Institute for Research on Poverty
Discussion Paper no. 1074-95

Public Policies for the Working Poor: The Earned Income Tax Credit versus Minimum Wage Legislation

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November 1995

This study was funded in part by the Employment Policies Institute, Washington, D.C. The authors take full responsibility for its findings. The authors thank T. Aldrich Finegan for comments on previous drafts of this paper. Any opinions expressed here are those of the authors alone and not of the sponsoring institutions.

Abstract

This paper documents the declining relationship between low hourly wages and low household income over the last half-century and how this has reduced the share of minimum wage workers who live in poor households. It then compares recent and prospective increases in the earned income tax credit (EITC) and the minimum wage as methods of increasing the labor earnings of poor workers. Data from the Current Population Survey (CPS) are used to simulate the effects of both programs. Increases in the EITC between 1989 and 1992 delivered a much larger proportion of a given dollar of benefits to the poor than did increases in the minimum wage from $3.35 to $4.25. Scheduled increases in the EITC through 1996 will also do far more for the working poor than raising the minimum wage.

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There has long been disagreement over the value of the minimum wage as a method of insuring a minimum standard of living for workers and their families. One common argument against the minimum wage is that by increasing the cost of low-skilled labor, unemployment increases among the group targeted for assistance. A less common argument is that increasing the minimum wage has, over time, become an increasingly ineffective mechanism for raising the household income of the working poor since the majority of low-wage workers no longer live in poor households. While recent research suggests that disemployment effects of the minimum wage are small, thus reducing one set of concerns about the minimum wage, the growth of the earned income tax credit (EITC) raises new questions about the appropriateness of increasing the minimum wage as a method of helping the working poor.

We first document the historical relationship between low hourly wage earnings and household income and then simulate how increases in the EITC and the minimum wage are distributed across the household income distribution. We argue that erosion of the historical link between low wages and low household income explains much of the decline in the usefulness of minimum wage legislation in the 1990s as a mechanism for helping poor working families. The consequences of this deterioration are demonstrated by simulations which show that upper-income households benefited more from the 1989 amendments to the Fair Labor Standards Act (FLSA), which increased the minimum wage from $3.35 per hour to its 1995 level of $4.25 per hour, than did poor families. In contrast, we show that the increases in the EITC between 1989 and 1992 mostly went to poor and near-poor families with children, and virtually none to upper-income households.

Initiatives to further raise the minimum wage are also contrasted with the income distribution implications of the 1993 expansion of the EITC. By 1996, after all its components are put in place, over 70 percent of currently scheduled increases in the EITC will go to workers who live in poor or near-

poor families. In contrast, less than 26 percent of the benefits of an increase in the current minimum wage from $4.25 to $5.00 would go to workers who live in poor or near-poor families. This evidence suggests that the link between low wages and low household income has become so weak that increases in the minimum wage are difficult to justify as an effective mechanism for helping the working poor relative to the benefits of the EITC.

I. THE MINIMUM WAGE AND THE WORKING POOR

Franklin Roosevelt's impassioned speech calling for Congress to help the one-third of Americans who were "ill-housed, ill-clad, and ill-nourished" heralded the Fair Labor Standards Act of 1938 and with it a national minimum wage. The FLSA marked the culmination of a long struggle by social reformers to establish the constitutional right of legislatures to set work rules and marshal the political support to pass such legislation at the national level.

Echoes of that speech can still be heard today. Senator Edward Kennedy (1989, p. S14707), in his criticism of the meagerness of the last increase in the minimum wage, declared that

> the minimum wage was, as it should be, a living wage, for working men and women . . . who are attempting to provide for their families, feed and clothe their children, heat their homes, [and] pay their mortgages. The cost-of-living inflation adjustments since 1981 would put the minimum wage at $4.79 today, instead of the $4.25 it will reach on April 1, 1991. That is a measure of how far we have failed the test of fairness to the working poor.

These two speeches demarcate one-half of a century during which the public has perceived the setting of minimum wages as a socially just exercise of government regulatory power. President Clinton, in his 1995 State of the Union Address, emphasized the importance of a minimum "living wage" when he declared: "I've studied the arguments and the evidence for and against a minimum wage increase. I believe that the weight of the evidence is that a modest increase does not cost jobs, and

may even lure people into the job market. But the most important thing is, you can't make a living on $4.25 an hour."

Much of the current support for the minimum wage is based on important legal and political precedents that, despite significant opposition, were established during the past century. Resistance to the minimum wage first centered on its constitutionality. The nineteenth-century view that the right to contract was part of the liberty protected by the Fourteenth Amendment and that the right to purchase or sell labor could only be abrogated by legislatures on very narrow grounds received perhaps its strongest judicial endorsement in *Lochner v. New York* (198 U.S. 45 (1905)), in which the Supreme Court nullified a New York State law establishing maximum hours of work. Eventually the dissent espoused by Justice Oliver Wendell Holmes in that case—that legislatures could regulate such contracts so long as the regulations were reasonable—prevailed. However, it was not until *West Coast Hotel Co. v. Parrish* (300 U.S. 379 (1937)) that the Supreme Court first upheld a state law that established a minimum wage, and that was for women only. The Court held that "the legislature was entitled to adopt measures to reduce the evils of the 'sweating system', the exploiting of workers at wages so low as to be insufficient to meet the bare cost of living." By 1938, support for the minimum wage was based not only on the moral ground of its potential to provide a living wage for the working poor, but also on appellate decisions that allowed legislatures to actively intervene in the marketplace to correct perceived social injustice.

Once it was established that legislatures had the power to set minimum wages, the debate moved to who should be covered and at what level. Opposition focused on the position that a minimum wage set above the competitive market rate would reduce employment of the workers it was designed to help. This position was first formally summarized by Stigler (1946) and consists of the now-standard resource misallocation and loss of employment arguments. Stigler's policy message was that the

minimum wage has an uncertain effect on the working poor. Those low-wage workers who keep their jobs are helped by the minimum wage, while those who lose them or who are not hired are harmed.[1]

Stigler also argued that poverty as a concept relates fundamentally to family resources while the minimum wage targets individuals; thus, no a priori reason exists for believing that a minimum wage would provide an effective method for raising the living standards of low-income households. As Stigler himself notes, "the connection between hourly wages and the standard of living of a family is remote and fuzzy" (1946, p. 363). Household income depends not only on the wage rate of a given worker in a household, but also on that person's hours worked, the wages and hours worked of other household members, income from other sources, and the number of people in the household. Poverty is gauged by looking at *household circumstances,* not the earnings of each individual in isolation.

While this theme of target efficiency will be pursued in comparing the distributional impacts of the EITC and the minimum wage, the effect of the minimum wage on employment has been a more dominant line of research within the economic literature. Clearly, in simulations of distributional effects of the minimum wage such as those presented here, impacts upon employment could be an important consideration. Here, those effects are assumed to be zero. How reasonable that assumption is can perhaps be best assessed in the context of a brief review of the pertinent literature.

II. HOW MINIMUM WAGES AND THE EITC AFFECT EMPLOYMENT

Minimum Wage Effects

The classical position Stigler outlined asserts that, in the case of a competitive market, when a minimum wage is set above the competitive price some unemployment will occur. The establishment of a wage floor above the competitive rate alters the marginal cost curve faced by a firm. If the minimum wage exceeds the value of the marginal product of covered workers, firms lose their incentive to hire as many people and unemployment results.[2]

Individuals who become unemployed, however, may be rehired in the uncovered sector. Thus, looking only at initial employment losses in the covered sector will result in overstatement of long-run disemployment effects of the minimum wage. This extension of the theoretical model to consider the uncovered sector of the labor market is most closely associated with the work of Gramlich (1976), Mincer (1976), and Welch (1976). Other influences on the amount of unemployment experienced are the extent of substitutability of low-wage labor with high-wage labor and potential substitution of other factors of production.

Until the 1990s, one could have reasonably concluded that economists agreed that increases in the minimum wage did indeed bring about net job losses. Wessels (1980), Brown, Gilroy, and Kohen (1982), and Brown (1988) each provide reviews of this literature as the consensus developed. Much of this literature focuses on minimum wage workers since they represent a significant fraction of low-wage labor. The most recent of these reviews (Brown 1988, p. 139) concludes that "if one asks of the two dozen time series studies, 'What is the estimated impact of a 10 percent increase in the minimum wage on teenage employment', the answer comes back, 'It falls 1 to 3 percent'." The smaller effects reported by Brown occur in the later part of the period surveyed. This observation is consistent with the later conclusion of Wellington (1991, p. 1) who finds that "a 10 percent increase in the minimum wage is estimated to reduce teen employment by less than one percent."

Four influential articles published in the early 1990s challenge the traditional findings of the negative effects of the minimum wage on employment (Katz and Krueger 1992; Card 1992a, 1992b; Card and Krueger 1994). Each of these articles reports either an insignificant or positive effect on employment from minimum wage increases. These articles form much, although not all, of Card and Krueger's most recent book (1995b), a major publication that focuses on the employment effects of the minimum wage. Because responses to these articles appeared before publication of Card and Krueger's book, we discuss the four articles and selected responses to them, as well as information in the book.

Katz and Krueger (1992, p. 15), using establishment data, consider the effect of the 1991 increase in the minimum wage on fast-food workers in Texas, and they report that higher minimum wages are associated with increased, rather than decreased, employment. The elasticities reported range from 1.7 to 1.85. Card (1992a, p. 36) investigates the effect of the 1990 increase in the minimum wage using data from the Current Population Survey (CPS) and finds "no evidence that the rise in the minimum wage significantly lowered teenage employment rates." Card, again using CPS data, also examines the effect of an increase in California's minimum wage in 1988 (1992b) and concludes that "although the rise in the minimum wage in California raised the earnings of low-wage workers, it does not seem to have significantly reduced employment. . . . For teenagers, . . . earnings rose by 10 percent while the employment-population ratio rose by 4 percent" (p. 52). Card and Krueger (1994) consider the effect of the 1992 increase in the minimum wage rate on fast-food employment in New Jersey using an establishment-based survey. They conclude that "contrary to the central prediction of the textbook model of the minimum wage . . . the increase in the minimum wage increased employment."

The conclusions drawn in these articles are similar to the primary theme of Card and Krueger's book, in which they state, "This book presents a new body of evidence showing that recent minimum wage increases have not had the negative employment effects predicted by the textbook model." As previously noted, this is not surprising since the cited articles form the basis for several chapters of the text. But the authors also include two new inquiries that provide further evidence in support of their arguments.

In chapters 6 and 7, Card and Krueger examine historical evidence from time-series and cross-sectional estimates of the elasticity of demand for labor. In their review of the time-series literature, Card and Krueger focus on declining estimates of the elasticity in recent periods.[3] They note this in studies such as Wellington (1991) and also provide estimates of their own. They conclude that "the more up-to-date time-series estimates should lead one to lower the predicted range of employment

effects" (p. 205). In their review of the cross-sectional literature, they similarly conclude that "the bulk of the empirical evidence on the employment effects of the minimum wage . . . suggest that increases in the minimum wage have had, if anything, a small, positive effect on employment, rather than an adverse effect" (p. 236).

Finally, in chapter 8, Card and Krueger extend their arguments to an international setting, focusing on elasticities of demand estimated for Puerto Rico, Canada, and the United Kingdom. They conclude, "our puzzling empirical findings with respect to the U.S. minimum wage are not isolated incidents," and that "the focus of the debate should shift worldwide" to the experiences of other countries (p. 272).

There are two levels on which these recent results should be evaluated. First, are these findings consistent with economic theory? Second, are these research results empirically robust?

Evidence existed prior to the 1990s that the employment effects of relatively small increases in the minimum wage were declining. The standard theory is relevant only when the minimum wage is set above the market rate. However, long intervals between increases would effectively keep the real level of the minimum wage below a competitive price, so one would expect to find only small employment effects when minimum wage increases do occur. Estimates of no employment effect can be viewed as consistent with below-market levels of the minimum prior to an increase.

This observation does not apply to those studies that report positive effects of wage increases on employment (Katz and Krueger 1992; Card 1992b; Card and Krueger 1994, 1995b). As one possible explanation of their findings, these authors offer another standard labor theory, that of monopsony.[4]

In a monopsonistic market, profit-maximizing firms find it optimal to hire a smaller number of workers and pay less than the competitive wage under pure competition. Legislated increases in wages up to the competitive level under those conditions would be expected to increase employment. Although recent empirical results are consistent with monopsony, it is not clear that the labor market

for low-skilled employees working at fast-food restaurants implies monopsony, since monopsony usually occurs when a single employer dominates the demand for a particular set of skills in a given market.[5] In addition, even monopsonistic theory predicts that wage increases above the competitive level still result in employment decreases.

