

Increasing the Minimum Wage: California's Winners and Losers

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Foreword

In 1998, PPIC established a joint project with The SPHERE Institute to carry out thorough and timely analyses of California's welfare, child support, health care, and income support policies. The joint project, called California Social Policy Analysis (CalSPAN), is under the direction of Thomas MaCurdy, Adjunct Fellow at PPIC and Professor of Economics at Stanford University. The project stemmed from the realization that the nation's social policy is undergoing dramatic change. Some of that change is exemplified by the federal welfare reform legislation of 1996 and the subsequent adoption of CalWorks in 1997. At the same time, there has been intense interest in reforming California's child support system, improving health care for the uninsured, and increasing the minimum wage to help the poorest families in the state. Given these developments, CalSPAN's chief objective is to build accurate data bases for analyzing policy proposals and presenting timely findings to decisionmakers in Sacramento and Washington.

Increasing the Minimum Wage: California's Winners and Losers, by Margaret O'Brien-Strain and Thomas MaCurdy, is the first in a series of products from CalSPAN. Its findings suggest that the assumptions behind current social policy do not always hold up to careful scrutiny. For example, proponents of minimum wage increases often assume that the additional earnings will benefit poor families; yet even under broad definitions of poverty, poor and near-poor families received less than half of the earnings stemming from the 1996 federal increase. Now Congress is considering another increase. The authors predict that if the bill becomes law and does not result in higher unemployment, California's families will pay more for the increased costs of goods and services than they will receive through higher earnings.

Social policy debates are often fueled by assumptions and opinions rather than facts. In eight previous studies of poverty and welfare, PPIC

has brought new data and analysis to bear on the hotly contested issues of income, health, and child support policy. The present report represents PPIC's first step toward an even more focused commitment to social policy. Timely, reliable studies are ever more important as federal authority is devolved to the states and California faces more responsibility for both the design and implementation of policy. The state's 58 counties, no less than Sacramento, will be responsible for finding and implementing creative solutions that have long eluded federal and state bureaucrats alike. Subsequent studies from PPIC and CalSPAN will examine the role of the booming economy in reducing the state's welfare rolls; the effects of policy changes on different parts of the welfare caseload; and options for an improved system of child support.

David W. Lyon
President and CEO
Public Policy Institute of California

Summary

Minimum wage increases have been a popular policy option at both the state and federal levels. Most recently, Congress has debated raising the federal minimum wage from \$5.15 to \$6.15 an hour. The appeal of such increases for policymakers and the public relies heavily on two common assumptions: first, that raising the minimum wage will increase income for the poor, and second, that in doing so, it imposes very little public or social cost. This report evaluates these assumptions by examining the distributional effects of the minimum wage, accounting for both the benefits of the wage increase to low-income families and the costs of such an increase for California families.

To understand the redistributive effects of minimum wage increases for families in California, we consider the case of the 1996 federal minimum wage increase from \$4.25 to \$5.15 an hour. In evaluating this increase, we address four research questions:

- What was the magnitude of the wage increase for workers and employers?
- What share of the additional income went to poor families in California?
- What types of families paid for the higher labor costs incurred as a result of the wage increase?
- How would the answers differ if the minimum wage increase had been a state-only rather than a federal increase?

In this summary, we first provide a brief overview of the research methodology and then turn to the major findings around these research questions.

Methodological Approach

Calculating who benefits from a minimum wage increase is fairly straightforward. Using data on family income and earnings from the

Survey of Income and Program Participation, we calculate the expected additional earnings for workers who previously made less than \$5.15 an hour. Accounting for these additional earnings, we determine the change in family income before and after taxes. We then evaluate the effects of the wage increase on particular categories of families, especially families we view as the likely targets of the minimum wage increase.

It is more difficult to assess the costs incurred by a wage increase. Logically, employers facing higher labor costs could respond by reducing employment, raising prices, or reducing profits. Most of the minimum wage literature has focused on employment losses—an outcome strongly predicted by economic theory but difficult to detect empirically. Widely cited studies of the fast food industry found no employment losses following minimum wage increases. However, the same widely cited studies also found a much less noted increase in prices. In fact, it appears that the short-run effect of a minimum wage increase may be a price increase, with employment effects becoming evident only in the longer run. Thus, we feel it is valuable to consider the extreme case of a minimum wage increase with no employment reduction, no cut in profits, and all costs passed on in higher prices. In doing so, we are abstracting from the very real issue that most people will have to adjust their spending in reaction to these higher prices. It is these responses that determine whether and where jobs are lost in the long run. For this reason, we do not realistically expect our assumptions to hold over the longer term, but we feel that they do provide an instructive case for understanding the potential distributional effects of a change in the minimum wage.

We determine the costs of the minimum wage increase by estimating the expected increase in labor costs and tracing these costs through to the prices of consumer products. Using these implied price increases, we then determine how much more families would have to pay for the goods they purchase in a year. This gives us an estimate of the cost to families to pay for the minimum wage increase through higher prices for goods made with minimum wage labor. As with the benefits, we can compare the additional costs across different categories of California families.

Key Findings

1. Families in poverty receive only a fraction of the benefits of a minimum wage increase; even under broader definitions, poor and near-poor families get less than half of the additional earnings.

Although the minimum wage is frequently compared to the poverty level for a family of three or four, only 11 percent of the additional earnings from the minimum wage go to families with children living in poverty. Less than 10 percent of the additional earnings go to families supporting children primarily on minimum wage earnings. In fact, higher-income families are nearly as likely as low-income families to benefit from the minimum wage. The 40 percent of families with the lowest incomes receive only 43 percent of the extra earnings from the increase in the minimum wage. The 40 percent of families with the highest income receive 34 percent of the additional earnings. Because minimum wage earnings, unlike most income supports, are taxable, 22 percent of the additional earnings are collected in taxes.

2. As the minimum wage drives up prices, low-income families face a larger percentage increase than high-income families in the price of the goods they buy.

If there are no employment losses following a minimum wage increase, employers are likely to pass along their higher labor costs as higher prices for the goods they produce. In fact, because employers pay taxes on the wages, their additional labor costs are higher than the additional earnings paid to workers. When translated into prices, the federal increase from \$4.25 to \$5.15 costs California families an average of \$133 more per year for the goods they normally purchase. Since higher-income families spend more, they would pay more in absolute terms than lower-income families: up to \$234 per year compared to \$84 per year. However, this price increase represents a smaller share of expenditures for higher-income families, because fewer of their purchases are produced by low-wage workers.

3. On net, the minimum wage increase redistributes income to families with low-wage workers from families without, regardless of the income level.

At all income levels, about one in five families benefits from a minimum wage increase because there is a low-wage worker in the family. Families with low-wage workers are clearly better off following the wage increase, assuming that there are no employment losses. Although they lose some of their additional earnings to taxes and to higher prices for the goods they purchase, these costs do not offset the extra income from the higher wage. However, most families at all income levels do not include a low-wage worker. For example, among the poorest 20 percent of families in California, three out of four families do not include a low-wage worker, either because no one is working in the household or because they earn higher wages but do not work many hours. These families without low-wage workers pay higher prices without receiving any additional income, so the main redistribution of income is from families without low-wage workers to families with low-wage workers, rather than from rich to poor families. Averaging across all families, however, Californians are slightly worse off following a minimum wage increase because taxes reduce the value of the earnings while increasing the labor costs.

4. Overall, California families are better off with a state-only minimum wage increase and worse off with a federal minimum wage increase.

Under a federal minimum wage increase, Californians must pay higher prices for goods produced by minimum wage workers both within and outside the state. Unfortunately, the total additional labor costs exceed the extra income families receive, since the earnings incur both income and payroll taxes. If the increase had occurred only at the state level, consumers outside California would have paid as much as a third of the higher costs through their purchase of goods exported from California. (If they are unwilling to pay higher prices for these goods,

the assumption of no employment loss cannot hold.) In the alternative scenario of a state-only increase, therefore, the benefits to Californians exceed the costs overall, although the majority of families still pay more without receiving higher earnings. On the other hand, the fact that a state-only wage increase makes goods produced in California more expensive than goods produced outside the state increases the likelihood that the minimum wage will cause employment losses.

5. The wage increase from \$4.25 to \$5.15 raised labor costs by approximately \$1.5 billion in California and by \$13 billion nationwide.

The 90¢ increase in the minimum wage that went into effect between 1996 and 1997 increased the gross earnings of low-wage workers by about \$12 billion in the United States, with \$1.4 billion going to higher wages for Californians. However, the total labor costs were higher, primarily because of payroll taxes, whereas the actual increase in take-home pay was lower than the increase in gross earnings. Thus, the increased minimum raised labor costs in California by \$1.53 billion, but workers kept only \$1.11 billion. The remaining \$421 million went to payroll and income taxes collected on the higher wages.

Conclusions for the Current Policy Debate

This report focuses on the federal minimum wage increase from \$4.25 to \$5.15. Since this increase was passed, California increased its own minimum wage to \$5.75, and Congress is now calling for an additional increase to \$6.15. We expect a new increase to have distributional effects that are very similar to the last federal increase, with one important exception. Given our \$5.75 minimum, a new minimum \$6.15 represents a \$1 increase for minimum wage workers outside California, but only a 40¢ increase for minimum wage workers within California. This acts in the opposite direction of a state-only increase: Californians would pay more for this additional increment in the form of higher prices for goods from both inside and outside California than they would receive through higher earnings.

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1. Introduction

In November 1999, the U.S. Senate passed a bill increasing the minimum wage from \$5.15 to \$6.15 per hour, to be phased in over three years. Linked by the Republican majority to a series of tax cuts, the increase has yet to advance in the House of Representatives and, in its current form, faces presidential veto. Nevertheless, the Democratic Party maintains strong support for a minimum wage increase, preferring a faster implementation than proposed in the Senate version.

Californians also strongly support an increase in the minimum wage: a *Los Angeles Times* poll registered over 80 percent in favor of the increase. California, along with ten other states and the District of Columbia, already has a minimum wage over the current federal minimum, as shown in Table 1.1. If the \$6.15 federal minimum wage does not pass, it is likely that the California legislature will propose an additional state-only increase. Several minimum wage increase bills were floated during the 1997–1998 session, including a proposal to increase the California minimum wage to \$6.50.

At both the state and federal levels, the appeal of higher minimum wages draws on two key beliefs: first, that raising the minimum wage will increase the incomes of poor families, and second, that in doing so, the increase imposes very little public or social cost. The first belief is embodied in the position of the Democratic Party on the minimum wage: “We are convinced that the best way to help people lift themselves and their families out of poverty is to pay them wages that support a decent standard of living.” Indeed, it is clear that the minimum wage alone does not provide enough income to support a family above the poverty line. A person who works full-time, full-year at the federal minimum wage will earn \$10,712 annually; at the California minimum, annual earnings rise to \$11,960. For comparison, a family of three is defined as living in poverty if its annual income is below \$13,003. Thus, as the two center bars in Figure 1.1 show, earnings at the federal

Table 1.1
States with Minimum Wages Above the
Federal Standard of \$5.15

State	Hourly Rate (\$)
Oregon	6.50
Washington	6.50
District of Columbia	6.15 ^a
Connecticut	6.15
Massachusetts	6.00 ^b
California	5.75
Vermont	5.75
Delaware	5.65 ^c
Alaska	5.65 ^d
Rhode Island	5.65
Hawaii	5.25

SOURCE: U.S. Department of Labor.

^aAutomatically set at \$1 above the federal minimum.

^bWill be raised to \$6.75 on January 1, 2001.

^cWill be raised to \$6.15 on October 1, 2000.

^dAutomatically set at 50¢ above the federal minimum.

minimum wage provide only 82 percent of the poverty threshold income for a three-person family, whereas California's current minimum wage of \$5.75 an hour provides 92 percent of the poverty threshold. The comparison with a family of three is somewhat arbitrary, though. Because the poverty threshold varies with family size, a full-time, full-year wage of \$5.75 represents 144 percent of the poverty level for an individual, but only 61 percent of the poverty level for a family of five. Of course, if families have other sources of income, their total income may be well above poverty, regardless of the level of the minimum wage.

These distinctions would not matter, perhaps, if the minimum wage could be increased at little or no cost. Clearly, this is not possible, or we would raise all wages. At the most simplistic level, the employer pays for the increase. However, employers have a number of ways to respond to the higher labor costs imposed by the minimum wage. Such

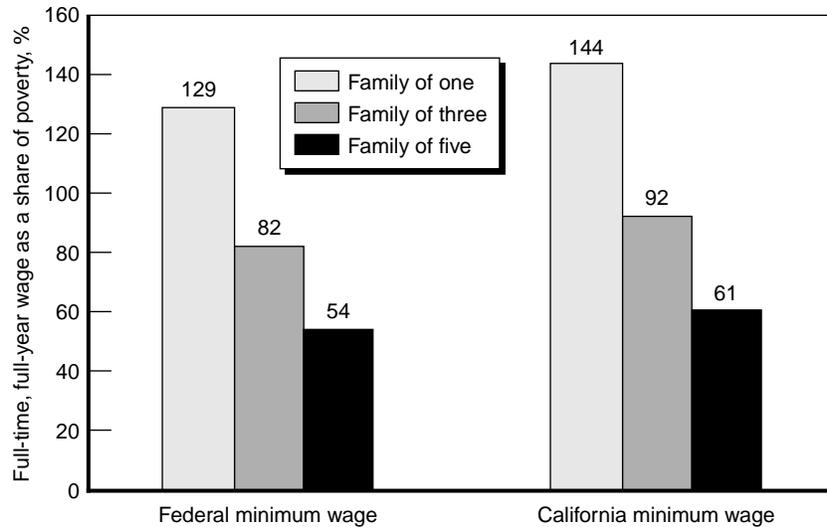


Figure 1.1—Minimum Wage Earnings as a Share of Poverty Threshold Income

alternatives include reducing employment, increasing prices, or reducing profits. Each option has different implications for who bears the cost of the minimum wage increase. To date, only the option of reducing employment has received extensive attention among researchers. Recent debate on the minimum wage has highlighted studies that appear to refute the traditional economic conclusion that a wage increase will reduce employment for low-wage workers. However, even if these findings hold up, they do not refute the idea that the minimum wage will have economic costs.

