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**PUBLIC POLICIES FOR THE WORKING POOR:
THE EARNED INCOME TAX CREDIT VERSUS
MINIMUM WAGE LEGISLATION**

**Richard V. Burkhauser
and Andrew J. Glenn**

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ABSTRACT

This paper first documents the decades-long erosion of the link between low wages and low household income. It then simulates the consequences of this determination on the relative gains of programs designed to help the working poor—minimum wage increases under the Fair Labor Standards Act and increases in the Earned Income Tax Credit (EITC). Using data from the Current Population Survey it is found that increases in the EITC between 1989 and 1992 were far more target-efficient than was the increase in the minimum wage from \$3.35 to \$4.25 and that the 1993 extension of the EITC is far more target-efficient than raising the minimum wage from \$4.25 to \$5.00. The paper concludes that the EITC is a far more effective mechanism for targeting low income workers than are increases in the minimum wage.

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TABLE OF CONTENTS

	Page No.
The Minimum Wage and the Working Poor	2
The Tenuous Link Between Low Wages and Poverty	5
Who Gained from the 1989 Amendments to the Fair Labor Standards Act	11
Estimating Wages from CPS Data	11
Who Gained from Increases in the Earned Income Tax Credit (1989-1992)	14
Future Policies for Rewarding the Working Poor	18
How the 1993 Changes in the EITC Will Affect the Poor	20
Conclusions	28
Appendix	32
Endnotes	53
References	54

LIST OF TABLES AND FIGURES

No.	Title	Page No.
Tables		
1	The Distribution of Low-Wage Workers across the Income Distribution: 1939-1989	6
2	Values of R^2 between Hourly Wages and Household Income-to-Needs Ratios for Workers Earning Less Than the Median Wage: 1939-1989	9
3	Distribution of Wage Income Increases Due to an Increase in the Minimum Wage from \$3.35 to \$4.25	12
4	Earned Income Tax Credit Parameters, 1975-92	15
5	Distribution of Benefits from Earned Income Tax Credit Program from 1989 to 1992	17
6	Distribution of Wage Income Increases Due to an Increase in the Minimum Wage from \$4.25 to \$5.00	21
7	Earned Income Tax Credit Parameters in 1992 and 1996	24
8	Distribution of Increased Benefits from Earned Income Tax Credit Program Change from 1992 to 1996 for Those with Children	26
9	Distribution of Increased Benefits from Earned Income Tax Credit Change from 1992 to 1996 for Those Without Children	27
1A	Distribution of Wage Income Increases Due to an Increase in the Minimum Wage from \$3.35 to \$4.25	50
2A	Distribution of Earned Income Tax Credit Benefits in 1989 Using 1989 Rules	51
3A	Distribution of Earned Income Tax Credit Benefits in 1989 Using 1992 Rules	52
4A	Distribution of Earned Income Tax Credit Program in 1989 Using 1996 Rules	53
Figures		
1	EITC Program Rules in 1992 and in 1996 (One Child)	23
1A	Proposed EITC Program Rules	49

PUBLIC POLICIES FOR THE WORKING POOR: THE EARNED INCOME TAX CREDIT VERSUS MINIMUM WAGE LEGISLATION

Half a century ago the best medical practice for a child with pneumonia was aspirin, fluids, and plenty of prayer. The development of antibiotics would make that same treatment the subject of a major malpractice suit today. Similarly the establishment of a minimum wage to lift the children of the working poor out of poverty was "best practice" social policy in the 1930s. But the advent of the Earned Income Tax Credit (EITC) makes advocates of a rise in the minimum wage as a means of helping the children of today's working poor equally guilty of social policy malpractice.

In this paper we first document the decades-long erosion of the link between low wages and low household income which makes minimum wage legislation in the 1990s an exceptionally ineffective mechanism for helping poor working families. We demonstrate the consequences of this deterioration by simulating how the benefits of the 1989 Amendments to the Fair Labor Standards Act (which increased the minimum wage from \$3.35 per hour to its current level of \$4.25 per hour) were distributed. This increase in the minimum wage increased earnings by \$4.2 billion. We find that upper income households—defined here as households with incomes at least three times the poverty level (\$14,343 for a family of four in 1992)—benefitted more from that minimum wage increase than did poor families. While households below the poverty line received 17 percent of the increased earnings from the higher minimum wage, upper income households received more than twice as much. We compare these results with the increases in the EITC between 1989 and 1992—a change also costing \$4.2 billion—which provided three of every ten of those dollars to poor families with children—almost double the effect from the minimum wage, most of the rest to near poor families, and virtually nothing to upper income households.

