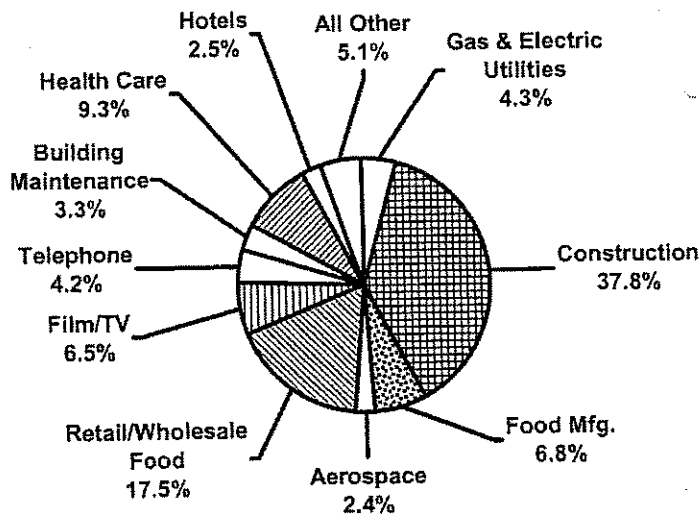


Chart 8

Industry Mix of Major Private Sector Union Represented Workers



Source of Charts 7 and 8: Author's tabulations based on major contracts in the files of the U.S. Department of Labor and listed on the web as of late August 2008. Available at <http://www.dol.gov/esa/olms/regs/compliance/rrlo/lmrda.htm>.

Chart 9

NLRB California Representation Cases Closed:
Year Ending June 30

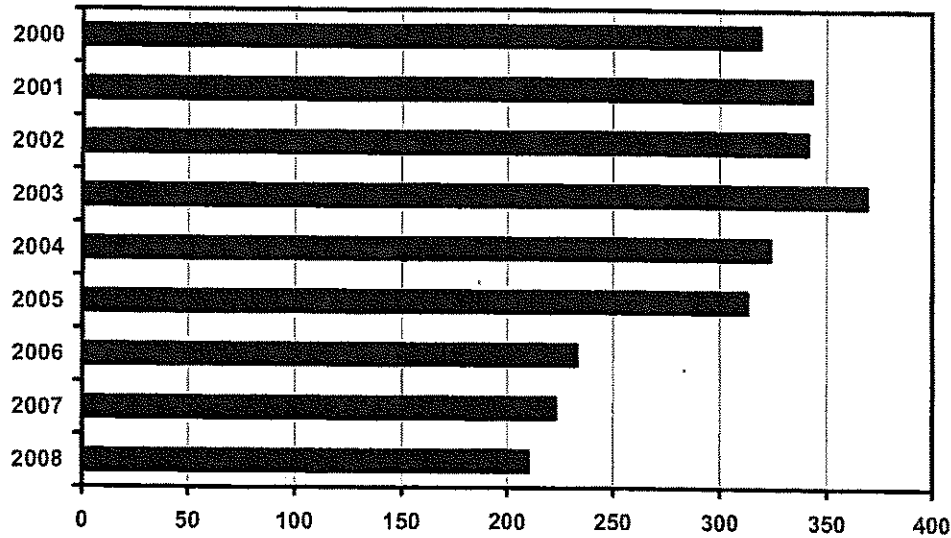
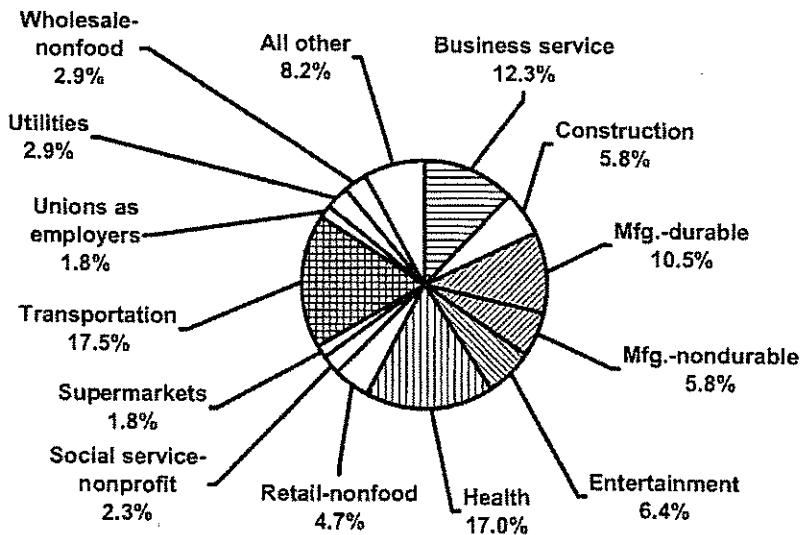