In this study, we consider the distribution of the costs of a minimum wage increase assuming that these costs are all passed on to consumers in the form of higher prices. In other words, we assume that all minimum wage workers receive additional earnings with no loss in work hours. Firms, therefore, maintain a steady level of employment but raise prices to cover the full amount of the higher labor costs. Consumers then pay higher prices for the same goods and services that they purchased before the minimum wage increase. That is, we assume that the higher prices

do not induce consumers to change their spending patterns, a necessary assumption to maintain the no employment loss (and no profit loss) assumption. Although highly stylized and probably unrealistic, this approach will demonstrate that the minimum wage can have unintended distributional effects, even in the absence of the employment losses predicted by economic theory.

Under these assumptions, we can evaluate two aspects of minimum wage policy. First, we can combine an analysis of the costs and the benefits of a minimum wage increase to evaluate the policy's effectiveness in reaching its target population. Taking the minimum wage as a policy to increase the income of the poor, we consider the policy to be effectively targeted if (1) most of the benefits go to low-income rather than high-income families, and (2) most costs are paid by high-income rather than low-income families. Second, we can extend the analysis to consider whether Californians should be indifferent between a federal increase and a state-only increase in the minimum wage, given that both policies are under consideration by our elected officials.

For both the cost-benefit and the federal-state comparisons, we consider the expected effects on Californians of the 1996 increase in the federal minimum wage from \$4.25 to \$5.15. To highlight the potential role of price increases in changing the distributional effect of a minimum wage increase, we use a simulation approach, which presents an upper bound for the price increases. In actuality, we expect employers to balance between higher prices, lower employment, and lower profits; in this setting, the price effects from a minimum wage increase may be very difficult to isolate from other price changes in a rapidly changing economy. For this reason, our approach does not attempt to detect the actual price changes that occurred following the imposition of the last federal wage increase. Instead, our simulations with their greatly simplified assumptions primarily serve to demonstrate the importance of nonemployment-related costs in determining the appropriateness of minimum wage increases.

The remainder of the report is organized as follows: Chapter 2 lays the groundwork for our all-price-effects assumption by reviewing the possible options for paying for a minimum wage increase and what is known about these options. Chapter 3 provides an overview of our

simulation methodology, including descriptions of the data used. Chapter 4 reports the findings on the distribution of benefits for California families deriving from the increase in the minimum wage from \$4.25 to \$5.15. In Chapter 5, we present the central contribution of the study—findings on the distribution of the costs of the minimum wage if paid for entirely through higher prices. Chapter 6 combines the results on benefits and costs to get an estimate of the net effects for families at different points in the income distribution, as well as for the state overall. Chapter 7 considers how the distribution of costs would have differed if the increase had been state-only rather than federal. Chapter 8 states our general conclusions about the minimum wage as an anti-poverty policy.

2. Paying for the Minimum Wage

The simulations in this study represent a very different approach in assessing the distributional effects of the minimum wage. To place this work in the context of the economics literature, this chapter reviews the alternative strategies that firms can use to pay higher wages as mandated by a minimum wage increase. For each strategy, we provide an overview of the economic reasoning and evidence to date. Finally, we relate these findings to our basic assumptions for the simulations.

The Employer's Problem

The firm's payroll costs rise by an amount equal to the gap between its old wage and the new minimum, multiplied by the number of hours worked at this wage. The firm will also have to pay additional payroll taxes on the higher earnings, so its cost increase exceeds the additional earnings received by workers. The firm can react in a variety of ways, depending on market conditions. First, the employer can cut back the number of hours worked by low-wage employees, by reducing their hours or reducing the number of employees. Either way, low-wage workers themselves pay for the higher wages through reduced work. Second, employers could accept lower profits, assuming that they are sufficiently profitable to absorb the extra costs. Finally, employers could raise prices, although they may lose customers as a result.¹ The next three subsections look at each of these strategies in turn.

Reducing Employment

Historically, economics research on the minimum wage has focused on employment losses. This focus draws on a fundamental element of economic theory: All else being equal, one purchases less of a good as the

¹Employers could also reduce nonwage compensation (benefits or training) to offset the higher costs of wages (see, for example, Hashimoto, 1982, or Royalty, 1999).

price rises. Just as we consumers would buy less steak as the price of beef rises and substitute chicken instead, an employer might hire fewer low-wage workers as the price of their labor rises, and might substitute machinery instead. Simply put, economic theory shows that demand falls as the price rises. For each potential employee, the firm decides whether having an additional worker will increase the firm's revenue sufficiently to justify that worker's wage. For most firms, there comes a point where the extra revenue generated by an extra worker declines. As wages rise, the extra revenue generated by the "marginal" worker becomes insufficient to justify his or her wage. So employment falls.²

The vast majority of research on the minimum wage has focused on these employment effects, and the economic debate over these effects has become an important element of the policy debate. For a number of years, the "conventional wisdom" has held that a 10 percent increase in the minimum wage would reduce teenage employment by 1 to 3 percent.³ However, a set of studies combined together in Card and Krueger's 1995 book *Myth and Measurement* provided contradictory results. Although the Card and Krueger findings are quite controversial, they have been very influential in policy circles. For this reason, we feel it is valuable to review both sides of this ongoing debate.

The 1 to 3 percent employment decline was the conclusion of a 1982 survey article by Brown, Gilroy, and Kohen. This article examined 25 time series studies of youth employment published between 1970 and 1981, all using aggregate data from the Current Population Survey (CPS). The survey also examined a smaller number of cross-section studies that found decreases in teenage employment ranging from 0 to over 3 percent for a 10 percent increase in the minimum wage. Significant employment effects continued to be found in later studies. For example, Currie and Fallick (1996) found that a 4 percent increase

²It is important to keep in mind that these employment declines apply to groups of workers (typically teenagers) that include a large share of minimum wage workers but also workers not affected by the increase. As shown in Neumark, Schweitzer, and Wascher (1999a), the implied declines among *affected* workers are much higher: around 9.2 percent decline for an 10 percent increase in the minimum wage.

³By 1996, the 1 percent decline in teenage employment was still the median response of surveyed labor economists (Fuchs, Krueger, and Poterba, 1997).

in wages (the average for those workers directly affected by the increase) led to a 3 percent decrease in the probability that young workers would remain employed in 1982.

The studies in *Myth and Measurement*, including one based on California's minimum wage increase to \$4.25 in 1988, stand in clear opposition to these widely accepted findings. They not only fail to find negative effects of minimum wages on employment, but in some cases they actually estimate *positive* effects. The four central studies differ in the wage increases examined and data sets used, but all four compare a group affected by the minimum wage increase to one that should be unaffected and attribute the difference in outcomes between these groups to the minimum wage change. Each of these studies has also been subject to critique and reexamination.

The Card and Krueger study that has received the greatest attention focuses on employment in fast food restaurants. Card and Krueger examined the effect of the increase in New Jersey's minimum wage in 1992, comparing employers in New Jersey and adjoining areas of Pennsylvania. Paradoxically, they found that employment at the restaurants in *Pennsylvania* fell after New Jersey's wage hike. (Katz and Krueger's similar results are drawn from surveys of low-wage and high-wage firms in Texas after the 1990/91 federal minimum wage increase.) However, the study relies on survey data collected by the authors, and there have been a number of criticisms of these data. Neumark and Wascher's (forthcoming) analysis of payroll data for similar restaurants in the same areas reached the opposite conclusion, finding negative effects consistent with the earlier literature.⁴

There is similar conflict around the California study (Card, 1992b), which compared employment growth in California to that of other states following California's minimum wage increase from \$3.35 to \$4.25 in 1988. Card found that the increase in the California teenage

⁴The Card and Krueger survey data have been criticized for a number of reasons, including a lack of information on hours worked, significant measurement error, and very few observations in the Texas sample (see Deere, Murphy, and Welch, 1995b, Employment Policies Institute, 1995, Kennan, 1995, and Welch, 1995). However, the Neumark and Wascher payroll data may also be subject to biases, most notably in response rates that may be nonrandom.

employment rate from 1987 to 1989 was 5.6 percentage points higher than in the control states where the minimum wage had not changed.⁵ He also examined the effects on retail trade employment. Using data from the unemployment insurance system, he found an increase in California retail trade employment, relative to the same control group, of 1.0 percentage points, and a decrease of 2.0 percentage points in employment at California eating and drinking establishments. From these results, he concludes that the minimum wage increase did not significantly decrease employment in California. As before, the result depends heavily on the appropriateness of the comparison. There may be reason for skepticism. From 1987 to 1989, California's economy was growing over one-third faster than any of the control states (Arizona, Florida, Georgia, New Mexico, and Texas) and more than twice as fast as some. A reexamination of the California increase by Kim and Taylor (1995) used County Business Patterns data to compare the change in California employment from 1988 to 1989 to that in the United States as a whole. They analyzed industries within the retail trade sector and controlled for California-specific and industry-specific shocks to employment. They found that industries where the minimum wage increase had more bite suffered larger employment losses; they estimate that for every 1 percent increase in the minimum wage, employment fell by 0.9 percent.⁶

Finally, looking across states before and after the 1990 federal increase, Card (1992a) found that states with larger shares of teenagers working at low wages were not more likely to experience a decline in teenage employment (although they do not suggest a positive effect in this case). Deere, Murphy, and Welch (1995b) reanalyzed the same data. Like Card, they found no significant employment effects when

⁵Card and Krueger (among others) take the positive employment effects found in this study and in the Pennsylvania/New Jersey study as support for monopsonistic models of the labor market. The most extreme models of this sort assume firms have a monopoly in the hiring of labor; other versions merely assume that firms have power in setting wages.

⁶Kim and Taylor found similar results comparing the experience of the retail trade sector as a whole across California counties. However Kennan (1995) raised concerns that their regression equation is misspecified.

comparing “low-wage” and “high-wage” states. However, when they compared groups of employees more and less likely to be affected, they found large employment effects. Controlling for business cycle effects, they found that the minimum wage hike reduced the employment rates of teenagers (by 7.3 percent for males and 11.4 percent for females) and of adult high school dropouts (by 3.1 percent for males and 5.2 percent for females). They believe that the difference in results can be traced to faster overall employment growth in low-wage states during the period of the study.

It may be possible to reconcile the two sides of the debate by examining the role of short-term versus long-term adjustment. Baker, Benjamin, and Stanger (1999) demonstrate that the same data (in this case province-to-province differences in Canadian minimum wages over time) can yield positive and insignificant results (the Card and Krueger findings) as well as negative and significant results (the classic economic findings). These alternative findings can arise from analytical approaches that put more weight on short-term variation (Card and Krueger’s difference-in-differences approach) or more weight on long-term variation (Neumark and Wascher’s inclusion of more lagged minimum wage effects).⁷

Card and Krueger conclude by saying, “we believe that, on average, the employment effects of a minimum-wage increase are close to zero” (p. 383). The publicity around their studies gave minimum wage supporters an economic basis for refuting the predictions of employment losses. Although mounting evidence both continues to support the strong theoretical predictions of negative employment effects (at least in the long run) and reconciles the Card and Krueger results with earlier findings, the employment loss argument has lost much of its effect in the public debate.

⁷In fact, Deere, Murphy, and Welch (1995c) make a convincing case that the pervasive noisiness of the teenage employment data would make short-term employment drops difficult to detect with statistical confidence. Even after controlling for seasonality and business cycles, the underlying variation in state teenage employment rates ranged from 5 to over 21 percentage points month-to-month and 3 to 12 percentage points quarter-to-quarter. It would take very dramatic reductions in employment (from 20 percent in large states to 80 percent in small states) to identify an employment reduction with 95 percent confidence.

Even in the absence of employment effects, one cannot conclude that there are no costs to the minimum wage. It merely suggests that we need to look more carefully at other aspects of the question, aspects we turn to in the next two subsections.

