

FOIA MARKER

**This is not a textual record. This is used as an
administrative marker by the William J. Clinton
Presidential Library Staff.**

Collection/Record Group: Clinton Presidential Records
Subgroup/Office of Origin: National Economic Council
Series/Staff Member: Carl Haacke
Subseries:

OA/ID Number: 15356
FolderID:

Folder Title:
Minimum Wage EPI [Economic Policy Institute]

Stack:	Row:	Section:	Shelf:	Position:
S	15	2	11	2

Urban Institute

Mark Turner 857-8520

Fax 857-8570

Demetra Neftcioglu

857-8570

Min Wage

Economic Policy Institute

1660 I. STREET, NW • SUITE 1200 • WASHINGTON, DC 20036 • 202/775-8810 • FAX 202/775-0819

Memo to Gary Reed and Barbara Bingham

From Jared Bernstein

Date: August 15, 1997

Re: Final tables on who benefits from the minimum wage

Here is the set of final tables on the beneficiaries of the increase. As stated in the work order, we split the analysis into three basic areas:

- 1) Characteristics of workers affected by the "full sweep." \$4.25-\$5.14. The time frame for these tables is Oct 95-Sep 96. **Tables 1 and 2** show the shares and numbers of these workers by state (at Barbara's request we include table 1, alphabetized); **Table 3** shows their national characteristics.
- 2) Characteristics of workers affected by the second step of the increase: \$4.75-\$5.14. The time frame for these tables is Oct 96-July 97.¹ **Tables 1 and 2** (columns 3 and 4) show the shares and numbers of these workers by state; **Table 4** shows their national characteristics.
- 3) Numbers of affected families (full sweep) by demographic type from March, 1996 (see next page).

Feel free to call to discuss these results.

¹ Note that we have incorporated the July data, thanks to the efficiency of BLS (not to mention that of our programmers!). As expected, the results changed little with the inclusion of the extra month.

- Of the 6.9 million families with a worker in the sweep, 3.2 million (46%) depend on the earnings of a minimum wage worker.² If we exclude one person families from this calculation, there are 5.6 million families in the sweep, with 1.9 million (33%) dependent on a minimum wage worker.³
- Of the 3.2 million families that depend on a minimum-wage worker, 1.2 million (36%) have children.
- There are 2.9 million single-earner families in the sweep. One million of these families (35%) have children.

Minimum Wages Families and Poverty:

- Of the 6.9 million families with a worker in the sweep, 1.3 million are poor (1.8 million are near-poor⁴). If we exclude one-person families from this tabulation, then there are 5.6 million of whom 0.8 million are poor; 1.1 million are near poor.
- Of the 3.2 million families that depend on a minimum wage worker, 1.1 million are poor; 1.4 million are near poor.
- More than half of the poor families in the sweep have children (0.7 million/1.3 million, or 55%).

A note on data sources: We used the CPS Outgoing Rotation Group data for Tables 1-4. These data provide up-to-date labor market data (through July 1997) and large enough sample sizes for state-level analysis. They do not, however, provide extensive information on family units, including poverty status. For this information, we turned to the March 1996 CPS, which provides both labor market and income data for workers and their families in that month.

I'd like to acknowledge the excellent research assistance on David Webster and Danielle Gao on this project.

² These are families wherein the minimum wage worker contributes at least half of the family's weekly earnings.

³ We expect the number and share of dependent families to fall when we exclude singles, since any one-person family in the sweep is de facto dependent on the minimum wage.

⁴ The income of near poor is within 1.25 times the poverty line.

NOT FOR RELEASE UNTIL

JUL 11 1997

EMBARGOED

THE SKY HASN'T FALLEN

An Evaluation of the Minimum-Wage Increase

By Jared Bernstein and John Schmitt

In the summer of 1996, Congress voted to increase the federal minimum wage from \$4.25 to \$5.15 per hour. On August 20, 1996, President Clinton signed the legislation, which implemented the increase in two stages: a \$0.50 per hour increase on October 1, 1996, followed by a \$0.40 increase on September 1, 1997. Supporters argued that the bill would raise the earnings of millions of low-wage workers and primarily benefit the poorest working families. Opponents claimed that the increase would lead to widespread job loss among the very workers the legislation was intended to help.

The first stage of the increase has been in effect for over six months, and it is now possible to investigate these claims. This paper examines data from the U.S. government's monthly Current Population Survey for the six months from October 1996 through March 1997 (and for the same period a year earlier) to assess the impact of the minimum-wage increase on the distribution of wages, the distribution of family income, and the employment opportunities of low-wage workers. While the analysis deals only with the first six months at the new wage level, these early results suggest clearly that:

- the higher minimum wage has substantially boosted the earnings of low-wage workers;
- the benefits of the minimum-wage increase went primarily to low-income working families; and
- employment opportunities for teenagers and young adults — groups that opponents of the minimum wage singled out as particularly vulnerable — were not adversely affected by the increase.

The following sections look at these three findings in detail.

Did the Minimum-Wage Increase Boost Wages?

The economic impact of the \$0.50 increase depends on the share of the workforce earning between \$4.25 and \$4.74 an hour. If few workers were affected by the increase, the impact should be negligible. But if many workers were affected, the impact on wages, incomes, and perhaps employment should be significant.

Economists traditionally use the economic impact of minimum-wage increases on teens and young adults as an indication of the probable impact on low-wage workers of all ages.¹ This study follows that procedure by focusing on the employment and earnings of teenagers age 16-19 and young adults age 20-24. Since these workers are just beginning their working lives, a large share of them earn low wages. This is not to say, however, that most minimum-wage workers are teenagers. While a disproportionate share of teenagers earn the minimum wage, most minimum-wage workers are adults. Prior to the increase in October, for example, 66% of workers earning between \$4.25 and \$4.75 were age 20 or older.

The \$0.50 increase in the minimum wage on October 1, 1996 had a substantial positive effect on the wages of teenagers and young adults. **Table 1A** displays the wage distribution for teenage and young adult workers in the six months immediately before the increase; **Table 1B** reports the same information for the six months immediately following the increase (see the data appendix for a full description of the wage information). The data in Table 1A show that, just prior to the increase, 9.8% of teenagers earned exactly \$4.25 (the old value of the minimum wage) and another 10.2% earned between \$4.26 and \$4.74. The data in Table 1B show that, after the increase, the share of teenage workers earning exactly \$4.25 fell to 2.7%, and the share earning between \$4.26 and \$4.74 declined to 5.5%. Over the same two periods, the share of teenage workers earning exactly \$4.75 (the new minimum wage) increased from 2.9% to 11.5%. The data for young adults show similar, but smaller, changes. The share of young adults in the wage range (\$4.25-\$4.74) affected by the October 1 increase fell from 6.7% to 3.0%, while the share at the new minimum wage of \$4.75 rose from 1.1% to 3.2%.²

The minimum wage had the biggest impact on the wages of black and Hispanic teenagers.³ Before the October 1 increase, 31.2% of black teens and 24.8% of Hispanic teens earned between \$4.25 and \$4.74. After the increase, the share of workers in this range fell to 14.3% for black teens and 5.2% for Hispanic teens. In the six months before the minimum-wage hike, only 3.9% of black teens earned \$4.75, but over the six months after the increase, the share climbed to 11.9%. For Hispanic teens, the share earning \$4.75 was 2.5% before October 1; it jumped to 14.8% after the increase.⁴

Some economists have argued that increases in the minimum wage will affect the wages of workers above the new \$4.75 level because employers will raise wages of these better-paid workers in order to maintain relative pay differences within the firm (see, for example, Spriggs and Klein 1994). The wage data show some signs of these “spillover” effects, especially for black male and Hispanic female teenagers. **Table 1C** reflects signs of such spillovers.⁵ For example, the share of black male teenagers earning exactly \$4.75 grew 9.1 percentage points after the increase. At the same time, the share earning between \$4.76 and \$5.14 per hour — a range above the level required by law — increased 12.7 percentage points; even the share of those earning \$5.15 or more rose 7.3 percentage points. Similarly, for Hispanic female teens, the share of workers earning \$5.15 or more jumped 9.6 percentage points after the October 1 increase.

TABLE 1A
Distribution of Wages by Demographic Characteristics,
April–September 1996

Type of Employees	Percent of Employees Earning						Number in Sample
	\$0.50 – \$4.24	\$4.25	\$4.26 – \$4.74	\$4.75	\$4.76 – \$5.14	\$5.15 +	
All	2.1	1.5	2.1	0.5	4.7	89.1	75,732
Teenagers (16-19)	7.2	9.8	10.2	2.9	20.5	49.4	4,482
Male	6.2	9.1	10.3	2.5	19.9	52.0	2,270
Female	8.3	10.5	10.2	3.3	21.1	46.6	2,212
White	7.1	9.1	9.6	2.8	20.3	51.1	3,608
Male	6.2	8.0	9.6	2.6	19.4	54.2	1,817
Female	8.1	10.2	9.7	3.0	21.2	47.9	1,791
Black	8.9	14.2	17.0	3.9	20.1	35.9	359
Male	7.1	18.3	21.3	1.8	17.2	34.3	169
Female	10.5	10.5	13.2	5.8	22.6	37.4	190
Hispanic	5.5	12.8	12.0	2.5	23.5	43.7	366
Male	5.0	10.9	9.5	1.8	25.0	47.7	220
Female	6.2	15.8	15.8	3.4	21.2	37.7	146
Young Adults (20-24)	3.1	3.0	3.7	1.1	9.1	80.1	7,368
Male	2.4	2.7	3.2	0.7	8.3	82.5	3,705
Female	3.7	3.2	4.1	1.4	9.9	77.7	3,663
White	2.8	2.3	3.2	1.0	8.3	82.4	5,470
Male	1.8	1.9	2.7	0.7	7.5	85.5	2,732
Female	3.8	2.8	3.7	1.4	9.1	79.4	2,738
Black	3.4	5.2	6.4	2.3	13.5	69.2	653
Male	3.8	6.9	4.8	2.8	13.5	68.2	289
Female	3.0	3.8	7.7	1.9	13.5	70.1	364
Hispanic	4.6	6.1	4.4	0.7	12.1	72.1	856
Male	4.8	5.4	5.2	0.2	10.9	73.4	497
Female	4.2	7.0	3.3	1.4	13.9	70.2	359

Source: EPI analysis of CPS ORG.

TABLE 1B
Distribution of Wages by Demographic Characteristics,
October 1996 to March 1997

Type of Employees	Percent of Employees Earning						Number in Sample
	\$0.50 – \$4.24	\$4.25	\$4.26 – \$4.74	\$4.75	\$4.76 – \$5.14	\$5.15 +	
All	1.9	0.4	1.1	1.6	4.4	90.6	76,745
Teenagers (16-19)	5.2	2.7	5.5	11.5	23.6	51.5	4,094
Male	4.2	2.4	5.1	11.1	23.7	53.4	2,034
Female	6.1	3.0	6.0	11.8	23.5	49.7	2,060
White	5.0	2.4	5.7	11.1	23.6	52.2	3,267
Male	4.2	2.0	5.5	10.6	23.6	54.2	1,637
Female	5.8	2.9	5.9	11.7	23.6	50.1	1,630
Black	6.8	5.4	8.9	11.9	27.1	39.9	336
Male	5.1	5.8	6.6	10.9	29.9	41.6	137
Female	8.0	5.0	10.6	12.6	25.1	38.7	199
Hispanic	5.5	2.9	2.3	14.8	24.3	50.1	345
Male	3.6	3.6	1.5	15.2	23.9	52.3	197
Female	8.1	2.0	3.4	14.2	25.0	47.3	148
Young Adults (20-24)	2.6	1.0	2.0	3.2	8.8	82.4	7,285
Male	2.1	1.1	1.9	2.6	7.5	84.8	3,694
Female	3.1	0.9	2.1	3.7	10.2	79.9	3,591
White	2.5	0.9	1.6	2.7	8.0	84.3	5,318
Male	2.1	0.9	1.5	1.9	6.6	86.9	2,672
Female	3.0	0.9	1.7	3.5	9.4	81.6	2,646
Black	4.4	1.9	3.6	3.3	11.7	75.1	676
Male	4.2	2.8	2.8	2.4	11.5	76.2	286
Female	4.6	1.3	4.1	3.8	11.8	74.4	390
Hispanic	2.5	1.3	2.8	6.5	11.8	75.1	906
Male	1.9	1.5	3.0	6.8	10.1	76.7	533
Female	3.5	1.1	2.4	6.2	14.2	72.7	373

Source: EPI analysis of CPS ORG.

TABLE 1C
Change of Distribution of Wages by Demographic Characteristics,
April-September 1996 to October 1996-March 1997

Type of Employees	Change in Percent of Employees Earning					
	\$0.50 – \$4.24	\$4.25	\$4.26 – \$4.74	\$4.75	\$4.76 – \$5.14	\$5.15 +
All	-0.2	-1.1	-1.0	1.1	-0.3	1.5
Teenagers (16-19)	-2.0	-7.1	-4.7	8.6	3.1	2.1
Male	-2.0	-6.7	-5.2	8.6	3.8	1.4
Female	-2.2	-7.5	-4.2	8.5	2.4	3.1
White	-2.1	-6.7	-3.9	8.3	3.3	1.1
Male	-2.0	-6.0	-4.1	8.0	4.2	0.0
Female	-2.3	-7.3	-3.8	8.7	2.4	2.2
Black	-2.1	-8.8	-8.1	8.0	7.0	4.0
Male	-2.0	-12.5	-14.7	9.1	12.7	7.3
Female	-2.5	-5.5	-2.6	6.8	2.5	1.3
Hispanic	0.0	-9.9	-9.7	12.3	0.8	6.4
Male	-1.4	-7.3	-8.0	13.4	-1.1	4.6
Female	1.9	-13.8	-12.4	10.8	3.8	9.6
Young Adults (20-24)	-0.5	-2.0	-1.7	2.1	-0.3	2.3
Male	-0.3	-1.6	-1.3	1.9	-0.8	2.3
Female	-0.6	-2.3	-2.0	2.3	0.3	2.2
White	-0.3	-1.4	-1.6	1.7	-0.3	1.9
Male	0.3	-1.0	-1.2	1.2	-0.9	1.4
Female	-0.8	-1.9	-2.0	2.1	0.3	2.2
Black	1.0	-3.3	-2.8	1.0	-1.8	5.9
Male	0.4	-4.1	-2.0	-0.4	-2.0	8.0
Female	1.6	-2.5	-3.6	1.9	-1.7	4.3
Hispanic	-2.1	-4.8	-1.6	5.8	-0.3	3.0
Male	-2.9	-3.9	-2.2	6.6	-0.8	3.3
Female	-0.7	-5.9	-0.9	4.8	0.3	2.5

Source: EPI analysis of CPS ORG.

Who Benefited From the Increase?

While it appears to be true that the minimum-wage increase raised the pay of low-wage workers, is it also true that these higher wages went to low-income families? **Figure 1** illustrates how the policy predominantly benefited low-income working families. (See the appendix for a discussion of the methods used in this figure.) In the case of all working families, including those with only one member, 55.6% of the gains from the increase went to families in the bottom 40%, and 71.2% of the gains went to families in the bottom 60%. Note that families in the bottom two-fifths received only 16.0% of all income, while families in the bottom three-fifths received 32.2% of all income. Families in the top fifth, with 45.0% of all income, received the smallest share of gains from the increase (13.5%). The patterns are similar for families of two or more individuals (bottom figure). In the end, most of the added earnings generated by the minimum-wage increase went to the low-income families who needed it most.

Did the Increase Cause Job Loss?

The potential for job loss is the most controversial aspect of the minimum-wage increase. Opponents of the increase have consistently contended that it lowers employment opportunities for teenagers (and to a lesser extent, young adults). Supporters of the increase have disagreed, citing much empirical research showing little or no “disemployment” effects.⁶

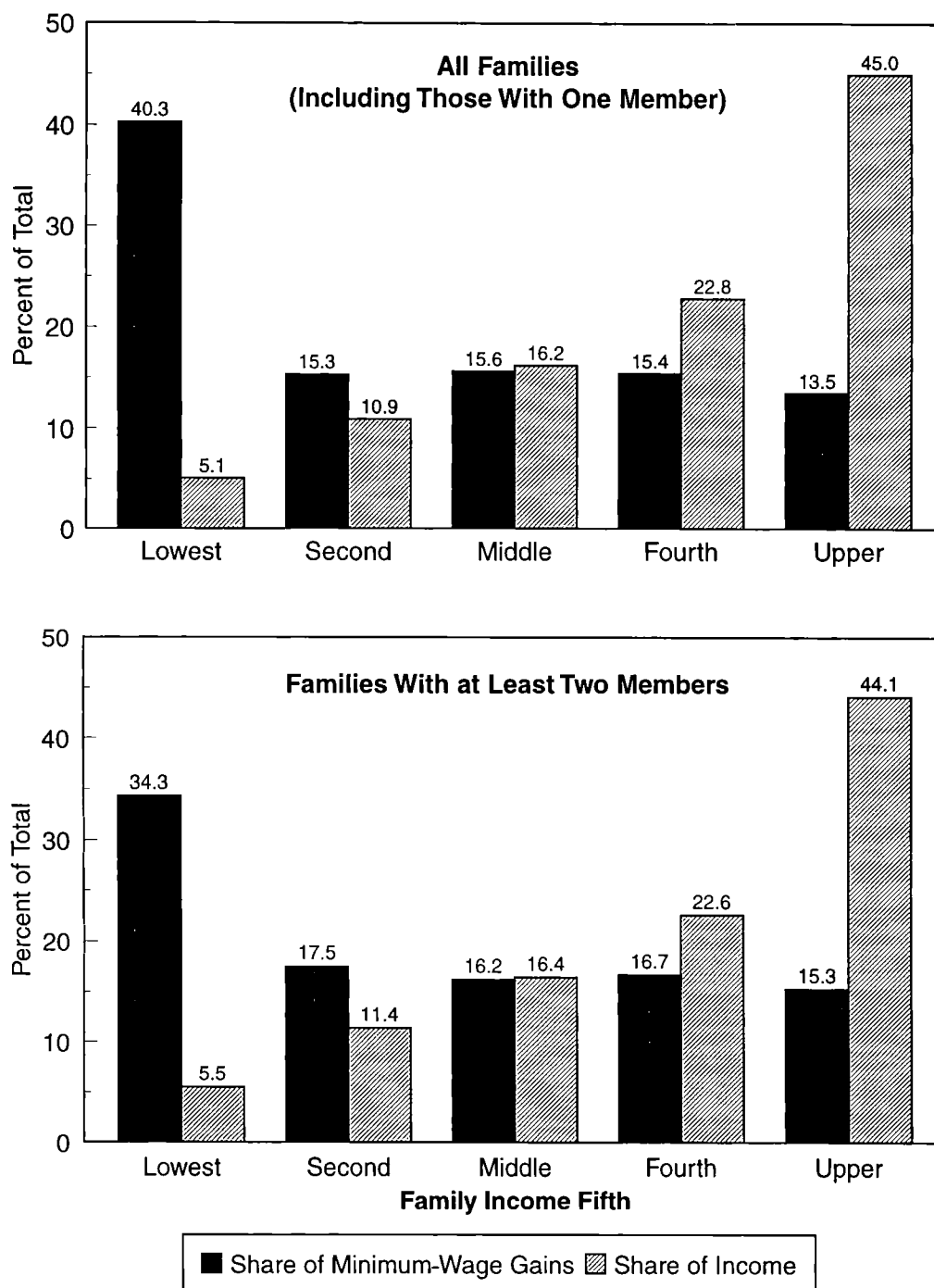
To determine if the minimum-wage increase led to declining job opportunities, we examined the trends in the employment rates (employment to population ratios) of teenage and young adult workers. Our examination takes into account three factors that can have an impact on the results: seasonal variations, economic growth, and regional trends. We find that *the minimum-wage increase had no significant effect on the employment of teens or young adults, one way or the other.*

Table 2 summarizes our analysis of the minimum-wage increase’s impact on employment. Column 4 indicates the percentage of persons in each age group employed during the six-month period immediately before the October 1 minimum-wage increase. Among teenagers, for example, the employment rate was 46.6% in April-September 1996. Column 5 lists the percentage employed for the six-month period immediately after the increase went into effect (October 1996-March 1997). For teenagers, the employment rate in this most recent six-month period fell to 40.8%, a drop of 5.8 percentage points when compared to the preceding six months. But this analysis would fail to take into consideration the seasonal variations inherent in teenage employment trends, especially the temporary rise in teenage employment associated with summer vacation.

To control for the seasonal employment effect, we compare the change in employment between April-September 1996 and October 1996-March 1997 with the change between the same two periods a year earlier — when the minimum wage did not change. Columns 1 and 2, which show the employment rates for these earlier periods, indicate that, among all teenagers, the employment rate fell from 47.6% in the April to September period to 40.7% in the October to March period — a 6.9 percentage-point drop (see column 3). The decline in teenage employment after the minimum-wage increase went into effect, then, was 1.0 percentage point *lower* than a year earlier, when the minimum wage remained unchanged.

FIGURE 1

Distribution of Minimum-Wage Gains and Income Shares by Fifth, 1996



Note: Families have at least one earner.

Source: EPI analysis of March CPS data (see data appendix).

TABLE 2
Estimated Change in Employment Associated
With the Minimum-Wage Increase in October 1996,
All, Teenagers, and Young Adults

	1995-96			1996-97			Difference-in-Difference		
	Apr-Sep (1)	Oct-Mar (2)	Difference (3)	Apr-Sep (4)	Oct-Mar (5)	Difference (6)	Raw (7)	Growth- Adjusted (8)	State & Growth Adjusted (9)
All	63.2	62.6	-0.7	63.6	63.2	-0.3	0.3	n.a.	n.a.
Teenagers (16-19)	47.6	40.7	-6.9	46.6	40.8	-5.8	1.0	0.5	0.4
Young Adults (20-24)	70.6	68.1	-2.5	70.9	69.4	-1.5	0.9	0.6	0.7

Note: This method of estimating the employment effect of the minimum-wage increase is explained in the text. None of the estimated employment changes in columns 7, 8, and 9 is statistically significant at standard levels.

Source: Economic Policy Institute analysis of CPS.

So, after controlling for the seasonal employment effect, the data suggest that teenage employment actually *increased* after the minimum wage rose, though this increase was not statistically significant. We observe a similar trend for young adults.

We must also account for the impact of economic growth, both nationally and within regions. The data in columns 8 and 9 adjust for these two factors.⁷ The “growth-adjusted” estimates in column 8 are less positive than the “raw” estimates derived above, indicating that economic growth was more rapid in the year that the minimum wage increased than it had been in the preceding year. The growth in teen employment, for example, falls from a 1.0 percentage-point increase to a smaller 0.5 percentage-point increase after controlling for overall growth. Further controlling for the different levels of economic growth within states (column 9) subtracts another 0.1 percentage point from the positive employment effect for teenagers. However, as with the employment gains found above, none of these results are statistically significant.

Table 3, which focuses only on the differences between the year-to-year periods (the complete table is in the appendix), builds on this analysis by examining the employment effects of the wage increase on groups organized by sex and race. White male teenagers saw employment rates increase after the minimum wage went into effect, even after controlling for overall economic growth and state differences in

TABLE 3
Differences-in-Differences in Employment Rates, All Groups

	Difference-in-Difference		
	Raw	Growth Adjusted	State & Growth Adjusted
All	0.3	n.a.	n.a.
Teenagers (16-19)	1.0	0.5	0.4
Male	0.7	0.4	0.4
Female	1.4	0.8	0.6
White	0.6	0.1	0.0
Male	0.8	0.5	0.4
Female	0.3	-0.0	-0.0
Black	-1.6	-2.1	-1.8
Male	-2.6	-2.9	-2.3
Female	-0.6	-1.4	-1.4
Hispanic	4.3	4.1	3.8 #
Male	0.5	0.7	0.7
Female	8.1	7.0	6.5 *
Young Adults (20-24)	0.9	0.6	0.7
Male	1.2	0.9	1.1
Female	0.6	0.5	0.7
White	0.5	0.2	0.4
Male	1.4	1.1	1.2
Female	-0.5	-0.5	-0.3
Black	-2.4	-2.7	-2.5
Male	-5.5	-5.8	-5.6 #
Female	0.2	0.4	0.5
Hispanic	5.6	5.0	5.1 *
Male	4.4	3.9	4.0 #
Female	6.1	6.4	6.4 *

#: statistically significant at the 0.10 level

*: statistically significant at the 0.05 level

Note: This method of estimating the employment effect of the minimum-wage increase is explained in the text.

Source: Economic Policy Institute analysis of CPS.

employment growth. This increase, however, was not statistically significant.⁸ Among black teenagers, employment rates appeared to fall, but these declines were also not statistically significant. Hispanic teenagers were the only group that experienced a statistically significant employment increase, even after adjusting for overall economic growth and state effects. This employment increase suggests that raising the minimum wage may have been responsible for this group's increased employment.⁹ Hispanic females experienced the largest employment jump.

Changes in the employment rates for male and female young adults and for white young adults were also positive but statistically insignificant. Employment rates for young adult black males were negative, but statistically significant only at a marginal (0.10) level. Shifts in the employment rates of Hispanic young adults were positive and significant (at the 0.05 level). As with teenagers, this result for Hispanics appears largely to reflect rising employment rates among young women.

We advise against drawing strong conclusions from the results for minority subgroups since the employment data for these subgroups are volatile and produce substantial variations in both the size of the estimated employment effects and their statistical significance. For example, estimates of the size of the minimum wage's employment effect on black men, age 20-24, vary by a factor of two over the six-month period and are not consistently statistically significant.¹⁰ The high variance for this particular subgroup, and other minority subgroups, reflects both an underlying employment volatility and the relatively small sample sizes.

The findings in this report raise a number of questions:

(1) Why use employment instead of unemployment rates?

Employment rates are typically used in the analysis of minimum-wage increases because they directly address the question of whether the increase has led to job loss. Unemployment rates are less reliable in this regard because they can rise due to an increase of job seekers entering the labor force. An increase in the minimum wage, for example, can draw additional workers into the labor force who are initially unemployed as they begin their job search. If this inflow causes the labor force to grow more quickly than job opportunities available to absorb the new workers, unemployment rates will rise faster than employment rates, even though no jobs have been lost.

(2) Is six months long enough for the disemployment effects to materialize?

Job turnover rates in the U.S. economy are high, especially for low-wage workers. Six months is a reasonable amount of time to observe at least *some* impact. Those who argue otherwise should specify a time period after which their claims can be put to an empirical test.

(3) Isn't it likely that the disemployment effects will surface only after the full increase is in place?

The opposition based its arguments on the traditional textbook model which maintains that increasing the cost of low-wage labor will lead to disemployment. The staggered implementation of the increases does not alter this prediction. As this study shows, significant proportions of young workers' wages were raised by the first increase, and, according to the textbook theory of

disemployment, many of these workers should have lost their jobs. As with past increases in the minimum wage, this prediction proved incorrect.

Conclusion

This examination of the increase in the minimum wage shows that, so far, the policy has had the desired impact: it has raised the earnings of low-wage workers, lifted the incomes of their families, and, despite opponents' claims, has not led to job loss. This last finding is particularly important for future debates over raising the minimum wage. Given the statistically and economically insignificant (and mostly positive) employment effects of the change, it might be more useful if the next debate spends less time focusing on the cost of the increase and more time on the benefits to low-income families.

July 1997

This work was supported by grants from the Rockefeller and Charles Stewart Mott Foundations, and the U.S. Department of Labor.

Danielle Gao and David Webster provided research assistance for this paper.

DATA APPENDIX

Tables 1A-C: Description of Wage Data

This study uses wage data from the Outgoing Rotation Group (ORG) of the Current Population Survey (CPS). The ORG sample consists of one-fourth of the people responding to the full monthly sample of the CPS (the data source for our examination of employment changes; see the notes for Table 2, below). Our sample includes all employees 16 years of age or older who earned between \$0.50 and \$100.00 per hour (in 1989 dollars).

Hourly earnings include tips, overtime, bonuses, and commissions for each worker. Calculation of hourly earnings involves several steps designed to cope with problems of (1) variable hours; (2) topcoding; and (3) tips, overtime, bonuses, and commissions. A description of the full procedure follows.

All non-topcoded, hourly paid workers who say that they do not receive tips, overtime, bonuses, or commissions are given the usual hourly wage from their survey response. All non-topcoded workers who are not paid by the hour are assigned an hourly wage calculated as their usual weekly earnings including tips, overtime, bonuses, and commissions divided by their usual number of hours worked per week.

Usual Hours

Beginning in 1994, the CPS allowed respondents to indicate that they did not have a “usual number of hours worked per week.” Since the calculation in this study of hourly earnings for salaried employees and for hourly paid employees who receive tips, overtime, bonuses, and commissions depends on dividing usual weekly earnings by usual hours worked, we have been forced to estimate usual hours worked per week for about 7% of the sample who report that their hours vary. When necessary, we predict usual weekly hours for those reporting variable hours by using the results from a regression equation on the sample (by year, by sex) that reports usual and actual hours worked in the previous week. Specifically, we regress usual hours worked per week on actual hours worked in the reference week and full-time status, a dummy variable for married, five dummy variables for educational attainment, a quartic in age, three dummy variables for race and ethnicity, and 10 dummy variables for broad occupation (all interacted with full-time status). We then use the coefficients from this equation to estimate usual weekly hours for those workers who say that their hours vary.

Tips

About 20% of hourly paid workers received tips, overtime, bonuses, or commissions as part of their regular earnings. Since many workers who may have been affected by the minimum wage worked in industries where tipping is common, we have been careful to include these earnings in our calculation of usual hourly rates. The CPS survey first asks hourly paid workers to report their hourly wage excluding tips, overtime, bonuses, and commissions. Later, it asks if hourly paid workers receive tips, overtime, bonuses, or commissions. If these workers answer yes, then the survey asks for the worker's usual weekly earnings including tips, overtime, bonuses, and commissions. In these cases, we use the usual weekly earnings figure, divided by the usual hours worked per week (reported or estimated as above), to estimate the usual hourly earnings including tips, overtime, bonuses, and commissions.

Figure 1: The Distribution of Family Income and Wage Gains From the Increase

These data are derived from the March 1996 Current Population Survey (CPS). The March CPS includes a retrospective supplement wherein respondents are asked to provide information on the prior year's income. We took hourly wage data, however, from the March ORG, as described above, since we judged these wage data to more accurately reflect the wage structure over the period of interest. Information on annual income, however, is from 1995.

For workers whose earnings were in the affected range (\$4.25-\$4.74) in March 1996, we first calculated their hourly increase as a result of setting the minimum at \$4.75. We then multiplied this value by their annual hours worked in 1995. This product represents their annual gains from the increase (note the assumption of no hours reduction). We then divided families in quintiles based on their annual income, with an equal number of persons (not families) in each quintile. Finally, we calculated the share of income and wage gains that accrued to each quintile.

Table 2: Employment Rates

The data for this table come from the basic monthly files of the CPS, the primary source of labor market microdata on employment, unemployment, wage rates, and demographics. Each month the Census Bureau, under contract with

the Bureau of Labor Statistics (BLS), collects nationally representative data from approximately 50,000 households. Sample weights, which represent the inverse of the probability that a person with specific demographic and geographic characteristics will be sampled, are provided so the data can be “weighted up” to national levels. These data provide the basis for the monthly unemployment rate, released by BLS on the first Friday of each month.

The employment rates in Table 2 are calculated from the weighted sample over the time periods shown. For example, the 47.6% employment rate for teenagers in column 1 represents the average weighted employment levels from April to September 1995 divided by the average weighted population level over that same period.

One advantage to using the basic monthly files is that their sample sizes are large enough to allow for fairly reliable disaggregation by demographic group. For example, there were an average of around 7,000 unweighted cases per month of 16-19-year-olds, with about 5,000 white, slightly less than 1,000 African American, and 750 Hispanic teens. (Note that our racial/ethnic classifications, unlike those of BLS, are exclusive. In BLS data, Hispanics can be in other racial categories; in our data, they are in an exclusive category.)

Standard Errors

Large sample sizes are considered advantageous in quantitative analysis because statistical reliability rises with the size of the underlying sample. Nevertheless, any sampled data is prone to sampling error, and the extent of this error in Tables 2 and 3 is represented by asterisks (and given in column 9 of Appendix Table 2).

Given the nonrandom sampling framework of the CPS, the calculation of standard errors is not straightforward.¹¹ The calculation of the most reliable standard errors would call for the use of special sampling weights that are not included on the public use file. BLS publishes such standard errors for many of its estimates, but these rarely correspond to either our time frame or demographic groups. Therefore, we needed to derive an efficient and reliable method for estimating standard errors for the many categories in Table 2.

