

Emerging Planning Challenges in Retail

The future growth of the world's largest company hinges on its "supercenter" format, a bold evolution that made it the nation's largest grocer in a few short years. While proposals for big-box retail have long involved politically sensitive tradeoffs for planners, supercenters bring these into sharp focus by concentrating substantial wage impacts on one group, grocery workers. With much at stake—we estimate direct impacts of hundreds of millions of dollars on each side in the San Francisco region alone—these battles promise to be more intense and challenging than in the past. Yet many regulatory strategies are weakly rationalized, poorly targeted, and legally untested. We clarify key policy questions and offer a case study as a model for understanding the extent and character of expected tradeoffs between winners and losers. In the end, our analysis supports planning strategies explicitly aimed at mitigating costs while leveraging benefits. This will require a thorough assessment of each proposed store's costs and benefits in order to provide a clearer rationale for when supercenters should be approved, denied, or mitigated. Such an approach permits planners to do what they do best: inform, mediate, and resolve.

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The Case of Wal-Mart

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Wal-Mart is locally and globally conspicuous. It is the nation's largest private employer (1.2 million workers), seller of retail goods (\$280 billion), and owner of corporate real estate (911 million square feet). Wal-Mart accounts for roughly an eighth of China's exports to the U.S., and if it were a country, would be China's eighth largest trading partner (Forsythe, 2003). The firm's signature passion for cutting costs and its dominant share of retail sales in the United States have increased national productivity and reduced the rate of inflation, leading some to question how such fundamental economic indicators should be calculated (Feldstein, 2003; Hausman & Leibtag, 2004; McKinsey Global Institute, 2001).

Locally, Wal-Mart stores are often welcomed because they provide low prices and product variety in areas that previously lacked both, while they are also opposed for their potentially negative land use, traffic, and small business impacts. The rapid rollout of the "supercenter," a relatively new Wal-Mart store format that combines discount retail with a supermarket and whose floor area can exceed 4 acres, poses new challenges to local planning. When a nonunionized competitor enters the grocery business in a unionized market, the local planning agency faces tradeoffs between wage impacts and price savings for consumers. Debate over even one store can be highly contentious, and the permitting process is often the only forum for resolving such issues.

As we show below, the grocery store part of the supercenter format can have substantial impacts on a regional economy. On the plus side, Wal-Mart grocery prices tend to be significantly lower on average than those of other stores. This is a clear benefit, particularly for areas such as some inner-city neighborhoods that grocery chains have abandoned.¹ In addition, as Wal-Mart gains market share, it puts pressure on other grocery stores to lower their prices, thereby benefiting all grocery customers in the area. On the negative side, the big-box format may cause traffic and other problems commonly investigated during the local review process. Because these concerns have received significant planning attention already, our focus in this paper is instead on potential labor market issues. The grocery sector in much of the urban U.S. is unionized, and Wal-Mart workers are not. One consequence of Wal-Mart's expansion is that we expect wages and benefits paid to grocery workers to fall significantly as supercenters gain market share.

Consider Inglewood, California, a moderate-income city of 113,000 near Los Angeles International Airport. When the Inglewood city council declined Wal-Mart's plan to open a supercenter there in 2004, the company sponsored a ballot referendum not only to permit building the 200,000-square-foot store, but also to skip the usual traffic and environmental reviews and public hearings. Wal-Mart poured over \$1 million into the referendum campaign; a coalition of churches, community groups, and labor unions organized against it. Supporters (including Inglewood's mayor) argued that the supercenter would bring new jobs and lower prices. Opponents argued that the development would undermine local union jobs and existing retail. The measure was defeated in April 2004, but similar conflicts will certainly arise. Shortly after the Inglewood controversy, the city of Rosemead, California, was roiled by a proposed Wal-Mart supercenter. Organized labor poured money and personnel into defeating Wal-Mart's supporters on the Rosemead city council (Felch, 2005). According to the secretary-treasurer of the Los Angeles County Federation of Labor, Wal-Mart's move to the cities "will become the battle royal for all of organized labor in the United States. It will be where labor makes its stand" (Broder, 2004).

This article begins by profiling supercenters, the most recent chapter in retail restructuring. We then review their potential effects on consumer prices and grocery workers' wages and benefits, and present a case study of the San Francisco Bay Area, demonstrating that hundreds of millions of dollars may be at stake. Finally, we discuss planning responses. Communities have so far either welcomed supercenters, banned them on economic or other grounds, or indirectly blocked them with size restrictions, yet the legal basis for using land use controls to address wage impacts appears both weakly rationalized and untested. In the conclusion, we suggest that planners develop the information necessary to negotiate regulatory strategies, rather than rely on clumsy and legally vulnerable quantity restrictions. Understanding which potential impacts are most important to mitigate should help planners generate more nuanced responses.

Background: The Rise of Supercenters in the United States

Until the last century, most retail goods were sold through specialty stores. That changed between 1900 and 1920 when merchants in and around Boston began combining several shops under one roof, anticipating the modern department store. Filene's, which originally sold

only women's wear and accessories, began to acquire more space, sell new products, and remove the partitions that once separated different wings of its stores (Bluestone et al., 1980). Filene's also developed the "bargain basement," in which merchandise was offered at drastically reduced prices. Industry observers initially expected this approach to fail, as department stores at the time were luxurious and situated in expensive downtown locations, with large sales staffs (Cohen, 2003; Fogelson, 2002). The bargain basement lacked amenities but allowed Filene's to broaden its customer base and build customer loyalty among the working classes.

As it turned out, the bargain basement was the future of retail. By 1977, discount retail was the largest sector of general merchandising, with thousands of stores and billions in sales. The undisputed champion was Detroit-based Kmart, which had over 1,200 stores and continued to grow. Figure 1 shows that Wal-Mart's growth was initially slower and confined to the southern and rural heartland, where it built customer loyalty without competing directly with the then larger Kmart (Hornbeck, 1994). As luck would have it, the challenges of operating in rural areas stimulated the company to become an early innovator in supply and distribution systems.

In the meantime, the grocery industry also transformed. Neighborhood markets gave way to fewer and larger stores, increasingly operated by national chains. Since 1990 the size of the average store increased from 31,000 to 44,000 square feet (Dunkley et al., 2004). The industry also consolidated as larger chains absorbed smaller national and regional companies.

Supercenters combine these two heretofore-distinct industries and formats. Over the last 5 years, they have been the fastest growing sector of retail (Barry, 2003). The first Wal-Mart supercenter opened in 1988, and by 2002 the company operated 70% of the country's supercenters (Barry, 2003; Graff, 1998; Wal-Mart, 2003, 2004). Several replaced existing discount stores, and many of those were in Wal-Mart's oldest and most profitable locations (Barry, 2003). This meant Wal-Mart could enter the grocery sector in areas where it already had strong customer identification and loyalty. By early 2003, Wal-Mart had supercenters in all but seven states. See Figure 2 for supercenter growth trends for Wal-Mart and its competitors.