Reducing Profits

Since the minimum wage forces employers to pay higher wages, voters commonly assume that minimum wages will be paid out of employer profits. There are several economic reasons why this is not likely. First, low-wage employers are less likely than other employers to have high profit margins. The firms that employ low-wage workers are in highly competitive industries. Income tax return data for major industries that employ low-wage workers show that most of these industries have lower net income than the average across all industries, as shown in Table 2.1. Low-wage workers are also more likely to work for small employers (Card and Krueger, 1995). We expect small employers to face greater competition in both the labor market and the product market. This means that they are unable to command monopoly power

Table 2.1
Corporate Returns of Industries Employing a Large Share
of Low-Wage Workers, by Major Industry
(\$ billions)

Major Industry	Total Receipts	Net Income	Profit Rate, % (Income/ Receipts)
Total across all industries	13,360.0	577.3	4.3
Low-wage industries			
Food stores	374.4	5.5	1.5
Other retail trade	355.9	6.4	1.8
Department stores	350.7	9.3	1.7
General contractors	262.0	4.2	1.6
Eating and drinking places	168.9	3.7	2.2
Entertainment	111.3	1.7	1.5
Apparel and accessories	92.4	1.9	2.1
Personal services	38.2	1.9	5.0

SOURCE: U.S. Department of Treasury (1997).

in the hiring of workers or in the setting of product prices and therefore have lower profits.

Second, even among the most profitable firms, capital is unlikely to bear the costs of a wage increase. This is especially true for large, publicly traded firms. It is a general result in public finance that taxes are borne by those who are least able to adjust. Capital markets are extremely efficient, and the supply of capital is very elastic—meaning that a small decrease in the returns to capital will cause investors to move their capital into a market with higher returns. Firms, therefore, cannot reduce the returns on capital and still expect investment.

Unfortunately, there is virtually no research on this subject, largely because of the difficulty of getting accurate data. Card and Krueger take a first stab at the issue using an event study of stock prices of firms that employ many low-wage workers—such as McDonald’s and Wal-Mart. However, stock prices follow investors’ expectations about future profitability, so the connection between stock prices and the minimum wage is tenuous at best. Card and Krueger find little systematic relationship between excess returns and news about minimum wage changes.

Thus, despite the popular belief that firms pay for minimum wage increases through lower profits, there is no empirical evidence to date supporting this hypothesis, and economic theory gives strong reasons why this would not occur.

Raising Prices

A final option is raising prices. The labor demand curve, which leads to the basic conclusions about employment effects, assumes that product prices are held constant. This is a reasonable assumption for firms that compete with other firms that are not affected by the minimum wage increase, such as out-of-state or overseas firms. However, many of the industries that employ minimum wage workers do not compete in world markets. These include the types of service industries that make up the largest share of low-wage employers: eating and drinking places and retail trade. For these industries, an increase in the minimum wage may represent an industry-wide increase in costs. Therefore, prices for low-

wage goods will rise. (Output will also fall, depending on the price sensitivity of consumers.) In this scenario, some of the burden of the minimum wage increase falls on the consumers of low-wage products.

There is anecdotal evidence to support the claim that prices rise as a result of minimum wage increases. For example, the National Restaurant Association reports that as many as 42 percent of restaurateurs raised prices following the 1996 minimum wage increase. Although there is little rigorous research on the subject, two of the Card and Krueger studies, the New Jersey/Pennsylvania and the cross-state comparison, include information on price effects. In both of these cases, prices increased faster in the affected states. The comparison between New Jersey and Pennsylvania concludes that “prices rose 4 percent faster as a result of the minimum-wage increase” (Card and Krueger, 1995, p. 54). In the cross-state comparisons, the estimates on prices are very imprecise. Still, Card and Krueger believe that two different sources of data (city-specific Consumer Price Indexes and observations on hamburger prices collected by the American Chamber of Commerce Research Association) indicate the same pattern of faster price increases in areas more affected by minimum wage increases. In fact, they find that the relationship between higher wages and these higher prices approximates the labor share of product costs—a result consistent with the majority of the costs being passed on in higher prices.

Summary: Assumptions on Paying for the Minimum Wage

For the purposes of this study, we assume no employment and no profit losses from minimum wage increases. Although most economists remain convinced that increases in the minimum wage will decrease employment, studies by Card and Krueger have convinced many policymakers that such employment effects are very minimal. There is, however, very little evidence that minimum wage increases are paid out of firm profits. This leaves price adjustments. If all of the costs of the minimum wage are passed on to consumers in the form of higher prices, then price increases should reflect the wage increase times labor’s share of the total cost. Surprisingly—given that we would expect some of the

additional cost to be paid through lower employment or lower profits—the small amount of research that has been conducted on price effects of the minimum wage is consistent with this conclusion. Of course, to have no job losses and no profit loss, consumers must continue to purchase the same amount of low-wage goods at the higher price. This is called “perfectly inelastic demand.”

Thus, our simulations makes three (related) assumptions:

- Demand for low-wage goods is perfectly inelastic, that is, consumers do not reduce consumption as prices rise;
- All increased labor costs are passed on in higher prices; and
- Low-wage workers remain employed at the same number of hours after the minimum wage rises.

The same assumptions hold whether the wage increase is enacted at the federal level or at the state level. A state-only increase obviously has a much smaller effect on labor costs nationally and therefore on prices nationally. However, we may be more willing to believe that demand is inelastic in a relatively closed economy with fewer outside options. It may be easier to substitute non-California goods in response to higher California prices than it is to substitute non-U.S. goods when U.S. prices rise. We will return to these issues in the last chapter of this report.

Taken together, our three assumptions allow us to simulate the expected effects of the minimum wage increase in a relatively clean manner. We do not necessarily believe that these assumptions hold in reality. In fact, it is likely that firms will combine the three strategies. As we have seen, the ongoing variability in the low-wage labor market makes it difficult to detect even sizable employment effects. If firms use several strategies at once, the effects on employment, profits, and prices are all individually diluted. For this reason, it will be very difficult to detect these effects empirically with sufficient levels of confidence. Assessing the effects in a simulation environment, on the other hand, allows us to better understand the implications of the minimum wage—in this case, when we allow for the no-job-loss assumption that is currently very popular.

3. Overview of Methodology and Data

Although our main theoretical focus has been on costs, to understand the distributional effects of a minimum wage increase for California, it is vital to consider both costs and benefits. We believe that the expected distribution of benefits at the state level is important for guiding California's policymakers. For this reason, our analysis deals with both. In this chapter, we provide an overview of the methodology and the data used. We will discuss the approaches to benefits and to costs in more detail as we turn to the simulation results in Chapters 4 and 5.

Data

The two sides of the simulation analysis—benefits and costs—require two different data sets. To determine benefits, we rely on data from the Survey of Income and Program Participation (SIPP). The SIPP is a nationally representative survey of households conducted by the U.S. Bureau of the Census. To get a large enough sample for California, we combine data for calendar year 1993 from the 1992 and 1993 panels of the SIPP.¹ The SIPP data set provides information on households, families, and individuals over 15 years of age. It includes monthly data on income and earnings by source, wages and hours worked, demographic characteristics, family structure, and public assistance program participation.² These data allow us to identify low-wage

¹Because of a break in SIPP data collection from 1994 to 1996, 1993 is the most recent year for which a large sample is available from the SIPP. Data for the first 12 months of the 1996 panel were released late in 1999.

²Using demographic data for California, the California SIPP observations were reweighted to be state-representative. See MaCurdy and O'Brien-Strain (1997) for

workers, their occupations and industries, and their family incomes and gives us sufficient information to determine income tax burdens under alternative income scenarios. Thus, we can use the SIPP to simulate both the before- and after-tax effects of a minimum wage increase on the family income of families with low-wage workers in California.

To relate price increases to the purchases of California families, we rely on data from the Consumer Expenditure Survey (CES), matched to the same time period as the SIPP. This survey includes information on family expenditures on a variety of goods and services. It also includes a number of income measures and demographic characteristics, including family structure. Although the income and demographic measures are not as precise as those in the SIPP, we can identify the same major categories of families—by position in the income distribution, poverty level, or welfare status, for example—in the two data sets.

To translate between the two—that is, to get from the workers who benefit to the products they produce to the consumers of these products—we use input-output tables for California and the nation. These tables are constructed by the Minnesota IMPLAN Group, Inc., from databases on employment, value added, output, and product demand for 528 industrial sectors for all states and counties in the United States. The IMPLAN data are derived from data collected by the U.S. Bureau of Economic Analysis, the U.S. Bureau of Labor Statistics, and the U.S. Bureau of the Census, among other sources. Most crucially for our comparison of a state increase to a federal increase, the IMPLAN data allow us to calculate the effect of price changes nationally, as well as at the state level alone.

Figure 3.1 lays out the information collected from each data set and how it is used in the two branches of the analysis. These steps will become clearer as we describe the methodology below.

Overview of Methodology

The starting point for the analysis is a calculation of the number of workers affected by the minimum wage increase, the number of hours

details on this data set and the weighting strategy used to make it representative for California.

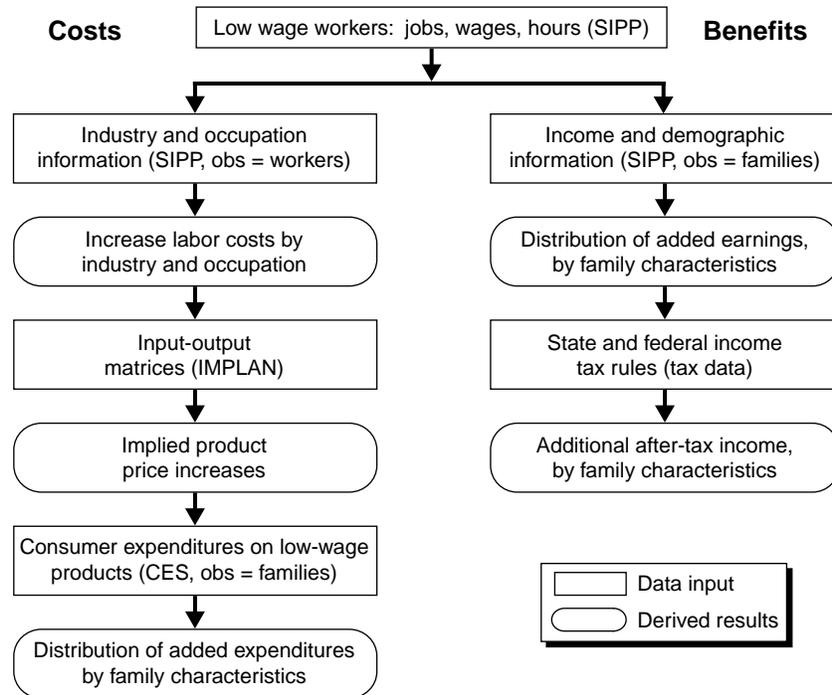


Figure 3.1—Steps in Developing Distributional Results

they work, and the additional earnings when their wages are moved up to the new minimum. This calculation, derived from the SIPP data, is the first step in determining both the total benefits and the total costs of the wage increase.

On the benefits side, we want to understand how much families of different types benefit from the wage increase. Simply put, families benefit through higher after-tax earnings of low-wage workers in the family.³ To calculate this benefit, we determine the earnings increases for all low-wage workers in a family, assuming no change in work hours,

³For simplicity, we refer to workers covered under the minimum wage increase as low-wage workers. Thus, a low-wage worker is someone earning \$5.15 or less before the wage increase. We also focus on family (rather than individual or household) income as the basic measure, since this is most closely tied to the poverty measure.

and then recalculate the after-tax income for the family as a whole.⁴ From a California perspective, California families receive the same benefits whether the wage increase is enacted at the state or the federal level.

Costs to California families are much more challenging to infer. The minimum wage increase results in higher labor costs as a result of both higher wages and higher payroll taxes, primarily Social Security contributions. The overall costs of the minimum wage increase are obviously higher with a national increase than with a state-only increase. In either case, consumers of goods produced with low-wage labor face higher prices (and higher sales taxes, since sales taxes are based on price). Using information on the industries employing low-wage workers in the SIPP, we can identify how much total costs rise in different industries. We then use input-output tables to translate higher industry costs into the prices of final consumer goods. We use two versions of the input-output tables. In the case of a national minimum wage increase, the increase affects the labor costs of industries throughout the country. In the case of a California minimum wage increase, labor costs are changed only for industries producing within California. The two sets of input-output tables take into account these differences. Once industries are mapped to consumer goods, we can use the CES to relate price increases to the goods actually consumed by California families, as opposed to other families. In this way, we can assess which families pay for the minimum wage increase through higher prices.

⁴Taxes are calculated to minimize the tax burden for the family. Thus, where it is advantageous for a dependent earner to file separately, the family's taxes are calculated based on all returns filed by family members.

4. Who Benefits How Much from the Federal Minimum Wage Increase?

The federal minimum wage increased from \$4.25 to \$5.15 in two steps from 1996 to 1997. Under our assumptions, this wage increase implied a \$1.42 billion increase in the earnings of California families. In this chapter, we first provide more detail on our method of calculating the additional pre-tax and post-tax earnings for each family. We then examine how these additional earnings are distributed across families at different points in the income distribution. Finally, we turn to particular types of families who might be considered the most important “targets” of the minimum wage.

Calculating the Distribution of Benefits

The size of a family’s benefit is calculated as follows. For each worker in the family identified as earning an hourly wage below the new legally specified minimum wage level, we assume that his or her hourly wage rises to the new minimum, that is, from as low as \$4.25 (the old minimum) to exactly \$5.15 (in 1998 dollars).¹ We use the new wage rate to calculate the implied increase in total earnings for each worker during the year on the basis of the annual number of hours worked.