We began by using a slightly altered version of the general formula for the standard error of a rate:

$$\sqrt{(p_{wt}*(1-p_{wt}))/n_{unwt}}$$

p in this case is the weighted rate, while n is the unweighted average of the population in question over the time period. Averages, instead of sums, are appropriate because 75% of the cases in the monthly CPS are in the sample one month to the next, due to the sample rotation procedure. We adjust this value by a factor provided by BLS for data over longer time periods. This factor, from various tables in the appendix to the monthly publication *Employment and Earnings*, deflates the standard error slightly due to the independence of 25% of the monthly cases. By calculating rates and standard errors for some of the same groups of persons published in *Employment and Earnings*, we determined that this method was acceptable for levels.

The same publication allows us to calculate BLS’s standard errors for changes, and these revealed that our approach tended to overestimate standard errors of differences and thus introduce the possibility of incorrectly rejecting significant findings. In order to avoid this possibility, we further adjusted the standard errors of the differences by the ratio of the BLS standard errors of differences to our previously adjusted standard errors. Including both the deflation factor noted above (which lowers the standard error due to the inclusion of more independent cases) and the correction for the overestimate just noted, we derived an adjustment factor of 0.619.

Adjusting for Overall Growth and State Effects

As discussed in the text, we attempt to extract the effect of overall economic growth on our estimate of the impact of the minimum-wage increase on employment rates. The adjusted value appears in column 8 in Table 2. We produced this adjustment by regressing the time series of employment rates (prior to the increase) for the various groups in the table on the employment rates of workers 25 years old and over (by sex), a trend variable, and dummies for the summer months (since the employment data were not seasonally adjusted). We then multiplied the coefficient on the 25+ variable by the change in those adults’ employment rates over the periods in question, and subtracted this value from the raw estimate in column 7 of Table 2. Since the growth in the employment rates of adults is a good proxy for overall labor market growth, this procedure should remove the effect of such growth.

In order to adjust for state effects (the different impact of state economies on the employment rates of teens and young adults), we estimated a weighted linear probability model (1=employed, 0=not employed) for the CPS microdata with dummy variables for each demographic group in each time period and for 50 of the 51 “states” (including the District of Columbia). Without a constant term, the coefficients on the dummies for each demographic group in each time period represent the employment rate of that group in that time period, controlling for “state effects.”

APPENDIX TABLE 1
Distribution of Wages by Demographic Characteristics,
Differences-in-Differences, 1995/96 to 1996/97

Type of Employees	Change in Percent of Employees Earning					
	\$0.50 – \$4.24	\$4.25	\$4.26 – \$4.74	\$4.75	\$4.76 – \$5.14	\$5.15 +
All	0.08	-0.4	-0.2	0.6	-0.1	0.0
Teenagers (16-19)	-1.9	-6.4	-4.1	8.4	3.6	0.4
Male	-2.3	-6.0	-6.1	8.9	4.7	0.6
Female	-1.6	-6.6	-2.1	7.6	2.7	0.0
White	-2.1	-5.4	-3.4	7.8	3.6	-0.5
Male	-2.5	-5.3	-4.9	7.9	4.9	0.1
Female	-1.7	-5.3	-2.0	7.8	2.5	-1.4
Black	-4.2	-5.1	-7.0	6.6	5.4	4.2
Male	-3.6	-7.0	-16.2	9.5	13.5	3.7
Female	-5.1	-3.0	0.7	4.3	-1.1	4.1
Hispanic	4.4	-16.9	-7.7	13.8	5.4	0.8
Male	3.9	-9.3	-8.9	16.9	-0.2	-2.3
Female	5.2	-27.1	-6.8	9.7	13.2	5.7
Young Adults (20-24)	0.0	-2.5	-0.7	1.8	-0.3	1.6
Male	-0.1	-2.4	-0.7	1.8	-1.0	2.6
Female	0.3	-2.6	-0.7	1.9	0.5	0.5
White	0.0	-1.7	-0.8	1.4	-0.1	1.2
Male	0.3	-1.6	-0.4	1	-0.9	1.3
Female	-0.3	-1.9	-1.2	1.7	0.7	0.9
Black	1.4	-3.1	0.1	0.2	-0.6	2.1
Male	-1.0	-2.6	-0.9	-1.3	0.1	5.7
Female	3.5	-3.3	0.8	1.0	-1.6	-0.4
Hispanic	0.0	-7.3	0.0	5.6	-1.8	3.5
Male	-0.7	-6.5	-1.9	6.8	-3.8	6.3
Female	1.2	-8.2	2.7	4.1	0.9	-0.6

Source: EPI analysis of CPS ORG.

APPENDIX TABLE 2
Estimated Change in Employment Associated
With the Minimum-Wage Increase in October 1996

	1995-96			1996-97			Difference-in-Difference			
	Apr-Sep (1)	Oct-Mar (2)	Difference (3)	Apr-Sep (4)	Oct-Mar (5)	Difference (6)	Raw (7)	Growth- Adjusted (8)	State- Adjusted (9)	Standard Error (10)
All	63.2	62.6	-0.7	63.6	63.2	-0.3	0.3	n.a.	n.a.	0.2
Teenagers	47.6	40.7	-6.9	46.6	40.8	-5.8	1.0	0.5	0.4	0.7
Male	48.8	40.3	-8.5	47.5	39.8	-7.7	0.7	0.4	0.4	1.0
Female	46.3	41.0	-5.3	45.7	41.7	-4.0	1.4	0.8	0.6	1.0
White	54.8	47.0	-7.8	54.3	47.1	-7.2	0.6	0.1	0.0	0.9
Male	55.8	46.1	-9.7	54.5	45.7	-8.8	0.8	0.5	0.4	1.2
Female	53.7	47.9	-5.8	54.1	48.6	-5.5	0.3	-0.0	-0.0	1.3
Black	27.6	25.0	-2.6	28.6	24.4	-4.2	-1.6	-2.1	-1.8	1.8
Male	27.3	22.9	-4.4	28.3	21.3	-7.0	-2.6	-2.9	-2.3	2.6
Female	27.9	27.1	-0.8	28.9	27.4	-1.5	-0.6	-1.4	-1.4	2.5
Hispanic	37.3	31.4	-5.9	34.1	32.5	-1.6	4.3	4.1	3.8	2.1
Male	40.8	36.6	-4.2	39.9	36.1	-3.8	0.5	0.7	0.7	3.1
Female	33.6	26.0	-7.6	28.0	28.6	0.6	8.1	7.0	6.5	2.9
Young Adults	70.6	68.1	-2.5	70.9	69.4	-1.5	0.9	0.6	0.7	0.7
Male	77.1	72.8	-4.3	76.4	73.4	-3.0	1.2	0.9	1.1	0.9
Female	64.2	63.5	-0.7	65.6	65.5	-0.1	0.6	0.5	0.7	0.9
White	75.5	72.9	-2.6	76.0	73.8	-2.2	0.5	0.2	0.4	0.7
Male	80.7	75.9	-4.8	80.2	76.8	-3.4	1.4	1.1	1.2	1.0
Female	70.4	69.9	-0.5	71.8	70.8	-1.0	-0.5	-0.5	-0.3	1.1
Black	55.8	56.0	0.2	57.7	55.4	-2.3	-2.4	-2.7	-2.5	2.1
Male	60.4	60.2	-0.2	61.4	55.6	-5.8	-5.5	-5.8	-5.6	3.1
Female	52.0	52.5	0.5	54.5	55.2	0.7	0.2	0.4	0.5	2.7
Hispanic	64.8	61.5	-3.3	65.0	67.3	2.3	5.6	5.0	5.1	1.9
Male	78.6	74.5	-4.1	77.5	77.8	0.3	4.4	3.9	4.0	2.4
Female	49.3	47.1	-2.2	51.1	55.0	3.9	6.1	6.4	6.4	2.8

Source: EPI analysis of CPS.

Endnotes

1. See, for example, Brown et al. 1982 and Card and Krueger 1995.
2. Note that some workers in Tables 1A and 1B earn less than the prevailing minimum wage (\$4.25 for Table 1A; \$4.75 for Table 1B). These workers (1) may not be covered by the federal minimum wage (family members working in a family-owned business, for example); (2) may work for employers who are not complying with the law; (3) may have inaccurately reported their hourly wage, usual hourly earnings, or usual weekly hours; or (4) may have been assigned an erroneous hourly wage as a result of the hours-imputation process used for workers who do not work a usual number of hours per week.
3. We use official Census terminology to refer to racial and ethnic minorities. Our categories, however, differ from the Census in that our white and black groups exclude Hispanics.
4. Among black teenagers, the wage effects were largest for males; among Hispanic teens, females received the largest boost.
5. The shift in the distribution could reflect ongoing nominal wage growth, but it seems more likely that most of the movement in the teen and young adult wage distribution responds to the minimum-wage increase. First, the overall wage distribution, which is both less responsive to the minimum wage and more responsive to average wage growth, changes little across the two six-month periods. Second, the pattern of changes in the distribution is consistent with the idea that it is the minimum wage, not nominal wage growth, that is behind the shift in the distribution. After the increase, many workers are “bunched” at exactly \$4.75.
6. For an excellent review of the previous literature on the minimum wage, see Card and Krueger (1996), chapters 6-9.
7. See the data appendix for an explanation of the methods used to adjust the raw employment rate changes.
8. White female teenagers appeared to experience a small (0.3 percentage point) increase in employment, but the rise disappears after controlling for economic growth.
9. Those differences marked with the # sign are statistically significant at the 0.10 level, that is, if we were to repeat the estimation procedure 100 times with a different random sample from the same population, we would expect that the confidence interval we construct would include the “true” employment change 90 times. Results marked with an asterisk are significant at the 0.05 level, that is, if we were to repeat the estimation procedure 100 times we would expect that the confidence interval we construct would include true value 95 times. In this sense, results marked * are more reliable than those marked #.
10. For instance, when we repeat the analysis using seven-month periods, the impact of the raw and growth-adjusted employment effect for black men, age 20-24, diminishes and is no longer statistically significant. The seven-month results for the other groups are not qualitatively different from those using the six-month periods in Table 2.
11. These issues are discussed in the BLS’s monthly *Employment and Earnings*. See, for example, pp. 225-42 in the January 1997 issue.

References

- Brown, Charles, Curtis Gilroy, and Andrew Cohen. 1982. “The Effect of Minimum Wage on Employment and Unemployment.” *Journal of Economic Literature*, Vol. 20, pp. 487-528.
- Card, David, and Alan B. Krueger. 1995. *Myth and Measurement: The New Economics of the Minimum Wage*. Princeton, N.J.: Princeton University Press.
- Spriggs, William E., and Bruce W. Klein. 1994. *Raising the Floor: The Effects of the Minimum Wage on Low-Wage Workers*. Washington, D.C.: Economic Policy Institute.

DRAFT: NOT

HPZ Draft 4/10/98

FOR CITATION

Making Work Pay: The Impact of the 1996-97 Minimum Wage Increase

by Jared Bernstein and John Schmitt

Executive Summary

The federal minimum wage increased from \$4.25 to \$4.75 on October 1, 1996 and, again, to \$5.15 on September 1, 1997. This report examines the impact of these increases on the wages and employment opportunities of low-wage workers and their families.

The principal findings are:

- The 1996 and 1997 minimum-wage increases raised the wages of almost 10 million workers. About 71% of these workers were adults and 58% were women. Just under half (46%) worked full-time and another third worked 20 to 34 hours per week.
- The average minimum-wage worker contributes more than half (54%) of his or her family's weekly earning.
- The two-stage increase disproportionately benefitted low-income working families. Families in the bottom 20% of the working-family income distribution (with an average income of \$15,728) receive only 5% of total family income, but received 35% of the benefits from the minimum wage increase.
- Four different tests of the employment impact of the two increases --applied to a large number of demographic groups whose wages are sensitive to the minimum wage-- fail to find any systematic, significant job loss associated with the 1996-97 increases. The estimated employment effects are generally economically small and statistically insignificant and are almost as likely to be positive as negative.

These empirical results, particularly the strong wage gains and the lack of a negative impact on job opportunities, are at odds with traditional economic theory, which argues that the minimum wage must cost jobs. One way to reconcile our findings with economic theory, following the suggestion of Nobel laureate Robert Solow, is to conclude that any job loss associated with the minimum wage must be small.¹ A separate route is to modify existing models of the low-wage labor market to make them more realistic. In particular, economic models

¹ Quoted in "Minimum Wage and Jobs" by Louis Uchitelle, *New York Times*, January 12, 1995.

developed over the last decade that incorporate the costs of recruiting, training, and motivating low-wage workers hold out the possibility of explaining the increasingly weak link between moderate increases in the minimum wage and declines in low-wage employment opportunities. This more realistic model of the low-wage labor market offers a better explanation of our central finding: the 1996-97 increase in the minimum wage has proven to be an effective tool for raising the earnings of low-wage workers without lowering their employment opportunities.

Introduction

One of the most troubling economic phenomena of the past two decades has been the decline in the inflation-adjusted wages of low-wage workers. For example, the real hourly wage of workers at the 10th percentile fell 15% between 1979 and 1997.² Since many low-wage workers are breadwinners or major contributors to their families' income, this trend has played an important role in lowering the living standards of those with modest incomes.³

Over most of this same period, the inflation-adjusted value of the minimum wage fell precipitously (see **Figure 1**). The connection between a declining real minimum wage and falling incomes among low-income families—particularly during a period when overall economic growth was positive—led policy makers to consider lifting the wage floor.⁴ Thus, after a nine year period in which the policy was ignored at the federal level, the Congress passed two \$0.90 increases in the minimum wage. The first—from \$3.35 to \$4.25—took place over the period 1990-91; the second increase—from \$4.25 to \$5.15—was implemented in 1996-97. In this report, our focus is on the impact of this most recent increase.⁵

² Workers at the 10th percentile earn more than 10% and less than 90% of the workforce (authors' calculation from CPS earnings files, as described in Webster, 1997).

³ Census bureau data on family income show that the average income of families in the bottom 20% of the income distribution fell 10.5% between 1979 and 1996 (these data are available on the EPI Datazone at www.epinet.org).

⁴ Since the minimum wage is not indexed to inflation, if Congress does not mandate an increase, the buying power of the minimum falls at the rate of inflation.

⁵ Our earlier EPI Briefing Paper, "The Sky Hasn't Fallen" evaluates the first step of this increase.

Of course, raising the minimum wage always generates a good deal of heated debate (perhaps more heat than light). Opponents of the policy generally claim that by making low-wage workers more expensive to their employers, increasing the minimum wage is more likely to cost them their jobs than to raise their earnings. Supporters of the policy argue that minimum wage has historically been key to raising the earnings of low-wage workers and that little real world evidence exists that the minimum wage lowers employment opportunities.

The first two sections of this report focus on the beneficiaries of the recent minimum wage increase. Our main findings from these sections are:

- Almost 10 million low-wage workers benefitted from the increase.
- Most of these workers (71%) were adults; 58% were female.
- Close to half (46%) of the beneficiaries of the increase worked full-time, and another third worked 20-34 hours per week.
- The average minimum wage worker brings home more than half (54%) of their family's weekly earnings;
- The benefits of the increase disproportionately help those working families at the bottom of the income scale. Families in the bottom 20% (whose average income was \$15,728 in 1996) received 5% of the income but 35% of the benefits from the minimum wage increase. In this regard, the increase had the intended effect of raising the earnings and incomes of low-wage workers and their families.

The employment effects of minimum wage increases do, of course, remain an important area of focus in evaluating the policy. To this end, economists have developed an wide battery of tests to measure the impact of such increases. While many of these tests have been applied to earlier increases in the minimum, there has been little analysis of the 1996-97 increase. In the third section, we apply these same tests to the most recent increase. Our main findings regarding disemployment effects are:

- Our various tests of employment impacts show no systematic job loss resulting from the 1996-97 minimum wage increase.

- The results from these employment tests are generally economically small and statistically insignificant; they are almost as likely to be positive as negative; they vary unpredictably across demographic groups.
- One of the tests of the employment effects, initially proposed by economists Deere, Murphy, and Welch, shows the net employment of affected groups *increasing* after the minimum wage increase.
- Our update of the traditional method for estimating minimum wage employment effects (time-series models) reveals a statistically insignificant effect, and one that is less than half the magnitude of even the low-end of the earlier estimates.

After presenting these results, we discuss an alternative model of the economy within which our employment results are better understood. A data appendix, at the end of the report, provides details of our methods and data.

Who Are the Beneficiaries of Minimum Wage Increases?

Historically, debates over whether to increase the minimum have focused almost solely on the disemployment question, while ignoring the benefits. Any reasonable policy analysis needs to examine both costs and benefits, and in this section, we focus on the beneficiaries of the most recent minimum wage increase.

When they have focused on the beneficiaries of minimum wage increases, opponents of the policy have tried to create the impression that most minimum wage workers are teenagers who live in high-income families. The data presented below contradict this characterization, showing that most workers affected by minimum-wage increases are adults, and most reside in lower-income families. However, the results show that the policy is far from perfectly targeted. For example, about one-quarter of the benefits from the increase went to working families in top 40% of the income scale. Nevertheless, taken as a whole, the results from this section suggest that minimum wage increases are accomplishing the goal of raising the earnings of low-wage workers in lower-income families.

Table 1 examines the characteristics of workers in the affected wage range in the year before the increase (see data appendix for description of data sources and methods). Column 1 shows that the increase reached close to 10 million workers, or 8.9% of the labor force. Most workers in the affected range were adults (71.4%, or 100% minus the teenager share of 28.6%), and 58.2% were female. Looking at the age distribution within gender reveals that of the 43.2% of affected workers were adult females, as compared to 28.2% for adult men. Thus, by these variables, the modal (single largest) group affected by the increase is adult women. While 46% of affected workers work full-time schedules in a typical week (at least 35 hours per week), another 33.3% work between 20-34 weekly hours.

Comparing the figures in column one to those in the last column (All Workers) shows the extent to which affected workers are concentrated in certain categories. For example, female and minority workers are over-represented in the affected range, while males and white workers are under-represented. Similarly, affected workers are much more likely to be in retail trade industries (where they tend to be service providers such as clerks or waiters) than are higher wage workers. Teenagers, while they represent a minority of minimum wage workers, are, by dint of their typically low-wage rates, over-represented in the affected range. Finally, minimum wage workers are disproportionately non-union, reflecting the union wage-premium to higher wage workers.

An addendum to the table shows the show the average and median shares of family weekly earnings that affected workers contribute. For example, imagine a family with two workers, one of whom is in the affected range and one of whom earns an hourly wage above that range.⁶ If the minimum wage worker earns \$100 per week and the higher earner makes \$300 per week, the minimum wage earner's contribution is 0.25 (100/400). The addendum shows that the average worker in the affected range brings home more than half (54%) of their family's weekly earnings; the median share is 41% (the divergence between the average and the median is due to the fact

⁶ These figures come from the March CPS, which allows us to aggregate families more accurately than the ORG files. Since the data are for March of 1997 (after the first but before the second increase), the affected range is \$4.75-\$5.15. See the data appendix for more details on these calculations.

that this distribution is skewed towards those with share values close to one) . Since one-person families in the sweep obviously contribute all of their earnings (and thus get 1 for the above calculation) we also examined the share of weekly earnings contributed by minimum wage workers, excluding one-person families. The average share for these families comes to 44%, while the median share is 27%. Clearly, the earnings of minimum wage workers are quite important to their families' well-being.

earners?
households?

Nevertheless, a stated policy goal of minimum wage increases is to raise not just the *earnings* of low-wage workers, but also the *incomes* of low-income families. In this regard, it makes sense to examine where, in the family income distribution, minimum wage workers reside. **Table 2** address this issue.

We first focus on working families (including those with just one person), headed by a prime-age (25-54) person (see data appendix for discussion of the methods used in these figures). These families serve as a useful benchmark for the targeting question because they exclude a) families with no earners, who clearly do not benefit from the policy, and b) families headed by younger or older persons, who tend to be less connected to the labor force. The data appendix presents the same statistics for all families, regardless of the age of the household head.

Table 2 reveals that most--though not all--of the benefits of the increase in the minimum wage go to lower- income working families. Among working families headed by a prime-age individual, 35.3% of the benefits of the increase in the minimum wage go to families in the bottom fifth of the income distribution. These families, with an average income of \$15,728 in 1996, received 5.4% of the income that year. Shifting to the top of the income distribution, note that the smallest share of the benefits from the increase, 12.2%, goes to families in the top fifth, whose income share was 45.3%. Combining the bottom two groups in the table shows that 58.1% of the benefits from the increase go to working, prime-age families in the bottom 40%, who receive 16.4% of income.

Panel two relaxes the restriction that at least one family member works, i.e., prime-aged families with no workers, and therefore no beneficiaries of the wage increase, are included. Their inclusion leads to a somewhat more uniform distribution of the benefits from the increase among the bottom sixty percent, although the bottom fifth continues to receive the largest share of the

benefits (28.0%). Note also that the inclusion of non-working families lowers both the average income and income share going to the bottom group relative to the working family distribution shown above. Here again, at least half of the benefits from raising the minimum wage go to families in the bottom 40%.

The above table shows that, while the minimum wage is well-targeted toward prime-aged families, there is some “leakage.” In both of the cases shown above, more than one-quarter of the benefits of the increase go to families in the top two fifths, whose average incomes put them well above the low-income range. Nevertheless, the majority of the benefits go to those who need them: low-wage workers in low-income families.

How Do Minimum Wage Increases Affect Wage Trends?

As we noted in the introduction, the long fall in the mw wage over the 1980s (see Figure 1) partly accounts for the decline in the inflation-adjusted hourly pay of low-wage workers over that period. This reasoning implies that, all else equal, increases in the minimum wage should be identifiable in the wage trends of low-wage workers over the 1990s, when two increases were legislated (the 1990-91 increase raised the minimum from \$3.35 to \$4.25; the most recent increase went up to \$5.15, 1996-97). In fact, the timing of the increases corresponds quite closely to real wage increases of low-wage workers.

Figures 2A-2C show low-wage trends for all, male, and female low-wage workers. The trends are for the 10th and 20th percentile wage (the worker at the 10th percentile earns more than 10 percent of the workforce and less than 90 percent of the workforce), adjusted for inflation and set equal to 100 in 1989. Both Figures 2A (All) and 2C (Females) show evidence of a minimum wage effect, particularly at the 10th percentile. The pattern for all workers most clearly follows the increases in the minimum, with increases for both the 10th and 20th percentiles in 1990-91 and 1996-97 (in this last period, only the 20th percentile increased in both years).

For the 10th percentile female, real wages increased in 1990-92 (the minimum wage was increased in April of 1990 and 1991), fell through 1996, and increased again in 1997. These indexed graphs do not reveal the actual wage levels, but it is notable that the 1997 10th percentile

hourly wage for women was \$5.15, exactly the minimum wage at the end of that year.⁷ Clearly, the hourly pay of low-wage female workers is closely tied to the minimum.

The case for males is less clear cut, as might be expected since their wage levels place them above the minimum, even at the 10th percentile (the 10th percentile male wage in 1997 was \$5.92). Neither the 10th or 20th percentile male hourly wage shows any reaction to the 1990-91 increase, and the 10th percentile male wage began to increase in 1994, before the most recent set of increases went into effect. The real wages for the 20th percentile males do increase in 1997; this wage—\$7.36 in 1997—is, however, significantly higher than the minimum, and we are hesitant to connect its increase directly to that of the minimum wage.

Did the Most Recent Increase in the Minimum Wage Lead to Job Losses for Low-Wage Workers?

In this section, we present four tests of the impact of recent minimum wage increases on the employment levels of low-wage workers. The first test—difference-in-differences—simply examines the changes in national employment rates of various types of low-wage workers, controlling for various factors, like seasonality, overall economic growth, and differences between states. The second test—introduced by economists Deere, Murphy, and Welch (1995)—examines changes in employment rates for a more limited group of low-wage workers over changes in the minimum, but observes those changes at the state level. The third test—proposed by economist David Card (1992)—also exploits state variation, but includes a measure of how deeply the new minimum “bites” (cuts into the state wage scale). The intuition of the Card model is that since wages vary widely across states, any impact of the minimum wage on jobs should be most obvious in states with low wages. The final test updates the time-series analysis that has traditionally been used to measure the impact of minimum wages on teenage employment rates.

Prior to presenting these results however, there are a number of characteristics common to each of the tests that need to be elucidated. First, the dependent variable in all the tests is the employment rates (employment divided by population) of various types of low-wage workers. Employment rates are commonly used in the analysis of minimum-wage increases because they

⁷ These wage series are described in Webster, 1997, see “Appendix B.”

speak directly to the question of whether the increase led to job loss. Unemployment rates are less reliable in this regard because they can rise due to an increase of job seekers entering the labor force. An increase in the minimum wage can draw additional workers into the labor force who are initially unemployed as they begin their job search. If this inflow causes the labor force to grow more quickly than job opportunities to absorb the new workers, unemployment rates will rise faster than employment rates, even though no jobs were lost.

Second, like the majority of the economics literature on the minimum wage, our employment analysis looks at two groups of workers: teenagers and adults, age 20-54, with less than a high school education (L2054). Opponents of minimum wage increases argue that the policy is most damaging to young persons, such as teenagers, just entering the labor force, as well as to workers whose low skill levels tend to place them in the low-wage segment of the labor market. As shown in appendix Tables 1A-1C, both groups have relatively large shares (though not a majority) of workers in wage ranges affected by the increase. In this regard, these are the groups of workers most appropriate for tests of the employment hypotheses.

Test 1: Difference-in-Differences

One of the simplest tests of the impact of minimum wage increases is “difference-in-differences,” or DD. The intuition behind DD is as follows: if the minimum wage increase led to disemployment of low-wage workers, we would expect such workers’ employment rates to fall after an increase.⁸ However, simply comparing employment rates before and after is insufficient; we must account for various factors with the potential to confound the comparison. For example, teenage employment rates are highly seasonal, so these seasonal effects must be extracted. Second, the overall economy may be growing when the increase goes into effect. If, for example, the overall economy grew more rapidly in the year in which the minimum wage rose than in the comparison year (and this was the case during the last increase), then the raw difference-in-difference estimate might be biased against finding job losses, since economic growth would be

⁸ If not actually lower, we would expect their growth to decelerate.

boosting employment "despite" the minimum wage.⁹ A final potential bias is that economic growth may not be uniform across states. If low-wage employment is not evenly distributed across the states, then the DD estimate might confuse regional variations in economic growth with positive or negative employment effects of the minimum wage. As explained in the data appendix, each of these factors is accounted for in the following results.

Table 3 shows a series of DD tests for teenagers and L2054 by gender, with each panel representing the test over a different time period, marked T1-T4 on the table. We test three time periods: one for the first increase in the minimum wage which took place on October 1, 1996, one for the second increase, which occurred September 1, 1997, and one over the full period covering both increases (see the table note for further description).

Panel 1 examines the first increase. For example, the column headed T3 in the top panel shows the share of persons in each group employed during the six-month period immediately before the October 1 increase in the minimum wage. Among teenagers, the employment rate was 46.6% in April 1996-September 1996. The next column, headed T4, shows the employment share for the six month period immediately after the increase went into effect (October 1996-March 1997). For teenagers, the employment rate in this most recent period fell to 40.8%, a drop of 5.9 percentage points when compared to the preceding six months. A simplistic "before-and-after" analysis, then, would suggest that the minimum-wage led teenage employment to fall by 5.9 percentage points (see column 6, headed "Difference").

The six-month period before the minimum-wage increase, however, includes the summer months when teenage employment rises. The six-month period after the increase is made up entirely of months when most teenagers are in school and employment rates are lower. To control for this seasonal effect, we compare the change in employment between April 1996-September 1996 and October 1996-March 1997 with the change across the same two periods a year earlier -- when the minimum wage did not change.

Columns 1 and 2 show the employment rates for these earlier periods. Among all teenagers, the employment rate fell from 47.6% in the April to September period to 40.7% in the

⁹ The implication is that employment growth would have been even greater in the absence of a minimum wage increase.

October to March period -- a 6.9 percentage-point drop (see column 3). The decline in teenage employment after the minimum-wage increase went into effect, then, was 1.0 percentage point *lower* than a year earlier when the minimum wage remained unchanged. So, after controlling for the seasonal employment effect, the data suggest that teenage employment actually *increased* after the minimum wage rose (though this increase was not statistically significant, as we shall see below). For L2054, the DD in column 7 for all persons in this category is also positive (0.3).

These "raw" (i.e., unadjusted) difference-in-differences estimates, however, may still provide biased estimates of the actual employment effects for the two reasons noted above. The estimates of the employment changes in columns 8 and 9 adjust the "raw" estimate to correct for both overall economic growth and state differences.¹⁰ The "growth-adjusted" estimates in column 8 indicate that economic growth was more rapid in the year that the minimum wage increased than it had been in the preceding year. Controlling for overall economic growth rates generally reduces positive employment effects of the minimum wage and makes any negative employment effects more negative. The growth in teen employment, for example, falls from a 1.0 percentage-point increase to a smaller 0.5 percentage-point increase after controlling for overall growth. Further controlling for the different levels of economic growth within states (column 9) subtracts another 0.1 percentage point from the positive employment effect for teenagers.

The preceding discussion has largely ignored the issue of whether the measured changes are statistically significant, that is, whether observed differences reflect "real" changes in economic circumstances or are more likely to be the result of random economic fluctuations. The final two columns correct this omission by presenting standard errors and "t-statistics." These reveal the statistical significance of the growth and state adjusted estimates in column 9. Only a t-statistic with an absolute value greater than 1.96 is generally considered significant in this type of research. Since none of the estimates for teenagers meet this criterion, the employment effects, though positive for all and females and negative for males, should be considered indistinguishable from zero (no effect).

¹⁰ See the data appendix for an explanation of the methods used to adjust the raw employment rate changes.

Looking at the first panel for L2054, the raw DD is 0.3 percentage points, i.e., ignoring state and growth effects, as well as statistical significance, employment rates grew slightly for this group. Accounting for growth and state effects lowers the estimate to zero overall, and to -1.1 for males and 0.7 for females. The t-statistics, however, reveal that none of these changes reach significance.

The second and third panels show the results for other time periods. Panel two reveals that the employment impact of the second increase--from \$4.75 to \$5.15 on September 1, 1997--had much the same impact, or lack thereof, as the first step. State and growth-adjusted estimates were positive for teenagers and negative for L2054, but again none of the results are significantly distinguishable from zero.

Panel three presents the DD estimates over the full time period, from a few months before the first increase to six months after the second increase. This overall test of the full impact of the increase again reveals no significant negative effects for these groups of persons. For all teenagers, the full impact led to an insignificant growth of 0.3 percentage points, driven by the (also insignificant) growth in the employment rates for female teenagers. The pattern is similar for L2054, but in this case, the growth in employment rates for females is statistically significant.

Table 4 shows the adjusted DDs with their standard errors and t-statistics for subgroups of teenagers and L2054s by race and gender. While some of the effects are relatively large (compared to the overall results from the previous table), for the most part, they reflect the same lack of significant employment rate changes as the previous table (their t-statistics are still well below 1.96 in absolute value). This is because most of the estimates for these subgroups depend on smaller underlying samples and thus “noisier” data. For teenagers, the only result to reach statistical significance ($t's > 1.96$) is the large and positive effect for Hispanic females. While the employment effects for the other groups fluctuate around zero, they are too small to be confidently distinguished from zero (i.e., no change at all).

For L2054, none of the results from the first or second steps of the increase are statistically significant. Here again, some of the changes for the subgroups are relatively large, but, due to the wide error margins, are statistically insignificant. Over the full period, there was

significant employment growth for black females, driven by their fast rate of employment growth in the six months following the second increase.

Thus, the DD tests reveal no significant employment losses from the 1996-97 increase in the minimum wage, either for teenagers or L2054. In fact, the only statistically significant results were positive employment effects for Hispanic female teenagers and for female adult L2054 over the full increase ($t=2.55$).

How reliable are these findings? Relative to some of the other employment tests in this study, we consider the DD test to be fairly weak. In particular, and despite our efforts, we question whether they effectively control for economic growth, a drawback this test shares with other tests in the literature. However, even if the test is not powerful enough to separate the minimum wage effect on, say, teenage employment from the effect of macroeconomic growth on such employment, this would underscore the negligible impact of the most recent wage increase on job growth. If the recent increase generated the economic upheaval that its opponents predicted, this would be reflected in the DD test. In this regard, the fact that the test does not uncover such dislocation speaks both to the weakness of the test and the small impact of the recent increase in employment rates of low-wage workers.