Beyond these theoretical considerations, four recent empirical responses to these publications report a negative relation between minimum wage increases and employment (Deere, Murphy, and Welch 1995; Neumark and Wascher 1992, 1995; Taylor and Kim 1993). Neumark and Wascher (1992), drawing from the CPS and other sources, construct state-level time series from 1973 to 1989. They use interstate variation in minimum wages to more precisely identify disemployment effects associated with increasing the federal minimum wage. The use of interstate information is similar to that of Card (1992a, 1992b) although the national focus of these inquiries is most similar to Card 1992a. One advantage of Neumark and Wascher's work is that their data span a longer period of time, 1973–1989, than the two years of information for 1989–1990 used by Card (1992a), which allows them to perform specification tests of the simple first-difference estimator Card employed. Based on these tests, they argue that Card's equations are misspecified. They perform similar tests on their preferred specifications and conclude there is no evidence of misspecification (p. 68). Based on these preferred estimates, they report that "a 10 percent increase in the minimum wage causes a decline of 1–2 percent in employment among teenagers and a decline of 1.5 to 2 percent in employment for young adults" (p. 55).[6]

Deere, Murphy, and Welch (1995) use data similar to Card's (1992a) to examine the 1990 increase in the minimum wage; they report declines in employment of -4.8, -6.6, and -7.5 percent for male, female, and black teenagers, and -1.5, -2.5, and -4.4 for male, female, and black adult high school dropouts (p. 5). The difference in their results relative to Card's appears to rest upon decisions about how to stratify the data for estimation purposes. Card compares rates of employment change across

groups of high- and low-wage states as well as across states individually, whereas Deere, Murphy, and Welch consider changes in the employment-to-population ratio across both demographic (ethnicity, gender, marital status, age, education) and political (state) groupings. They report (1995, p. 2) that when they stratify their data by state, they get a result similar to Card's (1992a). But when they stratify by demographic groupings, they find employment decreases as a result of increases in the minimum wage, except in the case of gender. They attribute this exception to long-term trends in female labor force participation. Which use of the data is more appropriate is not obvious, but at a minimum, Deere, Murphy, and Welch (1995) show the sensitivity of Card's 1992a results to alternative data groupings.

A common empirical problem with each of the studies discussed above is the lack of controls on demand for the products produced in the low-wage industries studied. Since demand for labor is ultimately derived from demand for its product, it is appropriate to use a variable such as final sales in the empirical specifications. An additional concern with the papers based on establishment data is the absence of standard control variables such as the employment-to-population ratio. Of the three papers reporting positive effects of wage increases on employment, two use establishment-based data that lack standard controls such as the relevant rate of unemployment or employment-to-population ratio (Katz and Krueger 1992; Card and Krueger 1994). The omission of such variables, which characterize the market of interest, could influence the results.

The potential influence of unavailable control variables brings us to an article that raises concerns about the Card 1992b study. Taylor and Kim (1993) use data from County Business Patterns to reexamine the changes in employment brought about by the increase in California's minimum wage in 1988, changes first analyzed by Card (1992b). The data used by Taylor and Kim include information on final sales in the industry considered, retail sales. However, unemployment rates and employment-to-population ratios are not available. Estimating models similar to those of Card but controlling for final sales, Taylor and Kim report elasticities that range from -0.7 to -0.9. Sales by industry is a more

precise measure of demand for labor than, for example, a state or county unemployment rate. This discrepancy in findings for the same event using similar methods but different data suggests that lack of precise controls for demand shifts may result in the positive employment effect in the other studies using establishment data (Katz and Krueger 1992; Card and Krueger 1994). While the CPS is traditionally used to estimate employment effects of minimum wage increases, its lack of precise demand-side variables may also explain, in part, the recent decline in employment elasticities measured.

Finally, a recent report by Neumark and Wascher (1995) reexamines the employment effects associated with the 1992 increase in the state minimum wage of New Jersey. The data initially used by Card and Krueger (1994) were collected using a telephone survey. Surveyors asked, "How many full-time and part-time workers are employed in your restaurant, excluding managers and assistant managers?" This question has been criticized for not providing a sufficient context for reliable responses, particularly with respect to the relevant time period (e.g., daily, weekly, or monthly). Card and Krueger's study also did not collect information on hours of work.

Based in part on these concerns about the imprecision of the employment information collected by Card and Krueger, an effort was made by the Employment Policies Institute to resurvey the same fast-food franchises in the same area codes as in the Card and Krueger (1994) data. These additional data consider Burger King and Wendy's franchises only, whereas Card and Krueger's data also included Kentucky Fried Chicken and Roy Rogers restaurants. The data collected by EPI were based on payroll information. Neumark and Wascher (p. 4) independently verified that these data were in fact provided orally or through faxes of actual payroll records. Using these data to analyze the same event as Card and Krueger, Neumark and Wascher (1995, p. 14) conclude that, "whereas Card and Krueger's data imply that the New Jersey minimum wage increase led to an employment *increase* in New Jersey relative to the Pennsylvania control group, the payroll data imply that the minimum wage increase led

to a 3.8 percent *decline* in employment in New Jersey relative to the Pennsylvania control group, or an elasticity of -0.20."

The empirical results described in these four papers indicate that the recent findings of positive employment effects of minimum wage increases may in fact be related to either research decisions about data usage, a lack of specific control variables, or inexact survey questions. In light of the criticisms directed at the initial four articles surveyed, we do not find them convincing in overturning the consensus that had developed during the previous four decades. Nonetheless, there is reasonable evidence that the magnitude of employment losses associated with increasing the minimum wage has declined, and, for our purposes, a reasonable summary of this literature to date can be drawn from Ehrenberg's introduction (1992, p. 5) to the Symposium on New Minimum Wage Research: "None of the studies suggests that at current relative values of the minimum wage, large disemployment effects would result from modest future increases in the minimum wage—increases up to, say, 10 percent." There is, however, some evidence that subpopulations of policy interest, such as black youths, may be disproportionately affected (Deere, Murphy, and Welch 1995).

Mincy (1990) incorporates these employment effects into a simulation of distributional impacts of the minimum wage and reports that "debates about the poverty-reducing effect of a higher minimum wage often focus on disemployment effects, but alternative assumptions about the size of those effects make little difference in our analysis." Since the estimated employment effects are small, whether positive or negative, and appear to have little impact on similar simulations, here we assume them to be zero.

EITC Employment Effects

Changing the minimum wage is not the only way to affect employment. Any policy that alters the relative price of work and leisure or modifies income levels would be expected to alter labor market behavior. The earned income tax credit (EITC) affects both the net wage and income.

The EITC was initially designed in 1975 to return Social Security withholdings to poor households with children.[7] Rather than exempting such households from paying Social Security taxes and perhaps eroding their claims to future benefits, the EITC rebates the monies through the income tax system.

Several features of the EITC are related to the labor market behavior of recipients. First, the phase-in range begins at zero and is provided over a finite range of labor income; thus benefits are conditioned on work. Second, the maximum benefit, which can be obtained by multiplying the maximum labor income in the phase-in range by the phase-in rate, is allowed over a range of all taxable income, usually referred to as the plateau. At a legislatively determined maximum for the plateau range of taxable income, the credit begins to be phased out. As the credit is phased out, it often interacts with other marginal tax rates the individuals face. The result is that recipients in the phase-out range face very large effective marginal rates of taxation (Browning 1995; U.S. GAO 1993; Holtzblatt, McCubbin, and Gillette 1994; Hoffman and Seidman, 1990; Scholz 1993–94, 1994).

In the phase-in range of the EITC, the effective wage rate is increased by a proportion equal to the phase-in rate. This will increase labor supplied if the substitution away from the now relatively more expensive leisure offsets the income effect of a higher wage. For individuals already working in the phase-in range of the EITC, the competing substitution and income effects make the change in labor supply theoretically indeterminate. For those currently not working, however, the income effect is irrelevant. For these individuals, the EITC would be expected to increase hours of work. Thus, the EITC is often cited as part of a policy package to make work pay.

Over the range of incomes included in the plateau, the total credit remains constant at its maximum but no additional credits are gained. Theoretically this is analogous to a pure income effect, since income increases but the wage does not change for workers in this range. The income effect is expected to increase demand for leisure, assuming that it is a normal good and that in this range of income there is no competing substitution effect. Thus, in the plateau range of income, the EITC would be expected to have negative labor supply effects.

In the phase-out range, as the credit is decreased the effective wage falls, so the individual has an incentive to substitute toward leisure. But the individual still has more income than would have been the case in the absence of the EITC, and may thus be further influenced to supply less labor. The income and substitution effects are both consistent with less labor supply, so the prediction of reduced hours of work is unambiguous.

Four studies to date have simulated labor supply effects of the EITC (Dickert, Houser, and Scholz 1994; Hoffman and Seidman 1990; Holtzblatt, McCubbin, and Gillette 1994; U.S. GAO 1993). Each employs estimates of substitution and income effects from the Seattle and Denver Income Maintenance Experiments (SIME/DIME). Dickert, Houser, and Scholz also contains simulations using parameters estimated in the literature on kinked budget constraints. The difficulty of estimating the income and substitution effects under the EITC is due in part to nonconvexities that occur if one attempts to specify the tax schedule faced by covered individuals. Using parameters estimated from the SIME/DIME, the GAO study estimates that the labor supply effects are positive over the phase-in range (6.4 percent) and negative over the plateau (4.6 percent) and phase-out (7.0 percent) regions of income. The net effect on labor supply depends upon the distribution of households across this spectrum. Since the distribution of affected individuals is weighted more than proportionately to the plateau and phase-out ranges of income, the estimated average reduction in labor supply using parameters from the SIME/DIME is between 1 and 2 percent (U.S. GAO 1993, p. 51; Holtzblatt,

McCubbin, and Gillette 1994, p. 599; Dickert, Houser, and Scholz 1994, Table 2; Hoffman and Seidman 1990, p. 45). The estimated effects reported by Dickert, Houser, and Scholz using parameters from the kinked budget-set literature range from -0.09 to -4.04.[8]

We have thus far discussed only estimates of the impact of the EITC on labor supply which ignore the participation decision of nonworkers. Including the positive effect of nonparticipants entering the labor market would be expected to lower these estimates. Dickert, Houser, and Scholz (1994) model the positive effect on labor supply of the EITC due to the entry of nonworkers to the labor market and report that "the positive affect of the EITC on labor market participation offsets and, depending on the hours and weeks worked by new labor market participants, can exceed the negative effect of the EITC on hours worked by those already in the labor force." These results are based on a detailed microsimulation model of program and labor force participation using data from the Survey of Income and Program Participation (SIPP).

One complication with all of these simulations is the fact that very few individuals—less than 1 percent—who qualify for the EITC receive the money directly from their employer in their current paychecks, although the law allows them to do so (U.S. GAO 1992; Hoffman and Seidman 1990; Scholz 1993–94, 1994). This raises the question of whether individuals actually perceive the EITC as affecting their marginal wage rates. Additionally, the level of program participation is typically not considered, although Scholz (1993–94, 1994) reports takeup rates that range from 75 to 90 percent. A practical solution to this problem is to alter the relevant tax filing documents so that the credit would be computed automatically.

In the simulations presented in this paper, the potential labor supply effects of the EITC are ignored, as they are for the minimum wage. Based on the findings of Dickert, Houser, and Scholz (1994), the net effects of the EITC on labor supply appear either to be zero or small and positive. While simulating those effects would certainly bring additional information to bear on the subject of target

efficiency, the EITC delivers such a large proportion of its benefits to the poor and near-poor relative to the minimum wage that it is unlikely that ignoring these effects has a large impact on the qualitative results of the research. In our simulations, there is also an implicit assumption that all eligible individuals receive the credit. Setting these issues aside, we now turn to the historical link between low wages and low incomes.

III. THE TENUOUS LINK BETWEEN LOW WAGES AND POVERTY

From its inception in 1939 through the mid-1980s, the minimum wage fluctuated between 45 and 56 percent of the average private sector wage, defined as the gross average hourly earnings of all production and nonsupervisory workers in the private nonfarm sector, based on payroll data reported by employers to the Bureau of Labor Statistics. In 1981, the minimum wage stood at 46 percent of average wages but declined thereafter and hit a low of about 37 percent in 1988, the year prior to the passage of the 1989 amendments to the FLSA. In 1992 it was about 42 percent of the average private sector wage and by 1994 it had fallen to a near historic low of about 38 percent of the average private sector wage.