Chart 10

NLRB California Representation Election Cases
(RC and RM) Closed in Year Ended June 30, 2008



Source of Charts 9 and 10: National Labor Relations Board website, author's tabulation based on advanced search option for California closed cases at http://mynlrb.nlr.gov/portal/nlr.pt?open=512&objID=204&mode=2&in_hi_userid=201&cached=true.

Chart 11

Functional Mix of Major Public Sector Union Represented Workers

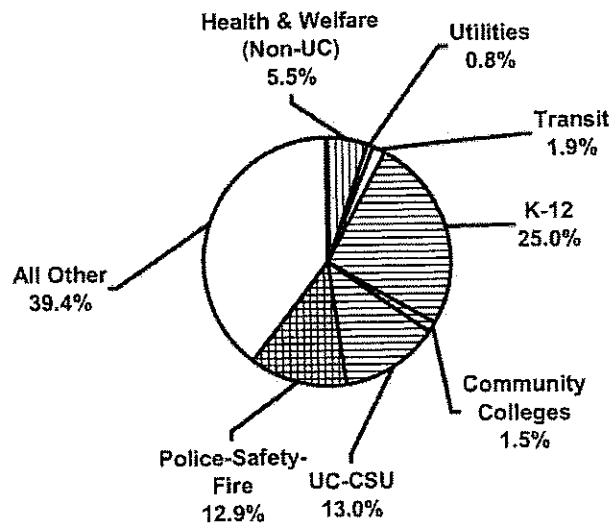
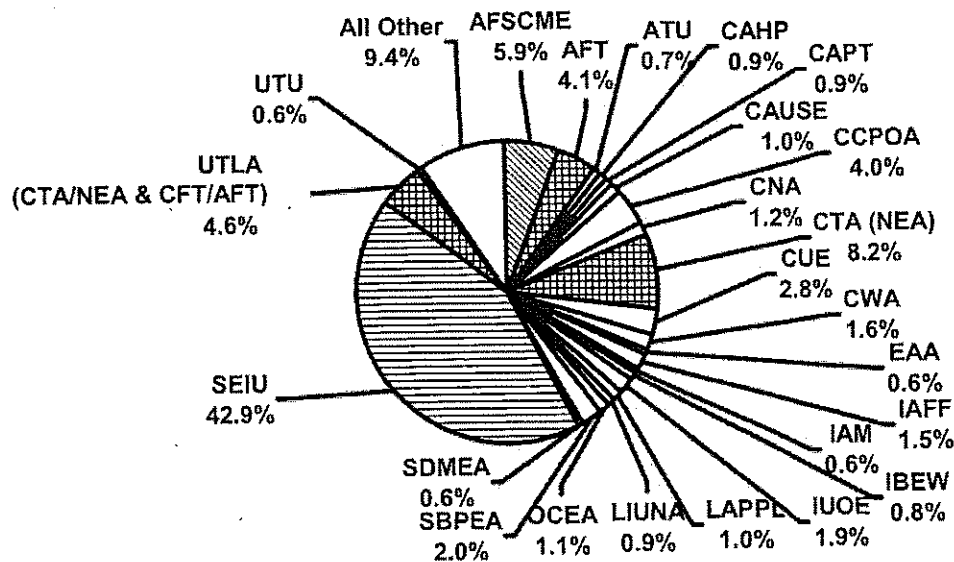


Chart 12

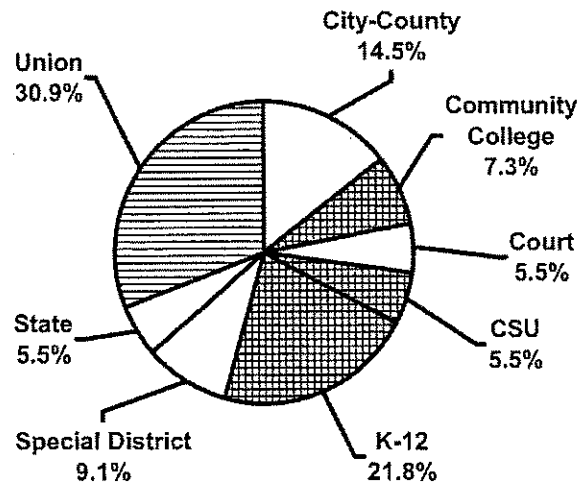
Workers Represented by Major Public Sector Unions