As a result, the firm recently became the nation's largest grocer (Weir, 2003). Nationally, Wal-Mart is expected to open several hundred supercenters in each of the next few years, about half by converting existing retail discount stores (Barry, 2003; Wal-Mart, 2003). Yet this format is still disproportionately rural. In 2003, over 70% were located outside the largest 100 metropolitan statistical

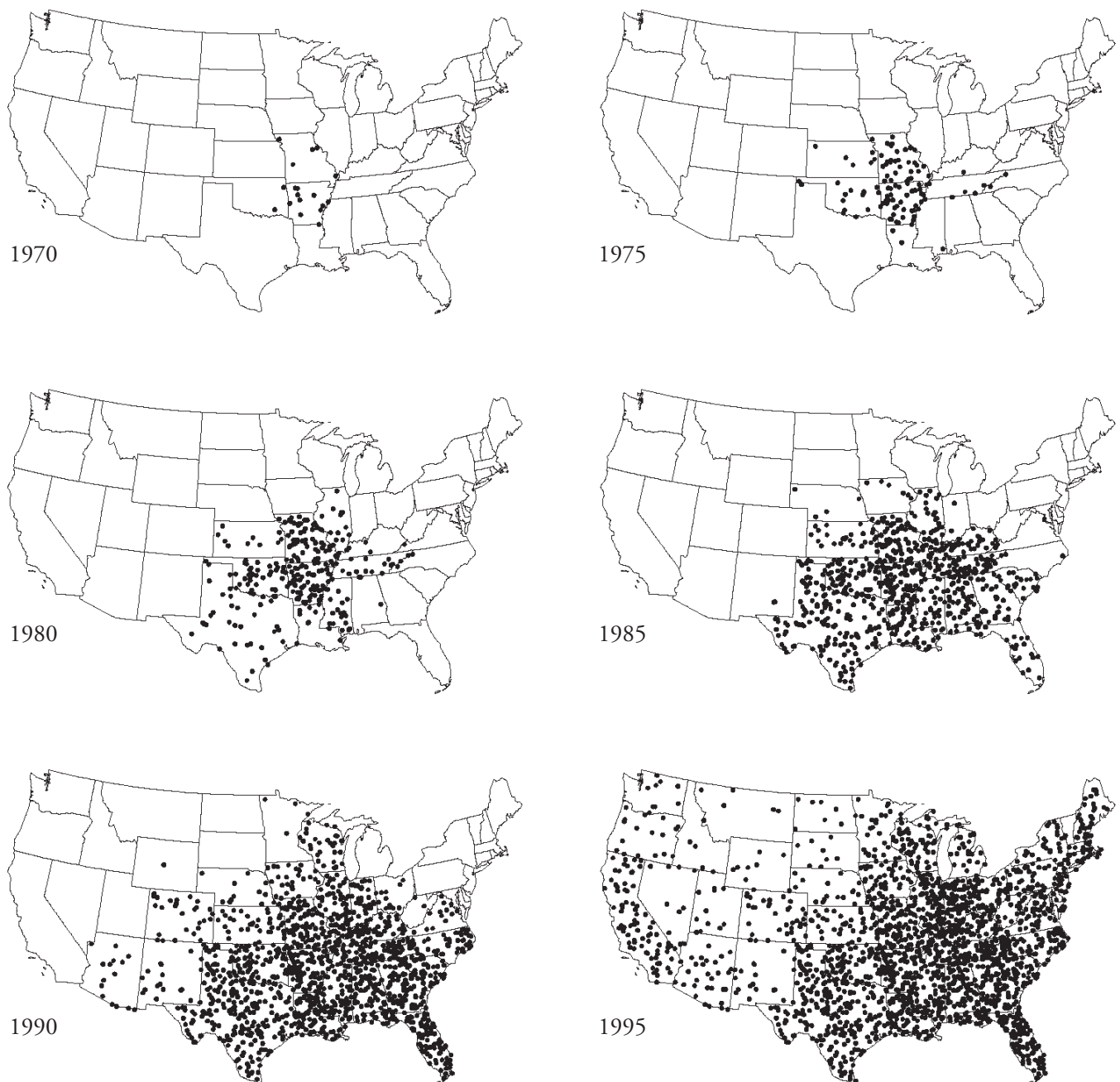


Figure 1. Wal-Mart stores in the U.S., 1970–1995.
Source: Basker (2005). Reprinted by permission.

areas (Tatge, 2003). In the 26 markets with populations over 2 million, Wal-Mart's combined average grocery market share is less than 4% by one estimate (Tatge, 2003). But the company has begun to develop supercenters in metropolitan areas, and many grocery industry analysts view Wal-Mart as a formidable contender in those markets (Callahan

& Zimmerman, 2003; Hayes, 2003; "Wal-Mart Forces Paradigm Shift," 2003).

Planning Issues

The larger size of the supercenter poses familiar planning problems of traffic congestion and circulation, aes-

Number of supercenter stores

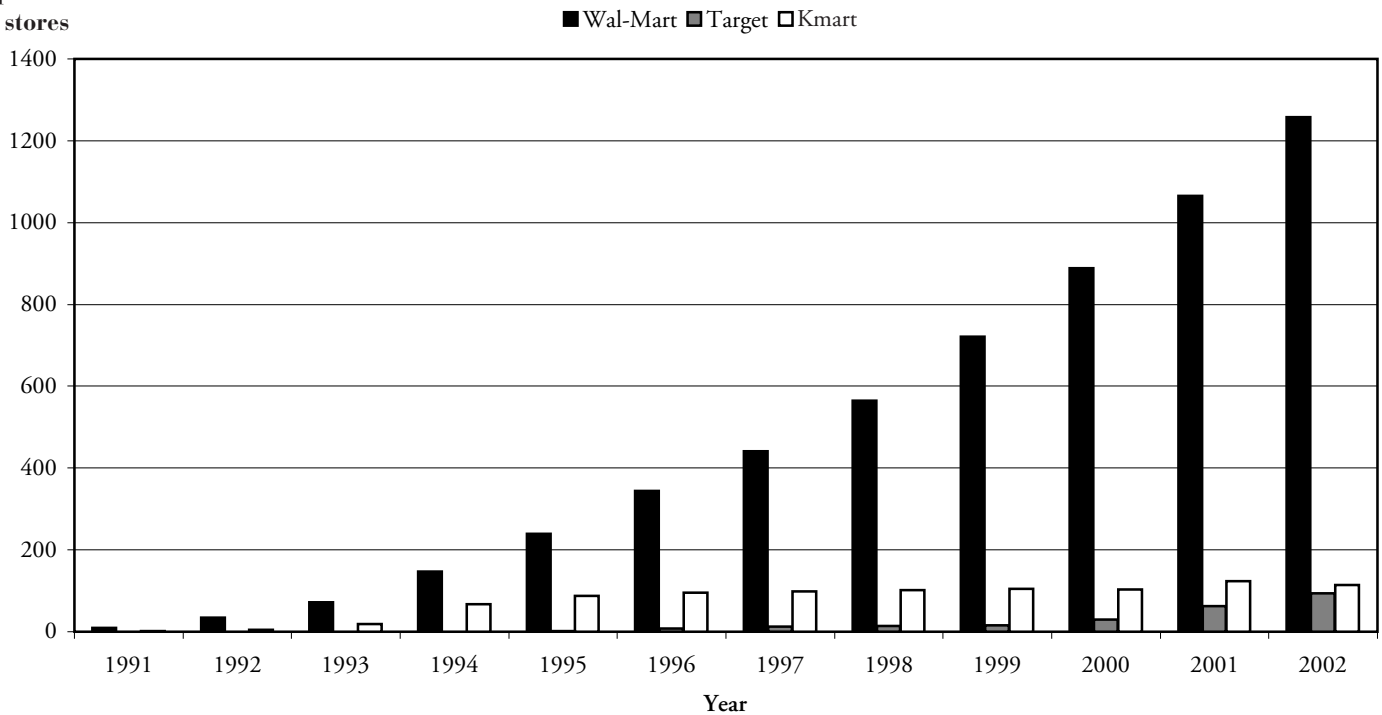


Figure 2. Growth in supercenter stores by company, 1991–2002.

Sources: Barry (2003, pp. 29–30), Target Corporation (2003), Wal-Mart (2003), Kmart (2003).

Note: The second and third largest supercenter firms in the United States, as of 2003, were Meijer and Fred Meyer, with 160 and 133 supercenters, respectively. Those firms are not included here because they are regional firms, without the national presence of Kmart, Target, and Wal-Mart.

thetics, and public finance. Interesting and important as these are, we do not address them in this article.² Rather, this article focuses on the narrower, and in many ways more contentious, issues of consumer prices and grocery worker compensation.