With these caveats in mind, we would summarize the DD tests as revealing no change in the employment rates of low-wage workers over the period of the recent minimum wage increase.

Test 2: Deere, Murphy, and Welch (1995)

Donald Deere, Kevin Murphy, and Finis Welch have developed a separate test of the employment impact of the minimum wage. In a 1995 paper published in the *American Economic Association Papers and Proceedings*, they found large job losses associated with the 1990 and 1991 increases in the federal minimum wage. In this section, we use the Deere, Murphy, Welch (DMW) approach to test the employment effects of the 1996 and 1997 increases. The results that we obtain here for the most recent increases differ markedly from those obtained by DMW in connection with the 1990 and 1991 increases. If anything, the DMW test indicates that the 1996-97 hikes in the minimum wage *increased* employment of groups disproportionately affected by the minimum wage.

The DMW framework is simple. They analyze movements in the employment rates of teenagers (ages 15-19) and less-than-high-school-educated adults (ages 20-54) in the 50 states and the District of Columbia over several years. They use movements in each states adult male employment rate to control for business cycle effects on teen or less-than-high-school-educated adult employment. They then judge the effect of the minimum wage by comparing state employment levels across years before and after the minimum wage hike. More formally, they estimate weighted least squares regressions on the following model:

$$e_{it} = \alpha_i + \beta c_{it} + \gamma_1 MW_{1t} + \gamma_2 MW_{2t} + \epsilon_{it}$$

where:

- e_{it} is the natural logarithm of the employment-to-population rate of teenagers or less-than-high-school educated adults in state i in year t ;
- α_i is a state "fixed effect";
- c_{it} is the natural logarithm of the state employment-to-population rate for adult males;¹¹
- MW_{1t} is an indicator variable that takes the value one in years after the first increase and before the second and zero otherwise;
- MW_{2t} is an indicator variable that takes the value one in years after the second increase and zero otherwise; and
- ϵ_{it} is a well-behaved disturbance term.

The coefficient β provides an estimate of the responsiveness of low-wage employment to changes in overall male employment. If β equals 1.0, for example, then a one percent increase in the employment rate for adult men would raise teen or less-than-high-school-educated employment

¹¹ DMW use the state employment-to-population rate for 15-64 year olds. We use the state employment rate for males 20 and older in regressions explaining teen employment rates and the employment rate for males 20 and older with a high school degree or more in regressions explaining less-than-high-school-educated adult (20-54) employment rates. Our approach avoids inducing a mechanical correlation between the state employment control variable and the dependent variable.

one percent. The coefficients γ_1 and γ_2 are, in the DMW framework, estimates of the employment impact of the minimum wage. If γ_1 equals -1.0, for example, that would suggest that the first increase in the minimum wage reduced employment one percent. A similar interpretation would hold for γ_2 .¹²

We use this basic approach to estimate the employment impact of the 1996-97 increases in the minimum wage using data from the basic monthly Current Population Survey, the same data analyzed in the preceding difference-in-differences test. Following DMW, we examine the employment impacts on six demographic groups: male, female, and black teenagers (ages 15-19) and male, female, and black less-than-high-school-educated adults (ages 20-54). We present two sets of estimates for each group. 1 2 3 4 5 6

Table 5 presents the first set of employment estimates for the six demographic groups. The data cover six eleven-month periods running from October 1991-August 1992 through October 1996-September 1997. During the first five of these six periods, the minimum wage was \$4.25 per hour; during the last eleven-month period the minimum wage was \$4.75.¹³ The results show little support for the view that the first minimum wage hike reduced employment opportunities for low-wage workers. The minimum wage appears to have *raised* employment of less-educated adult male workers (up 2.6%) and less-educated black workers (up 5.2%). These increases were economically meaningful and statistically significant. The 1996 increase had no apparent impact on the employment opportunities of female teens, black teens, or less-educated adult women. In two of these cases employment rose, in one it fell, but in none of the cases was the change statistically significant. The minimum wage appeared only to reduce employment opportunities for male teens (down 3.2%). On net, the results indicate that employment among all the effected groups increased.

Table 6 presents the second set of employment estimates for the same groups. These data cover seven consecutive six-month periods running from September 1991-February 1992 through

¹² Here, and in the tables below, we multiply the coefficient by 100.

¹³ The federal minimum wage increased from \$4.25 to \$4.75 on October 1, 1996 and from \$4.75 to \$5.15 on September 1, 1997.

September 1997-February 1998. This arrangement of the data allows us to examine the employment impact of both the October 1996 and September 1997 increases. The results provide even less support than those in Table 5 for the view that minimum wage hikes cost jobs. Both minimum wage increases appear to have *raised* less-educated adult male employment (up 2.5% after the minimum wage went to \$4.75 and then up 2.9% after the minimum wage went to \$5.15). Employment among less-educated black adults also increased dramatically after the second increase in the minimum wage (up 9.9%). The employment effects of the minimum wage were also, on net, positive for less-educated adult women, female teens, and black teens, though none of these changes was statistically significant. Employment opportunities appeared to decline for male teens, but the change was not statistically significant.¹⁴ Overall, these second DMW employment results suggest that the minimum wage increased employment among teens and less-educated adults.

In strong contrast to earlier findings using the DMW test, the results obtained here in connection with the 1996 and 1997 minimum-wage increases indicate that, if anything, the back-to-back wage hikes *raised* the employment levels of affected workers, with less-educated adults being the major beneficiaries.

Test 3: Card 1992

David Card (1992) has developed a third test of the employment effects of the minimum wage.¹⁵ He observed that there is wide variation across states in wage levels and, therefore, an increase in the federal minimum wage does not affect all states equally. A higher federal minimum wage should have a bigger impact on wages and employment in low-wage states and a smaller impact on wages and employment in higher-wage states. Card proposed examining state-level employment data from before and after a minimum-wage increase to see whether employment

¹⁴ We also tested for joint significance of the two minimum wage variables for male, female, and black teens and less-educated female adults. None of the pairs was jointly significant at the 10% level.

¹⁵ His research originally appeared in the *Industrial and Labor Relations Review*. It subsequently appeared in Card's book with Alan Krueger *Myth and Measurement: The New Economics of the Minimum Wage*. We follow the Card and Krueger treatment.

patterns differed systematically between low-wage and higher-wage states. If the traditional view that minimum wages reduce employment were true, we would expect that the imposition of a higher federal minimum wage would lower employment in low-wage states relative to higher-wage states. Card applied his test to the 1990 and 1991 increases in the federal minimum wage and found no systematic relationship between changes in teen employment rates across states and the share of a state's teens that were affected by the two federal increases. In this section, we apply Card's test to the 1996 and 1997 increases. Our results generally confirm Card's earlier findings. The two most recent increases in the federal minimum wage had little systematic impact on the employment opportunities of affected workers.¹⁶

Card's test takes the following form:

$$\Delta e_{it} = \alpha + \beta \Delta c_{it} + \gamma s_{it-1} + \epsilon_{it}$$

where:

- Δe_{it} is the change in the employment-to-population rate of teenagers or less-than-high-school educated adults in state i before and after the minimum-wage increase;
- α is a constant;
- Δc_{it} is the change in the employment-to-population rate of adults before and after the minimum-wage increase (assumed to be independent of the minimum-wage increase and, therefore, to control for state demand conditions);
- s_{it-1} is the share of working teenagers or less-educated adults in state i who earned between the old minimum wage and the new minimum wage in the period before the minimum wage increase (this is the share of workers in each state affected by the increase); and
- ϵ_{it} is a well-behaved disturbance term.

As with the DMW test, the coefficient β provides an estimate of the responsiveness of low-wage employment to changes in overall employment rate.¹⁷ The coefficient γ is an estimate of the

¹⁶ Card (1992) did not examine the impact on less-than-high-school-educated adult workers.

¹⁷ DMW use the male, 15-64 year-old employment rate; Card uses the employment rate for all workers 16-64. We use the employment rate for all adults 20 years and older in the regressions for teens and the employment rate for all adults 20 years and older with a high school degree or more in regressions for less-educated adults.

employment impact of the minimum wage. If γ is negative, then the minimum wage increase is associated with reduced employment opportunities since it means that employment fell in states with a high share of workers affected by the minimum wage relative to employment in states with fewer workers affected workers. Card also uses the same model to estimate the change in wages across states.¹⁸

We use this approach to estimate the employment impact of the 1996-97 increases in the minimum wage using employment data from the basic monthly Current Population Survey (CPS) and wage data from the Outgoing Rotation Group (ORG) of the CPS.¹⁹ We use the larger, basic CPS to provide the most accurate measure of employment rates; since the basic CPS does not include wage data for all respondents, we use the smaller, ORG to provide calculate the relevant wage measures. As with the DMW test, we implement the Card test on two samples. The first is a sample of three 11-month periods from October 1994-August 1995 through October 1996-August 1997 for the 50 states plus the District of Columbia. The first two 11-month periods predate the October 1, 1996 increase; the second 11-month period immediately follows that increase. The second sample consists of four six-month periods from September 1994-February 1995 through September 1997-February 1998, which allows us to look at the first six months of employment effects of the September 1, 1997 increase as well as the combined effects of the first and second increases over a 17-month period from October 1996 to February 1998.

Table 7 presents the first set of 11-month results for teenagers (ages 16-19). The regressions in columns one and two analyze the effect of the October 1, 1996 increase on teen wages; columns three and four examine the impact on teen employment. Columns one and three do not control for overall economic activity in each state; columns two and four use changes in the adult employment rate to attempt to control for economic growth. Panel (a) compares changes in teen wages and employment between October 1995-August 1996 (when the minimum wage was \$4.25) and October 1996-August 1997 (when the minimum wage was \$4.75)

¹⁸ The conventional employment elasticity is the ratio of β in the employment equation to β in the analogous wage equation.

¹⁹ DMW (1995) used data from the smaller Outgoing Rotation Group, which is a one-quarter sample of the basic Current Population Survey.

across states with different initial shares of low-wage teens. This first set of estimates suggests that the 1996 minimum-wage increase led to a statistically significant increase in the average teen wage, but also reduced teen employment by a statistically significant amount.²⁰ This estimate, however, is sensitive to the choice of pre-minimum-wage-increase period. In panel (b), which compares changes between October 1994-August 1995 (two years before the minimum-wage hike) and October 1996-August 1997 (the 11-month period immediately after the first increase), the minimum wage has an even larger effect on teen wages, but the employment effect is smaller and no longer statistically significant. Panel (c) illustrates how the Card test performs when there is no increase in the federal minimum wage. The minimum wage remained constant at \$4.25 between October 1994-August 1995 and October 1995-August 1996. As we would expect, under these circumstances, the share of low-wage teens in each state has no impact on the change in teen wages or teen employment. Overall, these first set of results indicate that the October 1, 1996 increase had a statistically significant impact on average teen wages, but had no clear cut impact on teen employment.

Table 7B displays corresponding estimates for less-than-high-school-educated adults ages 20 to 54. As with teens, the 1996 increase led to a statistically significant increase in the average wage of less-educated adults. The 1996 increase was also associated with a *rise* (significant at the 10% level) in less-educated adult employment in the test in panel (a).²¹ As before, however, this employment estimate is sensitive to the choice of the earlier comparison year. When we compare the less-educated employment change between October 1994-August 1995 (two years before the first increase) with October 1996-August 1997 (the 11-months after the first increase), the employment increase is smaller and is no longer statistically significant (see panel (b)).

Table 8A presents similar results for teenagers across both the 1996 and the 1997 increases. Panel (a) reports the impact of the 1997 increase on teen wages and employment rates. The 1997 increase raised teen wages by a statistically significant margin, but had only a small,

²⁰ Using the estimates from columns two and four, the estimated employment elasticity is $-0.110/0.145$ or approximately -0.8 .

²¹ The estimated employment elasticity is $0.197/0.368$ or about 0.5 .

statistically insignificant, positive effect on teen employment. Panel (b) shows the results from a test across both the 1996 and 1997 increases. The wage increase is large and statistically significant, while the employment change is small and statistically insignificant. Panel (c) also tests the wage and employment effects of the combined increases, using a year earlier base period. The results are almost identical to those in panel (b) –large, statistically significant, positive wage effects and small, statistically insignificant employment effects. Panels (d), (e), and (f) repeat the tests of the first increase performed in panels (a), (b), and (c) of Table 8A. The main purpose of these panels is to gauge how much the use of data for six-month versus 11-month periods may be affecting our conclusions. The six-month periods give results that are qualitatively identical to those with 11-month periods. As expected, however, the statistical precision of the six-month results is not as high as with the 11-month periods. These last three panels suggest, however, that the use of six-month periods does not substantially reduce the accuracy of the tests relative to the use of 11-month periods.

Table 8B displays the corresponding six-month results for less-educated adults. The test of the 1997 increase in panel (a) is the first that shows no significant impact of the minimum-wage hike on average wages. At the same time, the test indicates that the hike was associated with falling less-educated employment (significant at the 10% level). Across both increases in the minimum wage (see panels (b) and (c)), however, wages rose substantially, with no apparent impact on the employment opportunities of less-educated adults. Panels (d), (e), and (f) demonstrate that these six-month results are qualitatively similar to those obtained using the longer 11-month periods.

The Card test consistently finds a strong impact of the 1996 and 1997 minimum-wage increases on the wages of teens and less-than-high-school-educated adults. Results from the same test, however, suggest that the minimum wage has no consistent, measurable impact on the employment opportunities of these same two groups.

Test 4: Time-Series Estimates

Traditionally, economists have examined the employment effects of minimum wage increases using statistical analyses of time-series data. In this work, analysts examined the history of teenage employment rates and tried to discern, all else equal, the extent to which changes in the

minimum wage are associated with changes in the employment rates of teenagers. In this section, we briefly review the findings from the time-series work and provide an update which includes the most recent increase. We also introduce some important modifications to the earlier work which have been brought to bear on the question by economist Paul Wolfson (1997). We find that, as revealed by the conventional time-series methodology, the disemployment effect has both fallen and become less statistically significant over time. Moreover, correcting the traditional methodology to incorporate recent improvements in statistical methods (as suggested by Wolfson and others) reveals disemployment effects that are consistently economically small and statistically insignificant.

Previous Findings: A 1982 literature review by Brown, Gilroy, and Kohen neatly sums the pre-1990s conventional wisdom on the employment effects of minimum wage. Their review examined time-series models of the changes in the employment rates of low-wage workers (mostly teenagers), given an increase in the minimum wage, controlling for other factors which are thought to influence the supply of and demand for teenage employment.²² After an extensive review, they concluded:

“Time-series studies typically find that a 10 percent increase in the minimum wage reduces teenage employment by one to three percent...We believe that the lower half of that range is to be preferred...The effect of the minimum wage on young adult (20-24) employment is negative and smaller than that for teenagers.”

This finding seemed to corroborate economists’ intuition that increases in the minimum wage should lead to lower levels of employment among concentrated groups of low-wage workers. The magnitude of the effect, however, was small in the sense that even at the high end

²² Specifically, the minimum wage is measured using the Kaitz index. This index is a measure of the nominal minimum wage relative to average production, non-supervisory wage, measured at the industry level and weighted by both industry minimum wage coverage and teenage industry employment. See data appendix for complete description of both this index and the control variables in the model.

of the Brown et al estimate, many more workers would benefit from the increase than would be disemployed.²³

A few years after the Brown et al study, Wellington (1991) published an update of the earlier work, with both more years of data (Brown et al's analysis stops in the late 1970s; Wellington's goes up to 1986) and greater attention to the seasonal variation in the data (as we have noted throughout, teenage employment rates are highly seasonal). These additions led her to conclude that "a 10 percent increase in the minimum wage is estimated to reduce teen employment by less than 1 percent—the lower end of the range of previous estimates."

Most recently, Card and Krueger (1995) updated Wellington's work by taking the analysis up to 1993, thus capturing the 1990-91 increases in the minimum. Interestingly, these updates revealed a consistent decline in the negative employment effect of the minimum wage, suggesting that the disemployment effects of the minimum wage have been falling over time.

In order to further test this development, we have updated the traditional time-series model and examined the minimum wage effect on teenage employment in three different time periods.²⁴ Each period has the same starting point—1954—but we add extra years in each model, thus tracking the change in the employment effect as more information on the relationship between teenage employment and minimum wages become available.

Table 9 shows the results for the different time periods. Each column represents the negative employment effect of the minimum wage over the respective time span. The analysis is constructed so that the coefficients in the first row of each panel represent teenage employment elasticities with respect to the minimum wage. Thus, the first row of the top panel suggests that between 1954 and 1979, a 10% increase in the minimum wage would lead to a 0.95% decrease in teenage employment,²⁵ an effect considered statistically significant by conventional social science

²³ See Richard Freeman (1996) for an elaboration of this point.

²⁴ See data appendix for a discussion of data sources and model specification.

²⁵ Technically, the coefficient represents the change in the teenage unemployment rate given a one percent change in the Kaitz index (see data appendix).

standards.²⁶ This effect falls to -0.75% when 10 more years of data are added, and again to -0.66% when we include the most recent data (which incorporates the 1996-97 increases in the minimum). Thus, like Card and Krueger's update, our addition of the time period covering the most recent increase leads to a further lowering of the disemployment estimate. Note also that the most recent two estimates (the second and third columns in the table) are not statistically significant at the generally accepted level of $t > 1.96$ (in absolute value).

New Time-Series Research: Since models of the type described above were introduced, there have been some important advances in the approach to time-series analysis. This new work pays more careful attention to two shortcomings of the earlier research. First, the early time-series models inadequately adjust the data for seasonality, and second, they pay inadequate attention to "stationarity" conditions that alter the statistical properties of the tests of the minimum wage.²⁷

Economist Paul Wolfson (1997) takes account of both of these problems in a recent re-analysis of the same time-series used above.²⁸ To account for the non-stationarity problem, Wolfson differences some of the key variables (see data appendix); to account for the seasonality of teenage employment rates (the dependent variable), he uses lagged seasonal differences as a regressor.

The results from our update of these regressions are shown in the bottom panel of Table 9.²⁹ There are three points to consider from this panel. First, the coefficients are about half the magnitude of those from the top panel, which fails to account for the problems raised by Wolfson. Second, note that here too the coefficients decline in magnitude as the model is updated. Finally,

²⁶ A t-statistic with an absolute value greater than 1.96 is considered statistically significant.

²⁷ A stationary series is one whose mean and variance remain constant over time. Time-series regressions using non-stationary variables are likely to yield spurious results.

²⁸ Wolfson's analysis uses data only up to 1979. We update the model through 1997, using a slightly different specification (see data appendix), since not all of the control variables are available through the full period.

²⁹ The results are fully reported in the data appendix.

each of the t-statistics is well below (in absolute value) conventional significance levels. Thus, by this time-series model, the disemployment effect on teenage workers, while negative, is statistically indistinguishable from zero.

In sum, the time-series results provide further evidence that the job loss effects from minimum wage increases have been over-emphasized in the debate over the policy.

How Can We Explain Our Results?

The preceding section presented a wide range of estimates of the employment effects of the minimum wage based on four different statistical tests applied separately to teenagers and less-educated adult workers across two increases in the federal minimum wage. As the employment elasticities in Table 10 demonstrate, the data provide little support for the view that minimum wage increases systematically reduce employment opportunities for teenagers or less-educated adults. The estimated employment effects are generally economically small and statistically insignificant; they are almost as likely to be positive as negative; and vary unpredictably across demographic groups.

In this section, we attempt to explain what it is about the low-wage labor market that might account for these results. We first try to make sense of our findings in the context of the standard "competitive" model. We then examine how new models based on the idea of "dynamic monopsony" might offer a better explanation.

The Competitive Model

To organize their thinking about low-wage labor markets and the minimum wage, economists have traditionally imagined a labor market with several characteristics:

- many small employers and many individual workers participate;
- all employers and all workers can costlessly enter or leave the market;
- all employers can costlessly hire or fire workers and all workers can costlessly find or leave employment;
- all employers and all workers have perfect, instantaneous, knowledge of the technology, tastes, and abilities of all market participants;

- each worker's productivity is identical³⁰ and known to each employer before the worker is hired; and
- all workers work to their full potential without the need for guidance or supervision.

These and a few other technical assumptions describe the basic world of the "competitive" model of the low-wage labor market.³¹

Economists interpret the assumption that there are many small employers and many individual workers as a guarantee that neither employers (through employers' organizations) nor workers (through unions) can collude to set wages. In practice, the assumption that economic actors are small relative to the size of the market also means that all participants in the market are too small to influence prices or wages one way or another. Thus, all actors are "price-takers," rather than "price-setters" as, say, in the case of a monopoly.

The logic behind the conclusion that individual actors are "price-takers" gives a feel for the way economists use the simple competitive model to draw economic conclusions and to evaluate policies such as the minimum wage. Imagine that one of the small firms thought that it could increase its profit by paying its workers a lower wage. If the firm were to lower its wage by 10%, the competitive model predicts that the employer would immediately lose all its workers and be forced to close its doors. Workers have perfect, instantaneous, knowledge of the market. They can switch jobs instantly and costlessly. Firms also have perfect, instantaneous knowledge of the market and can hire new workers instantly and costlessly. In this "competitive" market, the individual firm's decision to lower its wages by 10% immediately triggers a chain of events: the

³⁰ The assumption that workers' productivity levels are identical can easily be relaxed to allow for workers to have different levels of productivity without significantly changing the arguments that follow.

³¹ The model is called "competitive" because firms and workers are atomistic agents that eschew collusion (such as cartels or employers' associations) or cooperation (such as trade unions) with one another, choosing instead always to compete head-to-head.

offending firm's workers quit; competitors poach the firm's workers by offering the going wage; and the competitors gobble-up the now bankrupt firm's market share.³²

Imagine, on the other hand, that a different small employer, motivated by a desire to improve the living standards of its workers, decided to give its staff a 10% pay increase. As with the preceding example of a pay cut, the logic of the competitive model predicts imminent bankruptcy for the well-intentioned firm. If, on the one hand, the firm attempts to pass the 10% increase in wage costs onto its customers in the form of higher prices, then competitors paying the going wage --who have not experienced an increase in costs-- will continue to sell the product at the old price and capture the expensive firms' share of the market.³³ If, on the other hand, the firm decides to pay higher wages but still sell its product at the going rate, the firm's lower return will drive it out of business.

In such a market, the introduction of a minimum wage unambiguously lowers employment. Again, the logic is simple. Before the minimum wage goes into effect, individual employers can hire as many workers as they'd like at the going wage;³⁴ similarly, all workers can effortlessly find employment at the going wage. Firms operate without vacancies (or they are posted and filled instantaneously); workers never experience involuntary unemployment (they move costlessly and instantaneously from school to work or from job to job). After the imposition of a binding minimum wage, however, firms would reduce employment until the point where the productivity of the worker next in line to be fired just equaled the new minimum wage.³⁵ At the same time, workers who previously worked for less than the minimum wage

³² Strictly speaking, the events play out instantaneously and simultaneously.

³³ This underscores the importance of the assumption that neither employers nor workers can collude.

³⁴ The supply of available labor is unlimited from the perspective of the individual firm, which is small compared to the total market. The industry as a whole must still increase the going wage to attract more workers to the industry.

³⁵ Even though all jobs and workers are alike, the productivity of each newly created job is lower than the next most-recently created job because of diminishing marginal returns, the idea that each additional worker contributes marginally less than the previous worker. As employers reduce the number of workers after the minimum wage rises, the productivity of the marginal job

would still like to work at the new minimum wage, but can't, and would now become involuntarily unemployed.

While we have several quarrels with this view of the low-wage labor markets, which we will address below, we believe that it is important first to attempt to explain our employment results in the context of this model. Given the unambiguous predictions of the simple, competitive model, how is it that the employment results generally appear to be economically small and statistically insignificant? How is it that the employment results appear almost as likely to suggest employment gains as employment losses after the two minimum-wage increases studied here? We examine three possible "competitive" explanations.

Short- versus Long-Run Effects

The first possibility is that we have not waited long enough to observe the employment declines. For a variety of reasons, firms may not be able to adjust their employment levels quickly. In the short run, before firms can change their investment in plants and machinery or reorganize the way work is done, they may not be able to alter their employment patterns significantly. Trucks, for example, require one driver each. In the short-run, a low-wage trucking firm would face little choice but to absorb the higher wage costs. In the long-run, however, the firm could buy larger trucks that would allow it to ship the same amount of material in fewer trucks with fewer drivers.

We are skeptical that this short-run versus long-run issue is important here. The data we presented above examines employment losses over periods ranging from six to eighteen months, which should be more than enough time to observe any significant job losses. First, as Table 1 indicates, most of the jobs affected by the minimum wage are in the service sector, where the scope for quickly adapting production processes is probably much greater than in more capital-intensive, manufacturing industries.

therefore rises. A slightly more sophisticated model would allow for workers to have different levels of productivity. In this context, the minimum wage would displace the lowest-productivity workers first. Firms would cut back until the productivity of the next worker to go was equal to the minimum wage.

Second, the level of job turnover among low-wage workers is high --probably on the order of 50% per year.³⁶ This means that a firm with 100 jobs will, in the course of a year, have 150 different employees. For simplicity's sake, imagine that these workers leave in equal shares during each month of the year (about 4% per month). Even if the employment losses are at the high end of those predicted by the harshest critics of the minimum wage --that a 10% increase in the minimum wage reduces employment 3%-- firms could adjust employment fully in only a few months. For example, the 50-cents increase in the minimum wage on October 1 represented an 11.8% increase. Using the extreme estimates for job loss, employment would have fallen about 3.5%, which amounts to less than one-month of natural employment turnover. Even if job turnover were implausibly low -- say, just 10% per year -- the necessary employment adjustment would take only 4-5 months.³⁷ This analysis suggests that we can reasonably assume that if the recent minimum wage increases did lower employment, the eighteen months of data analyzed here would be more than sufficient to observe these reductions.

Adjusting Hours, Not Jobs

Even if the competitive model adequately captures the workings of the low-wage labor market, we still might observe little change in employment after the minimum wage goes up because firms may choose to reduce the hours worked by their existing employees rather than to reduce their total number of employees.³⁸ At one level, this makes perfect sense in the context of the competitive model. After all, it is the cost of an hour of work, not the cost of hiring an

³⁶ Card and Krueger (1995, 167), citing data from the Bureau of National Affairs (1985) estimate that turnover in fast-food restaurants may be as high as 300% per year.

³⁷ Some critics of the minimum wage have argued that recent tests have failed to find employment losses because firms begin to make employment adjustments as soon as they believe that the minimum wage rise is inevitable (sometimes described as when the bill is signed, when the bill passes Congress, or the point when it is clear that the bill will pass and be signed into law). Given that the cost of adjusting low-wage employment is probably low, we see few advantages for firms to begin the process early --since during the adjustment period they will be operating with a staff that is below that which is profitable at the going wage.

³⁸ Some evidence exists that firms may reduce employees' hours, rather than the number of employees (see Neumark and Wascher, 1996, p. 12). For theoretical discussions of substituting hours for workers, see Michl (1996) and Palley (1995).

individual worker, that has risen. Firms should seek to reduce their use of the input whose price has risen (hours of work), not their use of an input whose price, in and of itself, has not changed (keeping an employee on the roster).

If firms adjust hours instead of employment levels, then the preceding tests of job impacts would not capture the true economic impact of the minimum wage increase. It is also true, however, that under such circumstances the increases in the minimum wage would have had an unambiguously positive impact on the affected workers. To illustrate, imagine again that the "job losses" were at the high-end of those proposed by opponents of the minimum wage. A 10% increase in the minimum wage would reduce hours (not employment) about 3%. After a 20% increase in the minimum wage, each minimum-wage worker would have hours cut about 6% (this represents about one hour per week on a 20-hour week). Meanwhile, each minimum-wage worker would receive 20% more pay for each remaining hour worked (in this example, 20% more for the remaining 19 hours worked). On a weekly basis, workers would receive 14% more in income for 6% fewer hours on the job, a development which few workers would oppose.³⁹

The usual objection to the idea that firms would reduce hours rather than employees is that firms face "fixed costs" for keeping workers. These fixed costs make it more economical to concentrate the reduction in hours worked on a limited number of employees. This allows firms to reduce the total number of hours to the newly desired level while, at the same time, reducing the fixed costs associated with keeping an employee on the roster (administration, hiring, training, benefits, and possibly others).

The fixed-cost argument is intriguing and raises several subtle issues. First, fixed costs are inconsistent with the simple competitive model, which assumes that firms can hire any number of hours of work as long as they pay the going wage. With fixed costs, firms must pay the going rate for hours worked, plus a cost for each additional worker. To the extent that these fixed costs are low, firms will be more likely to respond to increases in the minimum wage with reductions in

³⁹ This calculation ignores "efficiency" losses resulting from reductions in output of goods produced using minimum-wage workers. Economists generally consider these losses to be small relative to the distributional changes.

hours rather than workers, with the resulting unambiguous improvement for workers.⁴⁰ To the extent that fixed costs are high, the competitive model may not adequately capture the workings of the low-wage labor market, a situation that we will discuss below when we examine an alternative model of the low-wage labor market.

Second, the fixed-cost argument may overstate the net costs of keeping a worker on the payroll because the argument ignores the potential *benefits* to low-wage employers of keeping a large roster of employees, particularly in service-sector industries with large fluctuations in demand. Given that low-wage workers may be less committed to their jobs than workers at higher wages, keeping extra low-wage workers on the roster (at fewer hours than they would like to work) reduces staffing crunches when a current worker calls in sick or quits. A large roster in the context where many workers would like to work more hours at the going wage may also allow employers to motivate "good" workers by providing them with extra hours or to punish "bad" workers by withholding those extra hours. If some low-wage employers use these or similar strategies, the net fixed costs of keeping employees on the roster may be small. As before, this suggests that firms may be more likely to respond to minimum-wage increases by reducing hours, rather than by reducing employment, a response that would leave workers unambiguously better off because, over plausible ranges, workers' weekly incomes would rise even as their hours worked fell. In any event, the possibility that firms could employ these kinds of strategies implies a substantial departure from the competitive model.

Small Effects

Even in the context of a competitive model, we might notice no systematic decline in employment for a third reason: the employment effects may be too small to be reliably detected by the available data. Alternatively, the employment effects of the minimum wage could be larger, but still small relative to the other factors that determine low-wage employment. These other determinants of low-wage employment include overall demand in the economy (whether the

⁴⁰ For large increases in the minimum wage, employers may cut hours more than they must raise wages. Under these circumstances, individual workers would be made worse off. The statement in the text holds over the range of increases in the minimum wage for which the elasticity of demand for low-wage workers is less than one in absolute value.

economy is booming or in a recession), specific demand for low-wage workers (which depends, among others, on the changing nature of technology and the organization of work), changes in the supply of low-wage workers (in response, for example, to changes in welfare policies or the levels of immigration), and other factors relevant to particular labor markets.

All the tests we presented above attempt to control for what is probably the most important determinant of low-wage employment--the level of overall demand in the economy. That the results seem to vary substantially across recessions and booms suggests, however, that these controls might not be adequate.⁴¹

The tests generally do not control explicitly for other factors such as changes in the relative demand for, or supply of, low-wage workers.⁴² The assumption behind all the tests is that these other factors changed little over the six- to eighteen-month period under study and therefore shouldn't contaminate the results. While other economic research suggests that this widely-used assumption is reasonable, the volatile nature of the employment estimates raises some doubts.

If the minimum wage effects are too small to measure reliably or are small relative to other determinants of the low-wage employment, then we probably should base conclusions about the employment effects of the minimum wage on a wide range of tests implemented in a wide range of economic conditions. In fact, in addition to the four tests presented here in connection with the 1996-97 increases, a large body of research over the last decade has consistently found no significant connection between the minimum wage and job loss.⁴³ Without abandoning the

⁴¹ The Deere, Murphy, Welch (1995) test shows substantial employment losses in connection with the 1990-91 minimum wage hikes, which also correspond with an economic recession; the same test generally shows a neutral or positive employment response to the 1996-97 increases, which took place in the context of a booming economy. The Card (1992) test of state variation in the impact of the minimum wage shows no employment impact of the minimum wage in 1990-91 and a negative impact in 1996-97. The Card test results run counter to the expected bias from a failure to control for the business cycle and argue that other unmodeled factors played a role in one or both of the tests.

⁴² The time-series tests, which do include some supply factors, are an exception.