¹Where wages below \$4.25 an hour (the minimum wage prevailing in 1993) are reported, the wage is increased by the same amount as the increase in the new minimum. Thus, a wage 50¢ below the old minimum will be 50 cents below the new minimum. In some cases, earnings/hours appeared to be below \$4.25 but these workers were employed in nonminimum wage, commissioned occupations such as car or real estate sales. These workers were not considered to be affected by the new wage. We also assume no wage increase for workers previously earning at or just above the new minimum wage. We therefore ignore the possibility of a “ripple effect” up the wage distribution. See Gramlich (1976), Grossman (1983), and Neumark, Schweitzer, and Wascher (1999b) for a discussion of such effects.

We raise family gross earnings and income by the combined increase in earnings of all family members. This is the gross benefit. For the after-tax benefit, we adjust the increased income for tax changes, accounting for (1) the federal income tax including the appropriate standard deductions and exemptions for the family's size and structure, (2) the Earned Income Tax Credit (EITC), (3) the California income tax including the appropriate standard deductions and exemptions for the family's size and structure, and (4) Social Security contributions. Thus, our procedure yields a family-level benefit value of both gross and after-tax income for families with low-wage workers.

Because the SIPP data cover 1993, all calculations were done in 1993 dollars then inflated to 1998 dollars. For the wage increase, we deflate the \$5.15 current minimum wage to its 1993 value of \$4.54. For consistency, we also calculate the federal and California income tax obligations using 1993 schedules, ignoring tax code changes (other than inflation adjustment) since 1993. The one exception to the 1993 base for calculations is the EITC, which has been greatly expanded since 1993. Because of its importance in current income support policy, we use the current EITC rates (for example, a 40 percent credit on the first dollar earned by a family in 1998 compared to a 19.5 percent credit offered in 1993) but we deflate the dollar thresholds to their 1993 levels. All results are presented in 1998 dollars.

The strategy of calculating benefits at the family level permits us not only to determine the before- and after-tax benefits of the wage increase but also to relate these benefits to other family characteristics. We can assess the fraction of benefits received by families sorted by income level, by income relative to the poverty level, by the presence of children, by headship and marriage status, by share of income from low-wage employment, or by dependency on public assistance. These results are presented below.

Distribution of Benefits Across Families, by Income: Before and After Tax

The first issue in determining which types of families benefit from the minimum wage increase is to ask which families include workers who

earned less than \$5.15 before the increase. We start by dividing California families into income quintiles. Each income quintile represents one-fifth or 20 percent of families in California, so the lowest income quintile includes the 20 percent of families with the lowest income, the highest income quintile represents the 20 percent of families with the highest income, and so forth. For each of these quintiles, Figure 4.1 shows the share of families that include one or more low-wage workers. The lowest income quintile is most likely to include a low-wage worker: 24 percent of these families include low-wage workers and therefore benefit from the minimum wage increase. However, there is relatively little difference between the lowest quintile and the highest quintile, where 20 percent of families include a low-wage worker. Thus, not quite one in four of the poorest families benefits from the minimum wage increase, but one in five of the richest families also benefits.

Even if different income groups are equally likely to have low-wage workers, the groups may receive more or less in additional earnings. After all, for each low-wage worker, the extra earnings he or she receives

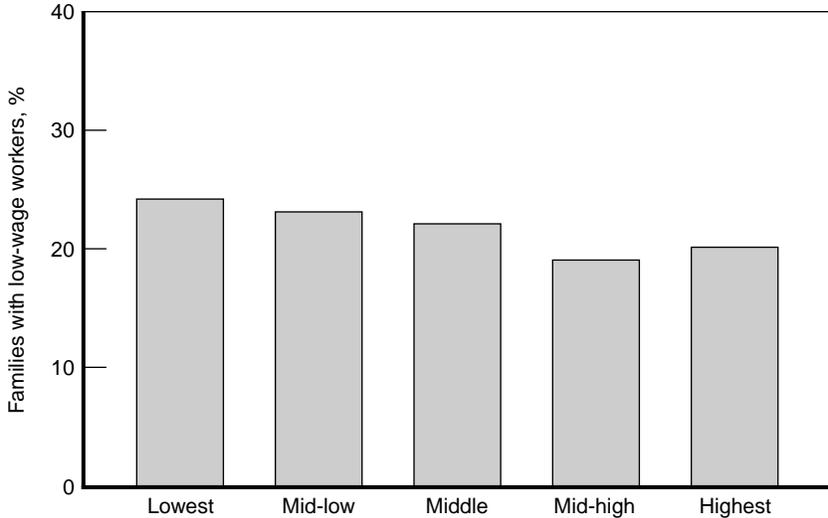


Figure 4.1—Share of Families with Low-Wage Workers, by Income Quintile

will depend both on how close the old wage was to the new minimum and on the number of hours worked. For example, if all of the low-wage workers in the highest income quintile were teenagers with after-school jobs and all of those in the lowest quintile were full-time workers, we would expect the lowest income quintile to receive a larger share of the additional earnings.

Figure 4.2 presents the distribution of additional earnings across the five quintiles. If the extra earnings were identical for all families, each quintile would receive 20 percent of the extra earnings. A quintile group receives more than its share of the additional earnings if it receives more than 20 percent. Of the five quintiles, the two groups that do relatively well are the mid-low and the middle quintile. This means that the 40 percent of families ranked from the 20th to the 60th percentile in the income distribution receive 46 percent of the additional earnings from the minimum wage. Conversely, the top 40 percent of families receive only 34 percent of the extra earnings. Finally, the poorest 20 percent of families get exactly 20 percent of the additional earnings. Therefore, the minimum wage increase is most beneficial to low-middle income families, whereas poorer families get the same amount they would have received from an even distribution of the extra wages.

Since our tax system is progressive, the distribution of extra earnings changes when we consider the shares of earnings after taxes, as illustrated in Figure 4.3. Of the original \$1.42 billion dollars in higher earnings, 21 percent goes to income and payroll taxes. The poorest families lose less of their extra earnings to taxes: Their share drops from 20 percent to 18 percent. In fact, after taxes, each of the bottom three income quintiles receives 18 percent of the extra earnings, whereas the share to the top 40 percent falls from 34 percent to 25 percent.

Ranking families by income does not take into account the important issue of family size. For example, a single person with an income of \$20,000 is better off financially than a family of five living on the same income. Poverty thresholds take family size into account, so we can use income relative to the poverty threshold as a measure of economic well-being for families of different sizes. This also allows us to consider directly the question of what share of the benefits from an increase in minimum wage goes to families in poverty. This question is

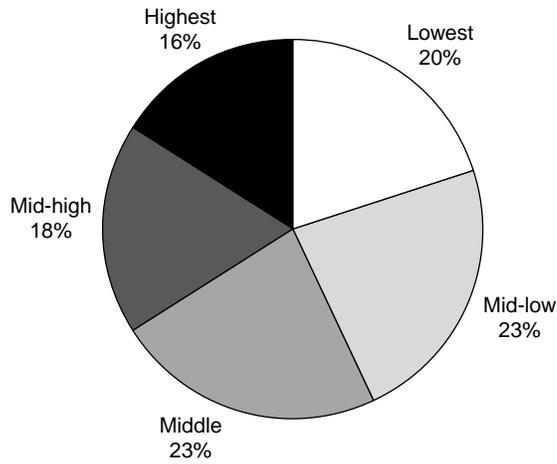


Figure 4.2—Share of Increased Gross Earnings for Families, by Income Quintile

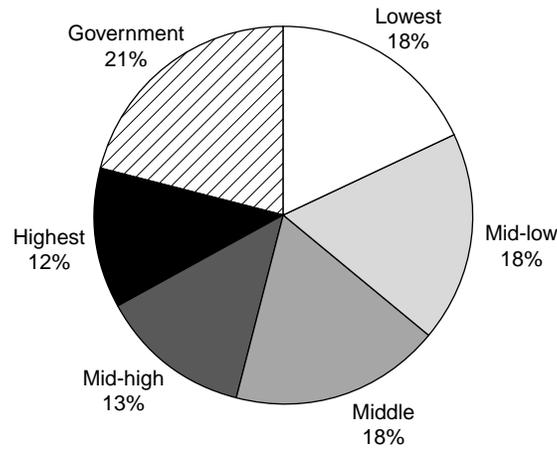


Figure 4.3—Share of Increased Net Earnings for Families, by Income Quintile

answered by Figure 4.4. Looking again at after-tax shares, we see that the 13 percent of California families that are living in poverty receive 18 percent of the benefits of the minimum wage hike. However, another 18 percent of the benefits go to families with incomes above 300 percent of

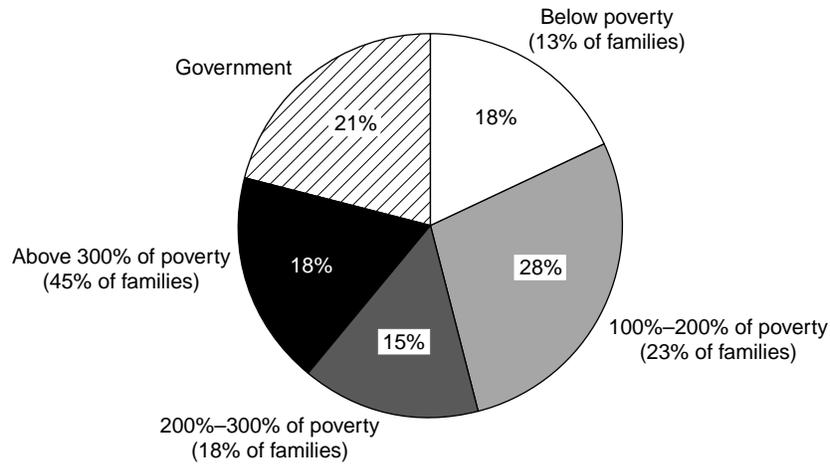


Figure 4.4—Share of After-Tax Earnings for Families, by Income Relative to Poverty

poverty. Thus, the share of additional earnings that goes to poor families is larger than their share in the population, but the majority of the additional earnings do not go to poor (or near poor) families.

Benefits to Other Target Families

When the minimum wage is compared to poverty thresholds for families of three or four, we are implicitly calling on the minimum wage as a strategy to help support poor families with children. Indeed, we may be more concerned about families who depend on the minimum wage for their livelihood. The minimum wage increase has also been proposed as a method to help families such as those moving from welfare to work. How does the minimum wage increase benefit these “target” families?

Table 4.1 looks at the share of the increased earnings that goes to families who depend on minimum wages as a main source of income. The first three rows consider families who receive more than half of their annual earnings from minimum wage work. Although one in five California families includes a minimum wage worker, only 5 percent of California families depend on the minimum wage for more than half of their earned income. These minimum-wage-dependent families do receive a significant share of the increased earnings: 34 percent before tax

Table 4.1
Share of Increased Earnings Received by Low-Wage Families
When the Minimum Wage Increased to \$5.15
(in percent)

Family Characteristics	% of Families	Share Before Tax	Share After Tax
Depend on low-wage earnings for 50% or more of family earnings	4.6	34	29
With children under age 18	1.9	14	13
Single parent	1.1	7	7
Depend on low-wage earnings for 50% or more of family income	2.4	23	18
With children under age 18	0.7	9	7
Single parent	0.4	4	3

and 29 percent after tax. However, fewer than half of these families, or 2 percent of all California families, support children under 18 on minimum wages. Such families—families supporting children and depending on minimum wage work for more than half their earned income—received 14 percent of the additional earnings.

However, the typical comparison of minimum wage earnings with the poverty threshold for a family of three or four implies a narrower target. Less than 1 percent of California families both support children and receive more than half of the family’s total income from minimum wage earnings. Although these families do receive a much greater share of the increased earnings relative to their share in the population (9 percent of the pre-tax increase going to this 0.7 percent of California families), more than 90 percent of the increased earnings go to families outside this target group. Therefore, although we may believe that minimum wage income is too meager to support a family, only a tiny fraction of California families are supporting children with minimum wage earnings and most of the increased income does not go to these families.

Turning to the issue of welfare, Table 4.2 presents similar data for families receiving welfare at some time during the year. Our broadest definition of welfare includes both families receiving cash aid (before welfare reform) and families receiving food stamps, which are typically

Table 4.2
Share of Increased Earnings Received by Welfare Families
When the Minimum Wage Increased to \$5.15
(in percent)

Family Characteristics	% of Families	Share Before Tax	Share After Tax
Welfare recipient with children	8.9	15	14
On AFDC/TANF or SSI ^a	6.2	8	8
Single parent	5.7	6	7

^aAid for Dependent Children, Temporary Assistance for Needy Families, Supplemental Security Income.

working families. Welfare families with children account for 9 percent of California families; they would receive about 15 percent of the additional earnings generated by a minimum wage increase.