Supercenters exacerbate problems caused by previous forms of big-box retail in two respects. First, because of Wal-Mart's substantial cost advantage, adding only a few new supercenters in a metropolitan area can significantly and rapidly bring down both prices and wages. Second, while earlier forms of big-box retail resulted in lower regional prices and wages, these tended to be spread rather thinly across the local population. Supercenters, by contrast, concentrate wage reductions on grocery workers, a relatively well-paid, blue-collar occupation that is also more unionized than retail clerks in general. As a result, deeply divisive political disputes erupt over locating even single stores. This in turn puts substantially greater pressure on local authorities to use land use laws to regulate the labor practices of firms, both directly and indirectly.

Consumer Prices

Wal-Mart has achieved almost legendary status for its low-priced goods. The company aggressively maintains efficient distribution systems, lower labor costs, and firm-level economies that give it leverage with suppliers. Combined with managerial innovations and the big-box format, which leads to in-store scale economies, these advantages help Wal-Mart cut costs and pass savings on to consumers (Basker, 2004; Feldstein, 2003; Postrel, 2002). Labor productivity was 44% higher in Wal-Mart stores than in other general merchandise retail stores in 1987. In 1999, Wal-Mart still maintained labor productivity 41% greater than competitors (McKinsey Global Institute, 2001).

The company's price advantage extends to groceries, particularly in the large footprint format. Dunkley, Helling, and Sawicki (2004) summarized the evidence on scale economies in grocery sales, arguing that larger stores enjoy cost economies, have more room for high-margin items, and may be more attractive to some consumers. A 2002 study by UBS Warburg found that the price of a market

basket of grocery items at Wal-Mart supercenters was between 17 and 29% lower than prices at major supermarket chains in the same urban area (Goldman & Cleeland, 2003). Moreover, grocery chains competing in the same market will normally be forced to lower their prices in response. The aggregate savings to consumers of such price differences across a metropolitan area, as we see in the San Francisco study below, can easily amount to hundreds of millions of dollars.

Labor Market Impacts

Wal-Mart's price advantage in groceries stems in part from its employee compensation packages. Compared with supermarket pay and benefits in some of the larger metropolitan areas, Wal-Mart's are low. Wal-Mart is not unionized, while in many places the percentage of grocery workers belonging to unions is higher than the national average. For example, in both the Los Angeles and San Francisco consolidated metropolitan statistical areas, approximately 60% of grocery workers are union members (Boarnet & Crane, 1999; Boarnet et al., 2004). Belman and Voos (2004), using data from the Current Population Survey, report that 23% of the nation's grocery workers were unionized in 1996. This is similar to highly unionized sectors such as bus service and urban transit (25% of employees unionized) and air transportation (39% unionized), and twice the 10.2% unionization rate in the overall economy.

Research also shows that, on average, union members earn a wage premium compared with nonunion members, and the size of the union wage premium increases with the level of unionization in an industry (Belman & Voos, 1993, 2004). Hence the entry of a nonunion competitor such as Wal-Mart into a metropolitan area's grocery market should depress regional grocery industry wages, especially in metropolitan areas with unionized grocery sectors.

According to both the grocery workers' union and the major grocery chains, the five-month-long grocery strike in southern California in 2003 and 2004 was prompted in part by expectations that Wal-Mart would enter that market in the near future (Cleeland & Goldman, 2003). Since then, contract negotiations in other regions, such as the San Francisco Bay Area, have also been influenced by the prospect of supercenter entry (e.g., Girion, 2005; Kasler, 2005).

Planning Responses

Some local governments welcome supercenters with tax subsidies or infrastructure assistance (e.g., Perkes, 1999; Sommer, 1995). In less accommodating jurisdictions, the

methods for addressing Wal-Mart's anticipated negative economic impacts are largely of two kinds: limiting or banning supercenters specifically or large retail stores more generally,³ and assessing and mitigating impacts as needed.

Ordinances restricting or banning large retail stores have been debated or adopted in communities across the country (Rodino Associates, 2003). Ever since Wal-Mart announced its plans to build 40 supercenters in California, where there were previously none, battles over the siting and permitting of those stores have been intense and intensely political. A statewide ban was proposed in 1999 but vetoed by the governor in the face of a public backlash against such a crude regulatory approach, as well as state involvement in local planning issues (Ingram, 1999). Thereafter, local ordinances passed in Oakland, Arroyo Grande, Contra Costa County, Martinez, and Oakdale (Clanton et al., 2004). These typically take the form of a ban on stores over 100,000 square feet with more than 10% of floor space devoted to nontaxable goods. (Food items are not taxed in California.) This effectively prohibits supercenters without any explicit language to that effect.

Ostensibly, the purpose of such ordinances is to regulate the form and use of development, typically seen as an exercise of the police power (Ellickson & Been, 2000). Though regulating the economic impacts of development (e.g., fiscal impacts and blight) has clearly motivated some supercenter land use regulation, wage and salary impacts no doubt play a role as well. It is unclear, however, whether land use ordinances can legitimately consider whether a proposed development's expected wage and salary impacts exceed its expected consumer benefits.⁴ While the consumer benefits of development have long been touted by developers, only relatively recently have wage impacts influenced land use control ordinances and permitting decisions. In California and other states, the dominant political players in decisions about supercenter land use ordinances are often labor unions and Wal-Mart (Clanton et al., 2004; Felch, 2005; Wasserman, 2005).

Indeed, Wal-Mart has actively challenged several California ordinances. Perhaps as a result, there is some evidence that more flexible regulatory strategies, aimed at impact assessment and mitigation, are emerging. Following an extended effort to craft a prohibition, the City of Los Angeles in 2004 instead adopted an ordinance that requires economic impact assessments for proposed retail stores larger than 100,000 square feet with more than 10% devoted to nontaxable merchandise (Garrison, 2004; City of Los Angeles, 2004). Moreover, it applies only to such stores in "economic assistance areas," specifically the City's five state enterprise zones, the federal empowerment zone, the federal renewal community zone, the 37 community redevelop-

ment agency project areas, the earthquake project areas, and one-mile buffers around the borders of those areas. The rationale was to focus on impacts in economically distressed or redeveloping locations.

The impact report must consider, but is not limited to, the following criteria:

1. Whether a supermarket larger than 20,000 square feet has existed within the impact area (the default 3-mile area around the proposed location) in the preceding 10 years.
2. Whether prior efforts to establish a supermarket larger than 20,000 square feet within the impact area have been unsuccessful.
3. Whether the supercenter will result in the displacement of businesses in the impact area, and if so the nature of those businesses.
4. Whether the supercenter would require the demolition of housing, or other action that decreases the stock of low- or moderate-income housing in the impact area.
5. Whether the supercenter would result in the loss of green space, playground facilities, childcare facilities, or community centers.
6. Whether the supercenter would provide lower-cost or higher-quality goods to residents in the impact area.
7. Whether the supercenter would displace jobs within the impact area, and if so an estimate of the number of jobs displaced and whether those jobs are temporary or permanent.
8. Whether the supercenter would impose additional costs in the form of traffic, security, environmental, or other impacts.
9. Whether the supercenter would increase or decrease net sales tax or business tax revenues to the city.
10. Whether the supercenter site has restrictions on the re-lease of the site if it were to be vacated.
11. Whether the supercenter would have adverse or positive economic impacts.
12. Whether any adverse economic impacts can be mitigated.

Presumably, the economic analysis will be used both to inform permitting decisions regarding stores and to assess mitigations when adverse impacts are identified. The impact assessment ordinance has been little tested as of this writing, so there is no history of specific mitigation strategies. A background report prepared by the city suggested that local hiring requirements and requirements that supercenters assist local retailers could be among possible mitigations

(Rodino Associates, 2003). To indicate how significant their economic impacts might be in one region, the next section of this article estimates the wage and price impacts of supercenters entering the San Francisco Bay Area market.