In the first half of the twentieth century, when the typical household had one worker and social programs to assist low-income households were scarce, a low wage almost directly translated into low household income. But in the 1990s this translation is much less direct. Table 1 depicts the changing relationship between low-wage workers and household income, building on the work in Burkhauser and

TABLE 1

The Distribution of Low-Wage Workers across the Income Distribution: 1939–1989
(percentage)

Income-to-Needs Ratio	1939[a] Heads of Households[c]	1939[a] All Workers[d]	1949[b] Heads of Households[c]	1949[b] All Workers[d]	1959 Heads of Households[c]	1959 All Workers[d]	1969 Heads of Households[c]	1969 All Workers[d]	1979 Heads of Households[c]	1979 All Workers[d]	1989 Heads of Households[c]	1989 All Workers[d]
Less than 1.00 (poor)	94	85	77	NA	61	42	45	23	37	20	37	22
1.00 to 1.24	3	5	8	NA	11	10	13	9	13	7	13	9
1.25 to 1.49	2	3	5	NA	7	10	9	7	9	7	10	8
1.50 to 1.99	1	4	6	NA	8	12	11	14	13	12	12	12
2.00 to 2.99	0	2	3	NA	9	16	13	20	16	20	15	19
3.00 or above	0	0	1	NA	4	10	10	27	12	34	13	30
Total	100	100	100	NA	100	100	100	100	100	100	100	100
Percentage of all low-wage workers who were heads of:												
households	34	---	31	---	29	---	25	---	21	---	22	---
poor households	31	---	24	---	18	---	11	---	8	---	8	---

Source: Update and compilation of tables from Burkhauser and Finegan 1989.

[a]Income-to-needs ratio in 1939 excludes income from sources other than wages and salaries (see the appendix).
[b]Data for 1949 are not entirely comparable with those from later censuses due to different sampling procedures. Data for all workers and other household members are not available for 1949 (see the appendix).
[c]Working heads-of-households are defined as heads under age 65. Low-wage workers earned less than half of the average private-sector wage. All data relate to the year preceding the census or survey. Poverty levels for 1939, 1949 and 1959 were formed by extrapolation using the Consumer Price Index. Details may not sum to 100 due to rounding.
[d]Tabulations include all workers aged 17 to 64, whether living alone or in households. The former are classified by the ratio of total personal income to the poverty level for one-person households; workers in households are classified by the ratio of total household income to the size-adjusted poverty level for their household. Comparable data were not gathered in the 1950 census.

Finegan (1989). Since one aim of minimum wage advocates is to peg the minimum wage at 50 percent of the average private sector wage,[9] for the remainder of the analysis a low-wage worker is defined as one whose wages fall below that 50 percent threshold.[10]

The income-to-needs ratio is used throughout the analysis as a measure of economic well-being. Except for 1939, this is defined as the ratio of total household income to the official poverty line for the appropriate size household. Since the 1940 census did not ask respondents how much income they received from sources other than wages or salaries in 1939, the measure of well-being for that year is the ratio of the household's wage or salary earnings to its poverty level. This omission has more of an impact at higher levels of earnings than at lower levels.

Column 1 of Table 1 relates income to the official poverty line. A low-wage worker living in a household with income below the poverty line would be found in the first row of Table 1. (The value of the poverty line is adjusted each year for changes in the consumer price index. In 1994 the official federal government poverty line for a household of four was $14,800.) A low-wage worker living in a household with income three or more times the poverty line—$44,400 for a family of four in 1994—would be in the "three or above" row.

In 1939, 85 percent of low-wage workers lived below the poverty line. Ninety-four percent of low-wage workers who were also head of households lived in a poor household. No low-wage workers lived in a household with income at least three times the poverty line. Not only were low-wage workers very likely to be poor, that likelihood increased if they were the head of a household.[11] Clearly, at the time of the passage of the FLSA, it was reasonable to assume that most of the benefits of increased earnings from raising the minimum wage would go to the poor.

But over the course of time since 1939, the view that holding a low-wage job is synonymous with living in poverty has become much more difficult to justify. Low-wage workers are increasingly less likely to be poor, regardless of whether or not they head a household. In 1969 less than one-half (45

percent) of low-wage heads of household lived in poverty. Twenty years later, only 37 percent of low-wage heads did so.

The link between low wages and poverty, however, has always been more tenuous than the link between earning the minimum wage and heading a household. Even in 1939 most low-wage workers were not heads of households but rather were second or third earners in those households. In 1939, 34 percent of low-wage workers were heads of households and 31 percent were heads of poor households (Table 1). By 1989 only about one low-wage worker in five was a household head and fewer than one low-wage worker in ten actually headed a poor household.

The New Deal image of low-wage workers struggling to support their families is as poignant today as it was in the 1930s, but this image no longer captures the circumstances of a typical low-wage worker. As Table 1 shows, by 1989 only 8 percent of low-wage workers headed families living in poverty.

For this reason it is useful to look at how all low-wage workers, not just household heads, are positioned across the income distributions. Once again Table 1 shows the weakening link between low wages and low household income. In 1939 more than four out of five low-wage workers (85 percent) lived in poverty. By 1959 only two in five lived in poverty. A decade later the number was down to about one in five, where it has remained. Even more important is what kinds of household units are directly affected by increases in the minimum wage. As late as 1959 a low-wage worker was four times as likely to live in a poor household as in an upper-income one (three times the poverty line or $44,400 for a household of four in 1994). By 1989 the shares of low-wage workers at the two extremes of the income distribution reversed: a low-wage worker was 36 percent more likely to live in an upper-income household than in a poor one.

The explosion of jobs held by second and third workers in a household, the dramatic drop in the poverty rate, and the greater availability of government transfer payments for lower-income households

over the second half of the twentieth century have all eroded the connection between low-wage jobs and poverty.[12] Once low wages meant low family income; that is no longer accurate.

Table 2, which is updated from Burkhauser and Finegan (1993), uses the same data sources as Table 1 to show more formally how the link between wages and household income has eroded over time. This table presents a matrix of coefficients of determination (R^2) between the hourly earnings of workers in the bottom half of the wage distribution and their household income relative to the poverty line.[13] Low-wage workers are classified by household status. In 1939, the first year of the minimum wage, the correlation between the wages of household heads and their household's income was .241—differences in the hourly wages of household heads explained 24 percent of the difference in their household size-adjusted incomes in that year. By 1979 this correlation had fallen by more than one-half. It rose slightly by 1989 but was still quite low. For other household members, who are the largest group of low-wage workers, the relationship between their wage and their household's income is much weaker since the earnings of the household head play such an important role in total household income. In 1939 the R^2 for this group was .204 and it dropped to one-fourth that level, 0.054, by 1989. Because unrelated individuals live alone, and hence have access to their income alone, one would expect to observe a strong relationship between their wage rate and household income. Consistent with this observation, the correlation for unrelated individuals is three times or more that of heads and other household members.

Household income, as Stigler pointed out, is dependent not only on wage rate but also on hours worked, income of other household members, non-wage income, and household size. In 1939, the first full year of federal minimum wage enforcement, the correlation coefficient between the wage rate of all low-wage earners and their household income was only .207. Whether such a correlation is "fuzzy," as Stigler asserted, is open to question. But as Table 2 shows, that correlation—which by 1989 had fallen to .053, only one-fourth its 1939 size—has gotten considerably fuzzier.

TABLE 2

Values of R^2 between Hourly Wages and Household Income-to-Needs Ratios for Workers Earning Less than the Median Wage: 1939–1989

		Values of R^2 for:			
Year	Median Wage	Heads of Households	Other Household Members	Unrelated Individuals	All Workers
1939[a]	$0.48	.241	.204	.667	.207
1949[b]	1.45	.188	NA	.573	NA
1959	2.05	.174	.191	.547	.130
1969	3.12	.144	.106	.534	.078
1979	5.84	.114	.062	.552	.046
1989	9.19	.122	.054	.414	.053

Source: Updated table from Burkhauser and Finegan 1993.

Note: Workers in the bottom 1 percent of the wage distribution were dropped each year. All correlation coefficients are positive and significant at the .99 level.

[a]Income-to-needs ratios in 1939 exclude income from sources other than wages and salaries (see the appendix).
[b]Owing to unusual sampling procedures in the 1950 Census (see the appendix), data for all workers and other family members are not available for 1949.

The weakening relationship between low wages and low household income has reduced the ability of minimum wage increases to target additional income to the working poor. The most recent increase in the minimum wage offers strong evidence of its relative ineffectiveness as a tool for raising the incomes of families of the working poor.

IV. WHO GAINED FROM THE 1989 AMENDMENTS TO THE FAIR LABOR STANDARDS ACT?

Most previous studies of the effects of the minimum wage have concentrated on estimating its effects on employment. Few studies have examined the income distribution implications of an increase in the minimum wage (see Horrigan and Mincy 1992 for the most recent review of this literature.) Typically, it has been at least implicitly assumed that such households were poor. As shown above, this assumption has become increasingly unrealistic.

Estimating Wages from CPS Data

The 1989 amendments to the FLSA increased the minimum wage from $3.35 to $4.25. In order to simulate how the earning gains were allocated across households of different income, a data set that contains information on wages and hours of work was constructed with data drawn from the CPS. There are two kinds of labor earnings data in the March 1990 file of the CPS: retrospective data relating to the previous year (1989) and more exact data for March 1990. As we have discussed, the retrospective data were used in Tables 1 and 2 to derive estimates of hourly wages and the number of low-wage workers which are comparable to those obtained from the earlier censuses, since household incomes were reported for the previous year. The contemporaneous and more accurate labor earnings data are used to estimate the allocation of benefits from changes in the minimum wage.

Each month the CPS collects data from one-quarter of the sample of households (the outgoing rotation group) on workers' usual gross weekly earnings in their primary job and how many hours per

week they usually work at that job. Workers who are paid by the hour are asked how much they earn per hour. These data are better suited than retrospective data for simulating the effects of a rise in the minimum wage because no recollection of the previous year's labor earnings is required. In the simulations, the ex ante distribution of hourly labor earnings is approximated using the reported wage rate for hourly workers and the ratio of usual weekly labor earnings to usual hours worked for others.[14] All income data for calculating income-to-needs ratios, however, come from retrospective information from the previous year because that is the period for which it is reported.

The 1989 amendments were not fully implemented until 1991. The analysis is simplified by focusing on the fully phased-in value of the higher minimum wage and abstracting from the two-step transition. As described previously, it is also assumed that the minimum wage increase had no effect on the number of workers employed or on the number of hours they worked. Further, economywide effects of an increase in the minimum wage on inflation, poverty thresholds, and the relative prices of goods and services consumed by the poor are also ignored. Effects of higher earnings on personal income taxes and the receipt of transfer payments are also neglected. Hence, these results tend to be generous in their treatment of potentially positive effects of the minimum wage while ignoring some of the negative impacts. The direction of bias induced by our assumption that the employment effects of increases in the minimum wage are zero is uncertain, but it is likely to be small, given recent research findings in this area.

In the simulations, the impact of a higher minimum wage is limited to those low-wage job holders who are covered by the law by assuming that those workers earning less than $3.00 per hour were not covered.[15] (For a more in-depth discussion of our assumptions, see Appendix A.) This assumption results in the exclusion of fewer workers from the simulations than are reported to be covered by the minimum wage in 1989.[16] The practical effect on the simulations is to extend coverage

to more low-wage workers and somewhat overstate the distributional impact of an increase in the minimum wage rate on the poor.

The expected effect of increasing the minimum wage will be closely related to the number of workers who have a wage less than the level of the new minimum. In the simulations, these are individuals with a wage of at least $3.00 but less than $4.25.

In Table 3 we look at the characteristics of the population who lived at or near the poverty line in 1989. First, 25.7 percent of the households in poverty have no employed workers. Hence, neither an increase in the minimum wage nor an increase in the EITC will improve the economic well-being of these households in our simulations since we assume no behavioral changes. But in poor households with one worker, only 16.3 percent of the workers were in minimum wage–covered jobs and earning hourly wages below the minimum wage enacted in 1991,[17] and 0.6 percent of poor households had two or more such workers. The other 83 percent of working poor households would not be helped by the minimum wage since their working members already had wages above the proposed minimum. It is this remaining 83 percent of poor households with workers earning more than the minimum wage who might be helped by an increase in the EITC.