Summary: Distribution of Benefits

The minimum wage increase is an inefficient way to boost the incomes of those supporting families with low-wage work. Figure 4.5 summarizes the share of increased earnings that goes to the California families we typically think of as the intended beneficiaries of minimum wage increases. Less than 15 percent of additional earnings go to families with children either living in poverty or supported primarily by minimum wage earnings. About 25 percent of the increased earnings go to families with children living below 200 percent of the poverty threshold—a common definition of the working poor or near poor. If we include all poor and near-poor families, with and without children in the household, 45 percent of after-tax benefits go to the poor. A larger share of the pre-tax benefits goes to such families; however, unlike most means-tested income supports (the earned income tax credit, food stamps, and cash welfare), increased earnings from the minimum wage are taxable. So 22 percent of the increased earnings go to income and payroll taxes. Even after taxes, \$1 in \$4 of increased earnings goes to families in the top 40 percent of the income distribution.

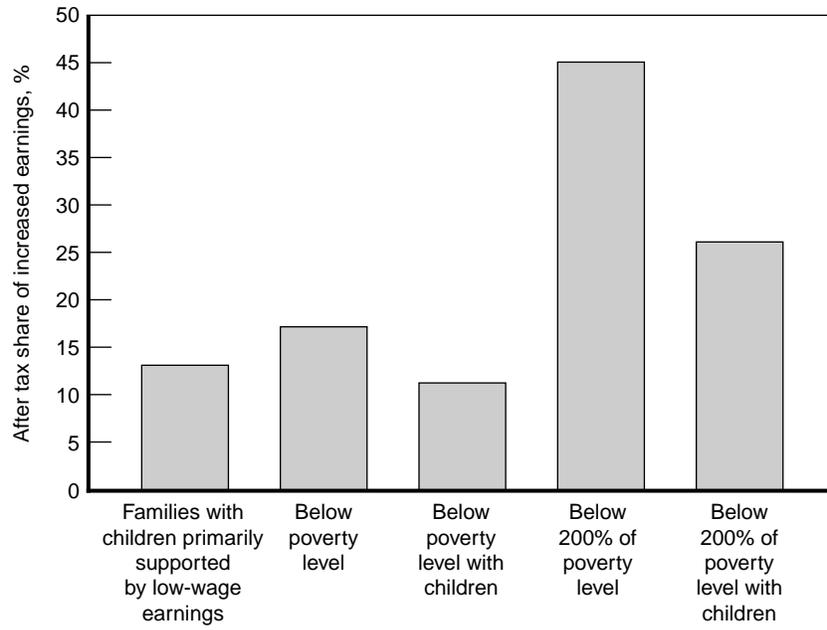


Figure 4.5—After-Tax Shares of Increased Earnings Going to Target Families

5. Who Pays How Much for the Federal Minimum Wage Increase?

As we noted above, increasing the minimum wage from \$4.25 to \$5.15 increases the before-tax earnings of Californians by \$1.42 billion. From the employer's perspective, however, the increase in labor costs will be greater than the increase in earnings since, in addition to higher earnings, employers also will have to pay higher payroll tax contributions of \$108 million.¹ These after-tax labor costs of \$1.53 billion are the total (annual) cost of the minimum wage hike for employers of minimum wage workers in California. For a federal minimum wage increase, these costs are added to higher labor costs elsewhere in the nation, bringing the total additional labor costs to \$13 billion nationally.

As discussed in Chapter 2, it is unlikely that employers themselves pay for a minimum wage increase. We have assumed that all added labor costs are passed on in the form of higher prices, and firms neither lose profits nor reduce employment. To assess the distributional effects of the minimum wage increase, we need to translate the additional labor costs into product prices to assess how much prices have to increase to cover the new costs. We then need to examine family consumption patterns to identify the added costs per family.

For a federal minimum wage increase, we assume a national market in determining how prices change. However, when we turn to consumers, we look specifically at California families and see how the consumption costs are distributed across families categorized by income, marital status, and the presence of children. In Chapter 7, we compare

¹Other labor costs not considered here include such items as larger contributions to the unemployment insurance system.

the effects on California consumers of this national wage increase to the expected effects had the same wage increase occurred only in California.

Attributing Labor Costs to Price Increases

The first step in determining who pays for the minimum wage hike is to calculate the effect of the increased labor costs to industries on the total cost of final goods and services produced. Our analysis assumes that if the cost of labor increases in a particular industry, then the price of that industry's output will rise by the same amount. However, the total cost of goods can increase in two ways after a minimum wage increase. First, there is the direct effect on the cost of labor for industries hiring low-wage workers. Second, there is the indirect effect through intermediate goods. Although some portion of an industry's output is consumed by final users (e.g., households and government), the rest of the output is allocated to intermediate use, where the output of the original industry becomes an input for another. Thus, even if an industry employs no minimum wage workers, the prices for that industry's output may rise because the industry uses goods or contracts for services produced with minimum wage labor. This feedback through intermediate uses continues ad infinitum, so the price shock from the wage hike propagates throughout the economy. Appendix A describes in detail how we use input-output analysis to account for this feedback and infer ultimate price changes in goods and services attributable to an increase in the minimum wage.

We start by identifying the industries that employ low-wage workers. From the SIPP, we can identify all industries that employed workers at wages below the new minimum of \$5.15 (or, more precisely, at that value in 1993 dollars). Considering all low-wage workers in a given industry, we can infer the total increase in industry labor costs resulting from the wage hike. In addition to paying increased earnings, firms must also make additional employer contributions for Social Security on the higher earnings. We define the combined increase in earnings plus contributions as the total cost increase for the industry. For the federal increase in the minimum wage (our base case), these costs apply to all U.S. workers and all U.S. industries. For a state increase in the

minimum wage (our alternative scenario), these additional costs apply only to California workers and California industries.

The next step is to translate these cost increases into price increases on final goods purchased by Californians. Since we have a value for the cost increase in each industry, and we know each industry's contribution to each final good, we can infer the increased cost of the final consumption goods of each industry. The input-output tables give only extremely broad definitions of final goods (government, consumer goods, etc.), including exports. For the federal minimum wage, exports are literally exports—goods shipped outside the United States. For a state-only minimum wage increase, we do not distinguish by U.S. or non-U.S. consumption, but rather by California or non-California consumption. In each case, however, we have to match the broad industry codes to actual consumer products—a process we discuss in further detail below.

This elaborate process brings us parallel to the starting point on the benefits side. Once we have an estimate of the price increase for consumer goods, we use the CES to determine how much of each good California families buy. The outcome is an estimate of the increased expenditures required for a family to maintain its original level of consumption after a minimum wage increase raises prices. As with the benefit side, analyzing costs at the family level allows us to relate the expenditure increases to family characteristics. In particular, we assess the additional costs to families sorted by income quintile, by income relative to the poverty level, by welfare status, by headship and marriage status, and by the presence of children.

Price Increases from Increased Labor Costs

After payroll taxes, the 90¢ increase in the minimum wage costs U.S. employers of low-wage labor \$13 billion annually. We can understand the effect of the minimum wage by considering the effect on a subset of heavily affected industries.² The direct increase in labor costs by industry/commodity is listed in the first column of Table 5.1. Based on the cost translation from the input-output procedure, the second column shows the eventual increase in total costs to U.S. industries, including the

²Appendix Table B.2 lists the effects for all industries.

Table 5.1
Direct Labor Costs and Final Increased Costs Attributable to
Increasing the Minimum Wage to \$5.15, by Commodity
(1998\$, millions)

Industry Commodity (Ranked by Final Increase)	Direct Increase in After-Tax Labor Costs	Final Increase in Total Costs
Eating and drinking places	2,700	2,716
Grocery stores	826	798
Construction	270	741
General retail trade	719	709
Elementary and secondary education	496	502
All others	8,039	6,969
Total	13,049	12,435

cost of intermediate goods. In a number of cases, the eventual cost increase is lower than the direct increase in labor costs. In these cases, the final users of the outputs are outside the United States. In this way, we export some of the costs of the wage increase. In other cases—most notably, construction—the final costs are much higher than the direct labor costs, since the industry uses as inputs the output from other industries employing low-wage workers. In the case of construction, final costs are nearly triple the direct labor cost increase.

The magnitude of the final price rise, of course, depends on the size of the labor cost increase relative to the industry's overall costs of production. Although we have reported costs by industry, we are actually interested in the price increase on the consumer goods produced by those industries. Ninety-five percent of the additional labor costs are paid for domestically, accounting for over \$12 billion nationally. To calculate the price effects, we have to map industries and commodities from the input-output results into personal consumption items. For example, we map grocery stores, dairy product stores, retail bakeries, and food stores into the expenditure category "food inside the home." For broad groups of consumption goods, Table 5.2 reports the share of the total cost increase in the United States paid through these consumer

items. (A more detailed list is included as Appendix Table B.3.) Food outside the home accounts for the largest share of additional costs, as we would expect, since eating and drinking places were by far the most affected by the increased labor costs. However, as this table also shows, the higher prices occur in a very long list of goods purchased by families.

For each good, dividing the additional costs by the total expenditures on that good yields a percentage cost increase. We refer to these price increases as implicit incremental tax rates on household consumption goods. Essentially, the incremental tax rate tells us the rate by which consumer prices must increase to cover the total costs added by the minimum wage hike. Table 5.3 presents examples of the size of the incremental price increases for different goods. In general, these price increases are relatively small, usually less than 1 percent. Education and

Table 5.2
Increased Cost Shares Attributable to Increasing the Minimum
Wage to \$5.15, by Commodity
(in percent)

Commodity	Share of In- creased Costs
Food inside home	6
Food outside home	22
Household services (beauty shops, child day care, laundry services, etc.)	10
Clothing and furniture	5
Entertainment/recreation	3
Transportation (car purchases, rental, automotive services, etc.)	3
Health (nursing and personal care, health services, drugs, residential care facilities, etc.)	7
Education and social services (colleges, elementary/secondary schools, job training, social services, etc.)	8
General trade (retail trade, department stores, wholesale goods, etc.)	11
Other personal consumption items	14
Gross investment (construction, other)	6
Government purchases	5
Total	100

Table 5.3
Implicit Incremental Tax Rates Attributable to Increasing the
Minimum Wage to \$5.15, by Commodity

Commodity	Incremental Percentage Price Increase
Food inside home	0.21
Food outside home	1.81
Household services (beauty shops, child day care, laundry services, etc.)	0.09 to 1.95
Clothing	0.40
Furniture	0.11
Entertainment/recreation	0.77
Transportation (car purchases, rental, automotive services, etc.)	0.06 to 0.26
Health (nursing and personal care, health services, drugs, residential care facilities, etc.)	0.47
Education and social services (colleges, elementary/secondary schools, job training, social services, etc.)	2.16
General trade (retail trade, department stores, wholesale goods, etc.)	0.05
Other personal consumption items	0.0 to 0.84
Gross investment (construction, other)	0.03

social services, moving and storage, food outside the home, and miscellaneous personal services such as beauty and barber shops experience the largest incremental price increases, although always below 2.5 percent.³ It is worth noting that although these price increases appear small enough to justify the assumption that consumption levels do not change, most families facing these (slightly) higher prices do not receive additional earnings, so the higher prices will require either a reduction in consumption or a reduction in savings.

³These magnitudes are consistent with the findings of Lee and O’Roark (1999) in their analysis of the effect of the minimum wage on the prices of food and kindred products assuming a similar price pass-through. They find that a 50¢ increase in the present minimum wage would increase the price of food products by less than 1 percent and by about 1 percent for eating and drinking places.

Distribution of Costs Across Families

These implicit tax rates allow us to calculate the distribution of costs across families, just as we previously calculated the distribution of benefits across families. We used the consumption data from the CES and applied the implicit tax rates to actual purchases by California consumers. Nationally, consumers pay \$11.9 billion more for goods following the minimum wage increase. Californian families pay for \$1.4 billion or 12 percent of these additional consumer expenditures. As we did for the benefits side, we consider the different costs for families by income quintile, income relative to the poverty level, family structure, and welfare reciprocity.⁴

On average, each California family pays \$133 more per year for their purchases following the minimum wage increase. The exact amount a family pays depends on its level of consumer expenditures, which typically varies by income. For this reason, it is again helpful to distinguish the costs in higher prices for California families in the five income quintiles.⁵ Figure 5.1 shows the average annual cost for families in each of the income quintile. These costs range from \$78 annually for families in the mid-low category (slightly less than the \$84 paid by the poorest families) to \$234 for the richest families.

If we translate these costs into shares of the total costs, we get Figure 5.2. The richest 20 percent of families pay 34 percent of the costs for the minimum wage, whereas the poorest 40 percent carry 25 percent of the burden.⁶ We can also consider the distribution by income relative to poverty as in Figure 5.3. When we examined benefits, we saw that families living below the poverty threshold received the same share of

⁴In contrast to assessing families' benefits, we also sort families into "consumption quintiles," ranking families by their annual expenditure levels. Consumption quintiles give an indication of permanent income levels. These and other detailed results are reported in Appendix Tables B.4a and B.4b.

⁵This distribution is based on the CES, so it is close but not identical to the distribution on the benefits side, which is based on the SIPP.

⁶Our calculations show that the lowest income quintile pays slightly more than the next income quintile, but the total share of the costs for this quintile is lower (12 versus 13 percent). This discrepancy is an artifact of the SIPP quintile definitions not dividing CES families into exactly even groups. In fact, there are somewhat fewer than 20 percent of families in the lowest income quintile and somewhat more in the next quintile.