An Example: The San Francisco Bay Area

In 2003, Wal-Mart had 16 discount centers (their traditional, nongrocery big-box stores) in the San Francisco Bay Area,⁵ but no supercenters. The company has, however, announced plans to open several in California (Fulmer & Vrana, 2004). We apply alternative-scenario analysis to understand the consequences of the lower prices for consumers and downward pressure on grocery employee compensation likely to result from adding supercenters to this market. Note this is not a full cost-benefit analysis of regional economic impacts, as many other likely significant factors (e.g., traffic, local preferences, and the timing of impacts) are ignored here.⁶ We intend only to illustrate the issues and rough magnitudes of possible price and wage impacts.

The analysis proceeds in three steps. First, we estimate market share, or the share of the grocery market business we expect supercenters will have in this region by 2010. Second, on the benefit side, we calculate the consumer savings from lower grocery prices. Finally, on the cost side, we forecast how industry wages will be affected, based on data on wage and benefit differentials in this occupation and region.

Market Share Estimates

Projecting supercenter market share is complicated by the fact that the format is new, but data from other cities show that Wal-Mart can increase its grocery market share substantially in only a few years. As an example, Wal-Mart operated eight supercenters in Dallas in 1997, comprising 4.8% of the grocery market. By 2003, the company had 28 supercenters and an 18.3% market share. In Houston, Wal-Mart had two supercenters and a 1.0% market share in 1997, and by 2003 had increased its presence to 25 supercenters and a 16.7% share (Shelby Publishing, 1997, 2003; TradeDimensions, 2003).

The size of the Bay Area grocery market was \$9.7 billion in sales in 2003 (Shelby Publishing, 2003; TradeDimensions, 2003). Converting that into per-person grocery sales, and using California Department of Finance population projections for the study region, we obtain a projected grocery market of \$10.4 billion in 2010 (in 2003 dollars). To

provide reasonable bounds on our estimates, we examine a range of outcomes based on three scenarios for Wal-Mart supercenter market share in the Bay Area in 2010:

- Scenario 1. Wal-Mart supercenters capture a 6% market share by 2010. This could occur if Wal-Mart converted all 16 discount centers in the study region in 2003 into supercenters, assuming annual grocery revenues of \$40 million per supercenter.
- Scenario 2. Wal-Mart supercenters capture an 18% market share by 2010. The 18% market share is comparable to the high end of Wal-Mart grocery market shares in metropolitan areas in 2003.
- Scenario 3. Wal-Mart supercenters capture an intermediate market share of 10% by 2010.

These market shares are within the range of possibility, as shown in Table 1. The per-store revenues assumed above are also within the range of experience in markets where Wal-Mart currently has a supercenter presence.

Projected Consumer Savings

Consumer benefits from the lower prices depend on three interrelated factors: the average prices of grocery items at supercenters, their effect on prices at other supermarkets and grocery stores, and the share of the market that supercenters capture.

Average Prices of Grocery Items. A 2002 study by UBS Warburg found that the price of a market basket of grocery items at Wal-Mart supercenters was between 17 and 29% lower than prices at major supermarket chains in the same urban area (Goldman & Cleeland, 2003). The UBS Warburg study found that, on average, Wal-Mart grocery prices were 20% lower than those of major chains (Koretz, 2002). Callahan and Zimmerman (2003) asserted that average Wal-Mart prices were 10 or 15% lower when entering new markets, and cited unspecified studies showing differences in individual items ranging between 8 and 27%. A report by McKinsey & Company, apparently using

proprietary survey data, states that conventional grocery stores have prices “over 8% [higher] across the board in some markets” in comparison to “value formats” (Frank et al., 2003). Thus, based on these sources, we assume price savings on an average market basket ranging from 8 to 20% in the calculations below.⁷

Effect on Prices in Other Stores. The UBS Warburg study is cited as finding an average reduction of 13% percent (Koretz, 2002; Lofton, 2003) in prices at other stores in the market after entry by Wal-Mart supercenters. Therefore we use 13% as an upper bound when estimating price reductions at other stores. As a sensitivity test, we assume a lower bound of 5% for price reductions at other stores.

Calculation of Grocery Savings. Using these assumptions, we expect net reductions in consumer expenditures on groceries ranging between \$382 million and \$1.13 billion per year in the study area. Looking at the first row of Table 2, for example, a 6% supercenter market share combined with an 8% price advantage translates into a 5% price reduction by the major grocery chains. This would allow shoppers switching to Wal-Mart to save \$49.9 million per year, and continuing customers of conventional supermarkets to save \$332.1 million, or a total of \$382.1 million in savings from prices lowered by price competition. The highest estimate of customer savings in Table 2 is \$1.13 billion. These grocery savings have additional, indirect impacts on total regional consumption. Savings raise net incomes, which are then partly spent on more regional goods and services, which are in turn partly paid out as wages. Our estimates, by contrast, include only direct effects.

Impacts on Wages and Employment

In 2001, there were 3.5 million full-time and part-time jobs (excluding proprietors) in the San Jose–San Francisco–Oakland Consolidated Metropolitan Statistical Area (CMSA). The average pay and benefits per job in 2001 was about \$52,000, one of the highest averages among U.S. metropolitan areas. The grocery industry accounted for

Table 1. Wal-Mart grocery market shares in U.S. metropolitan areas, 2003.

	Dallas	Houston	Kansas City	Denver	Phoenix	Average
Stores	28	25	13	7	11	17
Annual grocery revenue per store (millions)	\$38	\$41	\$37	\$37	\$48	\$40
Market share	18.3%	16.7%	18.0%	6.8%	10.1%	14.0%

Note: Market shares are for Wal-Mart supercenters only; neighborhood markets in Dallas and Houston are excluded.
Sources: Shelby Publishing (2003), TradeDimensions (2003).

63,492 jobs in the study area and 58,778 jobs in the San Francisco CMSA in 2001 (U.S. Census Bureau, 2002).

About 60% of employment in the Bay Area study region grocery industry is unionized, and fairly reliable wage data are available for union members. We focus on the possible impacts in the unionized sector of the grocery industry because downward wage pressure will likely be strongest there.

Bay Area Unionized Grocery Average Wage. The grocery industry in the Bay Area is a source of well paid entry-level jobs that provide comparatively attractive benefit packages. Based on detailed data on wages and employment in United Food and Commercial Workers' (UFCW) job categories in the Bay Area study region, we calculated that unionized grocers in the region pay an average of \$15.30 per hour. This is the equivalent of a \$30,600 annual salary assuming full-time employment for 2,000 hours in a year, or \$23,409 working the approximately 75% time (1,530 annual hours) that was the average in 2003 for unionized Bay Area grocery workers. The average grocery wage calculation is shown in the Appendix in Table A-1. As we discuss later, the benefits package available to grocery employees adds substantial value beyond the base wage.

Wal-Mart Average Wage. As of 2003, the best information available to the authors regarding the wages and benefits Wal-Mart would likely offer to its supercenter employees was based on a report using payroll records for 2001 that Wal-Mart turned over to plaintiffs in a sex discrimination class action lawsuit (Drogin, 2003).⁸

Hourly employees made up 96% of total Wal-Mart employees in 2001, and 94% of employees with full-time status and at least 45 weeks of work. The wage averaged \$9.21 an hour in 2001. (See Appendix Table A-2 for the Wal-Mart wage calculations.) If wages at Wal-Mart have

increased at the rate of inflation in the San Francisco urban area since then, the average wage for full-time workers with at least 45 weeks of work during the year would be \$9.60 in 2003.

Monetized Grocery Industry Benefits. Both the UFCW locals and Wal-Mart offer paid holidays, paid vacation, health benefits, sick leave, and a pension plan. We estimated the dollar values of the benefits packages in order to compare them more explicitly. UFCW monetized benefit estimates are based on reporting of disaggregate employee data by the union pension funds. Table 3 shows summary information on benefits offered to UFCW members (grocery workers at the major Bay Area chains). Table 4 shows that the net benefits package is worth about \$7.57 per hour, excluding premiums (overtime, holiday, and Sunday pay).