Second, we move to current legislative initiatives and trace the income distribution implications of the 1993 expansion of the EITC. We show that by 1996, after all its components are put

in place, two-thirds of the \$11 billion cost of this program will go to workers who live in poor or near-poor families. In contrast, only 27 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. We conclude that the link between low wages and low income is so remote that increases in the minimum wage are an outmoded and ineffective mechanism for helping the working poor and should be abandoned in favor of the EITC.

The Minimum Wage and the Working Poor

Franklin Roosevelt's impassioned speech calling 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 (Roosevelt, 1937). This Act 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: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 bound one-half of a century over which the minimum wage has not only been a litmus test for politicians seeking the support of organized labor, but has been seen by the public at large as a socially just exercise of government regulatory power. In a July 20, 1993 memorandum to President Clinton, Secretary of Labor Robert Reich appears to once again take up the banner of the minimum wage by declaring: "It is now time to investigate what minimum wage reforms may be appropriate

... To achieve the goals of making work pay, the minimum wage should be raised and then indexed" (as quoted in *The Wall Street Journal*, August 15, 1993).

The crusade for minimum wage and maximum-hours legislation spans the entire Twentieth Century, and its continued support is based in part on the important legal and political precedents its establishment created. Resistance to the minimum wage first centered over its constitutionality. The nineteenth-century view that the right to contract was part of the liberty protected by the 14th 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 that case the Supreme Court nullified a New York State law establishing maximum hours of work. In time the dissent espoused by 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. Parish* (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..."

Thus, by 1938 popular support for the minimum wage was based not only on its potential to provide a living wage for the working poor, but by a growing majority who believed that legislatures could and should 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 centered around the position taken by the great majority of economists that a minimum wage set above the competitive market wage would reduce employment of the workers it was designed to help. These economic points were first formally summarized in Stigler (1946) and consist of 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.

More than four decades of empirical studies leave little doubt that increases in the minimum wage reduce employment to some extent.¹ (See Wessels (1980); Brown, Gilroy and Kohen (1982); and Brown (1988) for reviews of the literature on the employment effects of minimum wages.) Yet it is unlikely that the losses are large enough to end public support, although concern over teenage unemployment did play a role in the establishment of a sub-minimum wage in the 1989 Amendments to the Fair Labor Standards Act. Rather, it is the message in the latter part of Stigler's article—questioning the target efficiency of the minimum wage and advocating an alternative remedial policy—that may finally end the use of minimum wage policy as a means of helping the working poor.

The essence of Stigler's argument made in 1946 was that "the connection between hourly wages and the standard of living of a family is remote and fuzzy" (Stigler, 1946, p. 363). Hence, he argued that earning a low wage may not be synonymous with living in a low income household. The reason is that 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. Unfortunately, Stigler offered little empirical evidence to support this claim. In an earlier series of papers, discussed below, Burkhauser and Finegan have brought important new evidence on this issue to light.

The Tenuous Link Between Low Wages and Poverty

From its inception in 1939 until the mid-1980s, the minimum wage fluctuated between 45 and 56 percent of the average private-sector wage, where the average private-sector wage is 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 trended down thereafter and hit a low of about 37

percent in the year prior to the passage of the 1989 Amendments to the Fair Labor Standards Act. In 1992 it was about 42 percent of the average private-sector wage.

In the first half of the Twentieth Century, when the typical household had only one worker and when social programs to assist low income households were scarce, a low wage might directly translate into a low household income. But in the 1990s this translation is much "fuzzier." This changing relationship between low-wage workers and household income is shown in Table 1, which builds on the work in Burkhauser and Finegan (1989). Since one aim of minimum wage advocates is to peg the minimum wage at 50 percent of the average private-sector wage,² we have defined a low-wage worker as one whose wages fall below that 50 percent threshold.³

Our measure of economic well-being is the income-to-needs ratio. Except in 1939, this is the ratio of total household income to the official poverty line for the appropriate size household. Values of the poverty line for different years were adjusted for changes in the consumer price index. Unfortunately, the 1940 Census did not ask respondents how much income they received from sources other than wages or salaries in 1939. Therefore, for that one year, our measure of well being is the ratio of the household's wage or salary earnings to its poverty level. This omission will have 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. (In 1992 the official federal government poverty line for a household of four was \$14,343.) A low wage worker living in a household with income three or more times the poverty line—\$43,029 for a family of four in 1992—would be in the "three or above" row.