⁴³ See, for example, Belman and Wolfson (1997, 1998); Card (1992a, 1992b); Card and Krueger (1994, 1995); Dickens, Machin, and Manning (1995); Evans and Turner (1996); Katz and Krueger (1992); Machin and Manning (1995); Neumark and Wascher (1995); Spriggs and

competitive model of the labor market, Nobel-prize-winning economist Robert Solow has concluded that "the main thing about this research is that the evidence of job loss is weak. And the fact that the evidence is weak suggests that the impact on jobs is small."⁴⁴

A New Model: Dynamic Monopsony

The competitive model, which assumes that all employers and workers participate in the labor market on an equal footing and with perfect information about the nature of the market, is obviously unrealistic. That the model is unrealistic, however, is not, in and of itself, a problem. In fact, it is precisely the unrealistic nature of models that makes them useful. A road map of Virginia, for example, is extremely unrealistic: it is completely flat and measures only a few square feet, but these are also exactly the features that make it useful. A map the size of the entire state, complete with the Blue Ridge mountains, would not fit in your glove compartment. As with a road map, any model should be judged not on how superficially "realistic" it is, but, rather, on how well it helps you to find your way.

Our findings on the employment effects of the 1996-97 increases in the minimum wage, which are consistent with a large body of recent research on the topic, argue that the competitive model has not been particularly helpful in predicting the job impact of the minimum wage.⁴⁵ Research over the last decade suggests that one assumption of the competitive model may play a central role in producing the less-than-satisfactory results. The offending assumption is that firms paying less than the going wage can retain or attract no workers, while firms paying the going wage can hire all the workers they desire and therefore never see any need to pay above the going wage.⁴⁶

Klein (1994); Wellington (1991); Wessels (1997). Wolfson (1998), and Zavodny (1996).

⁴⁴ Louis Uchitelle, "Minimum Wage and Jobs," *The New York Times*, January 12, 1995, p. D1.

⁴⁵ Belman and Wolfson (1997) have framed the evaluation of the competitive model in this way. For a more general, theoretical analysis see Card and Krueger (1995, Chapter 11) and Manning (1994, n.d.).

⁴⁶ This assumption is closely related to the conclusion that firms have no discretion over the wages they pay their workers.

This assumption about the supply of labor to individual firms, like many others made by the competitive model is unrealistic. As economist Alan Manning has noted, a firm that lowers its hourly wage by one cent per hour is very unlikely to lose its entire workforce instantly.⁴⁷ Workers cannot easily find identical, alternative employment at the going wage and, even if they could, they would not be able to make the switch without incurring some personal or economic cost. Likewise, a firm that pays above the going wage is not surely on the path to bankruptcy. The higher wage may facilitate recruitment, thereby lowering associated costs of keeping vacancies open; or reduce turnover, thereby lowering training costs; or motivate workers, with a resulting increase in productivity. Finally, firms that pay the going wage often are not able to find all the workers that they would like to hire at the going wage.⁴⁸

This more realistic view of the labor supply facing individual firms suggests that firms have some discretion in setting their wages. Among otherwise identical firms, some may choose to pay low wages and incur higher recruitment, training, or supervising costs; others, however, might choose to pay higher wages and enjoy lower recruitment, training, or supervising costs. In the context of the minimum-wage debate, the key questions are: how does altering the assumption about firms' discretion in wage setting change conclusions about the economic impact of the minimum wage and how important are any of these theoretical effects in the real world.

Over the last decade, many economists have incorporated into otherwise standard economic models the assumption that small, identical firms have some discretion in the wages that they pay.⁴⁹ Almost all of these models, which have come to be known as "dynamic

⁴⁷ See Manning (n.d.). The discussion draws on this introduction to dynamic monopsony.

⁴⁸ Anecdotal accounts abound, for example, that fast-food restaurants in tight labor markets offer current employees bonuses for recruiting new workers.

⁴⁹ Most of the papers don't assume firms can choose the wage, but this characteristic flows from assumptions about frictions, usually related to information flows, in the labor market. For example, unemployed workers are not instantly aware of which firms currently have vacancies and instead must search. In this context, firms that offer higher wages fill vacancies more quickly than those offering lower wages. An incomplete list of papers describing dynamic monopsonistic models includes: Acemoglu (1997); Bhaskar and To (1996); Burdett and Mortensen (19xx); Manning (1994); Palley (1996); Swinnerton (1996); Zavodny (1995).

monopsony" models, make predictions about the employment impact of the minimum wage that differ significantly from the simple competitive model.⁵⁰ In these new models, an increase in the minimum wage, over certain ranges can increase both the wages and employment of low-wage workers. Once the minimum wage moves above a certain level, however, these new models, like the simple competitive model, also predict that employment of low-wage workers will fall.⁵¹

The intuition behind these predictions is fairly straightforward. Imagine the case of a firm that currently pays below the proposed new minimum wage. That firm will have a higher vacancy rate, higher quit rate, higher training costs, and possibly lower average productivity than a competitor already paying the new minimum wage rate. The proposed increase in the minimum wage would lower the vacancy rate, lower the quit rate, reduce training costs, and possibly increase average productivity at the low-wage firm. Direct labor costs will be higher, but indirect labor costs related to recruitment, training, and supervising workers will be lower because vacancies will be easier to fill, turnover will be lower, and work effort higher at the new wage. To fix the idea, take the simple case of a small, low-wage firm with 20 employees that generally operates with two unfilled vacancies. After a minimum-wage increase, the firm may find it easier to recruit new workers and to retain existing workers. After the minimum wage increase, the firm may now operate with 21 employees and just one vacancy.

⁵⁰ The term "dynamic monopsony" refers to the connection between these models and older, static, models of "monopsony" in labor markets, the most familiar of which is the case of the one-company town. In the one-company town, the employer faces an upward sloping supply of labor -- in order to increase its work force, the firm must increase the wage it pays new employees (and usually the wage it pays its existing employees as well). A well-known result in labor economics establishes that under such circumstances, within limits, the introduction of a minimum wage can raise workers wages and increase total employment. Most textbooks dismiss monopsony as a theoretical curiosity since there are few company towns. The recent monopsony models share important features with this earlier model, but have been described as "dynamic" because it is the dynamics of the multi-employer labor market (usually driven by information) that give a degree of monopsonistic power to many, small employers.

⁵¹ The "tipping-point" is when the minimum wage reaches the wage that would be set in a perfectly competitive market. In a dynamic monopsonistic setting, the market wage is below the competitive equilibrium wage.

Of course, if the minimum wage is set too high, then employment would fall even in a labor market characterized by dynamic monopsony. Beyond a critical value of the minimum wage, the increases in the direct labor cost exceed the reductions in indirect labor costs and employment falls. Unfortunately, economic theory gives us little practical guidance about this critical level of the minimum wage and we must therefore fall back on the empirical analysis of the employment effects of historical increases in the minimum wage. Our empirical findings with respect to the 1996-97 increases and research by many others looking at the 1990-91 and earlier increases suggest that the low-wage labor market in the United States is still below the critical level where moderate increases in the minimum wage would result in significant job losses.

One question remains. If firms can lower costs by raising wages, why don't they raise wages on their own, without a government-mandated increase in the minimum wage? In labor markets characterized by dynamic monopsony, firms are effectively free to choose their own business strategy. Remember, firms have no choice in a perfectly competitive market, as illustrated in the earlier examples of competitive firms seeking to lower or raise their workers' pay. Monopsonistic firms can choose the "low road" with low wages and high indirect costs or the "high road" with high wages and low indirect costs.⁵² The formal modeling process reveals that, thanks to the offsetting nature of the direct and indirect labor costs, both the low road and the high road are equally profitable to firms.⁵³ In this context, a minimum-wage increase simply compels firms to choose the "high road," rather than the "low road." What is more, the shift to higher employment and higher output means that the minimum-wage increase has the added bonus of increasing the economy's efficiency.

The dynamic monopsony model, which captures the direct and indirect costs facing employers, is theoretically more appealing than the cruder competitive model. More importantly, the dynamic monopsony model makes predictions about the effects of the minimum wage that are more consistent with the decidedly mixed empirical results summarized in Table 10 and reported in a large body of recent research. Competitive models predict unequivocally that minimum wage

⁵² Or some combination of the two extremes.

⁵³ This is true in equilibrium.

increases will reduce unequivocally the employment opportunities for low-wage workers. Dynamic monopsony models suggest that moderate increases in the minimum could raise employment or leave it unchanged. At the same time, dynamic monopsony models allow that large increases in the minimum wage will lower employment.

The competitive model predicts that, *all else equal*, raising the price of labor will reduce the demand for labor. The dynamic monopsony model illustrates that all else is *not* held equal because raising the wage can reduce employer costs in other dimensions. Economic theory indicates that incorporating these small doses of reality into formal economic models can lead to radical changes in the impact of the minimum wage on employment opportunities in the low-wage labor market. The empirical evidence of small, even occasionally positive, employment effects of the minimum wage is more consistent with new models based on dynamic monopsony than they are with traditional models based on competitive assumptions. Taken together, the new theoretical models and the weight of empirical evidence over the last decade argue for a serious reevaluation of the way that we think about the low-wage labor market and the effects of moderate increases in the minimum wage.

Conclusion

Even as our economy has grown over the past few decades, low-wage workers have fallen far behind. Over the 1980s, this problem was in large part generated by the nine year decline in the real value of the minimum wage. Congress acted to reverse this decline by raising the minimum wage twice so far in the 1990s, restoring 82% of the 1979 value of the wage floor.⁵⁴ These increases have predictably led to heated debates over whether they would have their intended consequences of lifting the wages and incomes of low-wage workers and their families. In this review of the impact of the 1996-97 increase, from \$4.25 to \$5.15, we find that by increasing the earnings of low-wage workers without leading to significant job losses, the policy is working.

Those who benefitted from the increase were mainly low-wage adult workers, most of whom were female. Close to half (46%) worked full-time, while another third worked at least 20 hours per week. The average minimum wage worker brought home over half (54%) of their family's weekly earnings, and most of the benefits from the increase were concentrated among low-income working families.

We ran a wide battery of tests of the job loss effect of the increase, focusing on the employment rates two groups of low-wage workers: teenagers and adults with less than a high-school degree. Our findings were for the most part statistically insignificant, suggesting that the increase had no effect on the job prospects of these two groups. The estimates from these employment tests are generally economically small and statistically insignificant; they are almost as likely to be positive as negative; and vary unpredictably across demographic groups. One of the tests of the employment effects, initially proposed by minimum wage opponents Deere, Murphy, and Welch, shows the net employment of affected groups *increasing* after the minimum wage increase. Our update of the traditional method for estimating minimum wage employment effects (time-series models) reveals a statistically insignificant effect, and one that is less than half the magnitude of even the low-end of the earlier estimates.

⁵⁴ The 1979 minimum wage, in 1997 dollars, was \$6.29.

How do we interpret these varied results from the employment tests? Our findings certainly fail to support the traditional economic model which unequivocally predicts job loss from a minimum wage increase. With this in mind, we offer a different, and in our view, more realistic view of how low-wage labor markets absorb moderate minimum wage increases. This view stresses the dynamic nature of low-wage sectors, incorporating various inefficiencies, such as high-turnover and vacancies, into the model. In this model, minimum wage increases of the magnitude of the 1996-97 increase have the potential to reduce such inefficiencies, thus increasing employee pay without lowering employment.

Data Appendix

Table 1: Characteristics of Minimum wage and Other Workers

Except for the addendum, the data from this table come for the CPS ORG as described in the final section below (Description of Wage Data). The period of observation, October 1995-September 1996 was chosen as it is the year before the first step of the minimum wage increase. Thus, the affected group are those workers who earned between the old minimum of \$4.25 and the new minimum of \$5.15. As in the rest of this report, and unlike the BLS classification system, Hispanics are an exclusive category.

For the addendum—share of weekly earnings contributed by minimum wage workers—we use the 1997 March CPS as described in the next section. The March database is used here because it offers a more reliable set of family identifiers than the ORG, enabling us to sum family weekly earnings among families with an affected worker. Note that since the first step of the increase had been implemented by March of 1997, the affected range then was \$4.75-\$5.14. We use usual weekly earnings in march of 1997 from the outgoing rotation group in the March data for the calculations in this part of the table.

Table 2: Distribution of Gains from the Increase

These data are derived from the March 1997 Current Population Survey (CPS). The March CPS includes a retrospective supplement wherein respondents are asked to provide information on the prior year's income. We took hourly wage data, however, from the March ORG, as described in section x above, since we judged these wage data to more accurately reflect the wage structure over the period of interest. Information on annual income, however, is from 1996.

At the time these data were collected, March 1997, the Federal minimum wage was set at \$4.75. Thus, the affected range was defined as \$4.75-\$5.14. We first calculated their hourly increase as a result of raising the minimum to \$5.15, as would occur on September 1, 1997. We then multiplied this value by their annual hours worked in 1996. This product represents their annual gains from the increase (note the assumption of no hours reduction). We then divided families in quintiles based on their annual income, with an equal number of persons (not families)

in each quintile. Finally, we calculated the share of income and wage gains that accrued to each quintile.

As noted in the text, the table focuses on families headed by a prime-age (25-54) person. In order to test the sensitivity of this restriction, we examined the distribution of all working families (again, including one-person units). These results are shown in Table A1. The gains of the increase are slightly more concentrated at the bottom of the income scale, as might be expected since we have now included families headed by younger persons, who typically have lower earnings and incomes than prime age families. Nevertheless, the distributional results are quite similar, with the gains from the increase concentrated among working families in the bottom 40% of the income distribution.

Tables 3 and 4: Differences-in-Differences

The data for this table come from the basic monthly files of the Current Population Survey (CPS), the primary source of labor market microdata on employment, unemployment, wage rates, and demographics. Each month the Census Bureau, under contract with the Bureau of Labor Statistics (BLS), collects nationally representative data from approximately 50,000 households. Sample weights, which represent the inverse of the probability that a person with specific demographic and geographic characteristics will be sampled, are provided so the data can be "weighted up" to national levels. These data provide the basis for the monthly unemployment rate, released by BLS on the first Friday of each month.

The employment rates in Table 3 are calculated from the weighted sample over the time periods shown. For example, the 47.6% employment rate for teenagers in column 1 represents the average weighted employment levels from April to September 1995 divided by the average weighted population level over that same period.

One advantage to using the basic monthly files is that their sample sizes are large enough to allow for fairly reliable disaggregation by demographic group. For example, there were an average of around 7000 unweighted cases per month of 16-19-year-olds, with about 5,000 white, slightly less than 1,000 African Americans, and 750 Hispanic teens. (Note that our racial/ethnic classifications, unlike those of BLS, are exclusive. In BLS data, Hispanics can be in other racial categories; in our data, they are in an exclusive category.)

Standard Errors: Large sample sizes are considered advantageous in quantitative analysis because statistical reliability rises with the size of the underlying sample. Nevertheless, any sampled data is prone to sampling error, represented by standard errors in the second to last column in Tables 3 and 4.

Given the nonrandom sampling framework of the CPS, the calculation of standard errors is not straightforward.⁵⁵ The calculation of the most reliable standard errors would call for the use of special sampling weights that are not included on the public use file. BLS publishes such standard errors for many of its estimates, but these rarely correspond to either our time frame or demographic groups. Therefore, we needed to derive an efficient and reliable method for estimating standard errors for the many categories of low-wage workers which we examine.

We began by using a slightly altered version of the general formula for the standard error of a rate:

$$SE = \sqrt{\frac{p(1-p)}{n}}$$

Install Equation Editor and double
click here to view equation.

p in this case is the weighted rate, while n is the unweighted average of the population in question over the time period. Averages, instead of sums, are appropriate because 75% of the cases in the monthly CPS are in the sample one month to the next, due to the sample rotation procedure. We adjust this value by a factor provided by BLS for data over longer time periods. This factor, from various tables in the appendix to the monthly publication *Employment and Earnings*, deflates the standard error slightly due to the independence of 25% of the monthly cases. By calculating rates and standard errors for some of the same groups of persons published in *Employment and Earnings*, we determined that this method was acceptable for levels.

The same publication allows us to calculate BLS's standard errors for changes, and these revealed that our approach tended to overestimate standard errors of differences and thus introduce the possibility of incorrectly rejecting significant findings. In order to avoid this

⁵⁵ These issues are discussed in the BLS's monthly *Employment and Earnings*. See, for example, pp. 225-42 in the January 1997 issue.

possibility, we further adjusted the standard errors of the differences by the ratio of the BLS standard errors of differences to our previously adjusted standard errors. Including both the deflation factor noted above (which lowers the standard error due to the inclusion of more independent cases) and the correction for the over-estimate just noted, we derived an adjustment factor of 0.781.⁵⁶

Adjusting for Overall Growth and State Effects: As discussed in the text, we attempt to extract the effect of overall economic growth on our estimate of the impact of the minimum-wage increase on employment rates. The adjusted value appears in column 8 in Table 3. We produced this adjustment by regressing the time series of employment rates (prior to the increase) for the various groups in the table on the employment rates of workers 25-54 years old (by gender), a trend variable, and dummies for the summer months (since the employment data were not seasonally adjusted). We then multiplied the coefficient on the 25-54 variable by the change in those adults' employment rates over the periods in question, and subtracted this value from the raw estimate in column 7 of Table 3. Since the growth in the employment rates of adults is a good proxy for overall labor market growth, this procedure should remove the effect of such growth.

In order to adjust for state effects (the different impact of state economies on the employment rates of teens and young adults), we estimated a weighted linear probability model (1=employed, 0=not employed) for the CPS microdata with dummy variables for each demographic group in each time period and for 50 of the 51 states including the District of Columbia. Without a constant term, the coefficients on the dummies for each demographic group in each time period represent the employment rate of that group in that time period, controlling for "state effects."

Time-Series Estimates

The models in this section regress the teenage employment rate on the logged Kaitz index and a set of controls, using quarterly, non-seasonally adjusted data from 1954-97. For 1954-93 we use the data set used by Card and Krueger (1995, Chapter 6); for 1994-97 we updated the

⁵⁶ Note that this factor is slightly larger than that used in our earlier briefing paper (Bernstein and Schmitt, 1997). This is due to our use of updated BLS parameters.

available variables (as noted below, all variables in Card and Krueger Table 6.5.A were updated, except the share of teenagers in the armed forces, which is not available after 1993).

The Kaitz index, as described in the text, is a coverage weighted estimate of the nominal minimum wage relative to the average production worker wage. The index is also weighted by teenage employment density by industry, as well as by industry coverage rates (see Wellington, 1991). While the Department of Labor recently released minimum wage coverage rates through 1996, the methodology used for these recent estimates is somewhat different than that of the earlier coverage estimates (see U.S. DOL, 1998, Appendix C). The new methodology leads to a significantly lower level of the Kaitz index in the one year (1990) for which both methodologies exist. We adjusted the level between 1993 and 1994 so as to account for this difference.⁵⁷

The control variables in the model include the (logged) adult male unemployment rate, the fraction of teenagers aged 16-17, and the log of the teenage share of the population. We omit the share of teenagers in the armed forces as a control variable, because such data are unavailable post-1993. Since this variable is insignificant (and has little impact on the Kaitz coefficient) in models prior to 1993, we are not concerned about its omission. The conventional model (Figure 2) uses the same trend and seasonal controls as in Wellington (1991), i.e., seasonal dummies, trend, trend squared, both of which are interacted with the seasonal dummies.⁵⁸ These models include an AR(1) term, estimated with a nonlinear least squares algorithm using the Marquardt method.

⁵⁷ We multiplied the post-1993 Kaitz index values by the ratio of 1993:4 value of the index using the old methodology to the value of the 1993:4 index calculated under the new method. Prior to the release of the new coverage rates, we constructed the Kaitz index using 1990 coverage rates (the most recent year available to us). The post-94 correlation between this series and the series using the new coverage rates is 0.99. Thus, since minimum wage coverage rates change little over this time period, the update has had no effect of the employment-effect estimates.

⁵⁸ Earlier time-series models included a variable for the share of teenagers in federal training and employment programs. Wolfson (1997) includes this variable. Card and Krueger (1995, p. 195) point out that the variable is not readily available after 1986, and its inclusion has little impact on the Kaitz coefficient. The variable is also omitted by Williams and Mills (1997, 1998).

As noted in the text, Wolfson (1997), raises a number of concerns regarding this specification. First, as he and other have shown (see also Williamson and Mills, 1997), some of the variables in the regression are non-stationary. As contemporary time-series literature emphasizes, not accounting for this problem leads to spurious regression results (see, for example, Enders, 1995). A key result of Wolfson (who examines the series from 1954-79 only) is that the dependent variable contains a unit root (i.e., is non-stationary).⁵⁹ Williamson and Mills, however, strongly reject this hypothesis. We ran various specification of the Augmented Dickey-Fuller unit test for the full period, and found that some specifications rejected the null hypothesis of a unit root while others failed to reject.

Since the ADF test is not a particularly powerful test, we hesitate to accept the null that teenage employment rates are non-stationary (the time plot confirms our ambivalence). However, a number of factors support the Wolfson specification. If we assume that logged teenage employment rates are $I(0)$, i.e., stationary in levels, and run the model with the dependent variable in levels, the residuals are clearly serially correlated. Finally, note that in these other specifications, the coefficient on the differenced logged Kaitz index was similar to those in Figure 3 (i.e., close to zero and insignificant).

Unlike the teenage employment rate, ADF tests on the logged Kaitz, the adult male unemployment rate, and the log of the teenage share of the population are unable to reject the null of a unit root, and thus these variables are entered as first differences. The other variables in this alternative model are the fraction of teenagers age 16-17, and, as an additional seasonal control, the forth lag of the dependent variable. Residuals from these models were serially uncorrelated as confirmed by both inspections of their correlograms and Breusch-Godfrey Tests (which, for each time period, failed to reject the null hypothesis of no serial correlation).

Tables 1A-C: Description of Wage Data

This study uses wage data from the Outgoing Rotation Group (ORG) of the Current Population Survey (CPS). The ORG sample consists of one-fourth of the people responding to

⁵⁹ Wolfson tries a wide variety of alternative specifications for this test and is not able to reject the null in any case. Recall, however, that his data set runs from 1954-79, while ours goes through 1997.

the full monthly sample of the CPS (the data source for our examination of employment changes; see the notes for Table 2, below). Our sample includes all employees 16 years of age or older who earned between \$0.50 and \$100.00 per hour (in nominal dollars).

Hourly earnings include tips, overtime, bonuses, and commissions for each worker. Calculation of hourly earnings involves several steps designed to cope with problems of (1) variable hours; (2) topcoding; and (3) tips, overtime, bonuses, and commissions. A description of the full procedure follows.

All non-topcoded, hourly paid workers who say that they do not receive tips, overtime, bonuses, or commissions are given the usual hourly wage from their survey response. All non-topcoded workers who are not paid by the hour are assigned an hourly wage calculated as their usual weekly earnings including tips, overtime, bonuses, and commissions divided by their usual number of hours worked per week.

Usual Hours

Beginning in 1994, the CPS allowed respondents to indicate that they did not have a "usual number of hours worked per week." Since the calculation in this study of hourly earnings for salaried employees and for hourly paid employees who receive tips, overtime, bonuses, and commissions depends on dividing usual weekly earnings by usual hours worked, we have been forced to estimate usual hours worked per week for about 7% of the sample who report that their hours vary. When necessary, we predict usual weekly hours for those reporting variable hours by using the results from a regression equation on the sample (by year, by sex) that reports usual and actual hours worked in the previous week. Specifically, we regress usual hours worked per week on actual hours worked in the reference week and full-time status, a dummy variable for married, five dummy variables for educational attainment, a quartic in age, three dummy variables for race and ethnicity, and 10 dummy variables for broad occupation (all interacted with full-time status). We then use the coefficients from this equation to estimate usual weekly hours for those workers who say that their hours vary.

Tips

About 20% of hourly paid workers received tips, overtime, bonuses, or commissions as part of their regular earnings. Since many workers who may have been affected by the minimum wage worked in industries where tipping is common, we have been careful to include these earnings in our calculation of usual hourly rates. The CPS survey first asks hourly paid workers to report their hourly wage excluding tips, overtime, bonuses, and commissions. Later, it asks if hourly paid workers receive tips, overtime, bonuses, or commissions. If these workers answer yes, then the survey asks for the worker's usual weekly earnings including tips, overtime, bonuses, and commissions. In these cases, we use the usual weekly earnings figure, divided by the usual hours worked per week (reported or estimated as above), to estimate the usual hourly earnings including tips, overtime, bonuses, and commissions.

Bibliography

Acemoglu, Daron. 1996. "Good Jobs versus Bad Jobs: Theory and Some Evidence." MIT.

Belman, Dale, and Paul Wolfson. 1998. "The Minimum Wage: The Bark Is Worse Than The Bite." Univ. of Minnesota.

_____ and _____. 1997. "A Time Series Analysis of Employment, Wages, and the Minimum Wage." Univ. of Minnesota.

Bhaskar, V. and Theodore To. 1996. "Minimum Wages for Ronald McDonald Monopsonies: A Theory of Monopsonistic Competition," University of St. Andrews.

Brown, Charles, Curtis Gilroy, and Andrew Cohen. 1982. "The Effect of Minimum Wage on Employment and Unemployment." *Journal of Economic Literature*, Vol. 20, pp. 487-528.

Card, David. 1992. "Using Regional Variation in Wages to Measure the Effects of the Federal Minimum Wage." *Industrial and Labor Relations Review*, vol. 46, pp. 22-37.

_____. 1992. "Do Minimum Wages Reduce Employment? A Case Study of California, 1987-1989." *Industrial and Labor Relations Review*, vol. 46, pp. 38-54.

Card, David and Alan Krueger. 1994. "Minimum Wages and Employment: A Case Study of the Fast-Food Industry in New Jersey and Pennsylvania." *American Economics Review*, vol. 84, pp. 487-96.

_____ and _____. 1995. *Myth and Measurement: The New Economics of the Minimum Wage*. Princeton, N.J.: Princeton University Press.

_____ and _____. 1998. "A Reanalysis of the Effect of the New Jersey Minimum Wage Increase on the Fast-Food Industry with Representative Payroll Data." NBER.

Deere, Donald, Kevin Murphy, and Finis Welch. 1995. "Employment and the 1990-1991 Minimum-Wage Hike." *AEA Papers and Proceedings*, Vol. 85, No. 2.

Dickens, Richard, Stephen Machin, and Alan Manning. 1993. "The Effects of Minimum Wages on Employment: Theory and Evidence from the UK." London School of Economics. Center for Economic Performance Working Paper.

Evans, William and Mark Turner. 1996. "Employment Effects of Minimum and Subminimum Wages: Comment on Neumark and Wascher." University of Maryland.

Freeman, Richard. 1996. "The Minimum Wage as a Redistributive Tool." *Economic Journal*, Vol. 106, May, pp 639-49.

Katz, Lawrence, and Alan B. Krueger. 1992. "The Effect of the Minimum Wage on the Fast Food Industry." *Industrial and Labor Relations Review*, vol. 46, pp. 6-21.

Machin, Stephen, and Alan Manning. 1994. "The Effects of Minimum Wages on Wage Dispersion and Employment: Evidence from the U.K. Wage Councils." *Industrial and Labor Relations Review*, vol. 47, pp. 319-29.

Manning, Alan. 1994. "Labour Markets with Company Wage Policies," London School of Economics. Center for Economic Performance Discussion Paper No. 214.

_____. (n.d.) "Introduction [to Monopsony in Motion]," London School of Economics.

Michl, Thomas R., "A Note on Hiring, Scheduling and the Minimum Wage," Colgate University.

Neumark, David and William Wascher. 1995. "Minimum Wage Effects on Employment and School Enrollment." *Journal of Business Economics and Statistics*, vol. 13, pp. 199-207.

Palley, Thomas I. (1995) "Jobs versus Hours: Explaining the Employment Effects of Minimum Wage Regulations and Other Interesting Things." New School for Social Research.

Palley, Thomas I. (1996) "The Positive Employment, Productivity and Distributional Effects of the Minimum Wage," AFL-CIO.

Spriggs, William and Bruce W. Klein. 1994. "Raising the Floor: The Effects of the Minimum Wage on Low-wage Workers." Washington, D.C.: The Economic Policy Institute.

Swinnerton, Kenneth A. "Minimum Wages in an Equilibrium Search Model with Diminishing Returns to Labor in Production," *Journal of Labor Economics*, vol. 14, pp. 340-55.

Uchitelle, Louis. 1995. "Minimum Wage and Jobs," *New York Times*, January 12.

U.S. Department of Labor. 1998. *Minimum Wage and Overtime Hours Report*. Employment Standards Administration, Wage and Hour Division (preliminary draft).

Webster, David. 1997. "Appendix B: Wage Analysis Computations," in Mishel, Lawrence, Jared Bernstein and John Schmitt, *The State of Working America, 1996-97*. Armonk, NY: M.E. Sharpe.

Wellington, Allison. 1991. "Effects of the Minimum Wage on the Employment Status of Youths: An Update." *Journal of Human Resources*, vol. 26, pp. 27-46.

Wessels, Walter. 1997. "Restaurants as Monopsonies: Minimum Wages and Tipped Services." *Economic Inquiry*, vol. 35, pp. 334-49

Williams, Nicolas and Jeffrey A. Mills. 1998. "Minimum Wage Effects by Gender." *Journal of Labor Research*, Vol XIX, Number 2, pp. ???.

_____. 1997. "The Minimum Wage and Teenage Employment: Evidence from Time Series." Unpublished manuscript, University of Cincinnati.

Wolfson, Paul. 1997. "A Re-examination of Time Series Evidence of the Effect of the Minimum Wage on Youth Employment and Unemployment." Unpublished manuscript, Carlson School of Management, University of Minnesota.

Wolfson, Paul. 1998. "A Re-Examination of Time Series Evidence of the Effect of the Minimum Wage on Youth Employment and Unemployment." Univ. of Minnesota.

Zavodny, Madeline. 1996. "The Minimum Wage: Maximum Controversy over a Minimal Effect." Ph.D. dissertation. Massachusetts Institute of Technology.

Table 1
Characteristics of Minimum Wage and Other Workers, Oct.95-Sep.96

Characteristic	Workers Directly Affected by New Minimum (\$4.25-\$5.14)	Other Low-Wage Workers (\$5.15-\$6.14)	Workers Above Minimum Wage (\$6.15+)	All Workers
Average Wage	\$4.73	\$5.72	\$14.64	\$12.73
Employment	9,886,158	9,610,926	89,079,931	110,999,085
Share of Total	8.9%	8.7%	80.3%	100.0%
Demographics				
Male	41.8%	41.9%	54.9%	52.3%
16-19	13.7%	8.1%	1.0%	2.9%
20+	28.2%	33.8%	53.9%	49.4%
Female	58.2%	58.1%	45.1%	47.7%
16-19	14.9%	7.9%	0.7%	2.8%
20+	43.2%	50.2%	44.4%	44.9%
White	62.8%	67.7%	77.9%	75.4%
Male	24.6%	26.2%	42.8%	39.4%
Female	38.2%	41.5%	35.1%	36.0%
Black	16.1%	13.8%	10.4%	11.3%
Male	6.4%	5.5%	5.1%	5.3%
Female	9.8%	8.3%	5.3%	6.0%
Hispanic	17.5%	14.8%	7.9%	9.5%
Male	9.3%	8.6%	4.9%	5.7%
Female	8.2%	6.2%	3.0%	3.8%
Teens(16-19)	28.6%	16.0%	1.7%	5.6%
Work Hours				
Full-Time (35+)	46.0%	62.7%	87.7%	81.1%
Part-Time				
20-34 hours	33.3%	25.4%	9.0%	13.0%
1-19 hours	20.7%	11.9%	3.3%	5.9%
Industry				
Manufacturing	8.8%	12.7%	19.7%	17.8%
Retail Trade	42.6%	35.8%	12.2%	17.3%
Union*				
Union	4.4%	6.3%	19.1%	16.4%
Non-union	95.6%	93.7%	80.9%	83.6%

**Addendum: The Share of Weekly Earnings
Contributed by Minimum Wage Workers, 1997****

	Average	Median
All Families with an Affected Workers	54%	41%
Excluding One-Person Families	44%	27%

* Includes both union members and non-members covered by union contracts.