Source of Charts 11 and 12: Author's tabulations based on major contracts in the files of the U.S. Department of Labor and listed on the web as of late August 2008. Available at <http://www.dol.gov/esa/olms/regs/compliance/rrlo/lmrda.htm>.

Chart 13:

Full PERB Decisions in Year Ending June 30, 2008



Source of Chart 13: Website of California Public Employment Relation Board, author's tabulation of cases (excluding administrative appeals and other similar decisions) within year shown at <http://www.perb.ca.gov/decisionbank/SearchResults.aspx>.

Chart 14

**California Union Contract Duration
(Percent of Contracts by Years of Duration)**

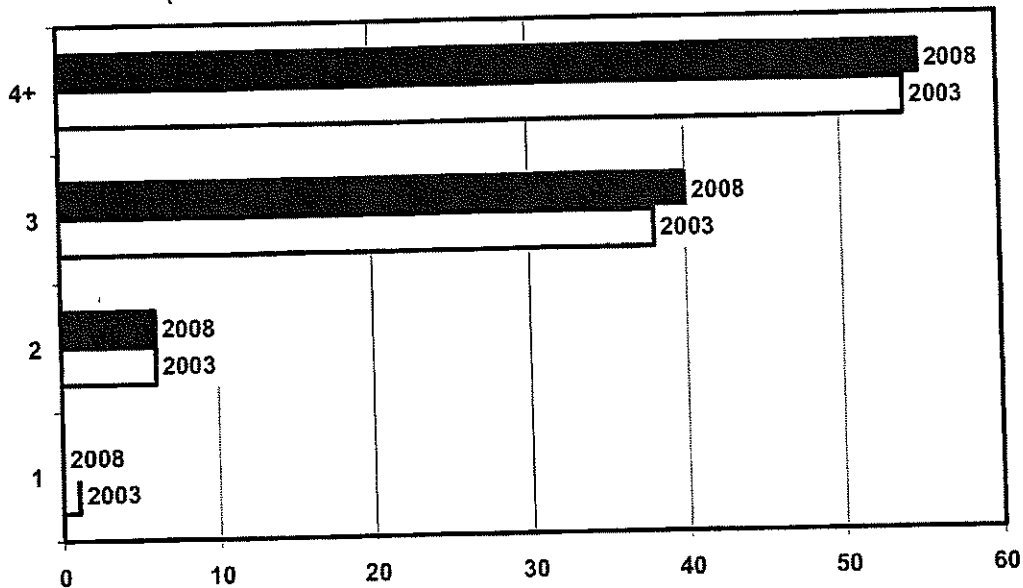
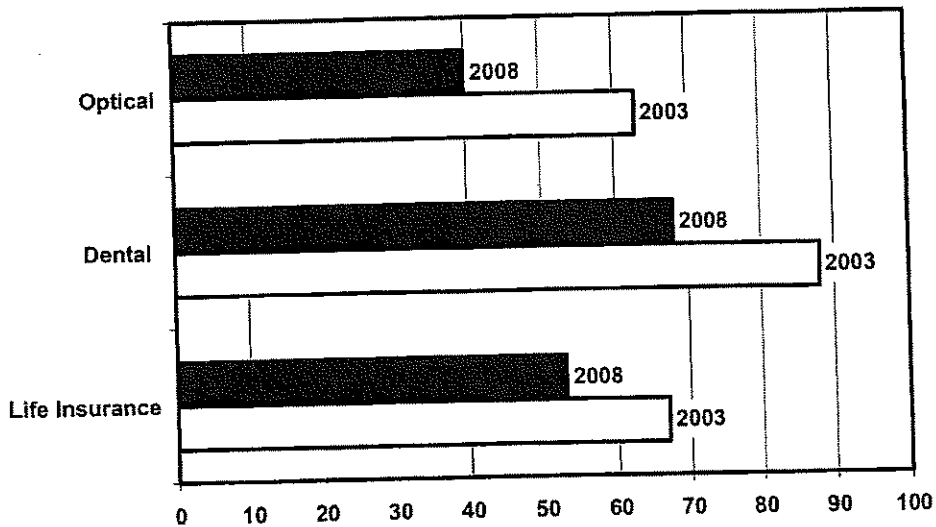


Chart 15

**California Union Contracts With Selected Benefits
(Percent of Contracts)**



Source of Charts 14 and 15: Bureau of National Affairs, Inc. (BNA PLUS) surveys of "Basic Patterns in Union Contracts" for the UCLA Institute for Research in Labor and Employment.