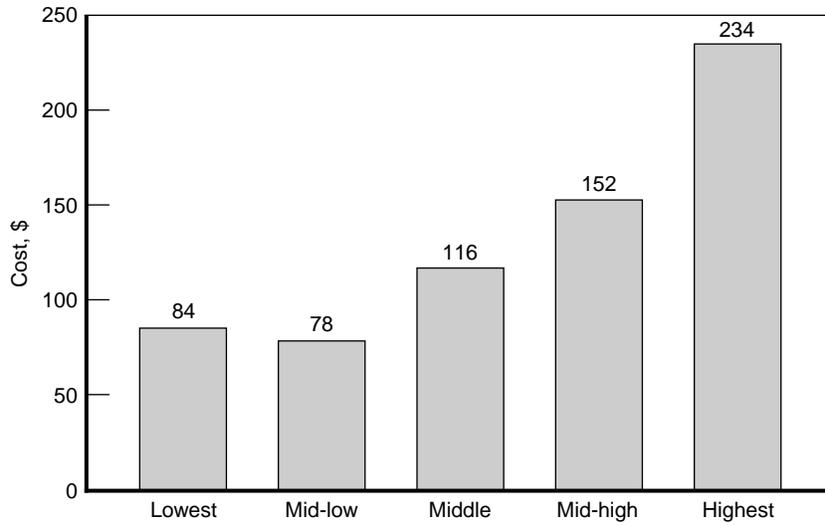


Figure 5.1—Annual Costs per Family for Higher-Priced Consumer Goods, by Income Quintile

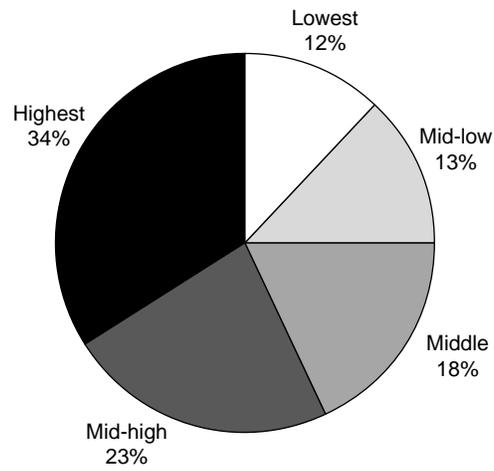


Figure 5.2—Share of Increased Consumer Costs, by Income Quintile

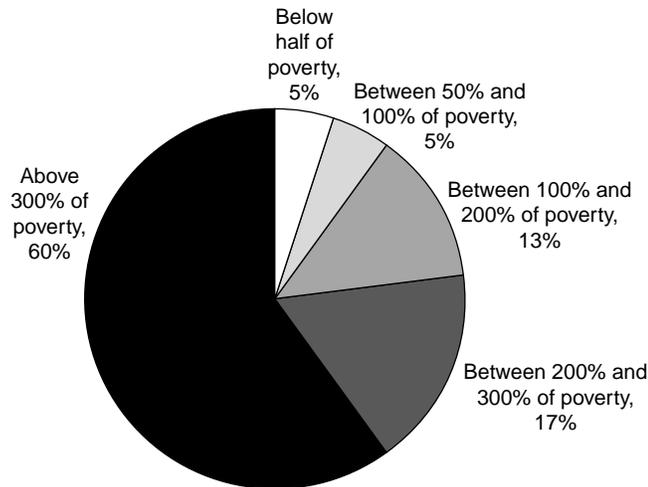


Figure 5.3—Share of Increased Consumer Costs, by Income Relative to Poverty

benefits as families with incomes at more than triple the poverty threshold. On the cost side, families living in poverty pay only 10 percent of the costs, compared to the 60 percent of costs paid by families with incomes over three times the poverty threshold. In this way, the costs appear to be better targeted than the benefits.

One reality of minimum wage policy is that families are unlikely to associate these minor price increases directly with the wage increase. Imagine, however, a sales tax that had the identical effect. That is, instead of increasing wages, the government imposed a sales tax on specific products (those using more low-wage labor) and the proceeds from the tax could be given to supplement the earnings of low-wage workers. Of course, no such tax is being considered, but it is useful to consider the price effects in this context.

Figure 5.4 shows the sales tax increase that would have to be imposed on each income quintile to collect the same amount as is imposed by the minimum wage increase.⁷ As this figure shows, this

⁷To be precise, the implied sales tax increase is calculated as the additional costs divided by the level of sales-taxable expenditures, recognizing that certain goods are excluded from the sales tax.

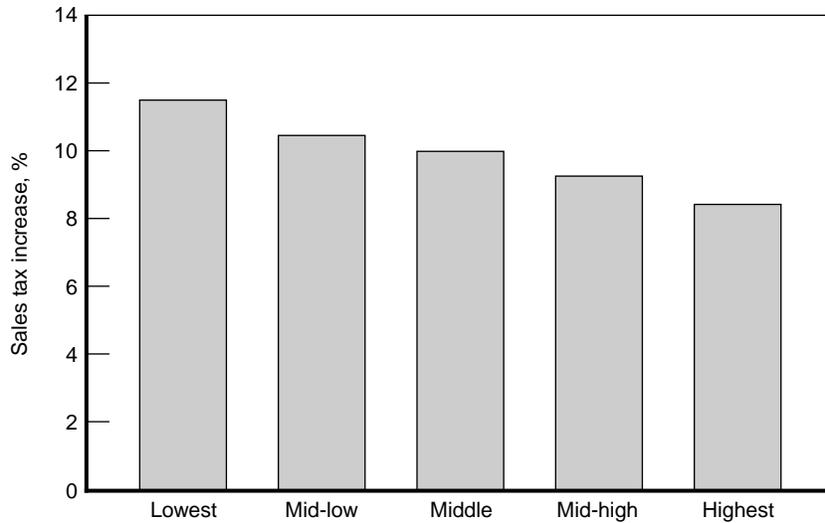


Figure 5.4—Equivalent Sales Tax Increase to Match a Minimum Wage Increase

would be a regressive sales tax increase. In other words, the minimum wage imposes a higher effective price increase on the set of goods low-income families buy than it imposes on the set of goods higher-income families buy. These increases range from 11.5 to 8.4 percent. Note that a 10 percent increase in California's 7.25¢ sales tax translates to nearly 3/4¢, or the difference between a 7.25¢ sales tax and an 8¢ sales tax.

Summary: Distribution of Costs

Overall, California consumers pay nearly \$1.4 billion annually to fund the federal minimum wage increase that went into effect in 1996. These costs are incurred through price increases of up to nearly 2 percent on a broad range of goods and services produced in California. For the average family, this translates to \$133 per year, although the amount varies by income level, ranging from \$84 for the poorest families to \$234 for the richest. For families, the additional costs annually amount to an 8 to 12 percent increase in the effective sales tax.

Looking across the income distribution, the implicit increase in the sales tax is highest for the lowest income quintile, for the lowest

consumption quintile, and for those with income below half of the poverty threshold. The increase is smallest for those families in the highest income quintile.

6. Net Effects of the Federal Minimum Wage Increase

In this chapter, we evaluate the net effects of the minimum wage increase from two perspectives. First, we consider the net effect for California families at different points in the income distribution and averaged across all families. We then turn to the aggregate costs and benefits for U.S. and California workers, consumers, and taxpayers.

Net Effects, by Income Quintile

In the introduction, we posed the question of the target effectiveness of the minimum wage. There, we considered the policy well targeted if the benefits accrue disproportionately to low-income families and the costs fall disproportionately on high-income families. The previous two chapters examined separately the benefits and the costs of the minimum wage for different categories of families in California, assuming that all costs are passed through as higher prices. In this chapter, we explore the net effects across different groups of families to examine how well the minimum wage increase meets this goal.

Although the data from the SIPP and the CES are not completely comparable, we can get a suggestion of the net distributional effects of the minimum wage increase by matching the quintile estimates for benefits and costs. Table 6.1 presents these net effects from the 1996 minimum wage increase from \$4.25 to \$5.15. In each case, it is important to distinguish families with low-wage workers from other families, since only some families benefit and all families pay through higher prices.

The central result from this net comparison is that much of the redistribution of income occurs within groups rather than across groups. For example, on net, the average family in the lowest income quintile received \$34 annually from the minimum wage increase. Thus, there is

Table 6.1
Net Effect of a Federal Minimum Wage Increase for Families,
by Income Quintile

Income Quintile	% of Families		Net Benefit/Cost for Families (1988\$)		
	With Low-Wage Workers	Without Low-Wage Workers	With Low-Wage Workers	Without Low-Wage Workers	All
	Lowest	24	76	415	-84
Mid-low	23	77	448	-78	43
Middle	22	78	419	-116	3
Mid-high	19	81	302	-152	-65
Highest	20	80	164	-234	-156
All families	22	78	356	-133	-28

some redistribution to the lowest quintile from other quintiles. Yet, within the lowest income quintile, only families with low-wage workers received a net benefit, making \$415 more than they paid out in higher prices. These families represent only one in four families in the lowest income quintile. The other 75 percent of families paid an average of \$84 in higher prices and received no additional earnings. In other words, the three out of four poor families with no low-wage workers helped subsidize the one in four poor families with low-wage workers.

As one moves up the income distribution, the costs begin to outweigh the benefits, so that the average family in the highest income quintile paid on net \$156. High-income families with low-wage workers still received more in additional earnings than they paid in higher prices. Averaging across all families, the net effect is negative, since 22 percent of benefits are lost to taxes.

Aggregate Costs and Benefits

In considering the benefits and costs, we have primarily concentrated on the effects for different types of families in California. However, it is helpful to keep in mind the magnitude of the minimum wage increase and its distribution between major key groups at the national and state level. These include workers, taxpayers, and consumers.

Nationwide, the increase from \$4.25 to \$5.15 resulted in higher annual expenditures of \$13 billion. This is equal to more than half the amount spent annually by the federal government for unemployment compensation. The additional expenditures just for minimum wage workers in California totals \$1.53 billion, or 12 percent of the national total.

The top panel of Table 6.2 summarizes the allocation of these total benefits across different economic agents within and outside California. From the national minimum wage increase, low-wage workers receive about \$12.1 billion annually in higher gross earnings but only \$9.4 billion dollars in higher after-tax income. Workers in California receive about 12 percent of these additional after-tax earnings, or \$1.11 billion. The rest goes to income and payroll taxes.

The cost side is reported in the lower panel of Table 6.2, where costs are split between consumers and taxpayers, in California, the rest of the United States, and outside the United States (through exports). California consumers pay \$1.40 billion or 11 percent of the costs nationally. Counting additional government expenditures, the costs for California rise to \$1.47 billion.

On net, the aggregate cost for California consumers exceeds the increase in after-tax earnings of Californians by \$296 million or 26 percent. This maps to the negative per family net benefit listed in the last row of Table 6.1. This is also roughly equivalent to the ratio of costs to benefits experienced by other U.S. consumers.¹

¹In contrast, government appears to gain more in additional taxes than it loses in higher prices. Although this is true in this partial equilibrium analysis, we know that for this system to be in general equilibrium, consumers will actually have to buy less of other goods to afford the higher prices on minimum wage goods. This suggests that income will fall in other sectors, reducing tax receipts accordingly.

Table 6.2
Allocation of Benefits and Costs from Increasing the Minimum Wage
to \$5.15
(1998\$, millions)

Group	Component of Costs/ Benefits	California	Other U.S.	Outside U.S.	Total
Benefits					
Minimum wage workers	Increase in gross earnings ^a	1,420	10,702	0	12,122
	Increase in after-tax earnings	1,107	8,318	0	9,425
Taxpayers ^b	State and federal income tax revenues	203	1,931	0	2,134
	Payroll tax revenues (employee contribution)	109	636	0	745
	Payroll tax revenues (employer contribution)	109	636	0	745
Total	Total increase in labor costs	1,528	11,521	0	13,049
Costs					
Consumers	Expenditures on goods and services produced by low-wage labor	1,403	10,425	614	12,442
Federal, state, and local tax-payers	Expenditures on goods and services produced by low-wage labor	72	535	0	607
Total	Expenditures on goods and services produced by low-wage labor	1,475	10,960	614	13,049

^aGross earnings are not included in the total benefits.

^bTax revenues are assigned to California or other U.S. based on the share of earnings, rather than reflecting revenues going directly to the state or federal government. Similarly, government expenditures are distributed between state and rest of U.S. in proportion to consumer expenditures.

7. Lower Costs of a State-Only Minimum Wage Increase

At the beginning of this report, we indicated that the same approach could be used to compare the effects of a state-only minimum wage increase to those of a federal increase. This comparison is particularly relevant in the current political environment, where a number of states have chosen to impose their own, higher minimum wages. California, which already has a higher minimum than the U.S. standard, is waiting to see if Washington will enact another wage increase. If not, it is likely that California will increase the minimum wage itself. Indeed, several polls have suggested that most Americans believe minimum wages should be set at the state level instead of the federal level (Employment Policies Institute, 2000).

In fact, given the assumptions used in this analysis, a state-only minimum wage does have different implications for Californians than a federal minimum wage. On the benefit side, the two are equivalent. Had California alone increased the minimum wage from \$4.25 to \$5.15, the same California families would have benefited the same amount.