Why then were households with workers who earned more than the proposed minimum wage in or near poverty in 1989? A look at median hours worked provides some clue. The median hourly wage rate for these workers was $5.50 in 1989 and median hours worked was 1,520. A household of two with one worker earning median wages over median hours ($8,360) would have been just above the poverty line of $8,343 in 1989. A worker earning the median wage in this group would need to work 1,800 hours to lift a household of three out of poverty and about 2,300 hours for a family of four. The work hours needed to escape from near poverty are even greater.

TABLE 3

Characteristics of Households In or Near Poverty in 1989

	Income-to-Needs Ratios	
	Less than 1 (poverty)	Less than 1.5 (near poverty)
All Households		
Percentage with no workers	25.7	17.4
Percentage with one or more workers	74.3	82.6
All Working Households		
Number of Minimum Wage Workers in Family		
Percentage of no minimum wage–worker families	83.1	84.3
Percentage of one minimum wage–worker families	16.3	14.9
Percentage of two or more minimum wage–worker families	0.6	0.8
All Non-Minimum Wage Working Households		
Median wage of dominant worker (dollars per hour)[a]	$5.50	$6.00
Median annual hours of dominant worker[a]	1,520	1,820
Median household size	2	2

Source: Estimated from the outgoing rotation group of the March 1990 Current Population Survey.

[a]When there are two or more workers in a household, we report the hourly wage and hours worked of the highest-paid worker.

Table 4 looks more closely at the relationships among individual workers' hours, wage rates, and the income-to-needs ratios of their households just prior to the increase of the minimum wage from $3.35 to $4.25 per hour. The first row shows the distribution of hourly wages of all workers living in poor households, which can then be compared to the distribution of hourly wages of workers living in higher income-to-needs households.

Less than 2.0 percent of workers earned less than the minimum wage of $3.35 in 1989 and only 5.4 percent earned wages between $3.35 and $4.25 per hour.[18] A minimum wage increase to $4.25 per hour would not directly help the 92.7 percent of workers already earning $4.25 or more. But more to the point, even among the working poor, only about one in four earned between $3.35 and $4.25 per hour and were thus in a position to be helped by an increase in the minimum wage to $4.25 per hour. The rest were either not in minimum wage-covered employment (4.2 percent) or were earning more than $4.25 (70 percent).

While 26.1 percent of the working poor were in covered employment and earned less than $4.25 prior to the minimum wage increase and only 2.6 percent of those living in households with incomes three times the poverty line did so, these numbers do not reflect the share of the gains from increasing the minimum wage going to poor families relative to upper-income households. Part of the reason can be seen in the last two columns of Table 4. Only 5.5 percent of all workers live in poor households while 62.7 percent of workers live in upper-income households. Hence, only 24 percent of those gaining from an increase in the minimum wage lived in poor households, while 27 percent of such gainers lived in upper-income households. As we will see, the actual share of the benefits from the increase in the minimum wage going to poor workers is exaggerated by this table because the average annual hours worked by those living in poor households in minimum wage-covered employment is less than those of the non-poor.

TABLE 4

Wage Distribution of Workers by the Income-to-Means Ratio of Their Household for 1989

Income-to-Needs Ratio	Hourly Wage Categories: $0.01 to $2.99	$3.00 to $3.34	$3.35 to $4.24	$4.25 to $4.99	$5.00 to $9.99	$10.00 and Over	Total	Percentage of All Workers	Percentage of Workers Earning More than $2.99 and Less than $4.25
Less than 1.01 (poor)	4.2	1.5	24.6	14.7	45.2	9.8	100.0	5.5	23.9
1.00 to 1.25	3.4	0.7	14.5	11.2	59.6	10.6	100.0	2.9	7.3
1.25 to 1.50	3.0	2.0	13.3	10.7	57.4	12.9	100.0	3.2	8.1
1.50 to 2.00	2.4	0.8	8.0	10.3	63.0	15.5	100.0	7.9	11.6
2.00 to 2.99	1.3	0.7	6.7	6.8	57.1	27.3	100.0	17.8	21.9
Greater than 3.00	0.7	0.4	2.2	2.2	31.4	63.1	100.0	62.7	27.1
Whole category share[a]	1.3	0.6	5.4	4.9	40.9	46.9	100.0	100.0	100.0

Source: Estimated from the outgoing rotation group of the March 1990 Current Population Survey.

Note: Hourly wage rates are based on a direct question concerning earnings per hour on their current primary job. All income data used to calculate income-to-needs ratios come from retrospective information from the previous year because that is the period for which it is reported. Wages are in 1990 dollars.

[a]Share of all workers with wage earnings in each category.

In Table 5 we present our estimates of the overall cost and distribution of benefits of increasing the minimum wage from $3.35 to $4.25 per hour in 1989. Column 2 shows that the last minimum wage increase cost employers and consumers of their products $4.54 billion in 1989 in added labor expenses. It also shows how those benefits were distributed across households. By increasing the minimum wage, workers living in poverty were helped. But, as can be seen in column 4, workers living in poor households received less than two of every ten dollars of wage increases. In contrast, low-wage workers living in upper-income households—those with income at least three times the poverty line, or $44,400 for a family of four in 1994—received 38 percent of the wage hike associated with the minimum wage increase. Even when low-wage workers living in near-poor households—those households with income less than 150 percent of the poverty line—are included, only about three of every ten dollars of the wage gains from the 1989 amendments went to the poor or near-poor. Upper-income households received more of the increased earnings from the minimum wage increase than did poor and near-poor households.

Contrary to conventional wisdom, minorities were not overwhelmingly helped by this minimum wage boost either. Only 17 percent of the gains from the minimum wage hike went to blacks and only 5 percent of this $4.54 billion total went to blacks living in poverty. For every one dollar going to a poor black worker living in poverty, more than five dollars went to upper-income non-black households. And while female-headed households with children benefited from the minimum wage hike—24 percent of all wage gains went to such households—the size of the gain for this group is actually larger under the EITC.[19]

TABLE 5

Distribution of Wage Income Increases Due to an Increase in the Minimum Wage from $3.35 to $4.25

Income-to-Needs Ratio	Total Benefit (billions of dollars)	Mean Benefit per Household (dollars)	Distribution of Benefits (percentage)			
			Total	Blacks	Non-Blacks	Single Female–Headed Households
Less than 1.00 (poor)	$0.71	$709	15.6	4.9	10.7	9.3
1.00 to 1.25	0.24	691	5.2	1.1	4.2	1.6
1.25 to 1.50	0.33	706	7.3	1.5	5.9	1.3
1.50 to 2.00	0.53	638	11.7	2.2	9.4	4.4
2.00 to 3.00	1.01	697	22.3	3.6	18.7	4.4
Greater than 3.00	1.72	631	37.9	3.7	34.2	3.0
All households	4.54	665	100.0	16.9	83.1	24.1

Source: Estimated from outgoing rotation groups of the March 1990 Current Population Survey.

Note: Simulation assumes hours worked in 1989 remained the same under the new minimum and those earning below $3.00 per hour were employed in a job not covered by minimum wage rules. The cost of the 1989 amendment would be much higher if they were extended to all low-wage workers. (See appendix table 1B for the cost of increasing the minimum to $4.25 but including those earning less than $3.00 per hour.)

V. WHO GAINED FROM INCREASES IN THE EARNED INCOME TAX CREDIT (1989–1992)

As shown in Table 6, the EITC as originally enacted equaled 10 percent of the first $4,000 of labor earnings for a maximum of $400 per tax unit. The credit began to phase out at a rate of 10 cents on the dollar for adjusted gross incomes above $4,000 and was entirely phased out at incomes above $8,000. By 1992 the basic EITC rate had increased to 17.6 percent for workers with one qualifying child and 18.4 percent for workers with more than one qualifying child. (Those with an infant child received an additional 5.0 percent gain.) The maximum basic EITC was $1,324 (17.6 percent of $7,520) for taxpayers with one child and $1,384 (18.4 percent of $7,520) for taxpayers with more than one child. In 1992, the EITC began to be phased out at $11,840 at a rate of 12.57 cents per dollar for those with one child and a rate of 13.14 percent for those with two or more children. All benefits are phased out at $22,370. (For a fuller discussion of the EITC, see U.S. House of Representatives 1994.)

In 1989 the minimum wage was $3.35 per hour. The 1989 amendments to the FLSA increased that wage for all workers regardless of the economic circumstances of their household. In contrast, the EITC provides a selective minimum wage boost. It effectively increases the minimum wage received by low-wage workers who live in low-income households with children.[20] In 1989 an eligible minimum wage worker who lived in a household with income below $7,520 actually received $3.82 for an hour's work—$3.35 plus a 14 percent credit.

As Table 6 shows, between 1989 and 1992, Congress increased the EITC marginal credit rates from 14 to 17.6 percent for eligible workers with one child and to 18.4 percent for workers with two or more children. Hence, even if the 1989 FLSA amendments had not been adopted, EITC-eligible minimum wage workers would still have seen their hourly wages grow to $3.94 for a household with one child and $3.97 for a household with more than one child. Obviously, over this period the EITC

TABLE 6

Earned Income Tax Credit Parameters, 1975–1996

Calendar Year	Credit Rate (percent)[a]	Minimum Income for Maximum Credit	Maximum Credit	Phase-Out Rate (percent)	Phase-Out Range Beginning Income	Phase-Out Range Ending Income
1975–78	10	$4,000	$400	10.00	$4,000	$8,000
1979–80	10	5,000	500	12.50	6,000	10,000
1981–84	10	5,000	500	12.50	6,000	10,000
1985–86	11	5,000	550	12.22	6,500	11,000
1987	14	6,080	851	10.00	6,920	15,432
1988	14	6,240	874	10.00	9,840	18,576
1989	14	6,500	910	10.00	10,240	19,340
1990	14	6,810	953	10.00	10,730	20,264
1991:						
One child	16.7	7,140	1,192	11.93	11,250	21,250
Two or more children	17.3	7,140	1,235	12.36	11,250	21,250
1992:						
One child	17.6	7,520	1,324	12.57	11,840	22,370
Two children	18.4	7,520	1,384	13.14	11,840	22,370
Additional infant child credit	5.0	7,520	376	3.57	11,840	22,370
1996:						
No child	7.65	4,000	306	7.65	5,000	9,000
One child	34.0	6,160	2,094	15.78	11,290	24,395
Two or more children	40.0	8,900	3,560	21.06	11,620	28,524

Source: U.S. House of Representatives 1994.

was an alternative method of raising the wages of low-wage workers with children who live in poor households.

Table 7 contains simulations of how the gains from changes in the EITC between 1989 and 1992 would have been allocated across households with different incomes in the absence of the 1989 amendments to the FLSA. Consistent with the data in Table 5, the assumption is made that the EITC has no effect on the number of workers employed or on the number of hours they worked. It is also assumed that all eligible households receive the credit.

Column 2 shows that those EITC increases cost taxpayers $4.04 billion. Column 4 shows how those benefits were distributed across different income levels. Workers living at or near the poverty line (income-to-needs ratios below 1.5) received 59 percent of all dollars from the EITC. In contrast to the 1989 minimum wage hike, in which upper-income households gained more than poor households, EITC increases provided six times as much in the way of benefits to workers in poor households as to workers in upper-income households. The EITC increased earnings of poor households by $1.0 billion, with a total of $2.4 billion going to poor as well as near-poor households. In contrast, the minimum wage increase raised the earnings of poor households by only $0.7 billion, with a total of only $1.3 billion to poor and near-poor households. The larger dollar amounts received by the poor under the EITC simulations occur despite the fact that the aggregate amount of transfers is smaller.