Monetized Wal-Mart Benefits. We estimate that the monetized benefits Wal-Mart employees receive are substantially less than those of unionized grocery store workers in the Bay Area. (For similar results, see Dube & Lantsberg, 2004.) Wal-Mart's average employer's contribution to health and welfare plans for participating employees in 2000 was \$0.86 per hour (based on the most recent publicly available tax return information as of 2003). We calculated the average hourly health and welfare benefit for Wal-Mart employees in 2000 (\$0.81 per hour) by dividing employer contributions by estimated hours worked by all employees.⁹ We also calculated that Wal-Mart's pension plan is worth \$0.22 per hour averaged across all employees. (Detailed calculations and data sources are shown in Appendix Table A-4.)

Comparison of Grocery and Expected Wal-Mart Compensation. Table 4 compares the compensation at unionized Bay Area grocery chains and Wal-Mart, showing that, based on available data, average Bay Area grocery

Table 2. Estimated consumer grocery expenditure savings, by market sector.

Groceries in supercenters			Other grocery stores		
Market share	Initial price difference	Reduced expenditures (\$million)	Market share	Price reduction	Reduced expenditures (\$million)
6%	-8%	(49.9)	64%	-5%	(332.1)
6%	-20%	(124.8)	64%	-13%	(863.6)
10%	-8%	(83.2)	61%	-5%	(318.0)
10%	-20%	(208.0)	61%	-13%	(826.8)
18%	-8%	(149.8)	56%	-5%	(289.7)
18%	-20%	(374.4)	56%	-13%	(753.3)

Source: Authors' calculations.

Table 3. UFCW benefit package available to unionized grocery workers in the Bay Area, 2003.

Paid holidays:	Nine per year
Vacations:	Two weeks after 1 year, three weeks after 5 years, four weeks after 15 years, five weeks after 20 years
Premium pay:	150% for overtime and Sundays, 200% for holidays
Sick leave:	Accrues at six hours per month, maximum 360 hours of unused sick leave. Annual cash buyout for unused hours up to \$400 less \$10 for each sick leave hour used.
Health & welfare eligibility	Those working a minimum of 64 or 72 hours per month, after the first two months (60 days) of service
Medical insurance:	Three plans offered. Dependents covered under all plans. No premium; \$200 deductible per person per disability. Most common plan (66% of workers): 100% of outpatient, birthing, extended care, inpatient; \$10 copay for office visits, 100% coverage of remainder for PPO.
Dental insurance:	80% of standard services covered
Retirement plan:	Pension and 401K both made available to employees after probationary period of 375 hours of service. No employee premium required.
Other:	Death benefit insurance averaging \$33,877. Vision coverage with \$5 or \$10 copay for exam; lenses and frames covered.

Sources: UFCW (2003), UFCW Northern California Health & Welfare Trust Fund (UFCW Trust Fund) (2003).

wages are about 60% higher than Wal-Mart wages. Converting the benefit packages into hourly wage equivalents, total compensation at unionized Bay Area grocery firms rises to about double that typical for Wal-Mart. Table 4 uses national averages for Wal-Mart, because available evidence suggests that Wal-Mart employee compensation packages do not vary much across regions of the country (e.g., Drogin, 2003).¹⁰ If Wal-Mart offered a location premium based on cost of living, this would narrow the gap in compensation shown in Table 4.

Table 5 uses these estimates, previously described assumptions about market share, and the wage and benefit gap to calculate a net supercenter impact for the year 2010. We assume that if supercenters capture market share, this puts downward pressure on wages and benefits in the unionized grocery sector because evidence suggests that falling unionization rates will reduce the gap between union and nonunion pay. Belman and Voos (2004) found that the union share of grocery employment fell nationally by 22 percentage points between 1978/79 and 1996. They associate that decline in union membership with a 26 percentage point reduction in the grocery union wage premium. This evidence is from a time period that predates most supercenters and is a national average. We believe, based on recent experience in the Los Angeles area, that Wal-Mart entry into unionized grocery markets can have a larger effect on grocery employee compensation than the average effect estimated in Belman and Voos (2004).

The grocery union in the Los Angeles metropolitan area ratified a new contract following a five-month strike in 2004. While no Wal-Mart supercenters were operating in the Los Angeles market at that time, the new contract included wage concessions based in part on the expectation that Wal-Mart supercenters would enter this market in the near future. The new contract introduced two wage tiers, one applying to workers hired before the contract was ratified and the other applying to workers hired after contract ratification. The gap between these wage tiers indicates the wage concessions in the contract, since the tier for workers hired before contract ratification reflects, for the most part, wage levels determined by earlier contract agreements.

As an example, consider wages for food clerks, typically the largest category of grocery employment. Food clerks hired before the contract was ratified earn \$14.67 per hour after 78 weeks of employment. A food clerk with the same experience hired after the 2004 contract was ratified earns \$10 per hour, or 47% less (Fully Recommended Comprehensive Settlement Agreement, 2004). To reiterate, this wage concession was made preemptively, before Wal-Mart supercenters entered the Los Angeles area market. Thus we assume that Wal-Mart's entry into the San Francisco Bay Area market will reduce union wages by more than the 26% national average estimated in Belman and Voos (2004). We assume that the compensation gap will be reduced by either 40%, 60%, or, if supercenters capture an 18% market share, by 80%. Table 5 shows these

Table 4. Wages and benefits, unionized grocers vs. Wal-Mart.

	Unionized grocers, study area	Wal- Mart, U.S.	Diff.
Average hourly wage, all workers	\$15.30 ^a	\$ 9.60 ^b	\$5.70
Benefits package (excl. premium pay)	7.57	1.87	5.70
Health & welfare benefits per hour	4.57 ^c	0.81 ^d	
Pension benefits per hour	1.35 ^e	0.22 ^f	
Vacation, per-hour basis	0.92 ^g	0.38 ^h	
Sick leave, per-hour basis	0.73 ⁱ	0.46 ^j	
Premium pay, per-hour basis	0.77 ^k	0.48 ^l	0.29
Total wages and benefits, per hour	\$23.64	\$11.95	\$11.69
Benefits/premiums as % of total compensation	35%	20%	

Sources: Authors' calculations and Boarnet et al. (2004).

Notes:

- a. From Appendix Table A-1.
- b. From Appendix Table A-2.
- c. Mean employer contribution to health and welfare calculated by authors using UFCW Employers Benefit Plans database (UFCW Trust Fund, 2003).
- d. From Appendix Table A-3.
- e. Mean employer contribution to pension fund and 401K calculated by authors using UFCW Trust Fund (2003).
- f. From Appendix Table A-4.
- g. Based on 6% of hourly wage, treating a full-time employee with more than 5 years of tenure as the average. Sources: UFCW Trust Fund (2003) for tenure estimate of 9.77 years; UFCW (2001) for vacation entitlement of 3 weeks.
- h. Based on 4% of hourly wage, treating a full-time employee with 3 to 4 years of tenure as the average (Drogin, 2003; entitled to two weeks of vacation, according to Wal-Mart Associate Benefits Handbook, 1998).
- i. Based on 6 hours times 12 months times base wage divided by average hours per year of 1,500.
- j. Assumed to be paid in same proportion to base wage as UFCW workers.
- k. Assumes premium pay (overtime pay and additional pay for Sundays and holidays); constitutes an increment of 5% on the base wage.
- l. Assumed to be paid in same proportion to base wage as UFCW workers.

assumptions, coupled with previously described scenarios in the Bay Area. We assume that supercenters will capture proportionate shares of union and nonunion grocery workers, leaving the existing split between union and nonunion grocery employment in the Bay Area unchanged.