If this increase had been enacted only in California, however, California consumers would have faced lower costs for two reasons. First, we do not have to pay additional costs on the minimum wage products that are produced out of state but consumed in California. Second, consumers outside California who consume our minimum wage goods pay part of the cost of the California wage increase.

Table 7.1 provides a comparison of the costs of this hypothetical state-only minimum wage increase from \$4.25 to \$5.15. The total cost of this increase, \$1,528 million, is equal to the increase in California labor costs we saw in Table 6.2. However, under the federal minimum wage, California consumers paid \$1,403 million in higher prices. These costs fall substantially, to \$976 million, if we assume that the wage

Table 7.1
Allocations of Costs from Increasing the Minimum Wage to \$5.15
(millions 1998\$)

Payers of Increased Costs	Federal Increase	State-Only Increase
Consumers of consumer and gross investment goods	11,828	1,481
California consumers	1,403	976
Other U.S. consumers	10,425	} 505
Non-U.S. consumers	(614)	
Federal, state, and local taxpayers	607	47
Total increase in expenditures on goods and services produced by low-wage labor	13,049	1,528

increase is state-only. This occurs because families outside California consume one-third of California's low-wage goods. With a national wage increase, we pay more for the goods produced outside California as well as for those produced inside California. With a state wage increase, we pay more only for the goods produced and consumed in California.

This same effect can be seen in the distribution of costs across families. Figure 7.1 compares the costs in our alternative scenario to those shown in Figure 5.1. (Additional detail is provided in Appendix Tables B.5a and B.5b.) Costs follow the same distributional pattern in both cases, but they are uniformly lower under the state-only minimum wage. For the average family, costs drop from \$133 annually to \$93 annually. Low-income families pay \$61 in higher prices instead of \$84, a 27 percent reduction in costs. High-income families experience the largest decrease in costs, from \$234 to \$164 or a 30 percent reduction.

Table 7.2 shows the net effects by income quintile. With the federal minimum wage increase, the imposition of taxes reduced benefits for families so that the cost of the wage increase exceeded the average benefit. The average California family paid \$28 more in higher prices than it received in additional earnings. Under the state-only minimum wage, Californians now come out ahead, with the average family receiving a net benefit of \$12. Of course, just as in the previous case, there is an important distinction between the one in four families that includes a low-wage worker and the three in four that do not. Families with low-

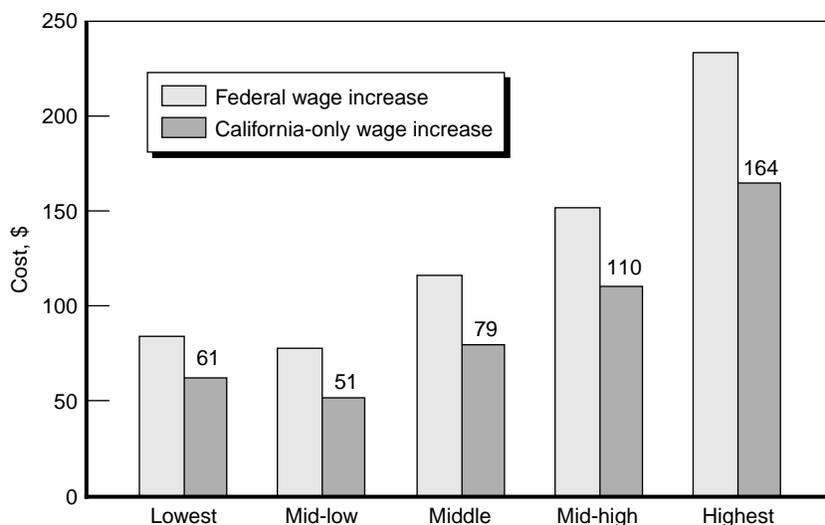


Figure 7.1—Costs to Families of a State-Only Versus a Federal Minimum Wage Increase, by Income Quintile

Table 7.2

Net Effect of a State-Only Minimum Wage Increase for Families, by Income Quintile

Income Quintile	% of Families		Net Benefit/Cost for Families (1998\$)		
	With Low-Wage Workers	Without Low-Wage Workers	With Low-Wage Workers	Without Low-Wage Workers	All
Lowest	24	76	438	-61	57
Mid-low	23	77	475	-51	70
Middle	22	78	456	-79	40
Mid-high	19	81	344	-110	-23
Highest	20	80	234	-164	-86
All families	22	78	394	-93	12

wage workers receive an extra \$356 annually over and above any higher prices they face. Families without low-wage workers pay an average of \$133 in higher prices, without receiving additional earnings.

8. Limitations of the Analytical Approach

There are three major limitations to this analytical approach. First, relaxing the assumptions on no employment effects and no profit losses will change the results, both in absolute and in distributional terms. Second, the simulations provide only a partial analysis in the economic sense. That is, the results do not represent a stable equilibrium. Third, the analysis does not tell us who actually benefited from and who actually paid for the 1996 increase in the federal minimum wage. We consider each of these limitations in turn.

The first limitation is the extreme assumptions on prices, employment, and profit. We have assumed that employers pay for the higher labor costs through higher prices alone. What happens if we relax that assumption? Allowing employment losses reduces the benefits of the minimum wage. The effect of this on the distribution of benefits depends on how employment reductions are implemented. Theoretically, all hours could be reduced evenly, so the benefits are reduced without any change in their distribution. In this case, families with low-wage workers have smaller wage increases and families without face smaller price increases.

On the other hand, it is unlikely that the employment reductions would be spread evenly. Within the low-wage group, higher-skill workers are more likely to remain employed (or be drawn into the labor force) whereas lower-skill workers may have a lower probability of employment. This feature arises, for example, in the search model developed by Lang and Kahn (1998). In testing this model, they find evidence that minimum wage laws shift employment away from adults in favor of teenagers and students. Assuming that adult low-wage workers are more likely than average to reside in lower-income families and teenage low-wage workers are more likely to come from higher-income

families, employment losses might disproportionately affect low-income families.¹

On the other hand, if we allowed profit losses in our simulation, the outcomes would change in two ways. The benefit side would be unchanged, but there would be smaller price increases. We would need to add an accounting of the distribution of profits from firms with low-wage workers, developing a pre-tax and post-tax loss calculation parallel to the benefits calculations. Unfortunately, the information necessary to develop such a calculation is not available. We would predict, however, that this change would shift net benefits toward lower-income families, given that wealth is more concentrated than income, although small business owners (who are more likely to employ low-wage workers) may fall anywhere in the income distribution.

The second limitation of this analysis is that the results are not in equilibrium. We assumed that consumers bought the same amount of low-wage goods despite higher prices. Unless the families of low-wage workers buy all the low-wage goods, some families will face higher prices without having higher earnings. To buy the same amount of low-wage goods, these families would have to reduce their spending on other goods (or reduce savings). This lower spending reduces the returns to non-low-wage work, reducing the wages for non-low-wage workers. Thus, the assumptions hold in equilibrium only if an increase in the minimum wage lowers the income of higher-wage workers.²

This counterintuitive implication is important for understanding the role of taxes in the model. As earnings increase, tax revenues rise more than government costs, so the government appears to benefit from the higher wage. Thus, it appears that the government can use this additional revenue to improve the target effectiveness of the policy.

¹Similarly, industries will differ in their ability to absorb the extra labor costs and in their ability to substitute away from low-wage labor. This could affect the distribution of both benefits and price increases. Unfortunately, we have little information on how these factors may differ across industries.

²See O'Brien-Strain (1999) for a simple demonstration of this finding. MaCurdy and O'Brien-Strain (forthcoming) develop a more sophisticated version of this model. The same problems in "closing the model" would apply under the alternative assumptions on profits and employment losses described above.

However, in equilibrium, tax revenues from non-low-wage work are reduced, so the government does not actually receive a net benefit. In fact, if taxes are progressive with wages, government revenues could fall on net.

The challenge of creating a model with a stable equilibrium is not an issue in empirical analyses of the actual effects of the minimum wage increase. Several studies have begun to identify the effects of the 1996 minimum wage increase. For example, Neumark, Schweitzer, and Wascher (1999a) found that the increase raised the income of some poor families, but also increased the share of families that are poor or near-poor. However, the debate over employment effects demonstrates the difficulty of detecting small changes following a minimum wage increase. The price effects, even assuming complete pass-through of labor costs to prices, are smaller than the employment losses typically found. Therefore, it is unlikely that we will be able to detect these price changes with any degree of statistical certainty. On the other hand, we believe that the price effects should be included in the policy debate, because they affect all families, even those who believe that minimum wage policy has no effect on them. We believe that the simulations are a useful way to assess these effects, both for recent and future minimum wage changes.

9. Conclusions

This analysis simulated the effects of a minimum wage increase assuming that the labor costs were passed on entirely to consumers, with no employment reductions (as predicted by economic theory) and no profit losses (as assumed by many minimum wage advocates). Although these assumptions do not fit normal economic models, they fit surprisingly well with widely cited empirical results by Card and Krueger. This analysis adds to the minimum wage debate by demonstrating that a minimum wage increase can have important economic costs even in the absence of employment losses and that these costs may partially undermine the policy goals of the increase.

Our results on the distribution of benefits show that relatively little of the additional earnings generated by the federal minimum wage increase to \$5.15 an hour go to families in poverty. Although advocates of minimum wage increases compare the wage levels to the poverty threshold for a family of three or more, less than \$1 in \$4 of additional earnings goes to families that rely on low-wage labor as their primary source of income. Moreover, as a pre-tax increase, many of the additional earnings are taxed away as Social Security contributions or state and federal income taxes.

The simulation of the price effects of a minimum wage increase clearly demonstrates that ignoring employment effects does not prevent adverse outcomes, especially from a distributional standpoint. The minimum wage increase raises the cost of a family's annual expenditures by the same amount as an 8 to 12 percent increase in the sales tax. More important, the costs as a share of taxable annual expenditures are highest for families in the lowest income quintile. Unlike typical sales taxes, this increase falls disproportionately on necessities, such as food, clothing, and health care.

On net, the minimum wage has slight distributional effects across income levels. That is, low-income families are slightly better off on

average, and higher-income families pay more in higher prices than they benefit from higher earnings. However, the transfer is much more within-group. Only one in four low-income families could benefit from the last minimum wage increase, but all low-income families face higher prices. Meanwhile, an equal number of higher-income families also benefit.

Finally, there is evidence that California families are much better off with a California-only minimum wage increase than they are with a federal increase, because a state wage increase allows California to export many of its additional costs while retaining the same benefits. There is an important caveat, however. These results, as with the others, rely on the assumption of no employment effects. This assumption requires not only that employers raise prices instead of firing workers but also that consumers remain willing to buy the same quantities of minimum wage goods at higher prices. This assumption is notably less plausible when applied to a state wage increase, since consumers in other states could buy goods from non-California producers for a lower price.

The academic debate on the presence or absence of employment losses from the minimum wage has given advocates a basis for dismissing the potential costs of a minimum wage increase. Politically, the apparent clarity of who benefits and the ambiguity of who pays certainly aid arguments in support of the minimum wage. For this reason, we believe it is important to understand the routes through which average California consumers pay for a minimum wage increase that is, in turn, only poorly targeted to the families it purports to help.

There is a clear alternative to the minimum wage: the Earned Income Tax Credit. The EITC, however, faces a set of policy challenges exactly opposite those facing the minimum wage. On the positive side, eligibility for the EITC is based on annual family income, with adjustments for family size. It is therefore well targeted to low-income families. The EITC is also paid for through general tax revenues, so the payment mechanism is as progressive as our overall income tax policy. On the negative side, the EITC is a transparent income transfer with costs clearly paid through tax revenues. Finally, the EITC lacks some of the side effects—such as providing a higher wage to set relative or prevailing wages for higher-wage workers—that encourage political

support for the minimum wage well beyond its role as an income support. Ultimately, the choice between the minimum wage and alternatives such as the EITC may come down to political feasibility rather than effective policy.

Appendix A

Applying Input-Output Analysis to Infer Price Increases Attributable to a Minimum Wage Increase

This appendix outlines the procedure implemented in our study to calculate the effect of the increased labor costs to California industries on the total cost of final goods and services produced in California. An increase in the minimum wage not only induces a direct effect on the prices of goods produced by industries hiring low-wage workers, it also raises the price of other products that use intermediate goods made with low-wage labor. This feedback through intermediate uses continues ad infinitum, so the price shock from the wage hike propagates throughout the economy.

Input-Output Analysis

Input-output tables summarize two sources of this feedback. First, the “make” table lists the allocation of a particular industry’s output across different commodities it produces. Second, the “use” table shows the proportion of a given industry’s total output that is allocated to various intermediate and final users. The use table consists of two components: a square matrix characterizing how much of each commodity’s output is used as intermediate goods in other industries, and a rectangular matrix describing how much of a commodity’s output ends up as final consumption. Five categories of “final uses” exist in an input-output characterization of an economy:

1. Households (which account for personal consumption),
2. Gross investment,
3. Federal, state, and local governments,

4. Inventories, and
5. Exports and imports.

Manipulation of the input-output tables allows us to translate the initial increase in the cost of labor in each member of a set of industries into long-run increases in the costs to final users of each commodity produced by these industries.