Not only did more of the total dollars from the EITC increase flow to poor and near-poor households, more of these dollars also went to groups that have been the specific target of social policy. Blacks received 20 percent of all EITC benefit hikes, 18 percent more than they received from the higher minimum wage; blacks living in poverty received 6 percent, a 20 percent increase over that provided by the minimum wage hike. Furthermore, for every one dollar going to a poor black worker living in poverty, only 59 cents went to upper-income non-black households. This is a complete reversal of the relationship between the shares going to poor and upper-income households which was

TABLE 7

Distribution of Benefits from Earned Income Tax Credit Program from 1989 to 1992*

Income-to-Needs Ratio	Total Benefit (billions of dollars)	Mean Benefit per Household (dollars)	Distribution of Benefits (percentage)			
			Total	Blacks	Non-Blacks	Single Female–Headed Households
Less than 1.00 (poor)	$1.01	$316	25.0	5.9	19.1	7.7
1.00 to 1.25	0.69	483	17.1	3.2	13.9	5.4
1.25 to 1.50	0.68	459	16.8	3.2	13.6	5.7
1.50 to 2.00	0.92	416	22.8	4.5	18.3	8.9
2.00 to 3.00	0.58	324	14.4	2.7	11.6	7.7
Greater than 3.00	0.16	340	4.0	0.5	3.5	7.0
Totals	$4.04	$382	100.0	20.0	80.0	37.4

Source: Estimated from outgoing rotation groups of the March 1990 Current Population Survey.

*In the absence of the 1989 amendments to the FLSA.
[a]Simulation assumes all eligible workers apply for benefits and hours worked in 1989 would remain the same under the 1992 EITC rules. This table is based on the difference between 1989 data using 1989 EITC rules and 1989 data using 1992 EITC rules (see appendix tables 2B and 3B).

found with respect to the minimum wage. Single female-headed families received 37 percent of all EITC credits compared to only 24 percent of the minimum wage hike, an increase of more than 50 percent.

Transformations in the workforce over the past half century have diminished the relative value of minimum wage legislation as a policy tool for helping the working poor when other options such as the EITC are available. Because the link between low wages and low household income has eroded, the use of wages as a proxy for income status and as a guide of policy for the working poor can clearly be misleading. Compared to the EITC, which directly targets household income, the minimum wage is not a particularly good mechanism for directing aid to minorities, single female-headed households, or other households with low total incomes.

VI. FUTURE POLICIES FOR REWARDING THE WORKING POOR

Increasing the Minimum Wage

As discussed earlier, the 1989 amendments to the FLSA have been criticized as not going far enough to raise the wages of the working poor. In 1995, political pressure is building to increase the minimum wage again, although there is disagreement about by how much.

In this section, we conduct simulations of how the gains in labor earnings from an increase in the minimum wage from $4.25 to $5.00 per hour would be allocated across households with different incomes. Raising the minimum wage to $5.00 would peg it at 45 percent of the average private sector wage in 1994. Once again, the analysis assumes no behavioral changes. Hence, increases in wages are assumed to have no effect on the number of workers employed or on the number of hours they work. Data from the 1990 CPS are again used to estimate baseline income in the presence of both a $4.25 minimum wage and 1992 EITC rules.[21] (See Appendix A for a discussion of these values.)

In Table 8 we report the outcomes of our simulations. Column 2 shows that a minimum wage increase to $5.00 would cost $10.24 billion in added labor expenses. This is considerably more expensive than the previous increase because a much greater share of the labor force would be affected by this wage hike. Again, a minimum wage hike would be of limited benefit to low-wage workers living in poverty. As can be seen in column 4, workers living in poor households would receive only 13 percent of the increase, an even smaller share than they received from the 1989 amendments. In contrast, low-wage workers living in upper-income households would receive 35 percent of the wage hike. The share going to the poor and near-poor—26 percent—is also lower than last time. Blacks would receive about 15 percent of all increases, and poor blacks would receive only 4 percent. For every dollar going to a poor black worker living in poverty, more than eight dollars would go to upper-income non-blacks. Single female-headed households would receive about the same share of the benefits as last time—24 percent.

How the 1993 Changes in the EITC Will Affect the Poor

Most of the wage gains associated with the proposed increase in the minimum wage to $5.00 would be captured by non-poor households. Whether such a policy should be pursued is debatable given the dramatic increases in the EITC which are scheduled to be fully phased in by 1996. When evaluating the impact of these changes on the working poor, it is useful to consider the EITC in terms normally reserved for the minimum wage. Minimum wage earners today receive $4.25 per hour. But once EITC credits under the 1992 rules are considered, those minimum wage workers with children who actually live in low-income households receive a reward for work equal to $5.00 per hour, $4.25 from their employer plus a $.75 EITC credit. Hence, in 1992 all low-income workers with children who received the minimum wage were already earning the $5.00 per hour wage analyzed here. It

TABLE 8

Distribution of Wage Income Increases Due to an Increase in the Minimum Wage from $4.25 to $5.00

Income-to-Needs Ratio	Total Benefit (billions of dollars)	Mean Benefit per Household (dollars)	Distribution of Benefits (percentage)			
			Total	Blacks	Non-Blacks	Single Female–Headed Households
Less than 1.00 (poor)	$1.34	$871	13.1	3.9	9.2	7.5
1.00 to 1.25	0.59	961	5.8	1.2	4.6	1.9
1.25 to 1.50	0.71	1,072	6.9	1.4	5.5	1.4
1.50 to 2.00	1.49	973	14.6	2.5	12.1	4.3
2.00 to 3.00	2.55	954	24.9	3.3	21.5	5.0
Greater than 3.00	3.56	792	34.7	3.0	31.8	3.5
Totals	$10.24	$890	100.0	15.3	84.7	23.6

Source: Estimated from outgoing rotation groups of the March 1990 Current Population Survey.

Note: Simulation assumes hours worked in 1989 would remain the same under a new minimum wage and those earning below $3.00 per hour are employed in a job not covered by minimum wage rules.

would take an additional $10.24 billion in labor costs for a minimum wage hike to achieve this same result for low-wage workers in higher-income households.

Of course, any increases in the minimum wage would further increase the well-being of low-wage workers living in low-income households by effectively boosting their EITC-adjusted wage even higher. But it would be far less costly to society if policymakers chose a target wage or amount to be transferred to the working poor and used EITC policy to achieve that explicit policy goal.

The expansion and simplification of the EITC is one of the most significant pieces of social legislation passed by the Clinton administration to date. Not only does this legislation greatly increase the size of EITC benefits going to the working poor, but for the first time these benefits are extended to workers aged 25 to 65 who live in poor households without children. The full impact of the expansion will not be felt until 1996. The simulations that follow provide a first approximation of how the increased benefits will be distributed using 1996 rules. To be consistent in making comparisons with the results reported in Table 8, the 1989 wage and income information is adjusted to include a $4.25 minimum wage and 1992 EITC rules.[22] Again, the issue of takeup rate is ignored.

Table 6 shows how the EITC benefits in 1996 will differ from those in 1992. The credit rate will nearly double for poor workers with one child and the maximum benefit will increase by almost 60 percent. The rewards are even greater for poor workers with two or more children—their credit rate will more than double and the maximum benefit will increase by more than 150 percent from $1,384 to $3,560. The phase-out rates are also increased as are income levels at which all benefits are lost. Increases of this magnitude in the EITC credit rate will have dramatic effects on the returns to work for low-income workers with children. The wage of an eligible worker earning the minimum wage of $4.25 per hour will jump to $5.95 per hour if he or she has one eligible child and it will jump to $5.78 per hour for those with more than one child.

The EITC benefits for those with no children are far more modest. The credit is only 7.65 percent and the maximum benefit is $306. Eligible workers who earn the minimum wage and have no children, will earn a wage (including the credit) of $4.58.

In Table 9 we report the outcomes of our simulations. In column 2 it can be seen that applying 1996 EITC rules to workers in households with children in 1989 would have cost taxpayers an additional $10 billion, about the same cost estimated from increasing the minimum wage to $5.00. (Table 5B shows that the total estimated cost of the EITC program in 1996 would have been close to $17 billion.) Column 4 shows how those benefits will be distributed across the income distribution. Workers living in or near poverty will receive 72 percent of all benefits. In contrast to a minimum wage hike to $5.00, in which poor households receive only 13 percent of the benefits and upper-income households gain more than poor ones, the EITC increases will provide 12 times more income to workers in poor households than to workers in upper-income households. Blacks will receive 20 percent of all benefits, and poor blacks 9 percent. This represents an increase of more than 100 percent in the proportion of benefits going to poor blacks. Single female-headed households will receive 37 percent of the EITC benefits but only 24 percent of those from the minimum wage, a 54 percent increase.

Table 10 shows the results of a similar simulation of the effect of the 1996 rules on eligible workers without children. Column 2 shows that the new benefits for such workers, at a cost of $650

TABLE 9

Distribution of Increased Benefits from Earned Income Tax Credit Program Change from 1992 to 1996 for Those with Children

Income-to-Needs Ratio	Total Benefit (billions of dollars)	Mean Benefit per Household (dollars)	Distribution of Benefits (percentage)			
			Total	Blacks	Non-Blacks	Single Female–Headed Households
Less than 1.00 (poor)	$3.86	$1,206	38.4	8.6	29.9	13.0
1.00 to 1.25	1.79	1,243	17.8	3.4	14.4	6.5
1.25 to 1.50	1.56	1,047	15.5	3.3	12.3	5.7
1.50 to 2.00	1.70	691	16.9	3.2	13.7	6.6
2.00 to 3.00	0.82	573	8.2	1.2	7.0	4.3
Greater than 3.00	0.31	795	3.1	0.3	2.8	0.9
Totals	$10.04	$964	100.0	19.9	80.1	37.0

Source: Estimated from outgoing rotation groups of the March 1990 Current Population Survey.

Note: Simulation assumes all eligible workers apply for benefits and hours worked in 1989 would remain the same under the 1996 EITC rules. This table is based on the difference between 1989 data assuming a $4.25 per hour minimum wage and using 1992 EITC rules and 1989 data assuming a $4.25 per hour minimum wage and using 1996 EITC rules (see appendix tables 4B and 5B).

TABLE 10

Distribution of Increased Benefits from Earned Income Tax Credit Change from 1992 to 1996 for Those without Children

Income-to-Needs Ratio	Total Benefit (billions of dollars)	Mean Benefit per Household (dollars)	Distribution of Benefits (percentage)		
			Total	Blacks	Non-Blacks
Less than 1.00 (poor)	$0.30	$169	46.2	7.8	38.4
1.00 to 1.25	0.06	123	9.2	1.9	7.3
1.25 to 1.50	0.05	163	7.7	1.8	5.9
1.50 to 2.00	0.06	149	9.2	1.1	8.1
2.00 to 3.00	0.08	153	12.3	2.1	10.2
Greater than 3.00	0.10	153	15.4	0.9	14.5
Totals	$0.65	$158	100.0	15.6	84.4

Source: Estimated from outgoing rotation groups of the March 1990 Current Population Survey.

Note: Simulation assumes all eligible workers apply for benefits and hours worked in 1989 would remain the same under the 1996 EITC rules. This table is based on the difference between 1989 data assuming a $4.25 per hour minimum wage and using 1992 EITC rules and 1989 data assuming a $4.25 per hour minimum wage and using 1996 EITC rules (see appendix tables 3B and 4B).

million, are much more modest in scope. The poor and near-poor would receive 63 percent of these benefits. Blacks would receive 16 percent, and poor blacks 8 percent.

VII. CONCLUSION

For over half a century, use of the minimum wage to assist families of the working poor has been seen by the public at large as a socially just exercise of government regulatory power. Criticism of minimum wage policy has centered primarily on its negative effects on employment. Economists have long argued that while increasing the minimum wage made low-wage workers who remained on the job better-off, it made those workers who were not hired, or who lost their jobs because of it, worse off.

This paper suggests an additional reason for questioning the current use of the minimum wage as a policy tool—there is no longer a strong connection between the hourly wages a worker earns and the economic well-being of his or her household. Hence, public policies that use an individual's wage rate as a mechanism to redistribute income will tend to be inefficient in the distribution of those benefits. The 1989 amendments to the FLSA which increased the minimum wage from $3.35 to $4.25 per hour yielded more income for low-wage workers living in upper-income households than it did for low-wage workers who lived in poor households. Simulations of potential future increases indicate that raising the minimum wage from $4.25 to $5.00 per hour would also result in a distribution of benefits skewed toward workers who live in upper-income households.

The EITC offers an alternative method of increasing the returns to work for people who live in low-income households. It was much more effective in targeting income to those workers most in need of income support than was the minimum wage hike during the period 1989 to 1992. The 1993 expansion of the EITC, which will be fully phased in by 1996, will also more effectively target additional income to low-wage workers in or near poverty than hikes in the minimum wage. Even with no increase in the $4.25 minimum wage, workers in EITC-eligible households with one child will

effectively earn $5.70 per hour and those with two or more children will earn $5.95 per hour. The great majority—72 percent—of these EITC-based expenditures will go to poor or near-poor workers. Only a small fraction, 3 percent, will go to upper-income workers. Blacks will receive 20 percent of all benefits and female-headed families will receive 37 percent of all benefits. On income distribution grounds, the EITC program works better than increases in the minimum wage.