Chart 16

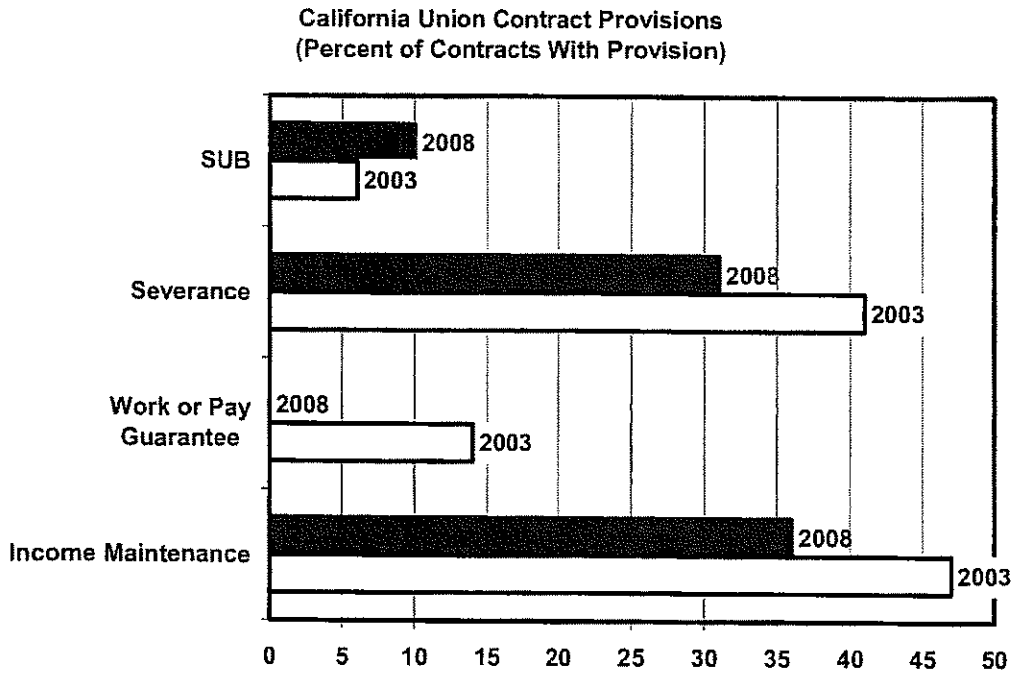
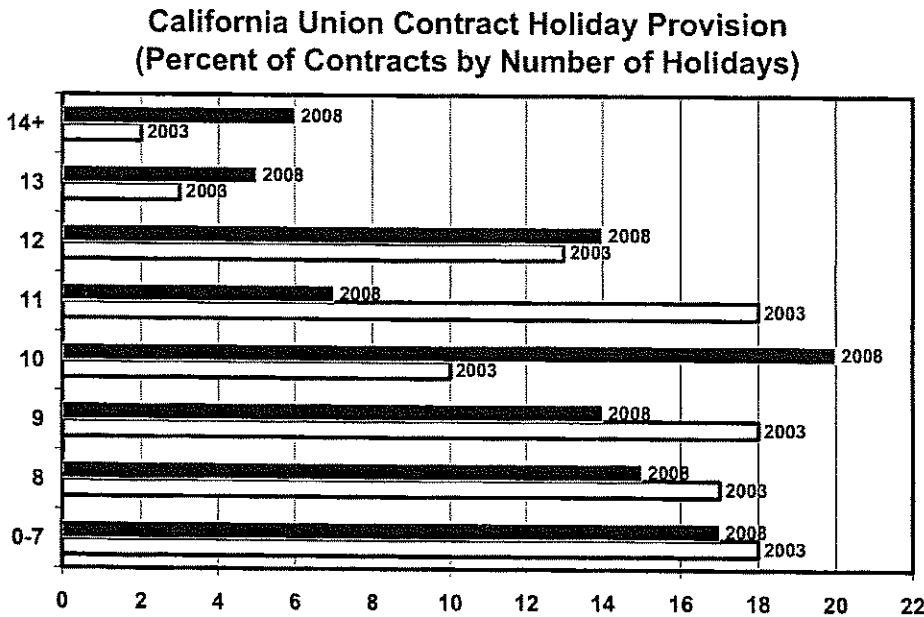