To describe this procedure, designate x_0 as a vector whose elements are the increases in labor costs for each industry resulting from the minimum wage hike. Let M be the square make matrix, where the i, j^{th} element of this matrix, m_{ij} , represents the share of commodity j produced by industry I . Denote the square matrix U as that portion of the use matrix showing the allocation of commodities to their respective intermediate uses; its i, j^{th} element u_{ij} shows the proportion of commodity i 's output used by industry j . Finally, let the matrix F_k be a diagonal matrix where its f_{ii} element expresses the fraction of commodity i 's total production ending up as a final use in one of the five categories listed above. The subscript k on the diagonal matrix F designates the final use under consideration; the matrix $F_A = \sum_{k=1...5} F_k$ totals all sources of final uses.

In this simple characterization of an economy, the vector $y_0 = M'x_0$ specifies the initial increase in labor costs paid to produce each commodity. Some of the increased costs are passed directly to the final consumers of the commodity, and the rest of the costs are left in the system to feed back through the production of other commodities. The carryover costs in the first round equal $y_1 = F_A [I + M'U']y_0$. After T iterations, $y_T = F_A [I + M'U' + M'U'M'U' + \dots + (M'U')^T]y_0$. Since M and U are expressed as fractions, the largest eigenvalue of $M'U'$ is typically less than one. Therefore, as T approaches infinity, the long-run vector of price increases passed on to final consumers is $y_{LR} = F_A (I - M'U')^{-1}M'x_0$. Note that the vector of price increases to any final user can be calculated by replacing F_A with a diagonal matrix representing the proportion of commodity I allocated to that final use (i.e., F_k).

Also note that within this impact analysis is the assumption that all intermediate and final users possess perfectly inelastic demand for all

commodities. Neither households nor firms substitute away from products or inputs that become relatively more expensive. Since output remains constant, y_{LR} is simply a redistribution of the increase in earnings embodied in x_0 . If y_{LR} is the overall final use categories of the long-run increase in commodity prices, then $i'y_{LR} = i'x_0$ (MaCurdy and O'Brien-Strain, forthcoming, contains greater technical detail).

Data Source for Input-Output Tables

Our impact analysis uses input-output tables provided by Minnesota IMPLAN Group, Inc., for the state of California for 1993. The IMPLAN tables list 518 industry/commodity sectors and ten final use sectors, and the vector of cost increases by industry, x_0 , was computed using 1990 Census Industry Classification Codes. For the sake of conformability, the IMPLAN and Census coding schemes were aggregated to a unique classification of 152 commodities/industries.

Among IMPLAN's ten final use sectors, five pertain to government consumption; the sum of these five vectors becomes an aggregated government consumption vector. Similarly, IMPLAN divides household consumption into three categories, which we subsequently aggregate to form one household consumption category. IMPLAN also lists a final use corresponding to net exports. Because only goods that are both produced and consumed in California interest us, we leave exports as a separate final use category; IMPLAN does not follow the Department of Commerce convention of listing imports as a final use. Finally, to be consistent with a long-run equilibrium, nonzero changes in inventories must be eliminated from the final uses. We simply allocated inventories proportionately across the aggregated final use categories: household consumption, government consumption, and gross investment.

Appendix B

Detailed Tables

This appendix presents more detailed information on the findings presented in Chapters 4 through 7. Specifically, Tables B.1a to B.1c report the findings on the distribution of benefits to California families. Tables B.2, B.3, and B.4 provide additional data on the costs of the federal minimum wage increase, including the added labor costs, the incremental price increases, and the distribution of costs across families. Finally, Table B.5 presents the distribution of the costs of an equivalent state-only minimum wage increase.

Table B.1a

Share of Increased Earnings Received by Families When the Minimum Wage Increased to \$5.15, by Income Quintile
(in percent)

Family Characteristics	% of Families	% of Families with Low-Wage Workers	% of Increased Gross Earnings	After-Tax Share of Increased Earnings	
				No EITC	With EITC
Income Quintile					
Lowest	20	24	20	17	18
Mid-low	20	23	23	18	18
Middle	20	22	23	18	18
Mid-high	20	19	18	13	13
Highest	20	20	16	12	12
Family Income Relative to Poverty Level					
≤ 0.5	3	21	2	2	3
0.5–1	10	30	15	13	14
1–2	23	30	36	29	28
2–3	18	24	20	15	15
> 3	45	14	26	18	18
Government share				22	21

Table B.1b
Share of Benefits Received by Various Families When the Minimum Wage
Increased to \$5.15, by Family Composition
(in percent)

Family Characteristics	% of Families	% of Families with Low-Wage Workers	% of Increased Gross Earnings	After-Tax Share of Increase Earnings	
				No EITC	With EITC
Married	45	25	52	39	39
With children under age 18	23	30	34	26	26
All families with children	34	30	49	39	39
Single parent families	11	30	15	13	13
Female-headed	9	28	13	11	11
Low-income families	20	24	20	17	18
With children	5	25	6	5	6
Single parent	4	20	3	3	3
Lowest two quintiles	40	23	43	35	36
With children	11	32	16	14	15
Single parent	7	25	8	7	7
Below poverty level	14	28	17	15	17
With children	7	30	11	10	11
Single parent	4	23	5	4	5
Below twice poverty level	37	29	54	45	45
With children	15	38	31	26	26
Single parent	7	30	11	10	10

Table B.1c
Share of Increased Earnings Received by Various Families When the
Minimum Wage Increased to \$5.15
(in percent)

Family Characteristics	% of Families	% of Families with Low-Wage Worker	% of Increased Gross Earnings	After-Tax Share of Increased Earnings	
				No EITC	With EITC
Depend on low-wage earnings for 50% or more of family earnings	4.6	100	34	28	29
With children under age 18	1.9	100	14	12	13
Single parent	1.1	100	7	6	7
Depend on low-wage earnings for 50% or more of family income	2.4	100	23	19	18
With children under age 18	0.7	100	9	7	7
Single parent	0.4	100	4	3	3
Welfare families					
Welfare recipient with children	8.9	0.336	15	13	14
On AFDC/TANF or SSI	6.2	0.283	8	7	8
Single parent	5.7	0.267	6	6	7

Table B.2
Direct Labor Costs and Final Increased Costs Attributable to Increasing
the Minimum Wage to \$5.15, by Commodity
(1998\$, millions)

Industry/Commodity (Ranked by Final Increase)	Direct Increase in After-Tax Labor Costs	Final Increase in Total Cost
Eating and drinking places	2,699.73	2,715.89
Grocery stores	825.91	797.67
Construction	270.09	741.39
Other retail trade	718.53	709.12
Elementary and secondary education	496.17	502.20
Households, miscellaneous personal services	474.85	474.83
Department stores	425.03	423.15
Apparel and accessories	356.66	348.08
Hospitals	200.54	290.14
Nursing and personal care	265.91	273.66
Miscellaneous entertainment and recreation	270.34	245.24
Colleges and universities	238.65	243.22
Religious organizations	233.06	235.86
Child day care services	197.91	198.45
Real estate	35.88	198.04
Apparel and accessory stores	179.23	184.39
Meat products	23.54	181.40
Wholesale goods	293.36	175.92
Motor vehicle dealers	158.73	172.92
Hotels and motels	328.34	166.42
Utilities	42.89	165.33
Beauty and barber shops	151.25	153.64
Social services	126.10	151.41
Banking and savings	83.47	139.98
Health services	141.50	136.64
Automotive repair	90.58	121.29
Motor vehicles and equipment	62.95	112.46
Insurance	65.87	99.55
Job training and vocational services	138.36	91.76
All others	1,781.02	830.71
Total	13,049.41	12,435.26

Table B.3
Cost Shares and Implicit Tax Rates Attributable to Increasing the Minimum
Wage to \$5.15, United States, by Commodity
(in percent)

Commodity	Share of Increased Costs	Implicit Incremental Tax Rate
Food		
Inside home	6.43	0.21
Outside home	21.91	1.81
Household services		
Households, miscellaneous personal services including beauty and barber shops	5.07	1.54
Child day care services	1.60	0.85
Laundry, cleaning, and garment cleaning services	0.62	0.58
Appliance repair	0.03	0.10
Utilities: electricity, water, and phone	1.61	0.11
Moving and storage including trucking and warehousing	0.48	1.95
Business services including computer, office items	0.09	0.09
Legal services	0.24	0.28
Landscape services	0.14	0.13
Housing goods		
Clothing including apparel and accessories, apparel and accessory stores, miscellaneous fabric textile products	4.54	0.40
Furniture	0.32	0.11
Housing		
Rental	1.60	0.10
Lodging: hotels and motels	1.34	0.82
Entertainment/recreation including miscellaneous entertainment and recreation, movies, videotape rental, membership in organizations, bowling centers	3.18	0.77
Transportation		
Car purchases	1.39	0.06
Auto services including automotive repair, parking, car washes, auto rental/leasing	1.40	0.26
Air transportation	0.22	0.11
Health including nursing and personal care, hospitals, health services, physician offices, drugs, residential care facilities, insurance	7.21	0.47
Financial services including insurance, banking and savings, securities and investments	2.09	0.24
Education and social services including colleges and universities, elementary/secondary schools, job training, and social services (not allocated to government)	7.97	2.16
Overall consumption		
General trade including retail trade, department stores, wholesale goods	10.55	0.05
All other personal consumption items	8.61	0.04
Gross investment including construction and other	6.45	0.03

Table B.4a**Cost and Percentage Shares Attributable to Increasing the Minimum Wage to \$5.15, by Family Characteristics**

Family Characteristics	% of Families	% of Total Costs	Family Average Annual Cost (1998\$)	Equivalent % Sales Tax Increase
By Income Quintile				
Lowest	19	12	84	11.5
Mid-low	21	13	78	10.5
Middle	21	18	116	10.0
Mid-high	20	23	152	9.3
Highest	19	33	234	8.4
By Consumption Quintile				
Lowest	18	6	45	13.4
Mid-low	21	12	72	10.7
Middle	21	17	106	9.3
Mid-high	20	22	143	8.4
Highest	19	43	294	9.2
Family Income Relative to Poverty Level				
≤ 0.5	5	5	134	16.1
0.5-1	10	5	67	10.6
1-2	21	13	81	10.3
2-3	21	17	107	10.3
> 3	44	60	181	8.9

Table B.4b
Cost and Percentage Shares Attributable to Increasing the Minimum Wage to \$5.15, by Income and Demographic Characteristics

Family Characteristics	% of Families	% of Total Costs	Family Average Annual Cost (1998\$)	Equivalent % Sales Tax Increase
Married	54	65	157	9.1
With children under 18	27	31	151	9.4
All families with children	34	36	141	9.4
Single parent families	7	5	101	9.7
Female-headed	6	4	85	9.4
Low-income families				
Lowest income quintile	19	12	84	11.5
With children	5	4	93	10.8
Single parent	2	1	52	8.5
Lowest two quintiles	40	25	81	11.0
With children	12	7	79	11.0
Single parent	4	2	62	9.6
Below poverty level	18	10	76	10.6
With children	8	4	62	9.6
Single parent	3	1	58	10.2
Below twice poverty level	36	22	79	10.6
With children	15	8	73	10.2
Single parent	5	2	65	9.4
Welfare families				
Recipient with children	9	5	79	10.0
On AFDC or SSI	6	2	57	12.1
Single parent	3	1	54	11.7

Table B.5a
Cost and Percentage Shares Attributable to Increasing the Minimum Wage to \$5.15, by Income Level

Family Characteristics	% of Families	% of Total Costs	Family Average Annual Cost	Equivalent % Sales Tax Increase
By Income Quintile				
Lowest	19	13	61	8.3
Mid-low	21	12	51	6.9
Middle	21	17	79	6.8
Mid-high	20	24	110	6.7
Highest	19	34	164	5.9
By Consumption Quintile				
Lowest	18	6	30	8.9
Mid-low	21	11	50	7.4
Middle	21	17	75	6.6
Mid-high	20	22	103	6.0
Highest	19	43	206	6.5
Family Income Relative to Poverty Level				
≤ 0.5	5	5	73	8.7
0.5–1	10	5	45	7.1
1–2	21	11	55	7.0
2–3	21	15	78	7.5
> 3	44	63	126	6.2

Table B.5b
Costs and Percentage Shares Attributable to Increasing the
Minimum Wage to \$5.15, by Income and
Demographic Characteristics

Family Characteristics	% of Families	% of Total Costs	Family Average Annual Cost (1998\$)	Equivalent % Sales Tax Increase
Married	54	66	108	6.3
With children under age 18	27	33	103	6.4
All families with children	34	38	96	6.4
Single parent families	7	5	70	6.7
Female-headed	6	4	60	6.6
Low-income families				
Lowest income quintile	19	13	61	8.3
With children	5	4	71	8.3
Single parent	2	1	36	5.9
Lowest two quintiles	40	25	56	7.6
With children	12	8	55	7.6
Single parent	4	2	42	6.5
Below poverty level	18	10	56	7.8
With children	8	4	47	7.3
Single parent	3	1	38	6.6
Below twice poverty level	36	22	55	7.4
With children	15	8	50	7.0
Single parent	5	2	44	6.4
Welfare families				
With children	9	5	52	6.6
On AFDC or SSI	6	2	36	7.7
Single parent	3	1	34	7.4

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