Calculating reduced wages and benefits then involves two steps. First, some jobs that would have been unionized

shift to supercenters, where employees are compensated less. We assume that supercenters reduce employment in the region's unionized and nonunionized grocery sectors in proportion to the split of unionized and nonunionized grocery jobs in the Bay Area in 2003, and multiply the jobs lost in the unionized sector by the wage gap. Second, the remaining unionized grocery jobs also pay less, due to the reduced wage gap. We multiplied the number of union members by 1,530 hours per year (the average hours worked by UFCW members, including part-time), then by the wage gap, and then by the percentage reduction in the wage gap due to downward pressure on wages. (Details for the calculations are shown in the Appendix.) Shown in the column furthest to the right in Table 5 is the sum of those two impacts: unionized jobs lost to supercenters and the reduction in compensation paid to union members working for the other grocery chains. This is our estimate of the lost grocery sector wages and benefits. We do not include any losses due to reductions in the nonunion sector of the market, for which we had no data. Thus using these assumptions and data, we expect that lost wages and benefits will total between \$300 and \$576 million per year after supercenters penetrate this market.

While we believe these estimates are reasonable, we want to clarify our assumptions.

First, we assumed no change in the staffing patterns of stores. If Wal-Mart's higher productivity allows the use of fewer employees, reducing overall grocery sector employment, the labor market impacts could be larger than those estimated in Table 5. Note, however, that a recent study (Basker, 2005) estimates that Wal-Mart expansion increases retail jobs within a county. Second, both the estimates of reduced consumer expenditures and reduced grocery employee compensation assume no impact, either in terms of lower prices or lower employee compensation, on the 32% of the study region's grocery sales served by nonunionized firms as of 2003. Lack of data for the nonunionized sector required that we focus only on the impact of supercenters on prices and employee compensation among the traditional, unionized chains. If competition results in lower prices or lower employee compensation among nonunionized firms, both consumer savings and employee compensation losses could be larger than what we estimate. Third, in parts of the country where the grocery sector is not heavily unionized, prevailing grocery employee compensation might be closer to Wal-Mart's wage and benefit package, and hence the labor market impacts might be smaller in those cases. Our estimates in Tables 2 and 5 apply most correctly to grocery markets with high average wage rates, usually urban areas.

Table 5. Estimated impact of wage and benefit changes, 2010.

Supercenter market share, 2010	Wage gap closure	Employment		Reduction in wages and benefits (\$2003, millions)		
		Union	Nonunion	Among union workers	Due to workers leaving the union	Total
0.06	40%	36,190	25,906	(\$259)	(\$ 41)	(\$300)
0.06	60%	36,190	25,906	(388)	(41)	(429)
0.10	40%	34,650	27,446	(248)	(69)	(317)
0.10	60%	34,650	27,446	(372)	(69)	(441)
0.18	40%	31,570	30,526	(226)	(124)	(350)
0.18	60%	31,570	30,526	(339)	(124)	(463)
0.18	80%	31,570	30,526	(452)	(124)	(576)

Note: The Bay Area grocery market was \$9.7 billion in 2003, and was assumed to grow to \$10.4 billion by 2010. Similarly, the total of all grocery workers was assumed to increase to 62,096. There were 35,993 union members in 2003, representing approximately 62% of the grocery workers in the Bay Area. Grocery workers were assumed to average 1,530 hours of work per year based on the UFCW average. The wage gap, from Table 4, was estimated at \$11.69 per hour.

The Costs and Benefits of Supercenters: Important Cautions for Planners

The San Francisco Bay Area example suggests that the entry of Wal-Mart into the region's grocery market can bring large reductions in grocery employee compensation and, under most modeling assumptions, even larger consumer savings on groceries. We estimate consumer savings on groceries across this 12-county area to be between \$382 million and \$1.13 billion per year, while we predict wages and benefits in the grocery sector, and thus local earned income, to fall by between \$300 and \$576 million per year. The impacts in particular cities could be disproportionate, based on, among other things, the incidence of grocery savings and grocery employee compensation in those communities.

As noted earlier, this is not a complete cost-benefit study, as it omits all but grocery price and wage impacts. More importantly it does not include any external impacts, including traffic, land use issues, environmental concerns, fiscal impacts, or the aesthetics of urban design.¹¹ While we believe labor market and price impacts will drive supercenter debates, we want to emphasize that broader concerns should be included in any economic analyses of actual projects.

The distribution of these benefits and costs is also fundamental to this debate. Price savings are spread thinly across all grocery customers, in ways that depend on their individual food shopping behaviors, while wage losses are concentrated entirely on grocery workers. The results in Table 2 imply average household consumer savings of \$132

per year using the most conservative estimates and \$391 per year for the least conservative scenario. From Table 5, average grocery employee compensation losses would be \$4,831 per year under the most conservative scenario or \$9,276 per year under the least conservative scenario.¹² Note that these averages are calculated over all part- and full-time workers projected for the region in 2010. Losses for individual full-time workers would be considerably higher under these assumptions, ranging from \$7,000 to over \$18,500 per person per year, depending on supercenter market share.

Planners traditionally have grappled with the distributional impacts of public policy concerns, and we suggest that they continue to do so in the case of supercenters. While a regional cost-benefit analysis might conclude that benefits outweigh the costs, planners should focus not just on the economic efficiency of the outcome, but on distributional concerns, including labor market impacts and related questions such as health benefits among blue-collar workers. But how to do that, given that planning regulations are typically tied to land use while the distributional concerns related to supercenters are largely economic? We discuss this in the closing section.

Conclusion: Planning Options

In addition to land use impacts, we have shown that supercenters can generate public and private costs and benefits in the form of substantial wage and price changes. Not only are these costs and benefits possibly quite large,

wage losses in particular are concentrated on a single, highly visible occupation. Since distributional concerns are often raised as a public interest, and courts have generally given communities great latitude in determining the public interest when regulating land uses, municipal governments may wish to respond based on distributional concerns alone.

Altshuler and Gómez-Ibáñez (1993) described how land use controls initially prohibited undesirable activities altogether, but later came to permit them in some instances but not others, and later still to mitigate the negative impacts of otherwise desirable activities. If the regulation of superstores evolves in similar fashion, planners would need first to credibly document the scale, scope, and distribution of impacts. If community costs exceeded benefits, the project could be rejected. Or, if benefits exceeded costs but their distribution was objectionable, the project could be rejected (and substantial benefits foregone) or approved with modifications to mitigate its costs. The last has the most appeal, as it captures the benefits while explicitly addressing objections. Economic impact reports, expanding on those required by the Los Angeles ordinance, could accomplish this much as environmental impact reports do for projects with significant environmental consequences.

Such an approach has the advantage of being flexible. To provide some hypothetical, but reasonable, examples, analysis might provide a means for distinguishing between (1) a supercenter in the upper-income area of West Los Angeles that would intolerably erode local wages, (2) a supercenter that would provide food to low-income persons in an area underserved by traditional supermarkets like South Central Los Angeles (Ashman et al., 1993; Tseng, 1999), and (3) a supercenter that would pay the prevailing local grocery industry wage in a rural area. As with many planning issues, local context matters.

Ideally, mitigating distributional impacts involves compensating the injured parties themselves. This may not be feasible in this case, since most labor market costs would be borne by future grocery workers, a group difficult, if not impossible, to target. However, second-best mitigation strategies could aim at a similar result. A locality could assess fees to fund programs targeted at grocery workers, such as job training or education programs for entry-level workers in the community. Alternatively, since the San Francisco Bay Area case suggested that benefits explain a large part of the pay differential, planners might focus on approaches that address health concerns. For example, the Maryland legislature recently passed “a bill requiring organizations with more than 10,000 employees to spend at least 8% of their payroll on health benefits—or put the money directly into the state’s health program for the poor” (Wagner & Barboro, 2005, p. A01). In cases where com-

pensating affected groups is not possible, communities might instead focus on mitigations that benefit the community broadly. However, this approach would not remedy the distributional impacts, and thus might fail a rational nexus test. In practice, a suitable mitigation scheme would depend on both the place and the time, and on community standards.

In sum, the San Francisco case study suggests that the most contested battles over supercenter proposals will likely involve labor market impacts, while experience indicates there will be pressure to apply land use remedies (since these are often the only local regulatory option). Communities that realize this in advance may select the more straightforward option we advocate, namely, expanding local review to include and address economic impacts directly. In addition to offering the promise of a middle ground, such an approach permits planners to do what they do best: inform, mediate, and resolve.