Both the minimum wage and the EITC provide the working poor with higher effective wages than they would receive in the absence of these programs. As we have shown, however, the minimum wage is a far more costly method of shifting income to the working poor.

Ironically, perhaps the greatest barrier to shifting to the EITC as the primary approach to providing additional income to the working poor is Congressional unwillingness to directly confront the costs of their transfer goals. Even though a minimum wage policy is clearly inferior to the EITC on the grounds of income distribution, raising the minimum wage allows Congress to inefficiently achieve some part of its transfer aims by shifting the cost of this redistribution off the government books and onto employers and their customers. Since the original passage of the FLSA, the costs associated with the target inefficiency of this strategy have grown to be enormous. While it is appropriate to recognize the historic significance and policy relevance of the minimum wage, the EITC is now a more effective mechanism for providing aid to the working poor.

APPENDIX A

In this appendix we discuss more fully our data and estimation procedures and assess the comparability of our labor earnings distributions over time.

Estimating Average Hourly Labor Earnings from Census Data

We had to estimate hourly labor earnings from responses to questions on annual labor earnings, weeks worked, and hours worked. In 1940, 1950, 1960, and 1970, working respondents were asked only the number of hours they had worked during the census week, and their answers were reported only in intervals (i.e., 1–14 hours, 15–29, 30–34, 35–39, 40, 41–48, 49–59, and 60 or more). In 1980, the census recorded numerical responses to this question and to a new one on usual hours worked during 1979. We estimated the relationship between usual hours and census-week hours by age and sex during 1979–80. We then assigned group-specific means of usual hours in 1979 to each census-week hours interval in all four censuses. Similarly the census tabulated weeks worked responses only by intervals prior to 1980 (i.e., 1–13, 14–26, 27–39, 40–47, 48–49, and 50–52), but recorded numerical responses in 1980. Again, we calculated means for each interval by age and sex for 1980 and used these means in each census. For wage or salary income in the previous year, each census reported respondents' estimates in fairly narrow intervals, save for an open-ended upper interval ($10,000 or more in 1950, $25,000 or more in 1960 and 1970, $75,000 or more in 1980), and assigned midpoint values to each bounded interval. Because we were mainly interested in identifying low-wage workers and their wages, we assigned the minimum value of the open-end interval to each worker within it. (This procedure will bias means downward but should have no effect on the number or wages of low-wage workers.) Finally, we derived average hourly labor earnings ("wages," for short) by dividing wage or salary income by the product of estimated usual hours times estimated weeks worked.

A key assumption of this procedure is that group-specific means of (a) actual weeks worked within weeks-worked intervals and (b) usual hours worked last year within census-week hours intervals did not change across census years. While this assumption is a strong one, we think this procedure is more defensible than simply using midpoints of weeks-worked intervals and census-week hours intervals for all demographic groups. When we cross-classified workers in the 1980 census by their census-week hours and usual hours worked, we found a rather loose association, especially for teenagers. Furthermore, the variance in census-week hours exceeded that in usual hours by so much that the mean usual hours of those who worked short or long hours during the census week fell outside the census-week interval for many age-sex groups. Use of census-week midpoints could therefore introduce a downward bias in annual hours, and hence an upward bias in wages, for those groups with predominantly downward disturbances in census-week hours. The opposite bias might occur for prime-age males, who probably work overtime more often than short hours. Likewise, we also found consistent differences between the midpoints and group-specific means of weeks-worked intervals. Thus, group-specific means of usual hours and weeks worked appear to be the better estimators.

Finally, as noted in the text, a difference in sampling procedures reduces the comparability of some statistics from the 1950 census with those from later censuses and explains why other data are not available for the earlier year. In all census years except 1950, data on labor earnings, hours worked, and the like have been collected for all workers in a sample of households. But in 1950, such data were gathered from a cross-household sample of individual respondents, and total family income was reported only on the records of family heads. As a result, (a) workers in large families were oversampled in the 1950 census, and (b) we cannot determine the poverty status of low-wage workers who were members of families but not heads. An experiment with the 1960 census suggests that the oversampling of large family heads in 1950 led to a substantial overstatement of the 1950 poverty rate for nonelderly families headed by such workers, as reported in Table 1. In this experiment, we found

for the year 1960 a strong positive association between family size and the incidence of poverty among families headed by very low-wage workers. Specifically, the poverty rate was 48 percent for such families with two or three members, 67 percent for those with four members, and 83 percent for those with five members or more. There is every reason to think that the same kind of relationship prevailed in 1950. Furthermore, this sampling bias must have caused us to underestimate the fraction of low-wage workers who were heads of families in 1950, relative to later censuses. None of these inconsistencies impairs the validity of the longer-period trends shown in the tables.

Estimating Wages from CPS Data

There are two kinds of labor earnings data in the March 1990 file of the Current Population Survey and our use of each has been explained in the text. In Tables 1 and 2 we used the retrospective data from the CPS to estimate a worker's usual hourly labor earnings in 1989 by dividing the wage or salary earnings reported for that year by the product of weeks worked times usual hours worked per week that year. To test the comparability of census and CPS retrospective earnings data for 1979, we calculated the fraction of low-wage workers who fell below the poverty line in the 1980 census and in the March 1980 CPS. The two fractions were 20 percent and 16 percent, respectively. Although some of the difference may be sampling error, we think that the census data overstate the poverty rate due to greater underreporting of labor earnings and other income. By contrast, CPS data are collected by trained interviewers and are recorded as exact numbers, not as checked intervals; so the retrospective CPS wage rates should be somewhat firmer than those from the censuses.

Description of the Minimum Wage Simulation Procedure

As discussed above, we used the retrospective data from the 1990 CPS to estimate the hourly wage of each worker in our first two tables because we wanted to make our CPS data as compatible as possible with our census data. But for our simulations we chose to use the more accurate current CPS

data. From outgoing rotation groups (one-quarter of the sample of households), each month's CPS collects data on workers' usual gross weekly earnings in their primary job and how many hours per week they usually work at that job. Workers who are paid by the hour are asked how much they earn per hour. These data are better suited than retrospective data for simulating the effects of a rise in the minimum wage because no recollection of the previous year's earnings is required. For the ex ante distribution of hourly earnings in our simulations we used the reported hourly wage rate for hourly paid workers and the ratio of usual weekly earnings to usual hours worked for others in 1990. All income data, however, come from retrospective information from 1989.

Because we are matching March 1990 wage rates to 1989 income there is a possibility of mismatches with "true" 1989 wages. To minimize these mismatches we exclude workers whose industry or occupation on their current job in 1990 was different from that on his or her primary job in 1989. We also excluded those who had moved.

We established several screens to determine who in our sample would be eligible for increases in the minimum wage. Initially we eliminated all self-employed persons, workers over the age of 64, and members of the armed services. We did not attempt to use any combination of occupation/industry screens, but rather used a wage screen (described below) to eliminate workers from our sample.

We simulated the increase in the minimum wage first using $4.25 as the minimum in keeping with the 1989 amendments to the FLSA. We then used the measure of one-half of the average private sector wage, which was $5.00 in 1992, as our minimum. All workers in our sample with an estimated wage below these minimums were eligible to receive an increase in their wage in our simulations. Before attributing this increase to the sample, we performed two adjustments. First, all workers who reported wages below $3.00 per hour were assumed to be working in an uncovered job and, hence, ineligible for benefits. Bureau of Labor Statistics figures estimate that 5.3 percent of private sector workers are employed in the non-covered sector. Our assumption results in exclusions of 1.89 percent

of private sector employees. Second, all workers who reported a wage per hour below the pre-1989 minimum of $3.35 in the 1989 simulations but above $3.00 were assumed to be actually receiving the minimum wage, and their estimated wage was changed to $3.35 in the 1989 sample. In our simulation of raising the minimum wage from $4.25 to $5.00 per hour, we assumed all eligible workers in 1989 were already receiving $4.25 per hour.

Once the appropriate sample of covered low-wage workers was determined, we estimated the increase in yearly income accruing to each low-wage worker due to an increase in the minimum wage. This was done by multiplying the difference between our proposed minimum and the estimated current wage by the product of hours per week and weeks per year.

The minimum wage is targeted on individuals, but individuals live in households. It is the household that is the unit of analysis for economic well-being. Therefore, in making comparisons with the earned income tax credit, our focus is on the household unit. While only one tax credit per household is allowed under the EITC program, it may be the case that many members of a household would receive benefits under an increase in the minimum wage. This should be kept in mind when comparing the mean benefit per household of the two programs.

Description of EITC Simulation Procedure

Our general approach to estimating the EITC was to apply, within the limitations inherent in the data, the EITC program rules as specified by the Internal Revenue Service (IRS). Since most of the simulations involve 1992 rules, this appendix will describe the 1992 simulation procedure with comments on how 1989 or 1996 rules differ where applicable.

Since the target population of the EITC is low-income households with children who have some labor earnings, we used data from the Current Population Survey, March 1990 file. This file contains retrospective data on labor earnings and household characteristics for 1989. The structure of

this data set is ideal for studies that focus on households since it contains extensive household data in addition to personal data on every individual in the household.

Given that there are effectively two sets of EITC eligibility criteria, our simulations followed a two-step procedure. The first set of criteria examines household characteristics to determine eligibility for the program. The second set uses income measures to establish the size of the credit for those eligible households (which will be zero in many cases). An important distinction to bear in mind is that while the unit of analysis for the eligibility criteria is the household, the federal income tax filing unit is the measure for the income criteria. In most cases these will not be the same, as many households file more than one tax return.

Household Eligibility

Household eligibility depends upon the presence of what the IRS defines as a "qualifying child." Whether or not an individual in the household is a qualifying child depends upon three tests: (1) relationship, (2) age, and (3) residency.

The relationship test requires that a qualifying child be a direct descendent, either natural, adopted, or through marriage (e.g., son, grandchild, stepdaughter, etc.), of someone in the household. A foster child may meet the relationship test provided the child lived with the household for the entire year.

The age test requires that the child be under age 19 at the end of the tax year. This age restriction is increased to 24 if the child is a full-time student and it is eliminated altogether if the child is totally or permanently disabled.

The residency test requires that the child live in the main home of the household, which must be in the United States, for more than 6 months of the year (12 months for a foster child). Any child who is born into the household or who dies during the tax year is exempt from this test.

In our simulations only the relationship and age tests were applied to determine if a qualifying child resided in the household. We ignored the residency test because in cases where the residency test is not met in the data, it follows that the parent or person who does match with the qualifying child is out of the data set. In order to not lose the observation completely, we use the current household data available in the CPS for that child as a proxy for the missing data.

With the data available in the CPS, both the relationship and age tests can be applied in a straightforward manner. The only exception is the disabled child, who has no age restriction. The CPS asks respondents whether or not they were unable to work at any time during the previous year because of health problems, and does not ask about disabilities directly. Thus, we did not attempt to identify permanently disabled children.

Once a child in the household has met the age and relationship tests, the family is considered eligible for the program in the simulation. The next step is to apply the income tests to the appropriate tax-filing unit within the household.

Only one tax-filing unit within a household may claim the EITC. That is, only one credit is available per household. However, as will be discussed below, the age and number of qualifying children can affect the size of the credit under 1992 rules (but not under 1989 rules). In most cases finding this subgroup within the household is straightforward as it will be either the married couple or single parent who heads the family. Larger family structures that span more than two generations require more analysis.

The IRS requires that married couples file a joint return to be eligible for the EITC. In our simulations we assume all married couples file jointly. The vast majority of married couples file jointly, and the incentives to file separately are strongest at higher income levels. Thus, given that low-income households dominate the sample of eligible households, any bias due to this assumption should be small.

Single-headed households pose no special problems as far as tax filing status is concerned. In fact, even if the qualifying child cannot be claimed as an exemption by a single head (e.g., the former spouse who pays child support claims the exemption), the head will still receive the earned income credit as long as the residency test is met.

Multiple-generation households will generally have more than one tax filing unit which can claim the qualifying child. In these situations the IRS has two rules to determine who gets the credit. The first rule is that tax filers who are qualifying children cannot themselves be eligible for the earned income credit. For example, an 18-year-old mother who lives with her parents but has a qualifying child or children of her own, is ineligible to receive the earned income credit since she is a qualifying child herself. In this case the parents will receive the earned income credit (if any) based on the 18-year-old mother being the qualifying child in the family.