Chart 17



Source of Charts 16 and 17: Bureau of National Affairs, Inc. (BNA PLUS) surveys of “Basic Patterns in Union Contracts” for the UCLA Institute for Research in Labor and Employment.

Chart 18

**California Union Contracts by Layoff Provision
(Percent of Contracts With Provision)**

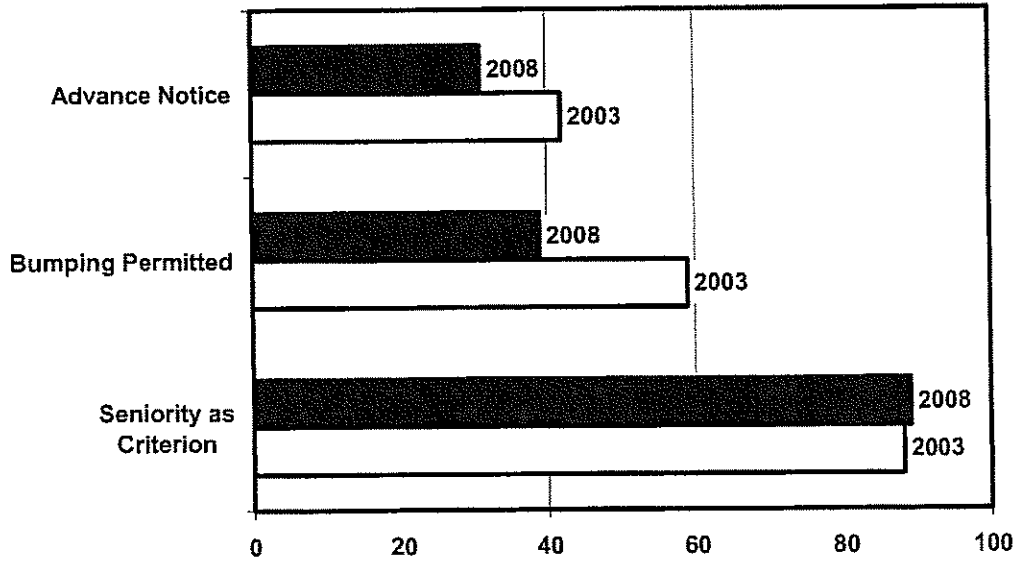
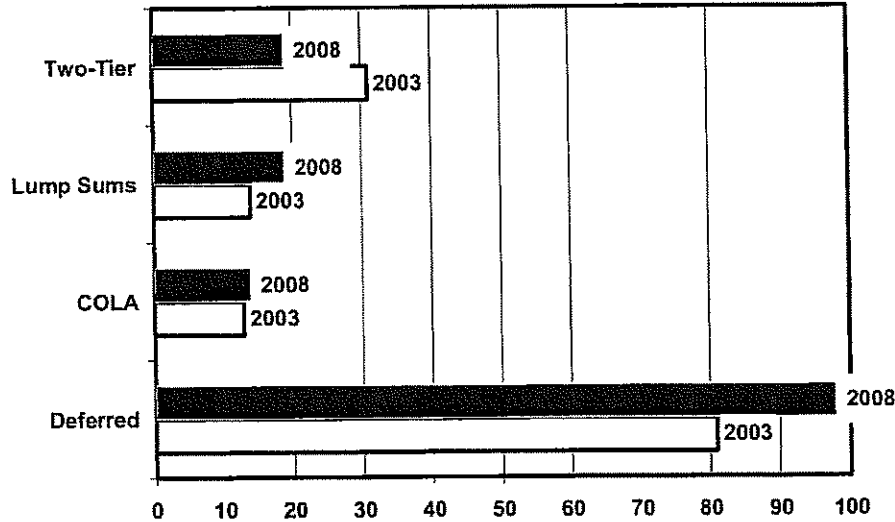


Chart 19

**California Union Contracts by Wage Provision
(Percent of Contracts With Provision)**



Source of Charts 18 and 19: Bureau of National Affairs, Inc. (BNA PLUS) surveys of "Basic Patterns in Union Contracts" for the UCLA Institute for Research in Labor and Employment.