** See data appendix for data and methods.

Table 2
Distribution of Minimum-Wage Gains and Income Shares by Fifth
for Various Family Types

<u>Prime Age Working Families,* 1997</u>			
Income Quintile	Share of Gain From Increase	Share of Income	Average Income
1	35.3	5.4	15,728 ←
2	22.8	11.0	32,547
3	15.2	15.9	47,699
4	14.5	22.3	66,104
5	12.2	45.3	134,128

<u>All Prime Age Families (Including non-working), 1997</u>			
1	28.0	3.8	10,518
2	22.8	9.8	26,965
3	20.2	15.6	42,848
4	15.8	22.7	62,502
5	13.3	48.0	131,991

* Prime-age families are headed by a person age 25-54. One person families are included. Panel 1 excludes families with no earners. See data appendix for data source and methods.

Oct 96 1st increase

Table 3
Differences in Differences: The Employment Impact of the 1996-97 Minimum Wage Increase
on Teenagers and Adults (age 20-54) with Less than High School

	<i>April 95- Sept 95</i>			<i>Oct 95- March 96</i>			<i>April 96- Sept 96</i>			<i>Oct 96- March 97</i>			Difference-in-Differences			
	T1	T2	Difference	T3	T4	Difference	Raw	Growth Adjusted	State&Growth Adjusted	Std Err	T-Stat					
First Increase*																
All Teenagers	47.6	40.7	-6.9	46.6	40.8	-5.9	1.0	0.5	0.4	0.9	0.46					
Males	48.8	40.3	-8.4	47.5	39.8	-7.7	0.7	-0.2	-0.3	1.3	-0.23					
Females	46.3	41.0	-5.3	45.7	41.7	-4.0	1.4	1.4	1.2	1.3	0.92					
All LTHS Adults	57.7	57.6	-0.1	59.3	59.6	0.2	0.3	-0.1	-0.0	0.9	-0.03					
Males	71.9	71.2	-0.7	74.2	73.3	-0.9	-0.2	-1.2	-1.1	1.1	-0.96					
Females	43.0	43.6	0.7	43.6	44.9	1.3	0.6	0.6	0.7	1.3	0.57					
	<i>March 96 Aug 96</i>	<i>Sept 96 Feb 97</i>		<i>March 97 Aug 97</i>	<i>Sept 97 Feb 98</i>			Growth Adjusted	State&Growth Adjusted	Std Err	T-Stat					
Second Increase*																
All Teenagers	46.3	41.1	-5.2	46.1	41.9	-4.2	1.0	1.4	1.4	0.9	1.48					
Males	47.1	40.4	-6.8	46.3	41.6	-4.7	2.0	2.2	2.3	1.3	1.74					
Females	45.4	41.9	-3.5	46.0	42.3	-3.6	-0.1	0.3	0.2	1.3	0.17					
All LTHS Adults	58.8	59.7	0.9	61.7	61.9	0.2	-0.7	-0.3	-0.3	0.9	-0.36					
Males	73.7	73.5	-0.2	75.3	74.5	-0.8	-0.7	-0.4	-0.4	1.1	-0.37					
Females	43.1	45.1	2.0	46.4	47.8	1.4	-0.6	-0.3	-0.5	1.3	-0.35					
	<i>March 97 Aug 97</i>	<i>Sept 97 Feb 98</i>		<i>March 98 Aug 98</i>	<i>Sept 98 Feb 99</i>			Growth Adjusted	State&Growth Adjusted	Std Err	T-Stat					
Full Increase*																
All Teenagers	47.5	41.0	-6.5	46.3	41.9	-4.3	2.2	0.4	0.3	0.9	0.35					
Males	48.5	40.9	-7.6	47.1	41.6	-5.5	2.0	0.0	0.0	1.3	0.01					
Females	46.5	41.1	-5.4	45.4	42.3	-3.1	2.4	1.6	1.4	1.3	1.10					
All LTHS Adults	57.5	57.8	0.3	58.8	61.9	3.0	2.7	1.2	1.1	0.9	1.26					
Males	71.4	71.4	0.0	73.7	74.5	0.8	0.8	-1.3	-1.4	1.1	-1.21					
Females	43.1	43.8	0.7	43.1	47.8	4.6	3.9	3.3	3.2	1.3	2.55					

* Each panel represents a difference-in-difference test for six-month periods before and after a minimum wage increase. In panel 1, T1 is April 1995-September 1995, T2 is October 1995-March 1996, T3 is April 1996-September 1996, and T4 is October 1996-March 1997. In panel two, T1 is March 1996-August 1996, T2 is September 1996-February 1997, T3 is March 1997-August 1997, and T4 is September 1997-February 1998. In panel three, T1 is March 1995-August 1995, T2 is September 1995-February 1996, T3 is March 1996-August 1996, and T4 is September 1996-February 1997.

Table 4
Differences in Differences: The Employment Impact of the 1996-97 Minimum Wage Increase
on Teenagers and Adults (age 20-54) with Less than High School, by Gender and Race

	<u>Teenagers</u>			<u>Adults, LTHS, 20-54</u>		
	State&Growth			State&Growth		
First Increase*	Adjusted	Std Err	T-Stat	Adjusted	Std Err	T-Stat
All	0.4	0.9	0.46	-0.0	0.9	-0.03
Males	-0.3	1.3	-0.23	-1.1	1.1	-0.96
Females	1.2	1.3	0.92	0.7	1.3	0.57
White	-0.0	0.9	-0.04	-1.2	1.2	-0.95
Males	-0.4	1.6	-0.26	-2.1	1.6	-1.36
Females	0.3	1.6	0.18	-0.3	1.8	-0.14
Black	-1.8	1.8	-1.00	-1.9	2.4	-0.81
Males	-3.8	3.2	-1.17	-3.7	3.7	-1.00
Females	-0.7	3.2	-0.21	-0.7	3.1	-0.22
Hispanic	3.9	2.1	1.84	2.9	1.6	1.75
Males	1.5	3.9	0.39	1.6	1.9	0.85
Females	8.1	3.7	2.21	3.4	2.3	1.47
Second Increase*						
All	1.4	0.9	1.48	-0.3	0.9	-0.36
Males	2.3	1.3	1.74	-0.4	1.1	-0.37
Females	0.2	1.3	0.17	-0.5	1.3	-0.35
White	1.6	1.1	1.39	0.9	1.3	0.67
Males	2.3	1.6	1.45	0.4	1.6	0.23
Females	0.4	1.6	0.24	0.8	1.9	0.43
Black	2.1	2.3	0.90	1.1	2.5	0.44
Males	3.2	3.2	1.00	-0.4	3.7	-0.11
Females	0.3	3.3	0.08	2.9	3.3	0.89
Hispanic	0.3	2.7	0.12	-2.1	1.6	-1.31
Males	2.0	3.9	0.51	-1.3	1.8	-0.72
Females	-1.9	3.6	-0.54	-3.0	2.3	-1.28
Full Increase*						
All	0.3	0.9	0.35	1.1	0.9	1.26
Males	0.0	1.3	0.01	-1.4	1.1	-1.21
Females	1.4	1.3	1.10	3.2	1.3	2.55
White	0.2	1.1	0.21	0.1	1.2	0.09
Males	0.3	1.6	0.20	-2.2	1.6	-1.38
Females	1.2	1.6	0.73	2.1	1.9	1.15
Black	-2.8	2.3	-1.21	2.3	2.4	0.93
Males	-4.8	3.3	-1.47	-3.7	3.7	-1.00
Females	-0.6	3.2	-0.19	7.0	3.1	2.25
Hispanic	4.1	2.7	1.51	2.7	1.6	1.67
Males	3.2	3.9	0.84	1.0	1.9	0.56
Females	7.8	3.7	2.13	3.3	2.3	1.43

* See previous table note for a description of the time periods covered by each panel.

TABLE 5
Regression Estimates of Employment Changes from the 1996
Increase in the Federal Minimum Wage: DMW Test
(Estimates based on 11-month periods from October through August) ?

	Men	Women	Blacks
<i>(a) Teenagers 15-19</i>			
Employment Rate of Men 20 and older	1.36** (0.34)	0.27 (0.34)	0.68 (0.84)
Year Effect, Minimum Wage = \$4.75	-3.15** (1.32)	1.67 (2.06)	-0.55 (3.67)
Root MSE	0.074	0.074	0.265
Sample Size	306	306	514
<i>(b) Less than High School Adults 20-54</i>			
Employment Rate of Men 20 and older excluding LTHS	1.59** (0.23)	1.05* (0.43)	0.84 (0.72)
Year Effect Minimum Wage = \$4.75	2.61** (0.70)	3.13 (2.63)	5.23* (2.66)
Root MSE	0.039	0.073	0.187
Sample Size	255	255	424

Notes:

- (1) Standard errors in parentheses. #: statistically significant, 10% level; *: statistically significant, 5% level; **, statistically significant, 1% level.
- (2) Regressions weighted by number of individuals in sample in state and year corresponding to each observation; 51 state effects included, but not shown.
- (3) Coefficient on Year Effect when Minimum Wage=\$4.75 is multiplied by 100.
- (4) All regressions include two dummy variables for pre-1994 version of CPS. The first takes value 1 in 1991 and 1992, 0 otherwise; the second takes the value 1 in 1993, 0 otherwise. Three of 11 month-year beginning in October 1993 are using old survey; 8 months use the new survey.
- (5) Regressions for women include an annual time trend. Regressions for blacks use pooled data for men and women with an indicator variable for men.
- (6) Regressions for less-than-high-school-educated adults are for 1992-97 only to avoid problems associated with change in education coding in 1992.

TABLE 6

Regression Estimates of Employment Changes from the 1996 and 1997
Increases in the Federal Minimum Wage: DMW Test
(Estimates based on 6-month periods from September through February)

	Men	Women	Blacks
<i>(a) Teenagers 15-19</i>			
Employment Rate of Men 20 and older	0.75* (0.33)	0.19 (0.35)	0.76 (0.88)
Year Effect, Minimum Wage = \$4.75	-2.55 (1.77)	2.98 (2.92)	1.53 (4.99)
Year Effect, Minimum Wage = \$5.15	-1.69 (1.79)	4.79 (4.18)	1.16 (5.08)
Root MSE	0.101	0.106	0.354
Sample Size	357	357	559
<i>(b) Less than High School Adults 20-54</i>			
Employment Rate of Men 20 and older excluding LTHS	1.51** (0.21)	0.84* (0.39)	1.13 (0.77)
Year Effect Minimum Wage = \$4.75	2.45** (0.89)	-0.53 (3.11)	3.00 (2.66)
Year Effect Minimum Wage = \$5.15	2.87** (0.91)	1.33 (4.75)	9.87** (3.42)
Root MSE	0.050	0.088	0.232
Sample Size	306	306	476

Notes:

- (1) Standard errors in parentheses. #: statistically significant, 10% level; *: statistically significant, 5% level; **, statistically significant, 1% level.
- (2) Regressions weighted by number of individuals in sample in state and year corresponding to each observation; 51 state effects included, but not shown.
- (3) Coefficient on Year Effects are multiplied by 100.
- (4) All regressions include two dummy variables for pre-1994 version of CPS. The first takes value 1 in 1991 and 1992, 0 otherwise; the second takes the value 1 in 1993, 0 otherwise. Three of 11 month-year beginning in October 1993 are using old survey; 8 months use the new survey.
- (5) Regressions for women include an annual time trend. Regressions for blacks use pooled data for men and women with an indicator variable for men.
- (6) Regressions for less-than-high-school-educated adults are for 1992-97 only to avoid problems associated with change in education coding in 1992.

TABLE 7A
Regression Estimates of Teen Wage and Employment Changes from the 1996
Increase in the Federal Minimum Wage: Card Test
(Estimates based on 11-month periods from October through August)

	Change in Mean Log Wage		Change in Employment Rate	
	(1)	(2)	(3)	(4)
(a) 1995-96				
Fraction of Working Teens Earning \$4.25-4.74 in 1995	0.143* (0.058)	0.145* (0.057)	-0.109** (0.041)	-0.110** (0.041)
Change in Adult Employment Rate	--	-0.699 (0.579)	--	0.229 (0.414)
R-squared	0.112	0.138	0.128	0.133
(b) 1994-96				
Fraction of Working Teens Earning \$4.25-4.74 in 1994	0.164** (0.051)	0.166** (0.050)	-0.056 (0.050)	-0.060 (0.045)
Change in Adult Employment Rate	--	-0.423 (0.382)	--	1.124** (0.344)
R-squared	0.177	0.198	0.025	0.203
(c) 1994-95				
Fraction of Working Teens Earning \$4.25-4.74 in 1994	0.051 (0.054)	0.047 (0.055)	0.030 (0.041)	0.026 (0.042)
Change in Adult Employment Rate	--	0.481 (0.641)	--	-0.018 (0.487)
R-squared	0.018	0.029	0.008	0.008

Notes:

(1) The dependent variable is the change in the teen (16-19) employment-to-population rate in each of the 50 states and the District of Columbia, from the basic CPS.

(2) Standard errors are in parentheses. ** indicates significant at the 1%-level; *, 5%-level; #, 10%-level.

(3) Coefficients from a weighted least squares regression, using the number of teenagers in the state in the earlier year's CPS ORG sample.

TABLE 7B
Regression Estimates of LTHS Adult Wage and Employment Changes from the 1996
Increase in the Federal Minimum Wage: Card Test
(Estimates based on 11-month periods from October through August)

	Change in Mean Log Wage		Change in Employment Rate	
	(1)	(2)	(3)	(4)
(a) 1995-96				
Fraction of Working LTHS Earning \$4.25-4.74 in 1995	0.365* (0.155)	0.368* (0.157)	0.213# (0.110)	0.197# (0.104)
Change in Adult HS+ Employment Rate	--	-0.200 (0.511)	--	0.913** (0.339)
R-squared	0.101	0.104	0.071	0.193
(b) 1994-96				
Fraction of Working LTHS Earning \$4.25-4.74 in 1994	0.375* (0.145)	0.378* (0.147)	0.098 (0.106)	0.119 (0.097)
Change in Adult HS+ Employment Rate	--	0.117 (0.422)	--	0.937** (0.277)
R-squared	0.120	0.121	0.017	0.206
(c) 1994-95				
Fraction of Working LTHS Earning \$4.25-4.74 in 1994	0.198 (0.150)	0.198 (0.152)	-0.009 (0.082)	-0.011 (0.073)
Change in Adult HS+ Employment Rate	--	0.173 (0.597)	--	1.070** (0.289)
R-squared	0.034	0.036	0.000	0.223

Notes:

(1) The dependent variable is the change in the LTHS (20-54) employment-to-population rate in each of the 50 states and the District of Columbia, from the basic CPS.

(2) Standard errors are in parentheses. ** indicates significant at the 1%-level; *, 5%-level; #, 10%-level.

(3) Coefficients from a weighted least squares regression, using the number of LTHS (20-54) in the state in the earlier year's CPS ORG sample.

TABLE 8A
Regression Estimates of Teen Wage and Employment Changes
from the 1996 and 1997 Increases in the Federal Minimum Wage: Card Test
(Estimates based on 6-month periods from September through February)

	Change in Mean Log Wage		Change in Employment Rate	
	(1)	(2)	(3)	(4)
(a) 1996-97				
Fraction of Working Teens Earning \$4.75-5.14 in 1996	0.129* (0.062)	0.137* (0.062)	0.020 (0.058)	0.025 (0.059)
Change in Adult Employment Rate	--	0.565 (0.477)	--	0.371 (0.455)
R-squared	0.082	0.108	0.002	0.016
(b) 1995-97				
Fraction of Working Teens Earning \$4.25-5.14 in 1995	0.200** (0.057)	0.204** (0.058)	-0.041 (0.048)	-0.043 (0.049)
Change in Adult Employment Rate	--	0.154 (0.473)	--	-0.102 (0.401)
R-squared	0.202	0.204	0.014	0.016
(c) 1994-97				
Fraction of Working Teens Earning \$4.25-5.14 in 1994	0.233** (0.062)	0.231** (0.060)	-0.023 (0.049)	-0.024 (0.048)
Change in Adult Employment Rate	--	0.773# (0.387)	--	0.498 (0.307)
R-squared	0.223	0.283	0.005	0.056
(d) 1995-96				
Fraction of Working Teens Earning \$4.25-4.74 in 1995	0.255** (0.059)	0.245** (0.058)	-0.081# (0.042)	-0.081# (0.042)
Change in Adult Employment Rate	--	-0.923 (0.573)	--	-0.014 (0.413)
R-squared	0.274	0.311	0.072	0.072
(e) 1994-96				
Fraction of Working Teens Earning \$4.25-4.74 in 1994	0.228** (0.064)	0.227** (0.064)	-0.022 (0.051)	-0.023 (0.050)
Change in Adult Employment Rate	--	0.456 (0.426)	--	0.516 (0.337)
R-squared	0.206	0.225	0.004	0.050
(f) 1994-95				
Fraction of Working Teens Earning \$4.25-5.14 in 1994	0.079 (0.066)	0.071 (0.067)	0.031 (0.048)	0.034 (0.049)
Change in Adult Employment Rate	--	0.594 (0.720)	--	-0.193 (0.533)
R-squared	0.029	0.042	0.009	0.011

Notes:

(1) The dependent variable is the change in the teen (16-19) employment-to-population rate in each of the 50 states and the District of Columbia, from the basic CPS.

(2) Standard errors are in parentheses. ** indicates significant at the 1%-level;

*, 5%-level; #, 10%-level.

(3) Coefficients from a weighted least squares regression, using the number of teenagers in the state in the earlier year's CPS ORG sample.

TABLE 8B
Regression Estimates of LTHS Adult Wage and Employment Changes
from the 1996 and 1997 Increases in the Federal Minimum Wage: Card Test
(Estimates based on 6-month periods from September through February)

	Change in Mean Log Wage		Change in Employment Rate	
	(1)	(2)	(3)	(4)
(a) 1996-97				
Fraction of Working LTHS Earning \$4.75-5.14 in 1996	0.291 (0.179)	0.277 (0.182)	-0.238# (0.131)	-0.234# (0.134)
Change in Adult HS+ Employment Rate	--	0.338 (0.621)	--	-0.075 (0.456)
R-squared	0.051	0.057	0.063	0.064
(b) 1995-97				
Fraction of Working LTHS Earning \$4.25-5.14 in 1995	0.335** (0.109)	0.337** (0.110)	-0.053 (0.078)	-0.057 (0.078)
Change in Adult HS+ Employment Rate	--	-0.144 (0.462)	--	0.374 (0.326)
R-squared	0.161	0.163	0.009	0.036
(c) 1994-97				
Fraction of Working LTHS Earning \$4.25-5.14 in 1994	0.255* (0.121)	0.271* (0.129)	-0.050 (0.091)	-0.101 (0.094)
Change in Adult HS+ Employment Rate	--	-0.168 (0.424)	--	0.545# (0.310)
R-squared	0.083	0.086	0.036	0.066
(d) 1995-96				
Fraction of Working LTHS Earning \$4.25-4.74 in 1995	0.465* (0.200)	0.449* (0.199)	0.161 (0.108)	0.151 (0.107)
Change in Adult HS+ Employment Rate	--	0.852 (0.686)	--	0.538 (0.370)
R-squared	0.100	0.128	0.043	0.083
(e) 1994-96				
Fraction of Working LTHS Earning \$4.25-4.74 in 1994	0.335# (0.170)	0.316# (0.170)	0.152 (0.138)	0.129 (0.137)
Change in Adult HS+ Employment Rate	--	0.519 (0.472)	--	0.612 (0.378)
R-squared	0.074	0.096	0.024	0.075
(f) 1994-95				
Fraction of Working LTHS Earning \$4.25-5.14 in 1994	0.166 (0.117)	0.154 (0.120)	0.068 (0.068)	0.045 (0.068)
Change in Adult HS+ Employment Rate	--	0.343 (0.629)	--	0.691# (0.356)
R-squared	0.040	0.045	0.020	0.091

Notes:

(1) The dependent variable is the change in the LTHS (20-54) employment-to-population rate in each of the 50 states and the District of Columbia, from the basic CPS.

(2) Standard errors are in parentheses. ** indicates significant at the 1%-level; *, 5%-level; #, 10%-level.

(3) Coefficients from a weighted least squares regression, using the number of LTHS (20-54) in the state in the earlier year's CPS ORG sample.

Table 9
Times Series Models of the Minimum Wage Impact on Teenage Employment*

Basic Model	1954-79	1954-89	1954-97
Kaitz Index**	-0.950	-0.750	-0.660
t-statistic	-2.389	-1.677	-1.714
 Wolfson Model			
Kaitz Index**	-0.500	-0.350	-0.290
t-statistic	-1.010	-0.865	-0.778

* See data appendix for full regression output, data sources, and methods.

** This variable measures the impact of a 10% increase in the minimum wage on teenage employment rates (see text for explanation).

TABLE 10
Estimated Employment Elasticities from Four Tests
of the 1996-97 Increases in the Minimum Wage

	Teens			LTHS Adults		
	1996	1997	1996+97	1996	1997	1996+97
(a) Difference-in-Difference						
All	0.08	0.38	0.03	0.00	-0.06	0.09
Male	-0.06	0.61	0.00	-0.13	-0.07	-0.09
Female	0.23	0.05	0.15	0.14	-0.14	0.35**
White	0.00	0.37	0.02	-0.17	0.18	0.01
Male	-0.07	0.54	0.03	-0.25	0.07	-0.15
Female	0.05	0.09	0.11	-0.05	0.20	0.20
Black	-0.58	0.95	-0.50	-0.36	0.29	0.24
Male	-1.28	1.52	-0.90	-0.59	0.09	-0.33
Female	-0.22	0.13	-0.10	-0.16	0.92	0.88*
Hispanic	0.96	0.10	0.56	0.41	-0.41	0.21
Male	0.33	0.62	0.39	0.17	-0.19	0.06
Female	2.30*	-0.76	1.23*	0.73	-0.91	0.40
(b) Deere, Murphy, Welch						
Male	-0.72**	-0.54	n.a.	0.31**	0.47**	n.a.
Female	0.39	1.55	n.a.	0.61	0.36	n.a.
Black	-0.21	0.62	n.a.	0.97	2.57	n.a.
(c) Card						
All	-0.56	0.18	-0.16	0.43	-0.84#	-0.27
(d) Time Series						
All	n.a.	n.a.	-0.29	n.a.	n.a.	n.a.

Notes:

(1) Estimates with ** are based on underlying coefficients significant at the 10% level; *, 5% level; **, 1% level.

(2) Estimates in panel (a) are employment elasticities with respect to a change in the minimum wage, evaluated at the average employment rate in 1995, using growth- and state-adjusted employment changes.

(3) Estimates in panels (b) are employment elasticities with respect to a change in the minimum wage minimum wage, evaluated at the average employment rate in 1995.

(4) Estimates in panel (c) are employment elasticities with respect to a change in the average wage corresponding to a given change in the minimum wage.

(5) Estimate in panel (d) is the employment elasticity with respect to a change in the Kaitz index over the period 1954-97.

1
10%

TABLE 1A
Distribution of Wages by Demographic Characteristics,
April-September 1996

Type of Employees	Percent of Employees Earning						Number in Sample
	\$0.50- \$4.24	\$4.25	\$4.26- \$4.74	\$4.75	\$4.76- \$5.14	\$5.15+	
All	2.1	1.5	2.1	0.5	4.7	89.1	75,732
Teenagers(16-19)	6.8	10.1	10.5	2.7	20.2	49.7	4,482
Male	5.4	9.1	10.5	2.5	19.7	52.6	2,270
Female	8.3	11.1	10.4	2.9	20.7	46.6	2,212
White	6.6	9.2	9.4	2.6	20.1	52.1	3,608
Male	5.3	7.8	9.2	2.7	19.8	55.2	1,817
Female	7.8	10.7	9.7	2.5	20.5	48.8	1,791
Black	8.6	14.4	16.8	4.3	18.6	37.3	359
Male	5.9	18.6	22.1	2.4	14.5	36.5	169
Female	11.2	10.4	11.7	6.1	22.6	38.1	190
Hispanic	5.6	12.4	14.2	2.3	22.2	43.3	366
Male	4.8	10.0	10.8	1.6	22.9	49.9	220
Female	6.9	15.9	19.2	3.3	21.2	33.5	146
Less than high school (20-54)	4.4	3.3	4.1	1.2	8.9	78.2	5,639
Male	3.4	2.4	3.0	1.0	7.4	82.8	3,515
Female	6.2	4.7	5.9	1.6	11.4	70.1	2,124
White	3.5	1.8	3.2	0.7	6.4	84.3	2,818
Male	2.3	1.3	2.1	0.5	4.0	89.8	1,745
Female	5.6	2.7	4.9	1.2	10.5	75.1	1,073
Black	3.5	4.0	5.3	2.4	11.9	72.9	669
Male	2.8	3.2	2.9	2.5	9.6	79.0	351
Female	4.4	5.2	8.5	2.1	15.0	64.7	318
Hispanic	5.3	4.9	4.7	1.4	10.4	73.2	1,850
Male	4.6	3.7	4.2	1.1	9.9	76.5	1,260
Female	7.1	7.8	5.9	2.1	11.6	65.6	590

Source: EPI analysis of CPS ORG.

TABLE 1B
Distribution of Wages by Demographic Characteristics,
October 1996 to March 1997

Type of Employees	Percent of Employees Earning						Number in Sample
	\$0.50- \$4.24	\$4.25 \$4.74	\$4.75 \$5.14	\$5.15+			
All	1.9	0.4	1.1	1.6	4.4	90.6	76,745
Teenagers(16-19)	5.1	2.9	5.4	10.5	23.1	53.0	4,094
Male	4.2	2.7	4.7	10.3	22.7	55.4	2,034
Female	6.1	3.2	6.0	10.6	23.5	50.6	2,060
White	4.8	2.6	5.6	9.8	22.9	54.3	3,267
Male	3.9	2.0	5.2	9.6	22.6	56.7	1,637
Female	5.6	3.2	6.0	10.1	23.2	51.9	1,630
Black	7.1	5.2	8.1	11.5	27.2	40.9	336
Male	5.9	5.9	6.1	10.7	28.8	42.6	137
Female	8.1	4.7	9.6	12.0	25.9	39.6	199
Hispanic	6.3	3.3	2.3	13.9	23.3	51.1	345
Male	4.3	4.2	1.3	14.3	22.4	53.4	197
Female	9.0	1.9	3.6	13.4	24.4	47.7	148
Less than high school (20-54)	3.6	0.8	2.7	3.5	9.0	80.3	5,655
Male	2.6	0.4	2.1	2.0	7.0	85.9	3,393
Female	5.3	1.5	3.9	6.1	12.3	71.0	2,262
White	3.3	0.5	2.0	2.3	7.3	84.7	2,775
Male	2.1	0.1	1.4	0.6	4.8	91.0	1,642
Female	5.1	1.1	2.9	4.8	11.2	75.0	1,133
Black	4.6	1.1	3.5	4.6	9.4	76.8	684
Male	4.1	0.7	2.3	1.4	8.6	82.9	336
Female	5.3	1.6	4.8	8.2	10.2	69.9	348
Hispanic	3.4	1.1	3.5	4.8	10.5	76.7	1,914
Male	2.6	0.7	2.8	3.7	8.6	81.6	1,268
Female	5.2	1.8	5.0	7.1	14.7	66.1	646

Source: EPI analysis of CPS ORG.

TABLE 1C
Distribution of Wages by Demographic Characteristics,
September 1997 to February 1998

Type of Employees	Percent of Employees Earning						Number in Sample
	\$0.50- \$4.24	\$4.25 \$4.74	\$4.75 \$5.14	\$5.15+			
All	1.5	0.1	0.6	0.2	2.3	95.3	74,267
Teenagers(16-19)	3.8	0.5	1.5	1.5	10.6	82.1	4,223
Male	3.8	0.6	1.5	1.2	10.4	82.4	2,122
Female	3.9	0.5	1.5	1.7	10.8	81.7	2,101
White	3.7	0.3	1.5	1.3	10.2	83.0	3,364
Male	3.7	0.5	1.3	0.9	10.2	83.3	1,703
Female	3.7	0.2	1.6	1.6	10.1	82.8	1,661
Black	3.1	2.4	1.8	1.3	15.1	76.4	336
Male	2.3	2.1	4.0	1.8	16.5	73.2	153
Female	3.6	2.7	0.0	0.9	13.9	78.9	183
Hispanic	4.5	0.5	1.4	1.8	8.7	83.1	380
Male	3.0	0.6	1.2	1.1	7.5	86.6	204
Female	6.6	0.4	1.7	2.9	10.4	78.1	176
Less than high school (20-54)	2.8	0.3	1.1	0.5	5.4	89.8	5,715
Male	2.0	0.2	1.2	0.3	4.8	91.5	3,449
Female	4.2	0.5	1.1	0.8	6.4	87.1	2,266
White	3.0	0.2	0.9	0.3	3.2	92.3	2,674
Male	2.1	0.0	1.1	0.2	2.8	93.7	1,632
Female	4.5	0.5	0.6	0.3	3.9	90.1	1,042
Black	3.3	0.5	2.2	0.3	6.5	87.4	679
Male	3.0	0.1	2.3	0.0	6.4	88.2	322
Female	3.5	0.9	2.1	0.5	6.6	86.5	357
Hispanic	2.2	0.3	1.0	0.9	7.2	88.4	2,041
Male	1.6	0.4	1.0	0.6	6.4	90.0	1,338
Female	3.6	0.1	1.1	1.6	8.7	84.8	703

Source: EPI analysis of CPS ORG.

Appendix Table X²
 Distribution of Minimum-Wage Gains and Income Shares by Fifth,
 All Working Families

Income Quintile	Share of Gain From Increase	Share of Income	Average Income
1	40.9	5.0	14,133
2	19.8	10.7	30,451
3	17.5	16.0	45,605
4	10.9	22.6	64,468
5	10.8	45.7	130,518

Source: 1997 March CPS

Appendix Table X³
Times Series Regressions

Basic Models: Dependent Variable is Log Teenage Employment Rates

	1954-79		1954-89		1954-97	
	Coefficient	t-Statistic	Coefficient	t-Statistic	Coefficient	t-Statistic
Log Kaitz Index	-0.095	-2.389	-0.075	-1.677	-0.066	-1.714
Log Adult Unemployment Rate	-0.108	-6.197	-0.100	-5.120	-0.092	-5.269
Fraction of Teens 16-17 Years Old	-1.147	-3.000	-0.873	-1.862	-0.951	-2.214
Log Teen Share of Population	-0.601	-2.211	-0.454	-1.315	-0.068	-0.419
AR(1)	0.730	9.639	0.903	26.294	0.901	27.569
Adjusted R-squared	0.976		0.966		0.966	
Durbin-Watson	1.97		2.18		2.20	

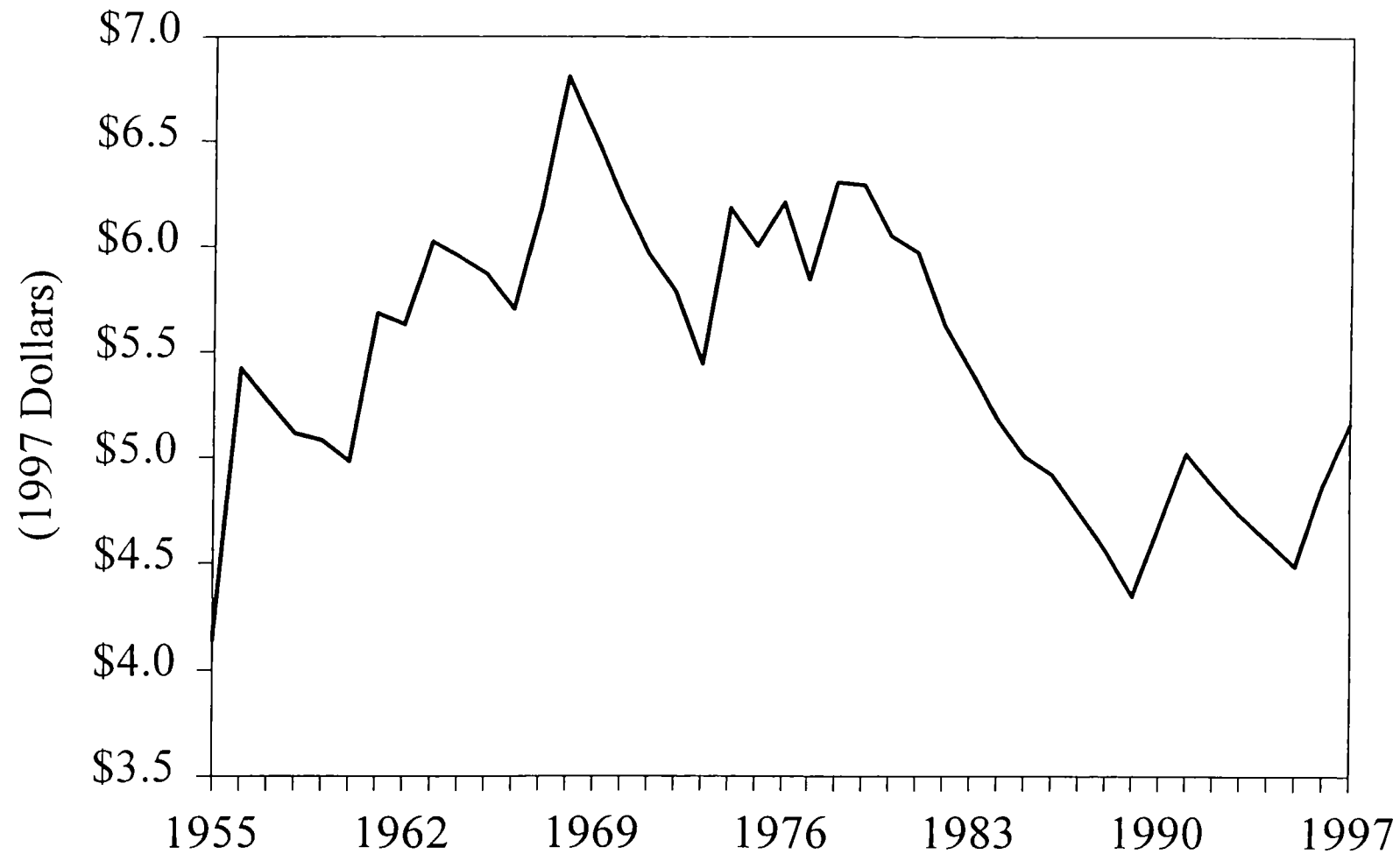
All models include quarterly seasonal dummies, trend, trend squared, both of which are interacted with the seasonal terms.