Acknowledgments

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Notes

1. See Campbell (2004) for a discussion of supermarket availability and food quality in inner-city neighborhoods.
2. See Boarnet et al. (2004) for a literature review and discussion of land use and public finance issues.
3. Dunkley, Helling, and Sawicki (2004) discuss local regulations to limit the size of grocery stores (specifically) or retail stores (generally), and they cite several examples compiled in the on-line newsletter *The Hometown Advantage* (Institute for Local Self-Reliance, 2003). We do not include analysis of individual store permit applications in this typology because we are focusing here on overall regulatory approaches, rather than evaluation of individual permit applications.
4. Legal challenges to land use control ordinances are commonly either due process challenges or challenges claiming unconstitutional “takings” of private property.
5. The study area is a 12-county area consisting of the San Jose–San Francisco–Oakland, CA, Consolidated Metropolitan Statistical Area (CMSA), with the addition of Monterey County to the south. The San Jose–San Francisco–Oakland, CA, CMSA (June, 2003 definition) consists of the Napa, CA, Metropolitan Statistical Area (MSA; Napa County); the San Francisco–Oakland–Fremont, CA, MSA (San Francisco, Marin, San Mateo, Alameda, and Contra Costa Counties); the San Jose–Sunnyvale–Santa Clara, CA, MSA (Santa Clara and San Benito Counties); the Santa Cruz–Watsonville, CA, MSA (Santa Cruz County); the Santa Rosa–Petaluma, CA, MSA (Sonoma County); and the Vallejo–Fairfield, CA, MSA (Solano County).
6. Our Bay Area Economic Forum report (Boarnet et al., 2004) also estimates a range of traffic and other community impacts not addressed in detail here.

7. The upper and lower bounds are averages reflecting price differentials across market areas and across baskets of goods. The 20% price differential is based on the initial difference between supercenters and grocery stores in markets Wal-Mart supercenters entered recently. The 8% price differential is based on studies averaged across a range of markets, including markets where supercenters are more established, and thus reflects a long-run response. Therefore, the 20% differential likely better reflects the price gap soon after supercenters enter a market, the situation our scenario for the Bay Area seeks to portray.

8. The data from the payroll information (Drogin, 2003) is more detailed than other sources of Wal-Mart wage information. Yet news reports and anecdotal data, like the data from Drogin (2003) used in the analysis in this paper, generally suggest that Wal-Mart pays less than \$10 per hour. Bob Ortega, a *Wall Street Journal* reporter who wrote a book about Wal-Mart in 1998, estimated the company's starting wages at between \$6 and \$7 per hour (Ortega, 1998, 1999). In June 2003, National Public Radio aired a multipart series on Wal-Mart, and devoted one segment to the company's labor practices that reported Wal-Mart wages as hovering between \$6 and \$7 per hour (National Public Radio, 2003a, b). A recent journalist's report stated that the average wage at Wal-Mart annually is less than \$10 an hour before bonuses (Saporito, 2003), and an article in *Forbes* placed the average Wal-Mart wage at \$7.50 per hour, with the average annual salary of a full-time Wal-Mart employee being about \$18,000 (Hessel, 2003). These reported estimates are generally lower than the estimated wages based on the Drogin (2003) data used in this paper.

9. This assumes that the 1.2 million Wal-Mart employees active at year-end 2001 averaged 750 hours that year. No data on average hours were available. For details of this calculation and data sources, see Appendix Table A-3.

10. The estimated national average Wal-Mart wage is used for the Bay Area. Note that while the data in Drogin (2003) give some information on Wal-Mart wages in different regions, those data suggest that the national average Wal-Mart wage is a good estimate of Bay Area Wal-Mart wages. The region including northern California, Oregon, and rural Washington has an average wage equivalent to the national average, but that region includes both the urbanized Bay Area and rural areas to the north. The southern California administrative region is likely more dominated by urban areas, and in southern California, Wal-Mart wages are 97% of the nationwide average. Among the Wal-Mart administrative regions analyzed in Drogin (2003), the regions with the highest pay rates offered wages averaging 20% higher than the national average. Because none of those regions were in California, the estimated national average wage is used as an estimate of Bay Area supercenter wages in this study.

11. As an example, our more comprehensive report for the Bay Area Economic Forum included rough estimates of the external costs of additional driving associated with shopping trips to supercenters. Estimates of the effects of that additional driving on air quality and traffic congestion suggest that, under some scenarios, those external costs could be large enough to cause net regional costs of supercenters to exceed consumer price savings benefits (Boarnet et al., 2004, pp. 57–61). We do not report those results here in part because longer shopping trips to supercenters could be offset by smaller numbers of such trips. For an extended discussion, see Boarnet and Crane (2001). However, there are few data that would allow estimating tradeoffs between the length and frequency of trips to supercenters compared to other grocery stores.

12. The estimates of average household grocery expenditure savings and average grocery employee compensation reductions are for the year 2010, expressed in 2003 dollars. The consumer expenditure savings are

converted to a per-household basis using population projections for the study region in 2010 from the California Department of Finance (2001) and assuming that average household size for the study region from the 2000 census (2.8 persons) is the same in 2010. Per-employee wage and benefit losses are obtained by dividing the estimated employee compensation losses by the number of grocery employees, 62,096. The scenarios for consumer savings range from assuming a 6% Wal-Mart market share, combined with an 8% initial price differential and a 5% reduction in prices in competing stores (yields the lowest estimates of consumer savings); to assuming an 18% Wal-Mart market share, combined with an 20% initial price differential and 13% reduction in prices in competing stores (yields the highest estimates of consumer savings). The scenarios for grocery employee compensation range from assuming a 6% Wal-Mart market share and closing the wage gap by 40% (yields the lowest losses in compensation), to assuming an 18% Wal-Mart market share and closing the wage gap by 80% (yields the highest losses in compensation).

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Appendix: Calculations and Data Sources

Estimated Consumer Expenditure Savings (Table 2)

For each assumed Wal-Mart market share, the consumer price savings were applied to the Wal-Mart supercenter sector and the unionized grocery sector, as shown in equations (1) and (2) below. Wal-Mart market share is assumed to come from the unionized and nonunionized grocery sector in proportion to the relative shares of unionized and nonunionized sales in the San Francisco Bay Area study region market as of 2003. In 2003, unionized stores accounted for 68% of all grocery sales in the study region, based on weighted averages for unionized shares in sub-areas of the study region, where the average shares were weighted by effective buying power in those study regions. (See Tables A-1 and A-3 of Boarnet et al., 2004.)

$$\text{SCConsSavings} = \text{MarketSize} \times \text{WMPercent} \times \text{WMPriceDiff} \quad (1)$$

$$\begin{aligned} \text{UnConsSavings} = & \\ \text{MarketSize} \times \text{UnSalesPercent} \times (1 - \text{WMPercent}) & \\ \times \text{UnPriceReduction} & \end{aligned} \quad (2)$$

Where:

SCConsSavings =
consumer savings in the supercenter sector

UnConsSavings =
consumer savings in the unionized grocery sector

MarketSize =
\$10.4 billion (projected annual sales in study region in year 2010)

WMPercent =
6%, 10%, 18% (assumed Wal-Mart market shares)

WMPriceDiff =
8%, 20% (assumed difference between Wal-Mart and unionized grocery prices)

UnSalesPercent =
68% (fraction of 2003 study region grocery sales in unionized grocery stores in year 2003)

UnPriceReduction =
5%, 13% (assumed reduction in prices in unionized grocery sector)

Estimated Wage and Benefit Impacts (Table 5)