Appendix A: Union Abbreviations Used in this Chapter

AFL-CIO = American Federation of Labor – Congress of Industrial Organizations
AFSCME = American Federation of State, County and Municipal Employees *
AFT = American Federation of Teachers *
AFTRA = American Federation of Television and Radio Artists*
ALPA = Air Line Pilots Association*
AMFA = Aircraft Mechanics Fraternal Association
APA = Allied Pilots Association
ATU = Amalgamated Transit Union *
BSOIW = International Association of Bridge, Structural, & Ornamental Iron Workers *
CAHP = California Association of Highway Patrolmen
CAPT = California Association of Psychiatric Technicians
CAUSE = California Union of Safety Employees
CCPOA = California Correctional Peace Officers Association
CFT = California Federation of Teachers (affiliated with AFT)
CNA = California Nurses Association/National Nurses Organizing Committee *
CTA = California Teachers Association (affiliated with NEA)
CTW = Change to Win
CUE = Coalition of University Employees
CWA = Communications Workers of America *
DGA = Directors Guild of America*
EAA = Engineers and Architects Association (affiliated with IUPA) *
IAFF = International Association of Fire Fighters *
IAM = International Association of Machinists and Aerospace Workers (“Machinists”) *
IATSE = International Alliance of Theatrical Stage Employees, Moving Picture Technicians, Artists and Allied Crafts of the United States, Its Territories and Canada (pronounced “eye-at-tsee”) *
IBEW = International Brotherhood of Electrical Workers (“Electrical Workers”) *
IBT = International Brotherhood of Teamsters (“Teamsters”) **
ILWU = International Longshore and Warehouse Union
IUOE = International Union of Operating Engineers (“Operating Engineers”) *
IUPA = International Union of Police Associations *
LAPPL = Los Angeles Police Protective League
LIUNA = Laborers’ International Union of North America (“Laborers”) **
NEA = National Education Association
OCEA = Orange County Employees Association
OPCM = Operative Plasterers’ and Cement Masons’ International Association of the United States and Canada (“Plasterers”) *
OPEIU = Office and Professional Employees International Union *
PAT = International Union of Painters and Allied Trades of the United States and Canada (“Painters”) *
PPF = United Association of Journeymen and Apprentices of the Plumbing and Pipefitting Industrial of the United States and Canada (“Plumbers”)
SAG = Screen Actors Guild (“Screen Actors”)
SBPEA = San Bernardino Public Employees Association

SDMEA = San Diego Municipal Employees Association
SEIU = Service Employees International Union ("Service Employees") **
SMW = Sheet Metal Workers International Association ("Sheet Metal Workers") *
UAW = United Automobile, Aerospace and Agricultural Implement Workers of America ("Auto Workers") *
UFCW = United Food and Commercial Workers International Union ("Food and Commercial Workers") **
UNAC = United Nurses Associations of California (affiliated with AFSCME) *
UHW-W = United Healthcare Workers-West (affiliated with SEIU)**
UNITE HERE = Union is a merger of Union of Needletrades, Industrial and Textile Employees and Hotel Employees and Restaurant Employees International Union and just uses the acronym as its name. **
UTLA = United Teachers Los Angeles (affiliated with CTA and CFT)
UTU = United Transportation Union *
UWU = Utility Workers Union of America *
WGA = Writers Guild of America*

*AFL-CIO affiliate

**Change to Win affiliate.

Note: Apart from UTLA, CTA agreed to an affiliation with the AFL-CIO for six locals in March 2008.