In 1939, 85 percent of low wage workers lived below the poverty line. Almost all, 94 percent, of low-wage workers who were also head of households lived in a poor household. None lived in a

household with income at least three times the poverty line. Not only were low wage workers very likely poor, their chances of being poor were increased if they were the head of a household.⁴

Over the second half of the Twentieth Century the view that holding a low wage job is synonymous with living in poverty has become much more difficult to justify. Low wage workers became increasingly less likely to be poor, regardless of whether they headed 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. But the link between low wages and poverty is even more tenuous because even in 1939 the great majority of low-wage workers were not heads of households but rather second or third earners in those households. As can be seen in the bottom two rows of Table 1, in 1939, 34 percent of low-wage workers were heads of households and 31 percent were heads of poor households. By 1989 only about one low-wage worker in five was a household head and less than one low-wage worker in 10 actually headed a poor household.

The New Deal image of low-wage workers struggling to earn a living for their families is as poignant today as it was in the 1930s, but this image fails to describe today's 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 are positioned across the income distributions, not just household heads. 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 with respect to who is 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 \$43,029 for a household of four in 1992); by 1989, the shares of low wage workers at the two extremes of the income distribution

reversed so that 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.⁵

Table 2, which is updated from Burkhauser and Finegan (1993) uses the same data sources as Table 1 to more formally show how tenuous the link between wages and household income has become. This table presents a matrix of coefficients of determination⁶ (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. In Table 2, low-wage workers are classified by household status. In 1939, the first year the minimum wage was put into effect, 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, the dominant 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. Hence, in 1939 the R^2 for this group was .204 and it dropped to one-fourth that level by 1989—to 0.054. Because unrelated individuals live alone, one would expect the strong relationship between their wage rate and their household income evidenced in Table 2. The correlation is consistently three times or more that of heads and other household members. Household income, as Stigler pointed out, is dependent 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.

The end of the relationship between low wages and low household income has had a profound affect on the ability of minimum wage increases to target additional income to the working poor. The most recent increase in the minimum wage offers overwhelming proof of this reality.

Who Gained from the 1989 Amendments to the Fair Labor Standards Act?

Most previous studies of the effect 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.) Rather, it has at least implicitly been assumed that such households were poor. As shown above, this assumption has become increasingly unrealistic. In Table 3 we simulate how the earning gains from the 1989 Amendments to the Fair Labor Standards Act, which increased the minimum wage from \$3.35 to \$4.25, were allocated across households of different income.

Estimating Wages from CPS Data

There are two kinds of earnings data in the March 1990 file of the *Current Population Survey* (CPS): retrospective data relating to the previous year (1989) and more exact data for March 1990. We used the former to derive estimates of hourly wages and the number of low-wage workers that were comparable to those obtained from the earlier censuses. These estimates appear in Tables 1 and 2. We use the contemporaneous and more accurate earnings data in our estimation of the allocation of benefits from changes in the minimum wage.

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 labor earnings is required. For the *ex ante* distribution of hourly labor earnings in our simulations, we used the reported hourly wage rate for hourly paid workers and the ratio of usual weekly labor earnings to usual hours worked for others. All income data, however, come from retrospective information from the previous year.

The 1989 Amendments took place in a two step process and were not fully put in place until 1991. We simplify our analysis by focusing on the fully phased in value of the higher minimum wage and abstracting from the two-step transition. Further, we assume that the minimum wage increase had no effect on the number of workers employed or on the number of hours they worked. Hence, we ignore all the negative employment effects of the minimum wage so often cited by economists. We further ignore the economy-wide effects of an increase in the minimum wage on inflation, poverty thresholds, and on the relative prices of goods and services consumed by the poor. Effects of higher earnings on personal income taxes and on the receipt of transfer payments are also neglected. Hence, we believe our results offer a best possible case for the advocates of an increase in the minimum wage.

We limit the impact of a higher minimum 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.⁷ (For a fuller discussion of our assumptions, see the Appendix.)