The wage and benefit impacts were calculated in two steps. (1) *Union shrinkage*: We assume that Wal-Mart supercenter jobs draw from the unionized and nonunionized grocery sectors in proportion to the fractions of study region grocery employment in the unionized and nonunionized grocery sectors as of 2003, and then apply the estimated employee compensation to jobs shifted from unionized grocers to supercenters. In 2003, 62% of the study region's grocery jobs were unionized (see Tables 5 and A-1). (2) *Reduced wages and benefits, union workers*: The effect of downward wage pressure on grocery union wages is calculated by applying the assumptions about the fraction of the wage gap closed. Equations (3) and (4) show the calculations for each step.

$$\begin{aligned} \text{EmpCompUnShrink} = & \\ \text{TotEmp} \times \text{UnPercent} \times \text{WMPercent} \times \text{WageGap} & \\ \times \text{Hours} & \end{aligned} \quad (3)$$

$$\begin{aligned} \text{EmpCompUnWorkers} = & \\ \text{Totemp} \times \text{UnPercent} \times (1 - \text{WMPercent}) \times \text{WageGap} & \\ \times \text{GapClose} \times \text{Hours} & \end{aligned} \quad (4)$$

Where:

EmpCompUnShrink =
Employee compensation losses, union shrinkage (based on estimated shift of employment from unionized grocery sector to Wal-Mart supercenters)

EmpCompUnWorkers =
Employee compensation losses, union workers (based on estimated downward wage pressure in unionized grocery sector)

TotEmp =
62,096 (study area grocery employment)

UnPercent =
62% (percent of study area grocery employment that is unionized in year 2003)

WMPercnt =
6%, 10%, 18% (assumed Wal-Mart market shares)

WageGap =
\$11.69 (wage differential between union and supercenter employee compensation, from Table 4)

Hours =
1,530 (UFCW reported average annual hours per employee)

GapClose =
40%, 60%, 80% (assumed fraction of wage gap closed in unionized grocery sector)

Table A-1. Weighted average hourly grocery wage, 12-county Bay Area study region, 2003.

Occupation	Workers	Average hours per year	Average wage
Courtesy clerk	4,364	961	\$ 8.40
Food clerk	17,394	1,655	\$18.40
General merchandise clerk	9,963	1,490	\$11.30
Meat cutter	2,076	1,736	\$18.30
Meat clerk	645	1,611	\$13.50
Meat wrapper	30	1,718	\$13.90
Miscellaneous positions	1,521	1,474	\$13.00
Total	35,993	1,529	\$15.30
Weighted average wage			\$15.30

Note: The weighted average wage was calculated by summing total wages across occupational categories and dividing by the UFCW-estimated average hours per worker of 1,529. The UFCW-provided figure differs from the weighted average hours (1,521, not shown) because the UFCW estimate includes hourly estimates for workers not classifiable into occupational categories due to missing data. Using the 1,529 estimate yields the weighted average hourly wage of \$15.30 shown in Table 4. If one uses weighted average hours of 1,521, thus excluding data for workers not classifiable into the occupational categories shown above, the weighted average hourly wage is \$15.38.

Sources: Employees by wage categorization reported by Union Automation, based on union records of the UFCW, Locals 428 (Santa Clara, Santa Cruz, Monterey, and San Benito Counties and Menlo Park), 373R (Napa and Solano Counties), 1179 (Contra Costa), 101 and 648 (San Francisco, Marin, and San Mateo), 839 (Monterey, Santa Cruz, and San Benito Counties), and 120 and 870 (Alameda County). Wage steps from the Master Food Agreement between the UFCW locals and major unionized supermarkets including Safeway, Albertson's, Ralph's, Nob Hill, and Raley's.

Table A-2. Wal-Mart average hourly wage, 2001 (estimate).

	Full time	Part time	Year-end actives not accounted for
Men's average wage ^a	\$9.55	\$8.50	N/A
Women's average wage ^a	\$9.26	\$7.88	N/A
Women as share of workers	0.706	0.658	N/A
Average hourly wage, 2001	\$9.35	\$8.47	
Total workers	463,526	90,486	341,797
Percentage of year-end actives	52%	10%	38%
Percentage of universe for which wage distribution is known	84%	16%	
Weighted Wal-Mart average hourly wage, 2001	\$9.21		
Weighted Wal-Mart wage inflated to April, 2003 ^b	\$9.60		

Sources: Drogin (2003); authors' calculations.

Notes:

- a. Average wage is calculated for active workers at year's end who had worked at Wal-Mart for at least 1 year (Drogin, 2003).
- b. Using the Consumer Price Index-Urban Wage Earners and Clerical Workers for San Francisco-Oakland-San Jose.

Table A-3. Estimated Wal-Mart health and welfare benefits per hour.

Number of employees and dependents covered in 2000 ^a	980,241	A
Number of employees in 2000 (year-end) ^b	1,239,409	B
Percent of employees covered in 2003 ^c	46%	C
Total contributions to Associates Health & Welfare Plan, 2000 ^d	\$1,338,300,320	
Contributions from employers (Wal-Mart) ^e	\$748,321,573	D
Contributions from participants (Wal-Mart employees) ^f	\$589,978,747	E
Estimates:		
Covered employees (B × C)	570,128	F
Covered dependents (A – F)	410,113	
Employer contribution per covered employee (D / F)	\$1,313	G
Employee contribution per covered employee (E / F)	\$1,035	
Avg. hours worked, covered employees (45 wks, 34 hrs/wk)	1,530	H
Employer contribution per hour for covered employees (G / H)	\$0.86	
Employer contribution per employee (D / B)	\$604	I
Employee contribution per employee (E / B)	\$476	
Avg. hours worked, all employees (equiv. to 30 wks, 25 hrs/wk)	750	J
Employer contribution per hour averaged over all employees (I / J)	\$0.81	

Note: Data on average hours worked per year for Wal-Mart employees were not available. For comparability with the benefit calculations for Bay Area UFCW employees, we assumed that covered Wal-Mart employees work 1,530 hours per year, the same as the Bay Area UFCW average.

Sources:

- IRS Form 5500 for Wal-Mart Associate Health and Welfare Plans, Part II (Basic Plan Information), Line 7d.
- IRS Form 5500 for Wal-Mart 401K Retirement Savings Plan, Schedule T (Qualified Pension Plan Coverage Information), 4c(1).
- UFCW estimate.
- IRS Form 5500, Schedule H, Part II (Income and Expense Statement), Line 3
- IRS Form 5500, Schedule H, Part II (Income and Expense Statement), Line 1A
- IRS Form 5500, Schedule H, Part II (Income and Expense Statement), Line 1B

Table A-4. Estimated Wal-Mart retirement benefits per hour.

Number of employees and dependents covered in 2000 ^a	613,995	
Total employees ^b	1,239,409	A
Number of excludable employees ^c	581,054	
Number of nonexcludable employees ^d	658,355	
Number of benefiting nonexcludable employees ^e	556,522	B
Total Wal-Mart contributions to 401K retirement savings plan ^f	\$209,122,000	C
Total employee contributions to 401K retirement savings plan ^g	\$181,923,000	
Estimates:		
Avg. hours worked, covered employees (45 wks, 34 hrs/wk)	1,530	
Employer contribution per covered employee (C / B)	\$376	
Employer contribution per total employees (C / A)	\$169	D
Avg. hours worked, all employees (30 wks, 25 hrs/wk)	750	E
Employer contribution per hour averaged over all employees (D / E)	\$0.22	

Note: Data on average hours worked per year for Wal-Mart employees were not available. For comparability with the benefit calculations for Bay Area UFCW employees, we assumed that covered Wal-Mart employees work 1,530 hours per year, the same as the Bay Area UFCW average.

Sources:

- IRS Form 5500 for Wal-Mart 401K Retirement Savings Plan, Part II (Basic Plan Information), 2000, Line 7d
- Schedule T (Qualified Pension Plan Coverage Information), 4c(1)
- Schedule T, 4c(2)
- Schedule T, 4c(3)
- Schedule T, 4c(5)
- Schedule H, Part II (Income and Expense Statement), 2a(1)(A)
- Schedule H, Part II (Income and Expense Statement), 2a(1)(B)

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