Wolfson Models: Dependent variable is first differenced log teenage employment rates

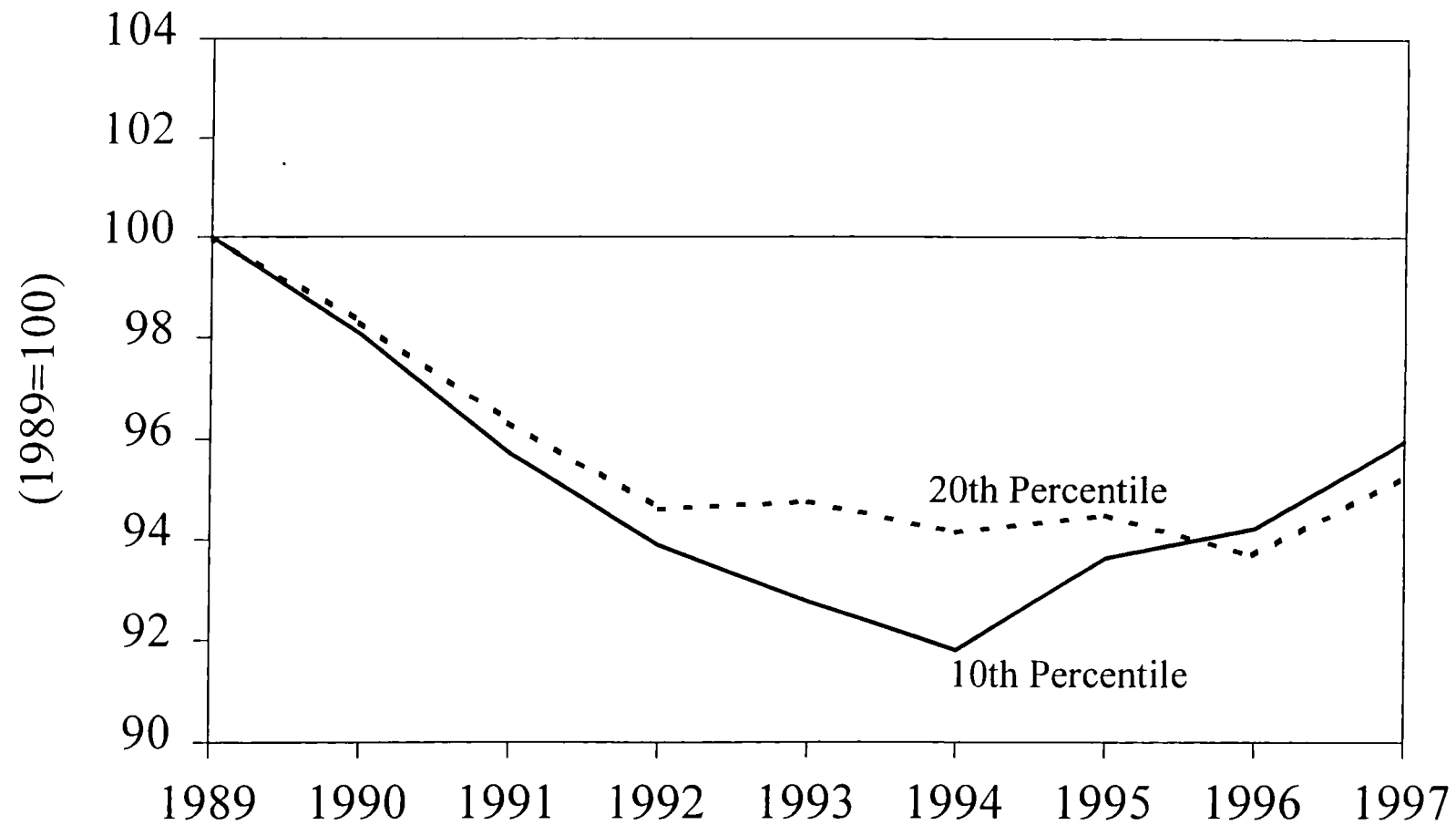
	1954-79		1954-89		1954-97	
	Coefficient	t-Statistic	Coefficient	t-Statistic	Coefficient	t-Statistic
Log Kaitz Index (first difference)	-0.050	-1.010	-0.035	-0.865	-0.029	-0.778
Log Adult Unemployment Rate (first difference)	-0.113	-4.655	-0.103	-5.935	-0.106	-6.362
Fraction of Teens 16-17 Years Old	0.055	0.267	0.030	0.187	0.025	0.208
Log Teen Share of Population (first difference)	-0.353	-0.642	-0.125	-0.275	0.036	0.118
Teenage Employment Rates (fourth lag)	0.509	5.894	0.512	7.969	0.554	9.629
Adjusted R-squared	0.972		0.976		0.975	

All models include quarterly seasonal dummies.

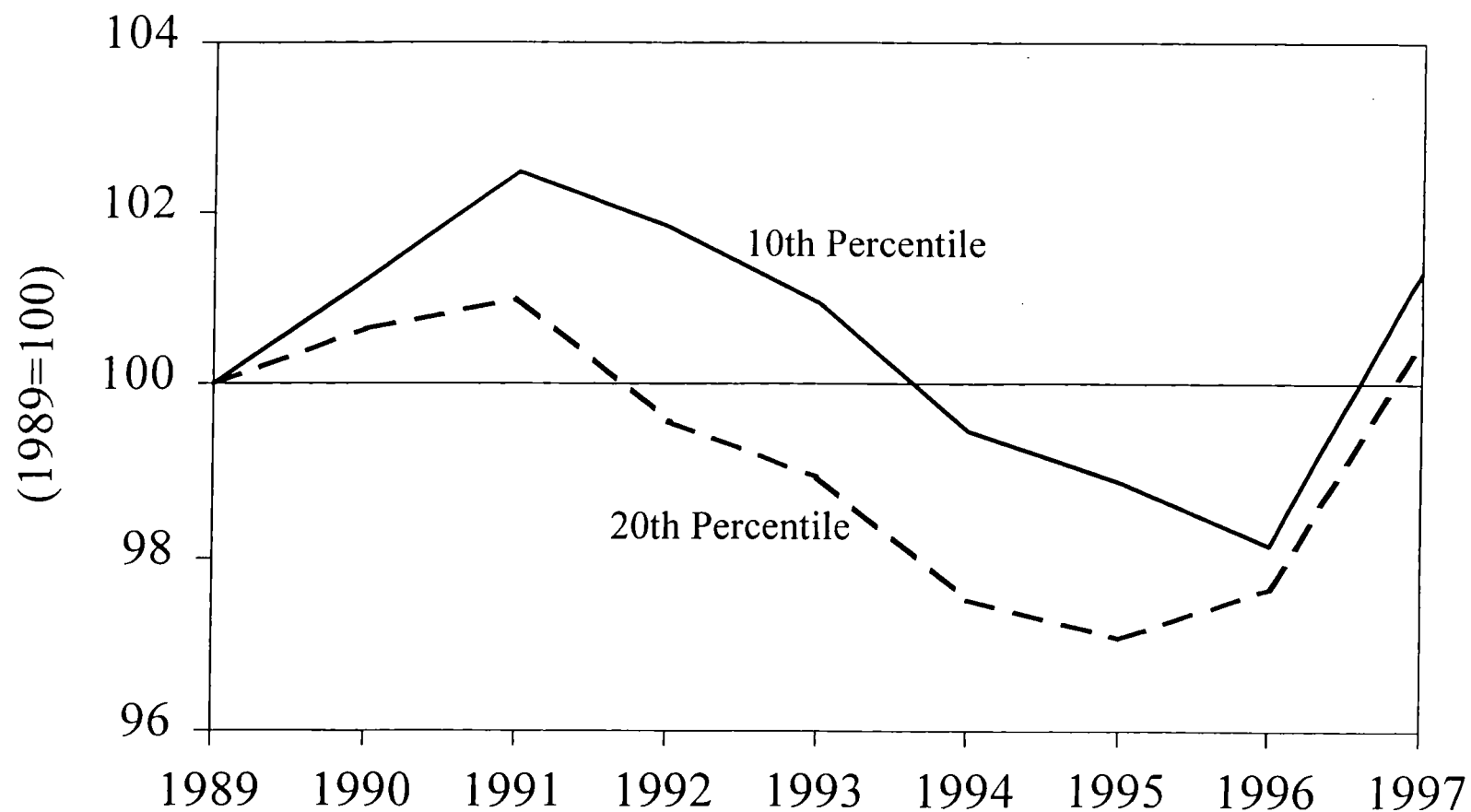
Figure 1
Real Minimum Wage In 1997Dollars, 1955-97



Real Hourly Wage Trends, Male Low-Wage Workers, 1989-97



Real Hourly Wage Trends, All Low-Wage Workers, 1989-97



ECONOMIC POLICY INSTITUTE

1660 L STREET NW • SUITE 1200 • WASHINGTON DC 20036 • 202.775.8810 • FAX 202.775.0819

E-MAIL: Economic@cais.comEPI HOME PAGE: [Http://Epinet.org](http://Epinet.org)

FAX

COVER

SHEET

TO: Gary Reed

ORGANIZATION: _____

FAX NO: 219 6523

PHONE NO: _____

FROM: JARED BERNSTEINPHONE NO: 202.331.5547

DATE: _____

CODE: _____

PAGES (INCL COVER): _____

=====

COMMENTS: _____

Joan -
I was going to
use Jared's data
to update the "Bottom
Line" section of
the new page.
What do you guys
think?
Joan

If you did not receive all the pages in this transmission, please call 202.775.8810.

Economic Policy Institute

1660 L STREET, NW • SUITE 1200 • WASHINGTON, DC 20036 • 202/775-8810 • FAX 202/775-0819

Memo to Gary Reed

From Jared Bernstein

Date: August 6, 1997

Re: Preliminary tables on who benefits from the minimum wage

Here are a set of preliminary tables on the beneficiaries of the increase. As stated in the work order, we split the analysis into three basic areas:

1) Characteristics of workers affected by the "full sweep:" \$4.25-\$5.14. The time frame for these tables is Oct 95-Sep 96. **Tables 1 and 2** show the shares and numbers of these workers by state: **Table 3** shows their national characteristics.

2) Characteristics of workers affected by the second step of the increase: \$4.75-\$5.14. The time frame for these tables is Oct 96-Jun 96.¹ **Tables 1 and 2** (columns 3 and 4) show the shares and numbers of these workers by state: **Table 4** shows their national characteristics.

3) Numbers of affected families (full sweep) by demographic type from March, 1996 (see next page).

Feel free to call to discuss these data. We are developing further March results on poverty status of families affected by the increase.

¹ We still hope to incorporate July data, but we don't have it yet. I expect the results won't change at all with the addition of the extra month, but it would be nice to have it for the sake of completeness.

- Of the 6.9 families with a worker in the sweep, 3.2 million (46%) depend on the earnings of a minimum wage worker.² If we exclude one person families from this calculation, there are 5.6 million families in the sweep, with 1.9 million (33%) dependent on a minimum wage worker.³
- Of the 3.2 million families who depend on a minimum-wage worker, 1.2 million (36%) have children.
- There are 2.9 million single-earner families in the sweep. One million of these families (35%) have children.

² These are families wherein the minimum wage worker contributes at least half of the family's weekly earnings.

³ We expect the number and share of dependent families to fall when we exclude singles, since any one-person family in the sweep is de facto dependent on the minimum wage.

Table 1
Workers in the Affected Wage Ranges, by State

STATE	Full Sweep*		Second Step**	
	Share	Number	Share	Number
me	7.9%	40,631	5.6%	30,029
nh	5.1%	26,369	3.2%	17,038
vt	7.0%	17,854	4.8%	11,953
ma	5.0%	133,840	3.0%	84,238
ri	7.3%	30,747	3.8%	15,612
ct	4.6%	65,527	3.3%	48,580
ny	7.6%	542,091	5.9%	426,139
nj	4.6%	156,725	3.5%	125,025
pa	8.9%	437,319	5.1%	257,437
oh	8.7%	419,729	5.7%	274,817
in	9.3%	247,721	4.9%	129,332
il	6.8%	354,033	5.9%	303,829
mi	7.2%	289,417	5.3%	219,437
wi	6.6%	163,120	4.1%	100,094
mn	6.0%	127,595	4.3%	92,933
ia	9.0%	117,129	6.1%	78,755
mo	8.1%	194,198	5.2%	122,745
nd	13.6%	36,307	9.6%	26,811
sd	10.2%	31,095	6.7%	19,905
ne	8.8%	63,554	6.1%	45,084
ks	11.8%	127,303	6.9%	75,974
de	6.2%	20,189	5.5%	18,259
md	5.7%	134,276	3.1%	72,676
dc	5.5%	12,601	3.6%	8,341
va	8.4%	250,109	4.3%	123,802
wv	14.8%	99,772	10.2%	67,626
nc	9.2%	297,471	5.8%	190,440
sc	11.3%	176,471	6.6%	105,444
ga	9.4%	294,580	6.3%	206,271
fl	10.1%	578,272	6.8%	392,825
ky	10.4%	160,092	5.8%	90,264
tn	8.7%	196,412	7.4%	167,332
al	14.0%	246,162	8.6%	154,141
ms	16.5%	177,123	12.0%	128,839
ar	14.8%	155,325	9.1%	92,445
la	15.3%	250,269	10.4%	175,204
ok	14.6%	189,111	8.3%	107,536
tx	12.0%	952,938	9.0%	740,605
mt	11.9%	38,865	7.9%	26,499
id	10.7%	51,078	7.9%	40,431
wy	12.5%	25,555	10.4%	21,198
co	6.1%	106,209	3.1%	52,694
nm	12.3%	76,434	9.1%	58,049
az	9.9%	180,343	6.2%	114,078
ut	8.6%	71,857	5.3%	45,835
nv	6.2%	43,894	4.0%	30,226
wa	5.4%	126,229	5.0%	119,462
or	7.3%	98,980	5.3%	71,465
ca	10.0%	1,230,381	7.0%	892,053
ak	3.6%	8,590	1.6%	3,931
hi	3.0%	14,266	1.0%	4,852
US	8.9%	9,886,158	6.1%	6,828,592

* "Full sweep" refers to workers earning between \$4.25 and \$5.14 in the year prior to the minimum-wage increase.

** "Second step" refers to the workers earning between \$4.75 and \$5.14 in the nine months following the first step of the increase.

Source: EPI analysis of CPS ORG data.

Table 2
Workers, by Gender, in the Affected Wage Ranges
in 10 Largest States

STATE	Males				Females			
	Full Sweep*		Second Step**		Full Sweep*		Second Step**	
	Share	Number	Share	Number	Share	Number	Share	Number
ny	6.8%	250,907	5.6%	209,042	8.5%	291,184	6.2%	217,097
nj	3.5%	62,952	2.2%	40,690	5.7%	93,773	4.8%	84,335
pa	6.9%	176,846	4.5%	118,470	11.0%	260,472	5.7%	138,968
oh	6.4%	162,286	4.0%	100,904	11.3%	257,444	7.6%	173,913
il	5.2%	141,889	5.1%	137,926	8.5%	212,144	6.7%	165,904
mi	5.2%	110,937	3.8%	83,630	9.3%	178,480	6.9%	135,807
nc	6.9%	113,044	5.1%	87,169	11.7%	184,427	6.4%	103,271
fl	8.0%	235,866	5.6%	165,953	12.4%	342,406	8.1%	226,871
tx	9.9%	426,099	7.7%	343,942	14.4%	526,838	10.6%	396,663
ca	9.2%	622,538	6.2%	435,775	10.8%	607,843	8.0%	456,278

* "Full sweep" refers to workers earning between \$4.25 and \$5.14 in the year prior to the minimum-wage increase.

** "Second step" refers to the workers earning between \$4.75 and \$5.14 in the nine months following the first step of the increase.

Source: EPI analysis of CPS ORG data.

Table 3
Characteristics of Minimum Wage and Other Wage Earners,
Full Sweep (\$4.25-\$5.15), Oct.95-Sep.96

Characteristic	Workers Directly Affected by New Minimum (\$4.25-\$5.14)	Other Low-Wage Workers (\$5.15-\$6.14)	Workers Above Minimum Wage (\$6.15+)	All Workers
Average Wage	\$4.73	\$5.72	\$14.62	\$12.73
Employment	9,886,158	9,610,926	89,065,561	110,931,743
Share of Total	8.9%	8.7%	80.3%	100.0%
Demographics				
Male	41.8%	41.9%	54.9%	52.3%
Female	58.2%	58.1%	45.1%	47.7%
White	62.8%	67.7%	77.9%	75.4%
Male	24.6%	26.2%	42.8%	39.4%
Female	38.2%	41.5%	35.1%	36.0%
Black	16.1%	13.8%	10.4%	11.3%
Male	6.4%	5.5%	5.1%	5.3%
Female	9.8%	8.3%	5.3%	6.0%
Hispanic	17.5%	14.8%	7.9%	9.5%
Male	9.3%	8.6%	4.9%	5.7%
Female	8.2%	6.2%	3.0%	3.8%
Teens(16-19)	28.6%	16.0%	1.7%	5.6%
Work Hours				
Full-Time (35+)	46.0%	62.7%	87.7%	81.1%
Part-Time				
20-34 hours	33.3%	25.4%	9.0%	13.0%
1-19 hours	20.7%	11.9%	3.3%	5.9%
Industry				
Manufacturing	8.8%	12.7%	19.7%	17.8%
Retail Trade	42.6%	35.8%	12.2%	17.3%

Source: EPI analysis of BLS data.

ECONOMIC POLICY INSTITUTE

1660 L STREET NW • SUITE 1200 • WASHINGTON DC 20036 • 202.775.8810 • FAX 202.775.0819

E-MAIL: Economic@cais.comEPI HOME PAGE: [Http://Epinet.org](http://Epinet.org)

FAX

COVER

SHEET

TO: Barbara BinghamFROM: JARED BERNSTEIN

ORGANIZATION: _____

PHONE NO: 202.331.5547DOL / ASR

DATE: _____

FAX NO: 219 9216

CODE: _____

PHONE NO: _____

PAGES (INCL COVER): _____

=====

COMMENTS: _____

Corrected Tbl 4
(Sorry!)- JB

If you did not receive all the pages in this transmission, please call 202.775.8810.

New Version

Table 4
Characteristics of Workers Affected by the Second Step of the
Minimum Wage Increase, Oct 96-July 97

Characteristic	Workers Directly Affected by New Minimum (\$4.75-\$5.14)	Other Low-Wage Workers (\$5.15-\$6.14)	Workers Above Minimum Wage (\$6.15+)	All Workers
Average Wage	\$4.93	\$5.71	\$14.91	\$13.14
Employment	6,784,289	9,784,058	92,684,175	112,977,476
Share of Total	6.0%	8.7%	82.0%	100.0%
Demographics				
Male	42.0%	40.7%	54.6%	52.2%
Female	58.0%	59.3%	45.4%	47.8%
White	60.5%	64.6%	76.7%	74.3%
Male	24.1%	24.2%	41.7%	38.7%
Female	36.4%	40.3%	35.0%	35.6%
Black	16.1%	14.4%	10.5%	11.3%
Male	6.1%	5.5%	5.1%	5.3%
Female	10.0%	8.9%	5.3%	6.1%
Hispanic	19.1%	16.8%	8.6%	10.2%
Male	10.0%	9.3%	5.4%	6.1%
Female	9.2%	7.5%	3.2%	4.1%
Teens(16-19)	30.0%	18.5%	1.9%	5.6%
Work Hours				
Full-Time (35+)	44.8%	58.8%	87.4%	81.2%
Part-Time				
20-34 hours	33.4%	28.4%	9.2%	13.0%
1-19 hours	21.8%	12.8%	3.4%	5.8%
Industry				
Manufacturing	9.5%	11.1%	19.3%	17.6%
Retail Trade	42.2%	37.6%	12.4%	17.1%

Source: EPI analysis of BLS data.

Economic Policy Institute

1660 L STREET, NW • SUITE 1200 • WASHINGTON, DC 20036 • 202/775-8810 • FAX 202/775-0819

Memo to Barbara Bingham and Lisa Stewart

From Jared Bernstein

Date: August 25, 1997

Re: Minimum wage sensitivity analysis

I thought your comments last Friday raised good questions. After running the data with some of the adjustments we discussed, I recommend going with the original tables which I sent you on August 15.

In fact, there is very little difference in the overall counts when we shift the dates of the analysis. For example, the number and share of workers in the second step using the most recent two months for which we have data (June 97-July 97) are 6.8 million and 5.9%. This compares with 6.8 million and 6.0% when we use October 96-July 97. The "residual" category--those earning less than \$4.75--falls slightly when we use the most recent data, from 3.7 million to 3.5 million.

The number of workers affected by the full sweep is also pretty insensitive to choice of dates. When we use April 96-Sept 96, as opposed to the 12 months preceding the increase, the affected number is 9.8 million (8.8%) as opposed the 9.9 million (8.9%).

To answer another one of your questions, of the 9.9 million workers in the full sweep in the 12 months prior to the increase, 4.1 million earned between \$4.25 and \$4.74.

The Poverty Reducing Effects of the Full Minimum Wage Increase.

Using the 1996 March data, we examined the numbers of families and persons that would be raised above the poverty line due to the \$0.90 increase.¹ Of the 16.3 million poor families (including one-person families), 148,616 would be lifted out of poverty. These families include 314,215 persons, 115,983 of whom are children.

Let me know if you have any questions.

¹ The gain in wages for workers in the sweep is equal to the difference between their hourly wage in March of 1996 and \$5.15. Information on income, weeks and hours worked, and poverty status comes from the previous year.

ECONOMIC POLICY INSTITUTE

1660 L STREET NW • SUITE 1200 • WASHINGTON DC 20036 • 202.775.8810 • FAX 202.775.0819

E-MAIL: Economic@cais.comEPI HOME PAGE: [Http://Epinet.org](http://Epinet.org)

FAX

COVER

SHEET

TO: Barbara BinghamFROM: JARED BERNSTEIN

ORGANIZATION: _____

PHONE NO: 202.331.5547

DATE: _____

FAX NO: 219 9216

CODE: _____

PHONE NO: _____

PAGES (INCL COVER): _____

=====

COMMENTS: Barbara: These tables include July 97.
~~Memo to follow later today or Monday~~
~~with explanation & data sources.~~

RS. 10 largest state were based on
population, age 16 and up, 1996.

If you did not receive all the pages in this transmission, please call 202.775.8810.

I include a memo with March results
and brief comments on data sources.

Economic Policy Institute

1660 L STREET, NW • SUITE 1200 • WASHINGTON, DC 20036 • 202/775-8810 • FAX 202/775-0819

Memo to Gary Reed and Barbara Bingham

From Jared Bernstein

Date: August 15, 1997

Re: Final tables on who benefits from the minimum wage

Here is the set of final tables on the beneficiaries of the increase. As stated in the work order, we split the analysis into three basic areas:

1) Characteristics of workers affected by the "full sweep." \$4.25-\$5.14. The time frame for these tables is Oct 95-Sep 96. **Tables 1 and 2** show the shares and numbers of these workers by state (at Barbara's request we include table 1, alphabetized): **Table 3** shows their national characteristics.

2) Characteristics of workers affected by the second step of the increase: \$4.75-\$5.14. The time frame for these tables is Oct 96-July 97.¹ **Tables 1 and 2** (columns 3 and 4) show the shares and numbers of these workers by state: **Table 4** shows their national characteristics.

3) Numbers of affected families (full sweep) by demographic type from March, 1996 (see next page).

Feel free to call to discuss these results.

¹ Note that we have incorporated the July data, thanks to the efficiency of BLS (not to mention that of our programmers!). As expected, the results changed little with the inclusion of the extra month.

- Of the 6.9 million families with a worker in the sweep, 3.2 million (46%) depend on the earnings of a minimum wage worker.² If we exclude one person families from this calculation, there are 5.6 million families in the sweep, with 1.9 million (33%) dependent on a minimum wage worker.³
- Of the 3.2 million families that depend on a minimum-wage worker, 1.2 million (36%) have children.
- There are 2.9 million single-earner families in the sweep. One million of these families (35%) have children.

Minimum Wages Families and Poverty:

- Of the 6.9 million families with a worker in the sweep, 1.3 million are poor (1.8 million are near-poor⁴). If we exclude one-person families from this tabulation, then there are 5.6 million of whom 0.8 million are poor; 1.1 million are near poor. *includes singles*
- Of the 3.2 million families that depend on a minimum wage worker, 1.1 million are poor; 1.4 million are near poor.
- More than half of the poor families in the sweep have children (0.7 million/1.3 million, or 55%).

A note on data sources: We used the CPS Outgoing Rotation Group data for Tables 1-4. These data provide up-to-date labor market data (through July 1997) and large enough sample sizes for state-level analysis. They do not, however, provide extensive information on family units, including poverty status. For this information, we turned to the March 1996 CPS, which provides both labor market and income data for workers and their families in that month.

I'd like to acknowledge the excellent research assistance on David Webster and Danielle Gao on this project.

² These are families wherein the minimum wage worker contributes at least half of the family's weekly earnings.

³ We expect the number and share of dependent families to fall when we exclude singles, since any one-person family in the sweep is de facto dependent on the minimum wage.

⁴ The income of near poor is within 1.25 times the poverty line.

True frame
10/95-9/96 full sweep - eliminates couple
10/96-9/97 second step
combing

Table 1
Workers in the Affected Wage Ranges, by State

STATE	Full Sweep*		Second Step**	
	Share	Number	Share	Number
Northeast	6.8%	1,451,104	4.7%	1,026,837
New England	5.4%	314,970	3.4%	201,684
Maine	7.9%	40,631	5.5%	28,519
New Hampshire	5.1%	26,369	3.1%	16,550
Vermont	7.0%	17,854	4.9%	12,222
Massachusetts	5.0%	133,840	3.0%	82,402
Rhode Island	7.3%	30,747	3.7%	15,231
Connecticut	4.6%	65,527	3.1%	45,759
Mid-Atlantic	7.3%	1,136,135	6.2%	825,253
New York	7.6%	542,091	6.1%	441,622
New Jersey	4.6%	156,725	3.5%	127,714
Pennsylvania	8.9%	437,319	5.1%	255,916
Midwest	7.9%	2,171,201	5.3%	1,470,594
East North Central	7.7%	1,474,021	5.2%	1,009,223
Ohio	8.7%	419,729	5.6%	270,394
Indiana	9.3%	247,721	4.7%	126,445
Illinois	6.8%	354,033	5.9%	304,969
Michigan	7.2%	289,417	5.2%	213,443
Wisconsin	6.6%	163,120	3.8%	93,972
West North Central	8.5%	697,180	5.6%	461,371
Minnesota	6.0%	127,595	4.2%	91,629
Iowa	9.0%	117,129	6.1%	79,345
Missouri	8.1%	194,198	5.2%	123,705
North Dakota	13.6%	36,307	9.1%	25,363
South Dakota	10.2%	31,095	6.5%	19,345
Nebraska	8.8%	63,554	6.1%	44,995
Kansas	11.8%	127,303	7.0%	76,988
South	10.8%	4,191,171	7.2%	2,829,285
South Atlantic	9.2%	1,863,740	5.7%	1,178,072
Delaware	6.2%	20,189	5.2%	17,447
Maryland	6.7%	134,276	3.3%	77,254
District of Columbia	5.5%	12,801	3.5%	7,935
Virginia	8.4%	250,109	4.2%	122,218
West Virginia	14.8%	99,772	9.9%	67,310
North Carolina	9.2%	297,471	5.7%	188,906
South Carolina	11.3%	176,471	6.6%	107,525
Georgia	9.4%	294,580	6.0%	195,335
Florida	10.1%	578,272	6.8%	394,143
East South Central	11.8%	779,788	8.1%	537,955
Kentucky	10.4%	160,092	5.7%	89,049
Tennessee	8.7%	196,412	7.4%	165,432
Alabama	14.0%	246,162	8.9%	157,754
Mississippi	16.5%	177,123	11.6%	125,719
West South Central	13.0%	1,547,643	9.1%	1,113,258
Arkansas	14.8%	155,325	9.1%	92,906
Louisiana	15.3%	250,269	10.8%	181,409
Oklahoma	14.6%	189,111	8.5%	110,191
Texas	12.0%	952,938	8.9%	728,752
West	8.8%	2,072,682	6.1%	1,457,474
Mountain	8.8%	594,236	5.6%	388,707
Montana	11.9%	38,865	7.8%	26,186
Idaho	10.7%	51,078	7.5%	38,643
Wyoming	12.5%	25,555	10.1%	20,628
Colorado	6.1%	106,209	3.3%	56,346
New Mexico	12.3%	76,434	8.8%	56,956
Arizona	9.9%	180,343	6.1%	111,305
Utah	8.6%	71,857	5.3%	45,672
Nevada	6.2%	43,894	4.3%	32,772
Pacific	8.8%	1,478,446	6.2%	1,088,767
Washington	6.4%	126,229	4.8%	117,064
Oregon	7.3%	98,980	4.7%	64,319
California	10.0%	1,230,381	6.9%	877,181
Alaska	3.6%	8,580	1.8%	4,409
Hawaii	3.0%	14,266	1.2%	5,793
US	8.9%	9,886,158	6.0%	6,784,289

* "Full sweep" refers to workers earning between \$4.25 and \$5.14 in the year prior to the minimum-wage increase.

** "Second step" refers to the workers earning between \$4.75 and \$5.14 in the ten months following the first step of the increase.

Source: EPI analysis of CPS ORG data.