The second rule applies when more than one tax filing unit can claim the qualifying child. In this case the tax filing unit with the higher adjusted gross income will be the one to claim the earned income credit. In the above example, if the mother was 20 years old instead of 18, she would no longer be a qualifying child herself as she fails to pass the age test. In this case her children now become the qualifying children for the household and both she and her parents can potentially claim the earned income credit. Whoever has the higher adjusted gross income between the two will receive the credit. Both of these rules were used, where appropriate, for all cases of multigenerational households in the 1992 and 1996 simulations (1989 rules differ and will be discussed below).

As noted, the above discussion on the two tie-breaking rules for multigenerational households applies only to 1992 and 1996. Prior to 1991 the IRS placed more restrictions on the filing status of single persons with a qualifying child. Specifically the person had to file as head of household or as a qualifying widow or widower. Therefore, in the simulations for 1989, in instances where more than two tax filing units could claim the qualifying child, we always used the head of the family (and spouse if

present) as the appropriate tax filing unit and did not use the higher adjusted gross income tiebreaker rule. In the examples described above, the young mother would not be able to file as the "single head of household," regardless of her age, as long as she resided with her parents.

For the 1996 simulations, we used a two-step household eligibility process. We applied the 1992 household eligibility rules described above to select the sample of families with qualifying children (i.e., the exact same sample used in the 1992 simulations). In 1992 families not in this sample are considered ineligible, but in 1996 they have another route to eligibility. They may now potentially qualify for the EITC under the new program that pays benefits to families without qualifying children or without any children. This second eligible group will be referred to as families without children, but in actuality it will contain many different family types—single persons, married couples without children, and families with children who don't qualify under 1992 rules.

For this second group of families without children, the qualifying child tests described above no longer apply. Instead we accepted any person who fell between the ages of 25 to 64 inclusive, had at least one dollar in earned income, and was either the head of a household (including single individuals), spouse of a head, or another working member in the family. This procedure allows for the possibility that more than one tax-filing unit per family could receive a tax credit.

Income Criteria

Once the appropriate tax filing unit was determined, the income criteria were applied. In general, even though the CPS has quite detailed income data, any attempt to carry out actual IRS rules with respect to income will be much less precise than what can be attempted with respect to the household characteristics rules. Hence, any attempt to simulate the completion of a tax return will be crude. In actual practice it requires much more information. However, this problem should be mitigated by the sample population we are dealing with. Low-income households generally have few (and uncomplicated) income sources.

The two income measures used to calculate the actual EITC credit are wage income and adjusted gross income. Wage income as defined by the IRS includes the following: wages, salaries, tips, net earnings from self-employment, union strike benefits, certain long-term disability benefits, voluntary salary deferrals, combat pay, basic quarters and subsistence allowances from the United States military, meals or lodging provided by an employer, housing allowance for the clergy, excludable employer-provided dependent care benefits, and anything else of value (money, goods, or services) provided for services rendered. In our simulations we included only wages, salaries, tips, net earnings from self-employment, and union strike benefits. All of the other forms of wage income are unavailable in the CPS. As a result, our simulated measure of wage income will at times underestimate the true value (how this affects our results is discussed below). However, we feel that our estimates of wage income are reasonable. Most of the missing information applies disproportionately to high-income individuals who would not be eligible for the program. Thus, the absence of this information should have only a small effect on our wage income estimate.

Adjusted gross income starts with wage income as the base and then both adds in other sources of income and subtracts out various credits. We added the following sources of income into our simulated measure of adjusted gross income: interest income, dividends, alimony, rental income, royalties, and unemployment compensation. We did not include taxable refunds of state and local income taxes, capital gains or losses, or IRA distributions because this information is unavailable in the CPS. Additionally, adjusted gross income includes certain pension benefits and, in some instances, Social Security benefits. We did not include either of these two sources as the CPS does not have the information to determine what percentage, if any, of these benefits are taxable. Pension benefits depend upon the individual's contribution history. The taxpayer receives a Form W-2P in these instances to help calculate the taxable amount. Social Security benefits also requires a form (SSA-1099) that one can use with a worksheet to find the taxable amount.

We included only one credit adjustment in our measure of adjusted gross income, the one-half of the self-employment tax that can be subtracted out. Other credits not available were IRA contributions, Keogh retirement plan contributions, and alimony paid. Given that adjusted gross income includes both additions and subtractions, we may at times either underestimate or overestimate the true value. However, in most cases of missing information, it is likely that underestimation is the result because most individuals will have additions from other income sources greater than any credits that they could subtract.

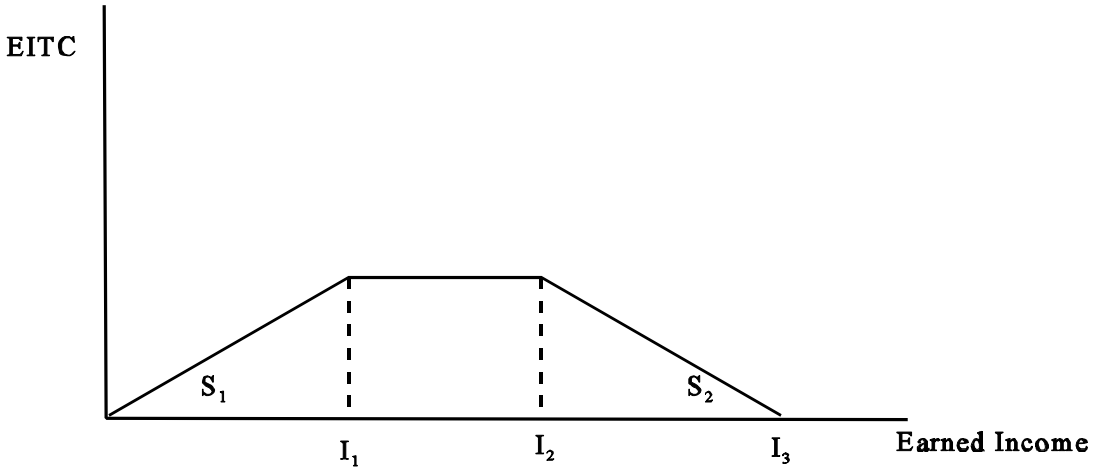
For married couples the labor earnings and adjusted gross incomes of the head and spouse were added together to get the labor earnings and the adjusted gross income measures that apply to the appropriate tax filing unit. In the case of a single parent who receives the EITC, the individual's labor earnings and adjusted gross income are the appropriate measures.

Once the two income measures for the tax filing unit are determined, the actual tax credit can be calculated. The general picture of the relationship of the tax credit to income can be thought of as a plateau (see Figure 1). Referring to Figure 1, the key parameters are the phase-in and phase-out rates (s_1 and s_2 respectively), and the three income points (I_1, I_2, and I_3). If either the earned income or the adjusted gross income of the appropriate tax filing unit exceeds I_3 (which equaled $19,340 in 1989 and $22,370 in 1992; in 1996 I_3 varies by household composition, equaling $24,395, $28,524, and $9,000 for families with one child, two-plus children, and no children respectively—see Figure 1), then the family does not receive any tax credit. They are technically ineligible for the program since they fail the income tests.

For families that have both labor earnings and adjusted gross income meeting the income test defined by I_3, the next step is to determine which of the two measures should be used to calculate the

FIGURE 1

Proposed EITC Program Rules



size of the credit. As long as adjusted gross income does not exceed I_2 (which equaled $10,240 in 1989, $11,840 in 1992, and $11,290, $11,620, or $5,000 in 1996, depending upon household composition—see Figure 1), then labor earnings is the appropriate income measure. For adjusted gross income above I_2, the appropriate income measure is the larger of the two (i.e., use adjusted gross income when it exceeds labor earnings, and otherwise use labor earnings).

The phase-in and phase-out rates vary depending upon household composition for 1992 and 1996; however, they do not vary for 1989. In 1989 a household with one qualifying child of any age would be subject to the same phase-in and phase-out rates as a family with several qualifying children. In 1989 the phase-in rate was 14 percent and the phase-out rate was 10 percent. The minimum income for the maximum credit (i.e., I_1) was $6,500 in 1989. Thus, the maximum credit, or plateau, in 1989 is found by multiplying $6,500 by 0.14 (equaling $910). After an adjusted gross income level of $10,240 (i.e., I_2), this maximum credit of $910 is reduced by $0.10 for every extra dollar of income until one reaches an income level of $19,340 (i.e., I_3) where the credit becomes $0.

Starting in 1992 the phase-in and phase-out rates vary for some households (though the three income marks, I_1, I_2, and I_3 remain the same for everyone). If a household has only one qualifying child the phase-in and phase-out rates are 17.60 and 12.57 percent**,** respectively. If that child happens to have been born in 1992, then these rates increase to 22.60 and 16.14 percent, respectively. If the household has two or more qualifying children then the two rates are 18.40 and 13.14 percent. Again, if one of these qualifying children was born in 1992 then the rates increase to 23.40 and 16.71 percent. Depending upon numbers and ages of the children in the household, four rate structures exist. With the minimum income for the maximum credit being $7,520 in 1992, the maximum credit will be one of four possibilities ranging from $1,324 to $1,760. These maximums define the four plateaus, which all have a common range from $7,520 to $11,840 ($I_1$ to I_2). At this point the different phase-out ranges take

effect so that they all result in the tax credit reaching $0 by the time income has increased to $22,370 ($I_3$).

One further note regarding the 1992 rates is in order. There is one additional credit available that will increase the EITC for certain households. This credit is the supplemental health credit, which applies only to individuals who paid, out of their own pocket, for any health premiums that included coverage for the qualifying child (or children). The size of the credit is determined the same way as the basic earned income credit (with phase-in and phase-out rates of 6.0 and 4.3 percent, respectively); however, the credit cannot exceed the actual premium payment itself. Once again, the CPS does not contain the kind of information to do this calculation. This program is a small and tangential part of the overall EITC program and it was dropped in the 1993 amendments. We ignore it here.

With the newly enacted rules for 1996, the phase-in rate, s_1, becomes 34.0, 40.0, and 7.65 percent for households with one child, two or more children, or no children, respectively. Similarly, the phase-out rate, s_2, equals 15.78, 21.06, and 7.65 percent for those same respective households. The infant bonus rate is dropped completely for 1996.

The plateau range differs for each type of household in 1996. For households with one child the plateau (i.e., I_1 to I_2) spans from $6,160 to $11,290, with a maximum credit of $2,094. For households with two or more children, I_1 is $8,900 and I_2 is $11,620, with a maximum credit of $3,560. For households with no children, I_1 is $4,000 and I_2 is $5,000, with a maximum credit equal to $306.

The income test to determine the size of the earned income credit for households without children in 1996 differs somewhat from that for households with children. Given that we now have an age test, practical problems can arise in the case of married couples where only one member of the couple meets the age test. Since specific guidelines on how to handle this situation were not available to us when we did our simulations, we chose a conservative route. We use only the labor earnings of household members who actually meet the age test to determine the size of the credit. If that measure

of labor earnings exceeds the right end of the plateau (I_2), we then use the larger measure of adjusted gross income or labor earnings for the entire household.

Note that this procedure is the same one used for households with children as long as both members of the couple meet the age test, which is true for the majority of the sample. However, for couples where only one member meets the age test, a significant discontinuity can occur with respect to the calculation of the credit. Before I_2 is reached only the labor earnings of the one member who meets the age test is counted, but after I_2 the entire couple's income is used.

We first estimated the credit based on the parameters that actually prevailed in 1989 and 1992. Then we altered the parameters (s_1, s_2, I_1, I_2, I_3) or the eligibility requirements in accordance with the newly enacted legislation and recalculated the new credit. The difference between our simulated proposed program and our simulated actual program is reported as the increase in program cost of our proposal to the government. This approach was taken for each of the income and demographic groups. Even though the EITC would actually shift some of the households into higher-income groups, all of our tables keep households in their original (i.e., before-tax credit) groups.

One further distinction is necessary with respect to 1989 versus 1992 and 1996. In order to account for the increase in the minimum wage from $3.35 in 1989 to $4.25 by 1991, we simulated this increase for low-wage workers and built that into our data set for the 1992 and 1996 calculations. Our description of the process of selecting which workers benefit from the increased minimum wage is discussed above. Their increase in yearly labor earnings was directly added into their yearly labor income as reported in the CPS. After this addition, all of the steps proceed as described above.