Column 2 of Table 3 shows that the last minimum wage increase cost employers and consumers of their products \$4.2 billion annually 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 of Table 3, 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 \$43,029 for a family of four in 1992—received 36 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 are shown to be captured by 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. Only 15 percent of the gains from the minimum wage hike went to blacks and only 6 percent to blacks living in poverty. For every dollar going to a poor black worker living in poverty, more than five dollars went to upper income non-black households. Members of another vulnerable group often thought to be helped by minimum wage hikes are female-headed households with children. While these households did benefit from the minimum wage hike—28 percent of all wage gains went to such households—as we will see, the size of the gain is modest when compared to the gains from the EITC.

Who Gained From Increases in the Earned Income Tax Credit (1989-1992)

The Earned Income Tax Credit was enacted in 1975 to offset the Social Security payroll tax payments of low-income workers with children. Because it is meant to offset social security taxes and not federal income taxes, it is paid to workers even if the credit exceeds their federal income tax payments. Indeed, for the majority of EITC recipients their credit does exceed their federal income tax payments. As shown in Table 4, the credit as originally enacted equalled 10 percent of the first \$4,000 of labor earnings. This provided a low-income worker with 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 (17.4 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, 1992.)

In 1989 the minimum wage was \$3.35 per hour. The 1989 Amendments to the Fair Labor Standards Act increased those wages to \$4.25 by 1992 for all workers regardless of the economic circumstances of their household. Essentially, the EITC can be thought of as providing a selective "minimum wage" boost. The EITC effectively increases the minimum wage received by low-wage workers who live in low income households with children.⁸ Thus, one can see that 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.

But as Table 4, shows between 1989 and 1992, Congress increased the EITC marginal credit rates from 14 to 17.6 (18.4) percent for eligible workers with one (two or more) child. Hence, even if the 1989 FLSA Amendments were not 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 was an alternative method of raising the wages of low wage workers with children who live in poor households.

In Table 5 we simulate 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 3, in our EITC simulation we ignore all behavioral effects and assume the EITC has no effect on the number of workers employed or on the number of hours they worked.

Column 2 of Table 5 shows that such EITC increases would have cost taxpayers \$4.2 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 63 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 ten times as many benefits to workers in poor households than to workers in upper income households. The EITC increased earnings of poor households by 1.2 billion with a total of 2.6 billion going to poor as well as near-poor households. In contrast the minimum wage increase to \$4.25 increased the earnings of poor households by only \$0.7 billion with a total of only \$1.3 billion to poor and near-poor households.

Not only did more of the total dollars from and EITC increase flow to poor and near-poor households, more of these dollars also went to groups which have been the specific target of social policy. Blacks received 21 percent of all EITC benefit hikes, 40 percent more than they received from the higher minimum wage. Blacks living in poverty received 8 percent, a one-third increase over that provided by the minimum wage hike. Furthermore, for every dollar going to a poor black worker living in poverty, only \$.38 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 that we found with respect to the minimum wage. Single female-headed families received 40 percent of all EITC credits but only 28 percent of the minimum wage hike.

Future Policies for Rewarding the Working Poor

The previous section demonstrated how the dramatic transformations in the work force that have taken place over the past half century diminished the value of minimum wage legislation as a policy tool for helping the working poor. Because the link between low wages and low household income is now almost completely broken, it makes little policy sense to use wages as a proxy for income status in our attempts to improve the economic well-being of workers living in poor households. Nor is the minimum wage a particularly good mechanism for aiding minorities or single female-headed households. But, what must surely ring the death knell for minimum wage policy as a mechanism for transferring income to the working poor is the rise of the Earned Income Tax Credit. The EITC is a far superior mechanism for

raising the minimum wage of workers in low income household without directly affecting the wages of those in higher income households.

As discussed earlier, the 1989 Amendments to the FLSA have been criticized as not going far enough in raising the wages of the working poor. In a July 20, 1993 memorandum to President Clinton, Secretary of Labor Robert Reich advocated an increase in the minimum wage as a means of helping poor people. Clearly, the lessons of the 1989 Amendments have not been learned.

In this section we provide further evidence of the folly of using minimum wage legislation to redistribute income to the working poor by calculating how the labor earnings gain 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 one-half the average private sector wage in 1992. Once again we simplify the analysis by assuming 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. We once again use data from the 1990 *Current Population Survey*, this time to estimate baseline income in the presence of both a \$4.25 minimum wage and 1992 EITC rules. (See the Appendix for a fuller discussion of these values.)