Table 1 (Alphabetized)
Workers in the Affected Wage Ranges, by State

STATE	Full Sweep*		Second Step**	
	Share	Number	Share	Number
Alabama	14.0%	246,162	8.9%	157,754
Alaska	3.6%	8,590	1.8%	4,409
Arizona	9.9%	180,343	6.1%	111,305
Arkansas	14.8%	155,325	9.1%	92,906
California	10.0%	1,230,381	6.9%	877,181
Colorado	6.1%	106,209	3.3%	56,346
Connecticut	4.6%	65,527	3.1%	45,759
Delaware	6.2%	20,189	5.2%	17,447
District of Columbia	5.5%	12,601	3.5%	7,935
Florida	10.1%	578,272	6.8%	394,143
Georgia	9.4%	294,580	6.0%	195,335
Hawaii	3.0%	14,266	1.2%	5,793
Idaho	10.7%	51,078	7.5%	38,643
Illinois	6.8%	354,033	5.9%	304,969
Indiana	9.3%	247,721	4.7%	126,445
Iowa	9.0%	117,129	6.1%	79,345
Kansas	11.8%	127,303	7.0%	76,988
Kentucky	10.4%	160,092	5.7%	89,049
Louisiana	15.3%	250,269	10.8%	181,409
Maine	7.9%	40,631	5.5%	29,519
Maryland	5.7%	134,276	3.3%	77,254
Massachusetts	5.0%	133,840	3.0%	82,402
Michigan	7.2%	289,417	5.2%	213,443
Minnesota	6.0%	127,595	4.2%	91,629
Mississippi	16.5%	177,123	11.6%	125,718
Missouri	8.1%	194,198	5.2%	123,705
Montana	11.9%	38,865	7.8%	26,186
Nebraska	8.8%	63,554	6.1%	44,995
Nevada	6.2%	43,894	4.3%	32,772
New Hampshire	5.1%	26,369	3.1%	16,550
New Jersey	4.6%	156,725	3.5%	127,714
New Mexico	12.3%	76,434	8.8%	58,956
New York	7.6%	542,091	6.1%	441,622
North Carolina	9.2%	297,471	5.7%	188,906
North Dakota	13.6%	36,307	9.1%	25,363
Ohio	8.7%	419,729	5.6%	270,394
Oklahoma	14.6%	189,111	8.5%	110,191
Oregon	7.3%	98,980	4.7%	64,319
Pennsylvania	8.9%	437,319	5.1%	255,916
Rhode Island	7.3%	30,747	3.7%	15,231
South Carolina	11.3%	176,471	6.6%	107,525
South Dakota	10.2%	31,095	6.5%	19,345
Tennessee	8.7%	196,412	7.4%	165,432
Texas	12.0%	952,938	8.9%	728,752
Utah	8.6%	71,857	5.3%	45,872
Vermont	7.0%	17,854	4.9%	12,222
Virginia	8.4%	250,109	4.2%	122,218
Washington	5.4%	126,229	4.9%	117,064
West Virginia	14.8%	99,772	9.9%	67,310
Wisconsin	6.6%	163,120	3.8%	93,972
Wyoming	12.5%	25,555	10.1%	20,628
US	8.9%	9,886,158	6.0%	6,784,289

* "Full sweep" refers to workers earning between \$4.25 and \$5.14 in the year prior to the minimum-wage increase.

** "Second step" refers to the workers earning between \$4.75 and \$5.14 in the ten months following the first step of the increase.

Source: EPI analysis of CPS ORG data.

*double count
4.2 million from first round.*

Table 2
Workers, by Gender, in the Affected Wage Ranges
in 10 Largest States

STATE	Males				Females			
	Full Sweep*		Second Step**		Full Sweep*		Second Step**	
	Share	Number	Share	Number	Share	Number	Share	Number
New York	6.8%	250,907	5.8%	217,731	8.5%	291,184	6.3%	223,892
New Jersey	3.5%	62,952	2.3%	42,332	5.7%	93,773	4.9%	85,382
Pennsylvania	6.9%	176,846	4.3%	113,784	11.0%	260,472	5.8%	142,132
Ohio	6.4%	162,286	3.9%	99,095	11.3%	257,444	7.4%	171,298
Illinois	5.2%	141,889	5.2%	142,928	8.5%	212,144	6.6%	162,041
Michigan	5.2%	110,937	3.7%	78,924	9.3%	178,480	6.8%	134,519
North Carolina	6.9%	113,044	5.0%	86,010	11.7%	184,427	6.4%	102,896
Florida	8.0%	235,866	5.5%	161,594	12.4%	342,406	8.2%	232,549
Texas	9.9%	426,099	7.3%	327,425	14.4%	526,838	10.7%	401,326
California	9.2%	622,538	6.0%	424,323	10.8%	607,843	8.0%	452,858

* "Full sweep" refers to workers earning between \$4.25 and \$5.14 in the year prior to the minimum-wage increase.

** "Second step" refers to the workers earning between \$4.75 and \$5.14 in the ten months following the first step of the increase.

Source: EPI analysis of CPS ORG data.

Handwritten notes:
 Illinois
 141,889
 212,144
 354,033
 Second
 142,928
 162,041
 304,969

Table 3
Characteristics of Minimum Wage and Other Wage Earners,
Full Sweep (\$4.25-\$5.15), Oct.95-Sep.96

projection of firm power to implement

Characteristic	Workers Directly Affected by New Minimum (\$4.25-\$5.15)	Other Low-Wage Workers (\$5.15-\$6.14)	Workers Above Minimum Wage (\$6.15+)	All Workers
Average Wage	\$4.73	\$5.72	\$14.62	\$12.73
Employment	4.1 ~~9,886,158~~	9,610,926	89,065,561	110,931,743
Share of Total	8.9%	8.7%	80.3%	100.0%
Demographics				
Male	41.8%	41.9%	54.9%	52.3%
Female	58.2%	58.1%	45.1%	47.7%
White	62.8%	67.7%	77.9%	75.4%
Male	24.6%	26.2%	42.8%	39.4%
Female	38.2%	41.5%	35.1%	36.0%
Black	16.1%	13.8%	10.4%	11.3%
Male	6.4%	5.5%	5.1%	5.3%
Female	9.8%	8.3%	5.3%	6.0%
Hispanic	17.5%	14.8%	7.9%	9.5%
Male	9.3%	8.6%	4.9%	5.7%
Female	8.2%	6.2%	3.0%	3.8%
Teens(16-19)	28.6%	16.0%	1.7%	5.6%
Work Hours				
Full-Time (35+)	46.0%	62.7%	87.7%	81.1%
Part-Time				
20-34 hours	33.3%	25.4%	9.0%	13.0%
1-19 hours	20.7%	11.9%	3.3%	5.9%
Industry				
Manufacturing	8.8%	12.7%	19.7%	17.8%
Retail Trade	42.6%	35.8%	12.2%	17.3%

Source: EPI analysis of BLS data.

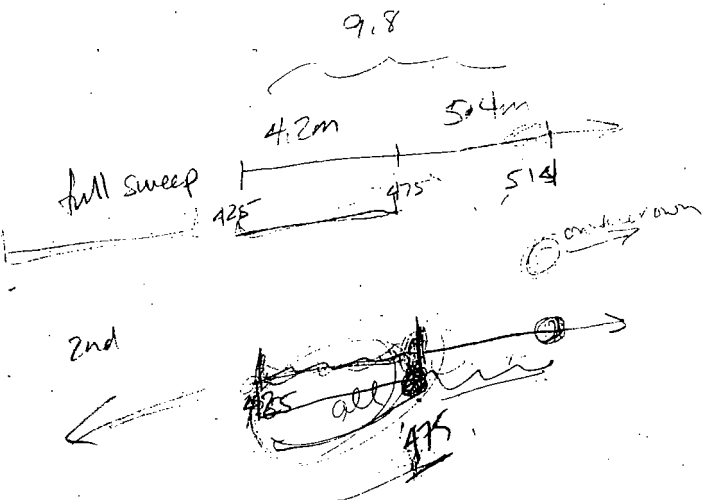
*Σ = 108,562,645
 ⇒ 4.25
 2,369,098*

Table 4
Characteristics of Workers Affected by the Second Step of the
Minimum Wage Increase, Oct 96-July 97

Characteristic	Workers Directly Affected by New Minimum (\$4.75-\$5.14)	Other Low-Wage Workers (\$5.15-\$6.14)	Workers Above Minimum Wage (\$6.15+)	All Workers
Average Wage	\$4.93	\$5.71	\$14.91	\$13.14
Employment	6,784,289	9,784,058	92,684,175	112,977,476
Share of Total	6.0%	8.7%	82.0%	100.0%
Demographics				
Male	42.0%	40.7%	54.6%	52.2%
Female	58.0%	59.3%	45.4%	47.8%
White	60.5%	64.6%	76.7%	74.3%
Male	24.1%	24.2%	41.7%	38.7%
Female	36.4%	40.3%	35.0%	35.6%
Black	16.1%	14.4%	10.5%	11.3%
Male	6.1%	5.5%	5.1%	5.3%
Female	10.0%	8.9%	5.3%	6.1%
Hispanic	19.1%	16.8%	8.6%	10.2%
Male	10.0%	9.3%	5.4%	6.1%
Female	9.2%	7.5%	3.2%	4.1%
Teens(16-19)	30.0%	18.5%	1.9%	5.6%
Work Hours				
Full-Time (35+)	44.8%	58.8%	87.4%	81.2%
Part-Time				
20-34 hours	33.4%	28.4%	9.2%	13.0%
1-19 hours	21.8%	12.8%	3.4%	5.8%
Industry				
Manufacturing	42.2%	37.6%	12.4%	17.1%
Retail Trade	42.4%	37.3%	12.4%	17.0%

Source: EPI analysis of BLS data.

109250522
~~100,446,522~~
 2 4.75
~~32,530,954~~
 3,724,954
 diff below
 1.356



4.2 millions

ensure that # of people

**MINIMUM WAGE INCREASE: Characteristics of Minimum Wage Earners
and Other Wage Earners, October 1995 to September 1996**

(Employment numbers are in thousands; Wages in dollars per hour)

Characteristic	Workers Directly Affected by New Minimum (\$4.25-\$5.14)	Other Low- Wage Workers (\$5.15-\$6.14)	Workers Above Minimum Wage (\$6.15 +)	All Workers
Average wage	\$4.73	\$5.72	\$14.62	\$12.73
Employment	9,886	9,611	89,066	110,932
Share of total	8.9%	8.7%	80.3%	100.0%
Demographic				
Male workers	41.8%	41.9%	54.9%	52.3%
Female workers	58.2%	58.1%	45.1%	47.7%
Teens (16-19)	28.6%	16.0%	1.7%	5.6%
White	62.8%	67.7%	77.9%	75.4%
Male % of white	24.6%	26.2%	42.8%	39.4%
Female % of white	38.2%	41.5%	35.1%	36.0%
Black	16.1%	13.8%	10.4%	11.3%
Male % of black	6.4%	5.5%	5.1%	5.3%
Female % of black	9.8%	8.3%	5.3%	6.0%
Hispanic	17.5%	14.8%	7.9%	9.5%
Male % of Hispanic	9.3%	8.6%	4.9%	5.7%
Female % of Hispanic	8.2%	6.2%	3.0%	3.8%
Work hours/week				
Full-time (35+ hours)	46.0%	62.7%	87.7%	81.1%
Part-time (20-34 hours)	33.3%	25.4%	9.0%	13.0%
Part-time (1-19 hours)	20.7%	11.9%	3.3%	5.9%
Industry				
Manufacturing	8.8%	12.7%	19.7%	17.8%
Retail trade	42.6%	35.8%	12.2%	17.3%

Source: Economic Policy Institute analysis of BLS data

**MINIMUM WAGE INCREASE: Characteristics of Minimum Wage Earners
and Other Wage Earners, October 1996 to July 1997**

(Employment numbers are in thousands; Wages in dollars per hour)

Characteristic	Workers Directly Affected by New Minimum (\$4.75-\$5.14)	Other Low- Wage Workers (\$5.15-\$6.14)	Workers Above Minimum Wage (\$6.15 +)	All Workers
Average wage	\$4.93	\$5.71	\$14.91	\$13.14
Employment	6,784	9,784	92,684	112,977
Share of total	6.0%	8.7%	82.0%	100.0%
Demographics				
Male workers	42.0%	40.7%	54.6%	52.2%
Female workers	58.0%	59.3%	45.4%	47.8%
Teens (16-19)	30.0%	18.5%	1.9%	5.6%
White	60.5%	64.6%	76.7%	74.3%
Male % of white	24.1%	24.2%	41.7%	38.7%
Female % of white	36.4%	40.3%	35.0%	35.6%
Black	16.1%	14.4%	10.5%	11.3%
Male % of black	6.1%	5.5%	5.1%	5.3%
Female % of black	10.0%	8.9%	5.3%	6.1%
Hispanic	19.1%	16.8%	8.6%	10.2%
Male % of Hispanic	10.0%	9.3%	5.4%	6.1%
Female % of Hispanic	9.2%	7.5%	3.2%	4.1%
Work hours/week				
Full-time (35+ hours)	44.8%	58.8%	87.4%	81.2%
Part-time (20-34 hours)	33.4%	28.4%	9.2%	13.0%
Part-time (1-19 hours)	21.8%	12.8%	3.4%	5.8%
Industry				
Manufacturing	9.5%	11.1%	19.3%	17.6%
Retail trade	42.2%	37.6%	12.4%	17.1%

Source: Economic Policy Institute analysis of BLS data

MINIMUM WAGE INCREASE: Workers in the Affected Wages Ranges in the Ten Largest States, by Gender*

State	Males				Females			
	Full Sweep**		Second Step***		Full Sweep**		Second Step***	
	Share	Number in thousands	Share	Number in thousands	Share	Number in thousands	Share	Number in thousands
New York	6.8%	251	5.8%	218	8.5%	291	6.3%	224
New Jersey	3.5%	63	2.3%	42	5.7%	94	4.9%	85
Pennsylvania	6.9%	177	4.3%	114	11.0%	260	5.8%	142
Ohio	6.4%	162	3.9%	99	11.3%	257	7.4%	171
Illinois	5.2%	142	5.2%	143	8.5%	212	6.6%	162
Michigan	5.2%	111	3.7%	79	9.3%	178	6.8%	135
North Carolina	6.9%	113	5.0%	86	11.7%	184	6.4%	103
Florida	8.0%	236	5.5%	162	12.4%	342	8.2%	233
Texas	9.9%	426	7.3%	327	14.4%	527	10.7%	401
California	9.2%	623	6.0%	424	10.8%	608	8.0%	453

* Size refers to number of workers in each state.

** "Full Sweep" refers to workers earning between \$4.25 and \$5.14 in the year prior to the minimum-wage increase.

*** "Second step" refers to the workers earning between \$4.75 and \$5.15 in the ten months following the first step of the increase.

Source: Economic Policy Institute analysis of CPS ORG data.

MINIMUM WAGE INCREASE: Workers in the Affected Wages Ranges, by State

State	Full Sweep*		Second Step**	
	Share	Number in thousands	Share	Number in thousands
United States	8.9%	9,886	0.6%	6,784
Alabama	14.0%	246	8.9%	158
Alaska	3.6%	9	1.8%	4
Arizona	9.9%	180	6.1%	111
Arkansas	14.8%	155	9.1%	93
California	10.0%	1,230	6.9%	877
Colorado	6.1%	106	3.3%	56
Connecticut	4.6%	66	3.1%	46
Delaware	6.2%	20	5.2%	17
District of Columbia	5.5%	13	3.5%	8
Florida	10.1%	578	6.8%	394
Georgia	9.4%	295	6.0%	195
Hawaii	3.0%	14	1.2%	6
Idaho	10.7%	51	7.5%	39
Illinois	6.8%	354	5.9%	305
Indiana	9.3%	248	4.7%	126
Iowa	9.0%	117	6.1%	79
Kansas	11.8%	127	7.0%	77
Kentucky	10.4%	160	5.7%	89
Louisiana	15.3%	250	10.8%	181
Maine	7.9%	41	5.5%	30
Maryland	5.7%	134	3.3%	82
Massachusetts	5.0%	134	3.0%	82
Michigan	7.2%	289	5.2%	213
Minnesota	6.0%	128	4.2%	92
Mississippi	16.5%	177	11.6%	126
Missouri	8.1%	194	5.2%	124
Montana	11.9%	39	7.8%	26
Nebraska	8.8%	64	6.1%	45
Nevada	6.2%	44	4.3%	33
New Hampshire	5.1%	26	3.1%	17
New Jersey	4.6%	157	3.5%	128
New Mexico	12.3%	76	8.8%	57
New York	7.6%	542	6.1%	442
North Carolina	9.2%	297	5.7%	189

State	Full Sweep*		Second Step**	
	Share	Number in thousands	Share	Number in thousands
North Dakota	13.6%	36	9.1%	25
Ohio	8.7%	420	5.6%	270
Oklahoma	14.6%	189	8.5%	110
Oregon	7.3%	99	4.7%	64
Pennsylvania	8.9%	437	5.1%	256
Rhode Island	7.3%	31	3.7%	15
South Carolina	11.3%	176	6.6%	108
South Dakota	10.2%	31	6.5%	19
Tennessee	8.7%	196	7.4%	165
Texas	12.0%	953	8.9%	729
Utah	8.6%	72	5.3%	46
Vermont	7.0%	18	4.9%	12
Virginia	8.4%	250	4.2%	122
Washington	5.4%	126	4.9%	117
West Virginia	14.8%	100	9.9%	67
Wisconsin	6.6%	163	3.8%	94
Wyoming	12.5%	26	10.1%	21

* "Full Sweep" refers to workers earning between \$4.25 and \$5.14 in the year prior to the minimum-wage increase.

** "Second step" refers to the workers earning between \$4.75 and \$5.15 in the ten months following the first step of the increase.

Source: Economic Policy Institute analysis of CPS ORG data.

MINIMUM WAGE INCREASE: Workers in the Affected Wages Ranges, by State

State	Full Sweep*		Second Step**	
	Share	Number in thousands	Share	Number in thousands
United States	8.9%	9,886	0.6%	6,784
Northeast	6.8%	1,451	4.7%	1,027
New England	5.4%	315	3.4%	202
Maine	7.9%	41	5.5%	30
New Hampshire	5.1%	26	3.1%	17
Vermont	7.0%	18	4.9%	12
Massachusetts	5.0%	134	3.0%	82
Rhode Island	7.3%	31	3.7%	15
Connecticut	4.6%	66	3.1%	46
Mid-Atlantic	7.3%	1,136	5.2%	825
New York	7.6%	542	6.1%	442
New Jersey	4.6%	157	3.5%	128
Pennsylvania	8.9%	437	5.1%	256
Midwest	7.9%	2,171	5.3%	1,471
East North Central	7.7%	1,474	5.2%	1,009
Ohio	8.7%	420	5.6%	270
Indiana	9.3%	248	4.7%	126
Illinois	6.8%	354	5.9%	305
Michigan	7.2%	289	5.2%	213
Wisconsin	6.6%	163	3.8%	94
West North Cental	8.5%	697	5.6%	461
Minnesota	6.0%	128	4.2%	92
Iowa	9.0%	117	6.1%	79
Missouri	8.1%	194	5.2%	124
North Dakota	13.6%	36	9.1%	25
South Dakota	10.2%	31	6.5%	19
Nebraska	8.8%	64	6.1%	45
Kansas	11.8%	127	7.0%	77
South	10.8%	4,191	7.2%	2,829
South Atlantic	9.2%	1,864	5.7%	1,178
Delaware	6.2%	20	5.2%	17
Maryland	5.7%	134	3.3%	77
District of Columbia	5.5%	13	3.5%	8
Virginia	8.4%	250	4.2%	122
West Virginia	14.8%	100	9.9%	67
North Carolina	9.2%	297	5.7%	189
South Carolina	11.3%	176	6.6%	108
Georgia	9.4%	295	6.0%	195
Florida	10.1%	578	6.8%	394

State	Full Sweep*		Second Step**	
	Share	Number in thousands	Share	Number in thousands
East South Central	11.8%	780	8.1%	538
Kentucky	10.4%	160	5.7%	89
Tennessee	8.7%	196	7.4%	165
Alabama	14.0%	246	8.9%	158
Mississippi	16.5%	177	11.6%	126
West South Central	13.0%	1,548	9.1%	1,113
Arkansas	14.8%	155	9.1%	93
Louisiana	15.3%	250	10.8%	181
Oklahoma	14.6%	189	8.5%	110
Texas	12.0%	953	8.9%	729
West	8.8%	2,073	6.1%	1,457
Mountain	8.8%	594	5.6%	389
Montana	11.9%	39	7.8%	26
Idaho	10.7%	51	7.5%	39
Wyoming	12.5%	26	10.1%	21
Colorado	6.1%	106	3.3%	56
New Mexico	12.3%	76	8.8%	57
Arizona	9.9%	180	6.1%	111
Utah	8.6%	72	5.3%	46
Nevada	6.2%	44	4.3%	33
Pacific	8.8%	1,478	6.2%	1,069
Washington	5.4%	126	4.9%	117
Oregon	7.3%	99	4.7%	64
California	10.0%	1,230	6.9%	877
Alaska	3.6%	9	1.8%	4
Hawaii	3.0%	14	1.2%	6

* "Full Sweep" refers to workers earning between \$4.25 and \$5.14 in the year prior to the minimum-wage increase.

** "Second step" refers to the workers earning between \$4.75 and \$5.15 in the ten months following the first step of the increase.

Source: Economic Policy Institute analysis of CPS ORG data.

**MINIMUM WAGE INCREASE: Characteristics of Minimum Wage Earners
and Other Wage Earners, October 1995 to September 1996**

(Employment numbers are in thousands; Wages in dollars per hour)

Characteristic	Workers Directly Affected by New Minimum (\$4.25-\$5.14)	Other Low- Wage Workers (\$5.15-\$6.14)	Workers Above Minimum Wage (\$6.15 +)	All Workers
Average wage	\$4.73	\$5.72	\$14.62	\$12.73
Employment	9,886	9,611	89,066	110,932
Share of total	8.9%	8.7%	80.3%	100.0%
Demographic				
Male workers	41.8%	41.9%	54.9%	52.3%
Female workers	58.2%	58.1%	45.1%	47.7%
Teens (16-19)	28.6%	16.0%	1.7%	5.6%
White	62.8%	67.7%	77.9%	75.4%
Male % of white	24.6%	26.2%	42.8%	39.4%
Female % of white	38.2%	41.5%	35.1%	36.0%
Black	16.1%	13.8%	10.4%	11.3%
Male % of black	6.4%	5.5%	5.1%	5.3%
Female % of black	9.8%	8.3%	5.3%	6.0%
Hispanic	17.5%	14.8%	7.9%	9.5%
Male % of Hispanic	9.3%	8.6%	4.9%	5.7%
Female % of Hispanic	8.2%	6.2%	3.0%	3.8%
Work hours/week				
Full-time (35+ hours)	46.0%	62.7%	87.7%	81.1%
Part-time (20-34 hours)	33.3%	25.4%	9.0%	13.0%
Part-time (1-19 hours)	20.7%	11.9%	3.3%	5.9%
Industry				
Manufacturing	8.8%	12.7%	19.7%	17.8%
Retail trade	42.6%	35.8%	12.2%	17.3%

Source: Economic Policy Institute analysis of BLS data

**MINIMUM WAGE INCREASE: Characteristics of Minimum Wage Earners
and Other Wage Earners, October 1996 to July 1997**

(Employment numbers are in thousands; Wages in dollars per hour)

Characteristic	Workers Directly Affected by New Minimum (\$4.75-\$5.14)	Other Low- Wage Workers (\$5.15-\$6.14)	Workers Above Minimum Wage (\$6.15 +)	All Workers
Average wage	\$4.93	\$5.71	\$14.91	\$13.14
Employment	6,784	9,784	92,684	112,977
Share of total	6.0%	8.7%	82.0%	100.0%
Demographics				
Male workers	42.0%	40.7%	54.6%	52.2%
Female workers	58.0%	59.3%	45.4%	47.8%
Teens (16-19)	30.0%	18.5%	1.9%	5.6%
White	60.5%	64.6%	76.7%	74.3%
Male % of white	24.1%	24.2%	41.7%	38.7%
Female % of white	36.4%	40.3%	35.0%	35.6%
Black	16.1%	14.4%	10.5%	11.3%
Male % of black	6.1%	5.5%	5.1%	5.3%
Female % of black	10.0%	8.9%	5.3%	6.1%
Hispanic	19.1%	16.8%	8.6%	10.2%
Male % of Hispanic	10.0%	9.3%	5.4%	6.1%
Female % of Hispanic	9.2%	7.5%	3.2%	4.1%
Work hours/week				
Full-time (35+ hours)	44.8%	58.8%	87.4%	81.2%
Part-time (20-34 hours)	33.4%	28.4%	9.2%	13.0%
Part-time (1-19 hours)	21.8%	12.8%	3.4%	5.8%
Industry				
Manufacturing	9.5%	11.1%	19.3%	17.6%
Retail trade	42.2%	37.6%	12.4%	17.1%

Source: Economic Policy Institute analysis of BLS data

MINIMUM WAGE INCREASE: Workers in the Affected Wages Ranges in the Ten Largest States, by Gender*

State	Males				Females			
	Full Sweep**		Second Step***		Full Sweep**		Second Step***	
	Share	Number in thousands	Share	Number in thousands	Share	Number in thousands	Share	Number in thousands
New York	6.8%	251	5.8%	218	8.5%	291	6.3%	224
New Jersey	3.5%	63	2.3%	42	5.7%	94	4.9%	85
Pennsylvania	6.9%	177	4.3%	114	11.0%	260	5.8%	142
Ohio	6.4%	162	3.9%	99	11.3%	257	7.4%	171
Illinois	5.2%	142	5.2%	143	8.5%	212	6.6%	162
Michigan	5.2%	111	3.7%	79	9.3%	178	6.8%	135
North Carolina	6.9%	113	5.0%	86	11.7%	184	6.4%	103
Florida	8.0%	236	5.5%	162	12.4%	342	8.2%	233
Texas	9.9%	426	7.3%	327	14.4%	527	10.7%	401
California	9.2%	623	6.0%	424	10.8%	608	8.0%	453

* Size refers to number of workers in each state.

** "Full Sweep" refers to workers earning between \$4.25 and \$5.14 in the year prior to the minimum-wage increase.

** "Second step" refers to the workers earning between \$4.75 and \$5.15 in the ten months following the first step of the increase.

Source: Economic Policy Institute analysis of CPS ORG data.

MINIMUM WAGE INCREASE: Workers in the Affected Wages Ranges, by State

State	Full Sweep*		Second Step**	
	Share	Number in thousands	Share	Number in thousands
United States	8.9%	9,886	0.6%	6,784
Alabama	14.0%	246	8.9%	158
Alaska	3.6%	9	1.8%	4
Arizona	9.9%	180	6.1%	111
Arkansas	14.8%	155	9.1%	93
California	10.0%	1,230	6.9%	877
Colorado	6.1%	106	3.3%	56
Connecticut	4.6%	66	3.1%	46
Delaware	6.2%	20	5.2%	17
District of Columbia	5.5%	13	3.5%	8
Florida	10.1%	578	6.8%	394
Georgia	9.4%	295	6.0%	195
Hawaii	3.0%	14	1.2%	6
Idaho	10.7%	51	7.5%	39
Illinois	6.8%	354	5.9%	305
Indiana	9.3%	248	4.7%	126
Iowa	9.0%	117	6.1%	79
Kansas	11.8%	127	7.0%	77
Kentucky	10.4%	160	5.7%	89
Louisiana	15.3%	250	10.8%	181
Maine	7.9%	41	5.5%	30
Maryland	5.7%	134	3.3%	82
Massachusetts	5.0%	134	3.0%	82
Michigan	7.2%	289	5.2%	213
Minnesota	6.0%	128	4.2%	92
Mississippi	16.5%	177	11.6%	126
Missouri	8.1%	194	5.2%	124
Montana	11.9%	39	7.8%	26
Nebraska	8.8%	64	6.1%	45
Nevada	6.2%	44	4.3%	33
New Hampshire	5.1%	26	3.1%	17
New Jersey	4.6%	157	3.5%	128
New Mexico	12.3%	76	8.8%	57
New York	7.6%	542	6.1%	442
North Carolina	9.2%	297	5.7%	189

State	Full Sweep*		Second Step**	
	Share	Number in thousands	Share	Number in thousands
North Dakota	13.6%	36	9.1%	25
Ohio	8.7%	420	5.6%	270
Oklahoma	14.6%	189	8.5%	110
Oregon	7.3%	99	4.7%	64
Pennsylvania	8.9%	437	5.1%	256
Rhode Island	7.3%	31	3.7%	15
South Carolina	11.3%	176	6.6%	108
South Dakota	10.2%	31	6.5%	19
Tennessee	8.7%	196	7.4%	165
Texas	12.0%	953	8.9%	729
Utah	8.6%	72	5.3%	46
Vermont	7.0%	18	4.9%	12
Virginia	8.4%	250	4.2%	122
Washington	5.4%	126	4.9%	117
West Virginia	14.8%	100	9.9%	67
Wisconsin	6.6%	163	3.8%	94
Wyoming	12.5%	26	10.1%	21

* "Full Sweep" refers to workers earning between \$4.25 and \$5.14 in the year prior to the minimum-wage increase.

** "Second step" refers to the workers earning between \$4.75 and \$5.15 in the ten months following the first step of the increase.

Source: Economic Policy Institute analysis of CPS ORG data.

MINIMUM WAGE INCREASE: Workers in the Affected Wages Ranges, by State

State	Full Sweep*		Second Step**	
	Share	Number in thousands	Share	Number in thousands
United States	8.9%	9,886	0.6%	6,784
Northeast	6.8%	1,451	4.7%	1,027
New England	5.4%	315	3.4%	202
Maine	7.9%	41	5.5%	30
New Hampshire	5.1%	26	3.1%	17
Vermont	7.0%	18	4.9%	12
Massachusetts	5.0%	134	3.0%	82
Rhode Island	7.3%	31	3.7%	15
Connecticut	4.6%	66	3.1%	46
Mid-Atlantic	7.3%	1,136	5.2%	825
New York	7.6%	542	6.1%	442
New Jersey	4.6%	157	3.5%	128
Pennsylvania	8.9%	437	5.1%	256
Midwest	7.9%	2,171	5.3%	1,471
East North Central	7.7%	1,474	5.2%	1,009
Ohio	8.7%	420	5.6%	270
Indiana	9.3%	248	4.7%	126
Illinois	6.8%	354	5.9%	305
Michigan	7.2%	289	5.2%	213
Wisconsin	6.6%	163	3.8%	94
West North Cental	8.5%	697	5.6%	461
Minnesota	6.0%	128	4.2%	92
Iowa	9.0%	117	6.1%	79
Missouri	8.1%	194	5.2%	124
North Dakota	13.6%	36	9.1%	25
South Dakota	10.2%	31	6.5%	19
Nebraska	8.8%	64	6.1%	45
Kansas	11.8%	127	7.0%	77
South	10.8%	4,191	7.2%	2,829
South Atlantic	9.2%	1,864	5.7%	1,178
Delaware	6.2%	20	5.2%	17
Maryland	5.7%	134	3.3%	77
District of Columbia	5.5%	13	3.5%	8
Virginia	8.4%	250	4.2%	122
West Virginia	14.8%	100	9.9%	67
North Carolina	9.2%	297	5.7%	189
South Carolina	11.3%	176	6.6%	108
Georgia	9.4%	295	6.0%	195
Florida	10.1%	578	6.8%	394

State	Full Sweep*		Second Step**	
	Share	Number in thousands	Share	Number in thousands
East South Central	11.8%	780	8.1%	538
Kentucky	10.4%	160	5.7%	89
Tennessee	8.7%	196	7.4%	165
Alabama	14.0%	246	8.9%	158
Mississippi	16.5%	177	11.6%	126
West South Central	13.0%	1,548	9.1%	1,113
Arkansas	14.8%	155	9.1%	93
Louisiana	15.3%	250	10.8%	181
Oklahoma	14.6%	189	8.5%	110
Texas	12.0%	953	8.9%	729
West	8.8%	2,073	6.1%	1,457
Mountain	8.8%	594	5.6%	389
Montana	11.9%	39	7.8%	26
Idaho	10.7%	51	7.5%	39
Wyoming	12.5%	26	10.1%	21
Colorado	6.1%	106	3.3%	56
New Mexico	12.3%	76	8.8%	57
Arizona	9.9%	180	6.1%	111
Utah	8.6%	72	5.3%	46
Nevada	6.2%	44	4.3%	33
Pacific	8.8%	1,478	6.2%	1,069
Washington	5.4%	126	4.9%	117
Oregon	7.3%	99	4.7%	64
California	10.0%	1,230	6.9%	877
Alaska	3.6%	9	1.8%	4
Hawaii	3.0%	14	1.2%	6

* "Full Sweep" refers to workers earning between \$4.25 and \$5.14 in the year prior to the minimum-wage increase.

** "Second step" refers to the workers earning between \$4.75 and \$5.15 in the ten months following the first step of the increase.

Source: Economic Policy Institute analysis of CPS ORG data.