Endnotes

- ¹ Daniel J.B. Mitchell, "Unions and Direct Democracy in California: A New Pattern Emerging?" in Daniel J.B. Mitchell, ed., *California Policy Options 2008* (Los Angeles: UCLA School of Public Affairs, 2008), pp. 197-217.
- ² Edmund D. Edelman and Daniel J.B. Mitchell, "Dealing with Public Sector Labor Disputes: An Alternative Approach for California" in Daniel J.B. Mitchell, ed., *California Policy Options 2005* (Los Angeles: UCLA School of Public Affairs, 2005), pp. 151-180. See also Edmund D. Edelman and Daniel J.B. Mitchell, "Binding-Nonbinding Arbitration: A New Process to Resolve Interest Disputes," *California Public Employee Labor Relations Journal*, no. 164 (February 2004), pp. 6-14.
- ³ Daniel J.B. Mitchell, "Recent Developments in California Labor Relations" in Ruth Milkman, ed., *The State of California Labor 2004* (UC Institute for Labor and Employment and UC Press, 2004), pp. 133-182.
- ⁴ John H.M. Laslett, "Playing Catch-Up: The Labor Movement in Los Angeles and San Francisco, 1985-2005" in Daniel J.B. Mitchell, ed., *California Policy Options 2008* (Los Angeles: UCLA School of Public Affairs, 2008), pp.169-195; Ruth Milkman, *L.A. Story: Immigrant Workers and the Future of the U.S. Labor Movement* (New York, Russell Sage Foundation, 2006).
- ⁵ The seven split-off unions are the International Brotherhood of Teamsters (IBT), Laborers' International Union of North America (LIUNA), the Service Employees International Union (SEIU), the United Brotherhood of Carpenters and Joiners of America (UBC), the United Farm Workers of America (UFW), the United Food and Commercial Workers International Union (UFCW), and UNITE HERE.
- ⁶ Workers are typically eligible for 26 weeks of unemployment insurance benefits. Those who remain as beneficiaries for the entire 26 weeks – presumably an index of the difficulty of finding a new job - "exhaust" their benefits.
- ⁷ U.S. Department of Labor, *Employment and Training Administration, UI Data Summary, 2nd Quarter CY 2008*, September 2008.
- ⁸ Information on events cited in this section are drawn from newspaper accounts and the *Daily Labor Report* if not otherwise cited.
- ⁹ *Chamber of Commerce of the United States et al. v. Brown et al.*, 554 U.S. (2008), issued June 19, 2008.
- ¹⁰ Jim Sanders, "Farmworkers Union Chief Wants Change in Voting," *Los Angeles Times*, August 25, 2008.
- ¹¹ Under "card check," employers would have been compelled to recognize unions producing a majority of signatures asking for union recognition. It appears also that a system of "mandatory mediation" in agriculture inaugurated under Governor Gray Davis was allowed to expire under a "sunset" provision in 2008.
- ¹² Judy Lin, "UFW Charities Probe is Closed," *Los Angeles Times*, December 27, 2006.
- ¹³ Susan Ferriss, "UFW Signs Pact with Mexican State for Guest Workers on U.S. Farms," *Sacramento Bee*, April 18, 2008.
- ¹⁴ "AFL-CIO Calls on Congress to Review Procurements in Light of Airbus Award," *Daily Labor Report*, March 6, 2008.
- ¹⁵ A symposium on the Kaiser partnership agreement can be found in *Industrial Relations*, vol. 47 (January 2008).
- ¹⁶ Christopher Erickson et al, "Justice for Janitors in Los Angeles" in Daniel J.B. Mitchell, ed., *California Policy Options 2002* (Los Angeles: UCLA School of Public Policy and Social Research (now School of Public Affairs), 2002), pp. 111-145.
- ¹⁷ Although the core commercial real estate sector has been organized in major cities such as Los Angeles, other areas are still the targets of SEIU organizing drives including LAX and SFO janitors and janitors employed by cleaning companies in Silicon Valley high-tech firms.
- ¹⁸ As in the janitors case, the SEIU remains in conflict with guard employers on the periphery, notably with the Wackenhut firm.
- ¹⁹ Legislative Analyst's Office, *Correctional Officer Pay, Benefits, and Labor Relations*, February 7, 2008. Available at www.lao.ca.gov/2008/stadm/ccpoa_pay_020708/ccpoa_pay_020708.pdf.
- ²⁰ In October 2008, the Secretary of State found the proposed recall petition to be in an incorrect format. Shortly thereafter, CCPOA decided against modifying the petition to meet the objections and instead dropped the effort.

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Melanie Bertrand is a second-year doctoral student in Urban Schooling at the University of California, Los Angeles. She studies the relationships among language, racism, and materially inequitable schooling and social structures. Prior to her studies at UCLA, Melanie served as an elementary English as a Second Language teacher in Denver and earned an M.A. in Cultural Studies in Education from the University of Texas at Austin.

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