Finally, a brief discussion of potential biases is in order. As previously mentioned, our estimates of both labor income and adjusted gross income will be biased downward in some instances. For households in the phase-in range, only labor income counts. At these income levels our measure of labor income should be quite good, if our assumption that there are few or no other income sources for

these households is correct. Nevertheless, an underestimation of labor income in this region will result in an underestimation of the cost of the program.

Along the plateau, errors in calculating wage income will be less significant the farther away the household is from the kink point where the phase-out range begins (I_2). Underestimation of wage income would lead to overestimation of the cost of the program as some households on the plateau may actually be in the phase-out range.

The phase-out region is where biases will have their greatest effect. In this region, our estimate of adjusted gross income will generally determine the size of the credit. This measure is probably less precise as one moves toward the end of the phase-out range. Thus, we are more likely to overestimate the cost of the program in this region. All in all, our estimate of the overall cost of the EITC program will probably be overstated if, as data limitations force, we consistently underestimate the two income measures. Therefore our estimates can be considered a *worst-case scenario* as far as the expense to the federal government is concerned. The structure of the program is such that underestimating incomes results in a larger government expense.

Because we are using 1989 data we had to make some decisions regarding inflation. For our 1992 estimate, other than the adjustment for the new minimum wage, we left all other incomes at their 1989 levels. An increase based on inflation would increase the earned income credit for families in the phase-in range. However, most of these workers would be making the minimum wage we already imposed, and thus should not be affected by changes in inflation. The inflation effects would be felt instead in the phase-out range where underestimation of the cost would result. Thus, an adjustment for inflation would almost certainly reduce our estimate of the cost of the program. In our 1996 estimates we did adjust for inflation. We inflated all wages and income by the actual inflation rate through 1992. For workers whose hourly wage rate was still below $4.25, we increased it to that level. We then inflated all wages and income by the actual inflation rate to 1994. Thereafter we assumed a 3 percent

increase. We present these results in the text because the 1996 EITC rules anticipated inflation. This method reduces the estimated overall costs of the program but has little affect on the distribution of benefits.

Estimates based on the no inflation case are available on request.

APPENDIX B

TABLE 1B

Distribution of Wage Income Increases Due to an Increase in the Minimum Wage from $3.35 to $4.25

Income-to-Needs Ratio	Total Benefit (billions of dollars)	Number of Households (millions)	Mean Benefit per Household (dollars)	Distribution of Benefits (percentage)
Less than 1.00 (poor)	$1.27	1.16	$1,094	12.8
1.00 to 1.25	0.73	0.46	1,583	7.3
1.25 to 1.50	0.80	0.61	1,306	8.0
1.50 to 2.00	1.47	1.05	1,400	14.8
2.00 to 3.00	2.07	1.81	1,145	20.7
Greater than 3.00	3.63	3.40	1,069	36.4
Totals	$9.97	8.50	$1,174	100.0

Source: Estimated from outgoing rotation groups of the March 1990 Current Population Survey.

Note: Simulation assumes hours worked in 1989 would remain the same under the new minimum and all workers, regardless of wage earning per hour in 1989, would be eligible to receive $4.25 per hour.

TABLE 2B

Distribution of Earned Income Tax Credit Benefits in 1989 Using 1989 Rules

Income-to-Needs Ratio	Total Benefit (billions of dollars)	Number of Households (millions)	Mean Benefit per Household (dollars)	Distribution of Benefits (percentage)
Less than 1.00 (poor)	$1.87	3.20	$585	40.3
1.00 to 1.25	0.87	1.39	623	18.7
1.25 to 1.50	0.68	1.28	535	14.7
1.50 to 2.00	0.71	1.73	413	15.3
2.00 to 3.00	0.37	1.00	368	8.0
Greater than 3.00	0.14	0.33	428	3.0
Totals	$4.64	8.93	$520	100.0

Source: Estimated from outgoing rotation groups of the March 1990 Current Population Survey.

Note: Simulation assumes that all eligible workers apply for benefits and there is no change in work behavior.

TABLE 3B

Distribution of Earned Income Tax Credit Benefits in 1989 Using 1992 Rules

Income-to-Needs Ratio	Total Benefit (billions of dollars)	Number of Households (millions)	Mean Benefit per Household (dollars)	Distribution of Benefits (percentage)
Less than 1.00 (poor)	$2.88	3.20	$900	33.2
1.00 to 1.25	1.56	1.43	1,091	18.0
1.25 to 1.50	1.36	1.48	919	15.7
1.50 to 2.00	1.63	2.21	738	18.8
2.00 to 3.00	0.95	1.79	531	10.9
Greater than 3.00	0.30	0.47	638	3.5
Totals	$8.68	10.58	$820	100.0

Source: Estimated from outgoing rotation groups of the March 1990 Current Population Survey.

Note: Simulation assumes all eligible workers apply for benefits and there is no change in work behavior.

TABLE 4B

Distribution of Earned Income Tax Credit Benefits in 1989 Using 1992 Rules

Income-to-Needs Ratio	Total Benefit (billions of dollars)	Number of Households (millions)	Mean Benefit per Household (dollars)	Distribution of Benefits (percentage)
Less than 1.00 (poor)	$2.93	3.20	$916	39.9
1.00 to 1.25	1.37	1.40	979	18.7
1.25 to 1.50	1.08	1.30	831	14.7
1.50 to 2.00	1.15	1.79	642	15.7
2.00 to 3.00	0.59	1.05	562	8.0
Greater than 3.00	0.22	0.35	629	3.0
Totals	$7.34	9.09	$807	100.0

Source: Estimated from outgoing rotation groups of the March 1990 Current Population Survey.

Note: Simulation assumes all eligible workers apply for benefits and there is no change in work behavior.

TABLE 5B

Distribution of Earned Income Tax Credit Program in 1989 Using 1996 Rules

Income-to-Needs Ratio	Total Benefit (billions of dollars)	Number of Households (millions)	Mean Benefit per Household (dollars)	Distribution of Benefits (percentage)
Less than 1.00 (poor)	$6.79	3.38	$2,009	39.1
1.00 to 1.25	3.16	1.94	1,629	18.2
1.25 to 1.50	2.64	1.77	1,492	15.2
1.50 to 2.00	2.85	2.85	1,000	16.4
2.00 to 3.00	1.41	1.94	727	8.1
Greater than 3.00	0.53	1.02	520	3.0
Totals	$17.38	12.90	$1,347	100.0

Source: Estimated from outgoing rotation groups of the March 1990 Current Population Survey.

Note: Simulation assumes all eligible workers apply for benefits and there is no change in work behavior.

Endnotes

[1]Brandon (1995) puts a modern-day public policy spin on this old controversy by showing that one low-wage group of great interest to policymakers whose employment prospects are harmed by minimum wages is the AFDC population. He argues that states with minimum wages set above the federal minimum observe longer spells of AFDC and lower rates of exit from the program.

[2]This argument relies on a market for low-skilled labor with upward sloping supply and downward sloping demand curves. The current debate centers more on where the minimum wage is positioned relative to the market wage and market structure as opposed to the slopes of these curves.

[3]Card and Krueger (1995) also argue in chapter 6 that there has been a systematic bias in the economics profession toward publishing negative relationships between minimum wage increases and employment.

[4]For a full statement of this argument, see chapter 11 of Card and Krueger (1995b).

[5]Wessels (1994) develops a theory of monopsony which applies to restaurants where tips constitute a significant share of compensation. Through scheduling practices, restaurants can alter the tips received by servers. To keep compensation constant while increasing employment with a constant scale of production requires raising base compensation, which represents an alteration in marginal cost to the firm. This argument cannot be extended to fast-food settings such as those examined by Katz and Krueger (1992) and Card and Krueger (1994).

[6]In a comment on Neumark and Wascher (1992), Card, Katz, and Krueger (1994) raise questions concerning the school enrollment measure and the Kaitz index, which are each used in the study, as well as questions concerning the importance of subminimum wage rates. Neumark and Wascher (1994) have a response to these concerns, which are further discussed in Card and Krueger (1995, chapter 7).

[7]See Hoffman and Seidman (1990)and Scholz (1993–94) for histories of the EITC.

[8]A paper in a similar vein by Browning (1995) investigates the predicted changes in disposable

income for individuals under the EITC and focuses primarily on the phase-out range of income. He estimates that disposable incomes will be reduced for many families in this range. He also estimates that once behavioral reactions to the EITC are allowed, the marginal net benefit per dollar of expenditure is less than 50 cents.

[9]The House version of the Kennedy-Hawkins bill (vetoed by President Bush in 1989) would have raised the minimum wage to the 50 percent level and indexed it thereafter.

[10]The data in tables 1 and 2 come from the 1 percent samples of the 1940 and 1950 census, the 1/1,000 samples of the 1960, 1970, and 1980 censuses, and the March 1990 Current Population Survey. The average hourly earnings in the year preceding each census or survey was obtained by dividing the respondent's reported wage or salary income that year by the product of estimated usual weekly hours worked that year times estimated weeks worked that year. We limited our study to 17-to-64-year-old wage and salary workers who worked at least 14 weeks in the preceding year and at least 15 hours in the census or survey week. (A detailed summary of estimation procedures and data issues is presented in Appendix A.) In subsequent tables, we use the actual hourly wage reported by the 25 percent of the 1990 CPS for which we have both current wage and past year income values. In these tables we use all workers aged 17 to 64 regardless of hours worked.

[11]A household consists of all persons who occupy a housing unit. Families, both single and two-parent, represent by far the most common household type.

[12]See Burkhauser and Finegan (1989) for a fuller discussion of this transformation.

[13]The R^2 coefficient shows the proportion of the total variation in household income-to-needs ratios that can be explained by variations in these low-wage workers' wage rates.

[14]Although average hourly labor earnings are calculated for salaried employees, the distribution of wages that results still closely matches the published estimates for hourly employees alone. For example, including nonhourly workers, 1.96 percent of the population have a wage of less than $3.35 an

hour based on our figures versus a published estimate (Statistical Abstract of the United States 1990) that 2.2 percent of those paid hourly receive a wage of less than $3.35 per hour.

[15]The FLSA excludes certain workers from coverage. In general, the law excludes those workers who are employed by firms with less than $500,000 in sales. This exemption is narrowed by the inclusion of *any* employee directly or indirectly involved in interstate commerce (e.g., communications, transportation, as well as those who use the mail, telephone, or telegraph for interstate communication).

[16]Bureau of Labor Statistics unpublished figures, as provided in the Statistical Abstract of the United States, indicate that 5.3 percent of private sector workers were not covered by the FLSA in 1989. Our assumptions result in the exclusion of 1.29 percent of private sector employees.

[17]Here, as elsewhere, we assume all workers earning between $3.00 and $4.25 per hour were in covered employment while those earning less than $3.00 per hour were not covered by the minimum wage.

[18]As discussed above, we assume workers who report hourly wages below $3.00 are not covered by minimum wage legislation.

[19]A new book by Card and Krueger (1995b, chapter 9) also considers distributional impacts of changes in the minimum wage. Their analysis focuses on deciles while we use poverty definitions to identify the working poor. Our results can be roughly compared to theirs by using the information contained in Table 4. For example, the first decile of earnings extends to approximately 1.5 times the incomes-to-needs ratio based on information in column 8.

[20]In 1994, the EITC was extended to workers aged 25 to 65 who live in poor households without children. The distribution of benefits from those new rules will be discussed below.

[21]The purpose of our simulations is not to measure the exact cost of raising the minimum wage in 1995. To do so we would use more recent data that reflects actual changes in the economy since 1990. Rather we are interested in how the distribution of benefits would change. We believe our simplified

models provide reasonable approximations of this distribution. To estimate the cost of EITC changes that will be put in place for 1996, we adjust for actual and expected inflation. In simulations not reported which do not adjust for inflation, the 1996 cost of the EITC was $20 billion. While program costs are higher in the no-inflation case, the distribution of benefits is not greatly changed. (See Appendix A for a fuller discussion.)

[22]Because the 1996 EITC rules anticipated changes in inflation, in the simulating reported in Tables 9 and 10 we assume that all prices and wages increase by the actual inflation rate between 1989 and 1994 and by 3 percent thereafter. For those who are estimated to earn below $4.25 per hour in 1992 we raise their wage to $4.25 and by actual or estimated inflation thereafter. We reported this exercise with no change for inflation. The absolute costs of the program increase but our distributional points hold. (See Appendix A for a fuller discussion.)

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