(Employment numbers are in thousands; Wages in dollars per hour)

108555

00002

1.
425

614 615+

**MINIMUM WAGE INCREASE: Characteristics of Minimum Wage Earners
and Other Wage Earners, October 1996 to July 1997**

(Employment numbers are in thousands; Wages in dollars per hour)

	Workers Directly Affected by New Minimum (\$4.75-\$5.14)	Other Low- Wage Workers (\$5.15-\$6.14)	Workers Above Minimum Wage (\$6.15 +)	All Workers
Characteristic				
Average wage	\$4.93	\$5.71	\$14.91	\$13.14
Employment 3725	6,784	9,784	92,684	112,977
Share of total	6.0%	8.7%	82.0%	100.0%
Demographic				
Male workers	42.0%	40.7%	54.6%	52.2%
Female workers	58.0%	59.3%	45.4%	47.8%
Teens (16-19)	30.0%	18.5%	1.9%	5.6%
White	60.5%	64.6%	76.7%	74.3%
Male % of white	24.1%	24.2%	41.7%	38.7%
Female % of white	36.4%	40.3%	35.0%	35.6%
Black	16.1%	14.4%	10.5%	11.3%
Male % of black	6.1%	5.5%	5.1%	5.3%
Female % of black	10.0%	8.9%	5.3%	6.1%
Hispanic	19.1%	16.8%	8.6%	10.2%
Male % of Hispanic	10.0%	9.3%	5.4%	6.1%
Female % of Hispanic	9.2%	7.5%	3.2%	4.1%
Work hours/week				
Full-time (35+ hours)	44.8%	58.8%	87.4%	81.2%
Part-time (20-34 hours)	33.4%	28.4%	9.2%	13.0%
Part-time (1-19 hours)	21.8%	12.8%	3.4%	5.6%
Industry				
Manufacturing	9.5%	11.1%	19.3%	17.6%
Retail trade	42.2%	37.6%	12.4%	17.1%

Source: Economic Policy Institute analysis of BLS data

① A to 425 - 475 - 514

② above for pre 10/96 + pre 9/97

③ residual people - below 4.25 then

④ what does he do with tips in calculation of wages

08/22/97

ECONOMIC POLICY INSTITUTE

1660 L STREET NW • SUITE 1200 • WASHINGTON DC 20036 • 202.775.8810 • FAX 202.775.0819

E-MAIL: Economic@cais.comEPI HOME PAGE: [Http://Epinet.org](http://Epinet.org)

FAX

COVER

SHEET

TO: Barbara BinghamFROM: JARED BERNSTEIN

ORGANIZATION: _____

PHONE NO: 202.331.5547DOL / ASR

DATE: _____

FAX NO: 219 9216

CODE: _____

PHONE NO: _____

PAGES (INCL COVER): _____

=====

COMMENTS: _____

Corrected Tbl 4
(Sorry!)- JB

If you did not receive all the pages in this transmission, please call 202.775.8810.

Table 4
Characteristics of Workers Affected by the Second Step of the
Minimum Wage Increase, Oct 96-July 97

Characteristic	Workers Directly Affected by New Minimum (\$4.75-\$5.14)	Other Low-Wage Workers (\$5.15-\$6.14)	Workers Above Minimum Wage (\$6.15+)	All Workers
Average Wage	\$4.93	\$5.71	\$14.91	\$13.14
Employment	6,784,289	9,784,058	92,684,175	112,977,476
Share of Total	6.0%	8.7%	82.0%	100.0%
Demographics				
Male	42.0%	40.7%	54.6%	52.2%
Female	58.0%	59.3%	45.4%	47.8%
White	60.5%	64.6%	76.7%	74.3%
Male	24.1%	24.2%	41.7%	38.7%
Female	36.4%	40.3%	35.0%	35.6%
Black	16.1%	14.4%	10.5%	11.3%
Male	6.1%	5.5%	5.1%	5.3%
Female	10.0%	8.9%	5.3%	6.1%
Hispanic	19.1%	16.8%	8.6%	10.2%
Male	10.0%	9.3%	5.4%	6.1%
Female	9.2%	7.5%	3.2%	4.1%
Teens(16-19)	30.0%	18.5%	1.9%	5.6%
Work Hours				
Full-Time (35+)	44.8%	58.8%	87.4%	81.2%
Part-Time				
20-34 hours	33.4%	28.4%	9.2%	13.0%
1-19 hours	21.8%	12.8%	3.4%	5.8%
Industry				
Manufacturing	9.5%	11.1%	19.3%	17.6%
Retail Trade	42.2%	37.6%	12.4%	17.1%

Source: EPI analysis of BLS data.

MINIMUM WAGE INCREASE: Workers in the Affected Wages Ranges, by State

State	Full Sweep*		Second Step**	
	Share	Number in thousands	Share	Number in thousands
United States	8.9%	9,886	0.6%	6,784
Alabama	14.0%	246	8.9%	158
Alaska	3.6%	9	1.8%	4
Arizona	9.9%	180	6.1%	111
Arkansas	14.8%	155	9.1%	93
California	10.0%	1,230	6.9%	877
Colorado	6.1%	106	3.3%	56
Connecticut	4.6%	66	3.1%	46
Delaware	6.2%	20	5.2%	17
District of Columbia	5.5%	13	3.5%	8
Florida	10.1%	578	6.8%	394
Georgia	9.4%	295	6.0%	195
Hawaii	3.0%	14	1.2%	6
Idaho	10.7%	51	7.5%	39
Illinois	6.8%	354	5.9%	305
Indiana	9.3%	248	4.7%	126
Iowa	9.0%	117	6.1%	79
Kansas	11.8%	127	7.0%	77
Kentucky	10.4%	160	5.7%	89
Louisiana	15.3%	250	10.8%	181
Maine	7.9%	41	5.5%	30
Maryland	5.7%	134	3.3%	82
Massachusetts	5.0%	134	3.0%	82
Michigan	7.2%	289	5.2%	213
Minnesota	6.0%	128	4.2%	92
Mississippi	16.5%	177	11.6%	126
Missouri	8.1%	194	5.2%	124
Montana	11.9%	39	7.8%	26
Nebraska	8.8%	64	6.1%	45
Nevada	6.2%	44	4.3%	33
New Hampshire	5.1%	26	3.1%	17
New Jersey	4.6%	157	3.5%	128
New Mexico	12.3%	76	8.8%	57
New York	7.6%	542	6.1%	442
North Carolina	9.2%	297	5.7%	189

State	Full Sweep*		Second Step**	
	Share	Number in thousands	Share	Number in thousands
North Dakota	13.6%	36	9.1%	25
Ohio	8.7%	420	5.6%	270
Oklahoma	14.6%	189	8.5%	110
Oregon	7.3%	99	4.7%	64
Pennsylvania	8.9%	437	5.1%	256
Rhode Island	7.3%	31	3.7%	15
South Carolina	11.3%	176	6.6%	108
South Dakota	10.2%	31	6.5%	19
Tennessee	8.7%	196	7.4%	165
Texas	12.0%	953	8.9%	729
Utah	8.6%	72	5.3%	46
Vermont	7.0%	18	4.9%	12
Virginia	8.4%	250	4.2%	122
Washington	5.4%	126	4.9%	117
West Virginia	14.8%	100	9.9%	67
Wisconsin	6.6%	163	3.8%	94
Wyoming	12.5%	26	10.1%	21

* "Full Sweep" refers to workers earning between \$4.25 and \$5.14 in the year prior to the minimum-wage increase.

** "Second step" refers to the workers earning between \$4.75 and \$5.15 in the ten months following the first step of the increase.

Source: Economic Policy Institute analysis of CPS ORG data.

MINIMUM WAGE INCREASE: Workers in the Affected Wages Ranges, by State

State	Full Sweep*		Second Step**	
	Share	Number in thousands	Share	Number in thousands
United States	8.9%	9,886	0.6%	6,784
Northeast	6.8%	1,451	4.7%	1,027
New England	5.4%	315	3.4%	202
Maine	7.9%	41	5.5%	30
New Hampshire	5.1%	26	3.1%	17
Vermont	7.0%	18	4.9%	12
Massachusetts	5.0%	134	3.0%	82
Rhode Island	7.3%	31	3.7%	15
Connecticut	4.6%	66	3.1%	46
Mid-Atlantic	7.3%	1,136	5.2%	825
New York	7.6%	542	6.1%	442
New Jersey	4.6%	157	3.5%	128
Pennsylvania	8.9%	437	5.1%	256
Midwest	7.9%	2,171	5.3%	1,471
East North Central	7.7%	1,474	5.2%	1,009
Ohio	8.7%	420	5.6%	270
Indiana	9.3%	248	4.7%	126
Illinois	6.8%	354	5.9%	305
Michigan	7.2%	289	5.2%	213
Wisconsin	6.6%	163	3.8%	94
West North Cental	8.5%	697	5.6%	461
Minnesota	6.0%	128	4.2%	92
Iowa	9.0%	117	6.1%	79
Missouri	8.1%	194	5.2%	124
North Dakota	13.6%	36	9.1%	25
South Dakota	10.2%	31	6.5%	19
Nebraska	8.8%	64	6.1%	45
Kansas	11.8%	127	7.0%	77
South	10.8%	4,191	7.2%	2,829
South Atlantic	9.2%	1,864	5.7%	1,178
Delaware	6.2%	20	5.2%	17
Maryland	5.7%	134	3.3%	77
District of Columbia	5.5%	13	3.5%	8
Virginia	8.4%	250	4.2%	122
West Virginia	14.8%	100	9.9%	67
North Carolina	9.2%	297	5.7%	189
South Carolina	11.3%	176	6.6%	108
Georgia	9.4%	295	6.0%	195
Florida	10.1%	578	6.8%	394

State	Full Sweep*		Second Step**	
	Share	Number in thousands	Share	Number in thousands
East South Central	11.8%	780	8.1%	538
Kentucky	10.4%	160	5.7%	89
Tennessee	8.7%	196	7.4%	165
Alabama	14.0%	246	8.9%	158
Mississippi	16.5%	177	11.6%	126
West South Central	13.0%	1,548	9.1%	1,113
Arkansas	14.8%	155	9.1%	93
Louisiana	15.3%	250	10.8%	181
Oklahoma	14.6%	189	8.5%	110
Texas	12.0%	953	8.9%	729
West	8.8%	2,073	6.1%	1,457
Mountain	8.8%	594	5.6%	389
Montana	11.9%	39	7.8%	26
Idaho	10.7%	51	7.5%	39
Wyoming	12.5%	26	10.1%	21
Colorado	6.1%	106	3.3%	56
New Mexico	12.3%	76	8.8%	57
Arizona	9.9%	180	6.1%	111
Utah	8.6%	72	5.3%	46
Nevada	6.2%	44	4.3%	33
Pacific	8.8%	1,478	6.2%	1,069
Washington	5.4%	126	4.9%	117
Oregon	7.3%	99	4.7%	64
California	10.0%	1,230	6.9%	877
Alaska	3.6%	9	1.8%	4
Hawaii	3.0%	14	1.2%	6

* "Full Sweep" refers to workers earning between \$4.25 and \$5.14 in the year prior to the minimum-wage increase.

** "Second step" refers to the workers earning between \$4.75 and \$5.15 in the ten months following the first step of the increase.

Source: Economic Policy Institute analysis of CPS ORG data.

**MINIMUM WAGE INCREASE: Characteristics of Minimum Wage Earners
and Other Wage Earners, October 1995 to September 1996**
(Employment numbers are in thousands; Wages in dollars per hour)

	Workers Directly Affected by New Minimum (\$4.25-\$5.14)	Other Low- Wage Workers (\$5.15-\$6.14)	Workers Above Minimum Wage (\$6.15 +)	All Workers
Characteristic				
Average wage	\$4.73	\$5.72	\$14.62	\$12.73
Employment	9,886	9,611	89,066	110,932
Share of total	8.9%	8.7%	80.3%	100.0%
Demographic				
Male workers	41.8%	41.9%	54.9%	52.3%
Female workers	58.2%	58.1%	45.1%	47.7%
Teens (16-19)	28.6%	16.0%	1.7%	5.6%
White (90% labor force)	62.8%	67.7%	77.9%	75.4%
Male % of white	24.6%	26.2%	42.8%	39.4%
Female % of white	38.2%	41.5%	35.1%	36.0%
Black	16.1%	13.8%	10.4%	11.3%
Male % of black	6.4%	5.5%	5.1%	5.3%
Female % of black	9.8%	8.3%	5.3%	6.0%
Hispanic	17.5%	14.8%	7.9%	9.5%
Male % of Hispanic	9.3%	8.6%	4.9%	5.7%
Female % of Hispanic	8.2%	6.2%	3.0%	3.8%
Work hours/week				
Full-time (35+ hours)	46.0%	62.7%	87.7%	81.1%
Part-time (20-34 hours)	33.0%	25.4%	9.0%	13.0%
Part-time (1-19 hours)	20.7%	11.9%	3.3%	5.9%
Industry				
Manufacturing	8.8%	12.7%	19.7%	17.8%
Retail trade	42.6%	35.8%	12.2%	17.3%

Source: Economic Policy Institute analysis of BLS data

March 1997

MINIMUM WAGE INCREASE: Workers in the Affected Wages Ranges, by State

State	Full Sweep*		Second Step**	
	Share	Number in thousands	Share	Number in thousands
United States	8.9%	9,886	0.6%	6,784
Alabama	14.0%	246	8.9%	158
Alaska	3.6%	9	1.8%	4
Arizona	9.9%	180	6.1%	111
Arkansas	14.8%	155	9.1%	93
California	10.0%	1,230	6.9%	877
Colorado	6.1%	106	3.3%	56
Connecticut	4.6%	66	3.1%	46
Delaware	6.2%	20	5.2%	17
District of Columbia	5.5%	13	3.5%	8
Florida	10.1%	578	6.8%	394
Georgia	9.4%	295	6.0%	195
Hawaii	3.0%	14	1.2%	6
Idaho	10.7%	51	7.5%	39
Illinois	6.8%	354	5.9%	305
Indiana	9.3%	248	4.7%	126
Iowa	9.0%	117	6.1%	79
Kansas	11.8%	127	7.0%	77
Kentucky	10.4%	160	5.7%	69
Louisiana	15.3%	260	10.8%	181
Maine	7.9%	41	5.5%	30
Maryland	5.7%	134	3.0%	82
Massachusetts	5.0%	134	3.0%	82
Michigan	7.2%	289	5.2%	213
Minnesota	6.0%	128	4.2%	92
Mississippi	16.5%	177	11.6%	126
Missouri	8.1%	194	5.2%	124
Montana	11.9%	39	7.8%	26
Nebraska	8.8%	64	6.1%	45
Nevada	6.2%	44	4.3%	33
New Hampshire	5.1%	26	3.1%	17
New Jersey	4.6%	157	3.5%	128
New Mexico	12.3%	76	8.8%	57
New York	7.6%	542	6.1%	442
North Carolina	9.2%	297	5.7%	189

State	Full Sweep*		Second Step**	
	Share	Number in thousands	Share	Number in thousands
North Dakota	13.6%	36	9.1%	25
Ohio	8.7%	420	5.6%	270
Oklahoma	14.6%	189	8.5%	110
Oregon	7.3%	99	4.7%	64
Pennsylvania	8.9%	437	5.1%	256
Rhode Island	7.3%	31	3.7%	15
South Carolina	11.3%	176	6.6%	108
South Dakota	10.2%	31	6.5%	19
Tennessee	8.7%	196	7.4%	165
Texas	12.0%	953	8.9%	729
Utah	8.6%	72	5.3%	46
Vermont	7.0%	18	4.9%	12
Virginia	8.4%	250	4.2%	122
Washington	5.4%	126	4.9%	117
West Virginia	14.8%	100	9.9%	67
Wisconsin	6.6%	163	3.8%	94
Wyoming	12.5%	26	10.1%	21

* "Full Sweep" refers to workers earning between \$4.25 and \$5.14 in the year prior to the minimum-wage increase.

** "Second step" refers to the workers earning between \$4.75 and \$5.15 in the ten months following the first step of the increase.

Source: Economic Policy Institute analysis of CPS ORG data.

MINIMUM WAGE INCREASE: Workers In the Affected Wages Ranges, by State

State	Full Sweep*		Second Step**	
	Share	Number in thousands	Share	Number in thousands
United States	8.9%	9,886	0.6%	6,784
Northeast	6.8%	1,451	4.7%	1,027
New England	5.4%	315	3.4%	202
Maine	7.9%	41	5.5%	30
New Hampshire	5.1%	26	3.1%	17
Vermont	7.0%	18	4.9%	12
Massachusetts	5.0%	134	3.0%	82
Rhode Island	7.3%	31	3.7%	15
Connecticut	4.6%	66	3.1%	46
Mid-Atlantic	7.3%	1,136	5.2%	825
New York	7.6%	542	6.1%	442
New Jersey	4.6%	157	3.5%	128
Pennsylvania	8.9%	437	5.1%	256
Midwest	7.9%	2,171	5.3%	1,471
East North Central	7.7%	1,474	5.2%	1,009
Ohio	8.7%	420	5.6%	270
Indiana	9.3%	248	4.7%	126
Illinois	6.8%	354	5.9%	305
Michigan	7.2%	289	5.2%	213
Wisconsin	6.6%	163	3.8%	94
West North Cental	8.5%	697	5.6%	461
Minnesota	6.0%	128	4.2%	92
Iowa	9.0%	117	6.1%	79
Missouri	8.1%	194	5.2%	124
North Dakota	13.6%	36	9.1%	25
South Dakota	10.2%	31	6.5%	19
Nebraska	8.8%	64	6.1%	45
Kansas	11.8%	127	7.0%	77
South	10.8%	4,191	7.2%	2,829
South Atlantic	9.2%	1,864	5.7%	1,178
Delaware	6.2%	20	5.2%	17
Maryland	5.7%	134	3.3%	77
District of Columbia	5.5%	13	3.5%	8
Virginia	8.4%	250	4.2%	122
West Virginia	14.8%	100	9.9%	67
North Carolina	9.2%	297	5.7%	189
South Carolina	11.3%	176	6.6%	108
Georgia	9.4%	295	6.0%	195
Florida	10.1%	578	6.8%	394

State	Full Sweep*		Second Step**	
	Share	Number in thousands	Share	Number in thousands
East South Central	11.8%	780	8.1%	538
Kentucky	10.4%	160	5.7%	69
Tennessee	8.7%	196	7.4%	165
Alabama	14.0%	246	8.9%	158
Mississippi	16.5%	177	11.6%	126
West South Central	13.0%	1,548	9.1%	1,113
Arkansas	14.8%	155	9.1%	93
Louisiana	15.3%	260	10.8%	181
Oklahoma	14.6%	189	8.5%	110
Texas	12.0%	953	8.9%	729
West	8.8%	2,073	6.1%	1,457
Mountain	8.8%	594	5.6%	389
Montana	11.9%	39	7.8%	26
Idaho	10.7%	51	7.5%	39
Wyoming	12.5%	26	10.1%	21
Colorado	6.1%	106	3.3%	56
New Mexico	12.3%	76	8.8%	57
Arizona	9.9%	180	6.1%	111
Utah	8.6%	72	5.3%	46
Nevada	6.2%	44	4.3%	33
Pacific	8.8%	1,478	6.2%	1,069
Washington	5.4%	126	4.9%	117
Oregon	7.3%	99	4.7%	64
California	10.0%	1,230	6.9%	877
Alaska	3.6%	9	1.8%	4
Hawaii	3.0%	14	1.2%	6

* "Full Sweep" refers to workers earning between \$4.25 and \$5.14 in the year prior to the minimum-wage increase.

** "Second step" refers to the workers earning between \$4.75 and \$5.15 in the ten months following the first step of the increase.

Source: Economic Policy Institute analysis of CPS ORG data.

**MINIMUM WAGE INCREASE: Characteristics of Minimum Wage Earners
and Other Wage Earners, October 1996 to July 1997**
(Employment numbers are in thousands; Wages in dollars per hour)

	Workers Directly Affected by New Minimum (\$4.75-\$5.14)	Other Low- Wage Workers (\$5.15-\$6.14)	Workers Above Minimum Wage (\$6.15 +)	All Workers
Charteristic				
Average wage	\$4.93	\$5.71	\$14.91	\$13.14
Employment	6,784	9,784	92,684	112,977
Share of total	6.0%	8.7%	82.0%	100.0%
Demographic				
Male workers	42.0%	40.7%	54.6%	52.2%
Female workers	58.0%	59.3%	45.4%	47.8%
Teens (16-19)	30.0%	18.5%	1.9%	5.6%
White	60.5%	64.6%	76.7%	74.3%
Male % of white	24.1%	24.2%	41.7%	38.7%
Female % of white	36.4%	40.3%	35.0%	35.6%
Black	16.1%	14.4%	10.5%	11.3%
Male % of black	6.1%	5.5%	5.1%	5.3%
Female % of black	10.0%	8.9%	5.3%	6.1%
Hispanic	19.1%	16.8%	8.6%	10.2%
Male % of Hispanic	10.0%	9.3%	5.4%	6.1%
Female % of Hispanic	9.2%	7.5%	3.2%	4.1%
Work hours/week				
Full-time (35+ hours)	44.8%	58.8%	87.4%	81.2%
Part-time (20-34 hours)	33.4%	28.4%	9.2%	13.0%
Part-time (1-19 hours)	21.8%	12.8%	3.4%	5.8%
Industry				
Manufacturing				
Retail trade				

Source: Economic Policy Institute analysis of BLS data

Economic Policy Institute

America's Well Targeted Raise

Data Show Benefits of Minimum Wage Increase
Going to Workers Who Need It Most

by Jared Bernstein

After intense debate, legislation was passed in the summer of 1996 to increase the federal minimum wage by \$0.90, from \$4.25 to \$5.15. The increase was implemented in two phases: \$0.50 on October 1, 1996 and the remaining \$0.40 on September 1, 1997.

The debate over whether to raise the minimum wage focused almost exclusively on whether the increase would lead to layoffs by low-wage employers. The debate's narrow focus, however, often failed to take into account the important benefits of the increase for low-wage workers. Research earlier this year on the "disemployment effects" found that the first phase of the increase resulted in no significant job losses for these workers (Bernstein and Schmitt 1997). This analysis looks at national and state-level data to determine which workers benefitted from the minimum wage increase.

An analysis of this data reveals that:

- Close to 10 million workers will benefit from the full \$0.90 increase;
- These workers are mostly female (58%) and adult (71%);
- Nearly half of the affected workers (46%) work full time, while another 33% work between 20 and 34 hours per week;
- The minimum wage primarily benefits low-income families;
- 57% of the gains from the increase will go to working families in the bottom 40% of the income scale;
- In 18 states, more than 10% of the workforce is affected by the increase;
- The increase will raise the earnings of workers in the affected range (\$4.25-\$5.14 an hour) by over \$0.40 per hour on average.

Workers by State

Table 1 shows the percentage and number of workers affected by the increase by region, division within region, and state. Nationally, close to 10 million workers, or 8.9% of the workforce, will receive a pay raise due to the \$0.90 increase in the minimum wage. Except in the Northeast, a number of states will see more than 10% of their workforce affected by the full increase.

In terms of share of the workforce affected, the increase has the largest impact in the South, where hourly wages tend to be lower than in other parts of the nation. In Mississippi, for example, 16.5% of the workforce is affected by the full increase. States in the Western region also have relatively high shares of workers in the affected range: Wyoming and New Mexico both have shares above 12%. While the minimum wage affects fewer workers in the Northeast (due to the higher wage rates in that part of the country), the increase will still boost the wages of close to 1.5 million of that region's workers.

National Characteristics of Minimum Wage Workers

Opponents of the increase in the minimum wage claimed that the policy was "poorly targeted," arguing that gains would go mostly to teenagers in high-income families. In reality, most minimum wage workers are adults, and most of the wage gains from the increase are going to low-income working families.

Table 2 shows that over 70% of the workers in the affected range are adults. The table also reveals that females account for 58% of the minimum wage workforce. Almost half of minimum wage workers (46%) work full time, while another 33% work between 20 and 34 hours per week. Their average wage was \$4.73 an hour in the 12 months prior to the increase, suggesting that, with the boost to \$5.15, affected workers will on average reap a \$0.42 hourly wage gain. These gains will prove especially important to workers in retail trade, the industry with the largest share of minimum wage workers. While 17.3% of the overall workforce is in retail, 42.6% of minimum wage workers are in this industry.

Figure 1 reveals how the gains from the increase are distributed by family income. Families in the lowest fifth, who have only 5.1% of total income, will benefit the most from the increase, reaping 39.5% of the gains. Well over half of the gains (57.4%) go to families in the bottom 40%. Workers from the highest fifth benefit the least (12.6%), suggesting that the increase is well targeted to lower-income families.

Conclusion

The minimum wage has historically played an important role in raising the earnings of low-wage workers. Unfortunately, the policy debate over the issue has focused almost exclusively on the risk of job loss, despite the fact that recent literature demonstrates that such "disemployment effects" are either nonexistent or negligible. Given these findings, too little attention has been paid to the question of who benefits from the increase in the minimum. This analysis reveals that the benefits of the minimum wage increase go overwhelmingly to those who need it most—full and part-time adult workers in lower-income families.

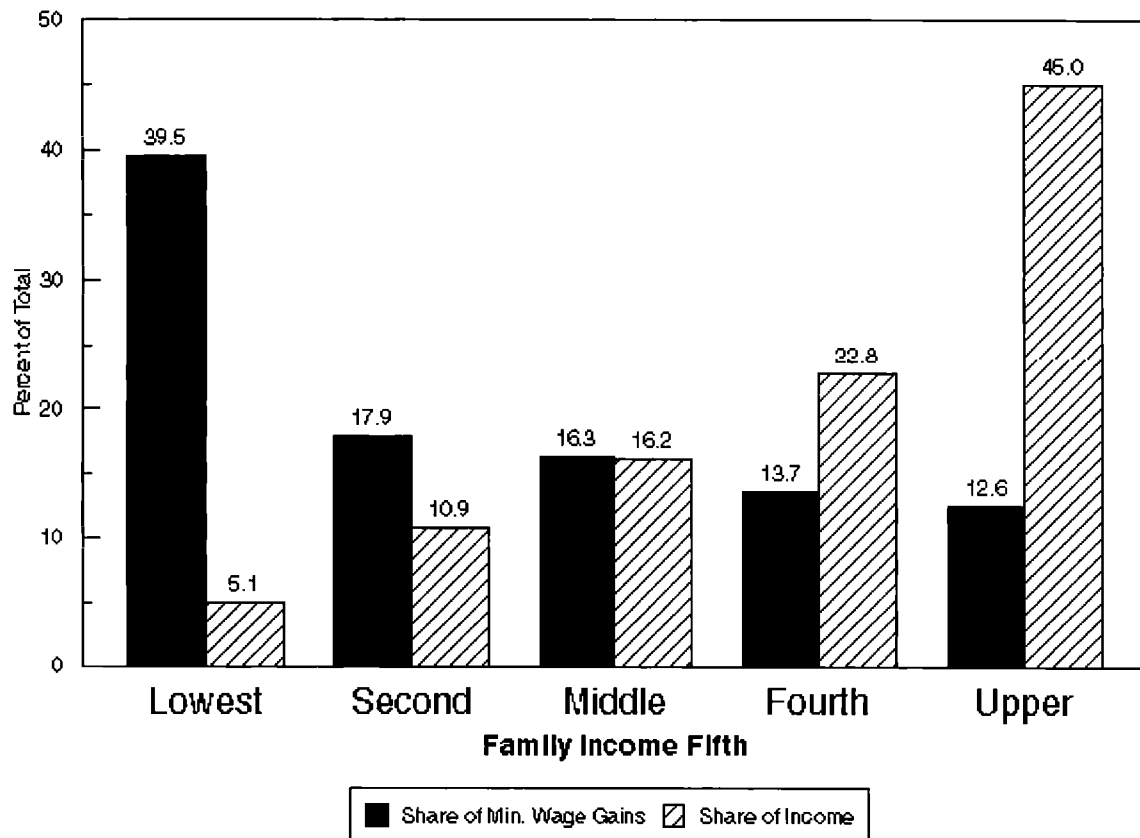
Table 1
Workers Affected by the Minimum Wage Increase,
by State/Region

State/Region	Share	Number
Northeast	6.8%	1,451,104
New England	5.4%	314,970
Maine	7.9%	40,631
New Hampshire	5.1%	26,369
Vermont	7.0%	17,854
Massachusetts	5.0%	133,840
Rhode Island	7.3%	30,747
Connecticut	4.6%	65,527
Mid-Atlantic	7.3%	1,136,135
New York	7.6%	542,091
New Jersey	4.6%	156,725
Pennsylvania	8.9%	437,319
Midwest	7.9%	2,171,201
East-North Central	7.7%	1,474,021
Ohio	8.7%	419,729
Indiana	9.3%	247,721
Illinois	6.8%	354,033
Michigan	7.2%	289,417
Wisconsin	6.6%	163,120
West-North Central	8.5%	697,180
Minnesota	6.0%	127,595
Iowa	9.0%	117,129
Missouri	8.1%	194,198
North Dakota	13.6%	36,307
South Dakota	10.2%	31,095
Nebraska	8.8%	63,554
Kansas	11.8%	127,303
South	10.8%	4,191,171
South Atlantic	9.2%	1,863,740
Delaware	6.2%	20,189
Maryland	5.7%	134,276
District of Columbia	5.5%	12,601
Virginia	8.4%	250,109
West Virginia	14.8%	99,772
North Carolina	9.2%	297,471
South Carolina	11.3%	176,471
Georgia	9.4%	294,580
Florida	10.1%	578,272
East-South Central	11.8%	779,788
Kentucky	10.4%	160,092
Tennessee	8.7%	196,412
Alabama	14.0%	246,162
Mississippi	16.5%	177,123
West-South Central	13.0%	1,547,643
Arkansas	14.8%	155,325
Louisiana	15.3%	250,269

Oklahoma	14.6%	189,111
Texas	12.0%	952,938
West	8.8%	2,072,682
Mountain	8.8%	594,236
Montana	11.9%	38,865
Idaho	10.7%	51,078
Wyoming	12.5%	25,555
Colorado	6.1%	106,209
New Mexico	12.3%	76,434
Arizona	9.9%	180,343
Utah	8.6%	71,857
Nevada	6.2%	43,894
Pacific	8.8%	1,478,446
Washington	5.4%	126,229
Oregon	7.3%	98,980
California	10.0%	1,230,381
Alaska	3.6%	8,590
Hawaii	3.0%	14,266
Total U.S.	8.9%	9,886,158
Note: Workers affected by the increase are those who earned between \$4.25 and \$5.14 in the year prior to the minimum wage increase.		
Source: EPI analysis of CPS ORG data.		

Table 2				
Characteristics of Minimum Wage and Other Wage Earners, Full Increase (\$4.25-\$5.15), October 1995-September 1996				
	Workers Directly Affected by New Minimum (\$4.25-\$5.14)	Other Low-Wage Workers (\$5.15-\$6.14)	Workers Above Minimum Wage (\$6.15+)	All Workers
Characteristic				
Average Wage	\$4.73	\$5.72	\$14.62	\$12.73
Employment	9,886,158	9,610,926	89,065,561	110,931,743
Share of Total	8.9%	8.7%	80.3%	100.0%
Demographics				
Male	41.8%	41.9%	54.9%	52.3%
Female	58.2%	58.1%	45.1%	47.7%
White	62.8%	67.7%	77.9%	75.4%
Male	24.6%	26.2%	42.8%	39.4%
Female	38.2%	41.5%	35.1%	36.0%
Black	16.1%	13.8%	10.4%	11.3%
Male	6.4%	5.5%	5.1%	5.3%
Female	9.8%	8.3%	5.3%	6.0%
Hispanic	17.5%	14.8%	7.9%	9.5%
Male	9.3%	8.6%	4.9%	5.7%
Female	8.2%	6.2%	3.0%	3.8%
Teens (16-19)	28.6%	16.0%	1.7%	5.6%
Work Hours				
Full-Time (35+)	46.0%	62.7%	87.7%	81.1%
Part-Time				
20-34 hours	33.3%	25.4%	9.0%	13.0%
1-19 hours	20.7%	11.9%	3.3%	5.9%
Industry				
Manufacturing	8.8%	12.7%	19.7%	17.8%
Retail Trade	42.6%	35.8%	12.2%	17.3%
Source: EPI analysis of BLS data.				

Figure 1
Distribution of Minimum-Wage Gains and Income Shares by Fifth, 1996
All Working Families



Source: EPI analysis of 1996 March CPS data.

[Economic Policy Institute Home](#)
 The Economic Policy Institute is a member of the [Electronic Policy Network](#),
 a project of [The American Prospect](#)

Copyright © 1997 by The Economic Policy Institute. Readers may distribute this article to other individuals for noncommercial use, provided that the text, all html codes, and this notice remain intact and unaltered in any way. This article may not be resold, reprinted, or redistributed for compensation of any kind without prior written permission from the author. If you have any questions about permissions, please contact economic@eais.com