Column 2 of Table 6 shows that a minimum wage increase to \$5.00 would cost \$9.7 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. Once again, a minimum wage hike would be of some benefit to low wage workers living in poverty. But, as can be seen in column 4 of Table 6, workers living in poor households will receive only 14 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 will receive 34 percent of the wage hike. The share going to poor and near-poor—27 percent—is also lower than last time. Blacks would once again receive 15 percent of all increases, but poor blacks would receive only 4 percent. For every dollar going to a poor black worker living in

poverty, nearly eight dollars would go to upper income non-blacks. Single female-headed households would also receive a smaller share of the benefits than last time—25 percent.

How the 1993 Changes in the EITC Will Affect the Poor

We have shown that raising the minimum wage to \$5.00 would be a costly policy, with most of its rewards being captured by non-poor households. These results suggest that using 1930s remedies to treat the working poor of the 1990s is, at best, questionable public policy. This is even more the case given the dramatic increases in the EITC which are scheduled to be phased in over the next years. In evaluating the impact of these changes on the working poor, it is once again 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 we are analyzing here. It will take an additional \$9.7 billion in labor costs for a minimum wage hike to achieve this same result for other, better off, low-wage workers.

Of course any new increases in the minimum wage would even further increase the well-being of those 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 would choose a target wage or a target amount to be transferred to the working poor and use EITC policy to achieve such explicit policy goals than to once again return to the outmoded policy of minimum wage hikes.

The expansion and simplification of the earned income tax credit is one of the most significant piece 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, those 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. In the simulations that follow we provide a first approximation of how the increased benefits will be distributed using 1996 rules. To be consistent in making comparisons with Table 6 results, we again use as our benchmark 1989 wage and income information adjusted to include a \$4.25 minimum wage and 1992 EITC rules.

Figure 1 and Table 7 show how the full EITC benefits that will come on line in 1996 will differ from those in place in 1992. The credit rate will nearly double for poor workers with one child and the maximum benefit will increase by over 50 percent. The rewards are even greater for poor workers with two or more children for whom the credit rate will double and the maximum benefit will more than double from \$1,384 to \$3,033. The phase out rates are increased modestly and the income at which all benefits are lost is increased. Increases of this magnitude in the EITC credit rate will have dramatic effects on the returns to work for low income workers with children. For an eligible worker earning the minimum wage of \$4.25 per hour, their wage including the credit will jump to \$5.70 per hour if they have one eligible child and to \$5.78 per hour for those with more than one child.

The EITC benefits for those with no children are substantially more modest. The credit is only 7.65 percent and the maximum benefit is \$306. For eligible workers without children and earning the minimum wage, their wage, including the credit, would be \$4.58.

In column 2 of Table 8 we show that applying 1996 EITC rules to workers in households with children in 1989 would have cost taxpayers an additional \$10.8 billion, very close to the \$9.7 billion estimated from increasing the minimum wage to \$5.00. (Table 7A in the appendix shows that the total estimated cost of the 1996 program would be close to \$20 billion.) Column 4 shows how those benefits will be distributed across the income distribution. Workers living in or near poverty will receive nearly two-thirds of all benefits. In contrast to a minimum wage hike to \$5.00, in which upper income households would gain more than poor households, the EITC increases will provide 17 times more income

to workers in poor households than to workers in upper income households. Blacks will receive 21 percent of all benefits, and poor blacks 9 percent. In contrast, blacks would receive only 15 percent of a minimum wage hike to \$5.00, and poor blacks only 4 percent. Single female headed households will receive 40 percent of the EITC increase but only 25 percent of the minimum wage increase.

We perform a similar simulation of the effect of the 1996 rules on eligible workers without children. Column 2 of Table 9 shows that the new benefits for such workers are much more modest in scope. They will cost \$617 million. The poor and near-poor would receive three-quarters of these benefits. Blacks would receive 16 percent, and poor blacks 8 percent.

Conclusions

Support for the minimum wage has not only been a litmus test for politicians seeking the support of organized labor, but has also been seen by the public at large as a socially just exercise of government regulatory power. Criticism of minimum wage policy has primarily centered 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 abandoning the minimum wage as a policy for social change. We have shown that 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 be wildly inaccurate in the distribution of those benefits. We showed that 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. We then simulated the results of increasing the minimum wage from \$4.25 to \$5.00 per hour and found the returns across the

income distribution to be even more heavily weighted toward workers who live in upper income households.

The Earned Income Tax Credit 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. And the 1993 expansion of the EITC, which will phase in by 1996, will more effectively target additional income on low wage workers in or near poverty than any new 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 \$5.78 per hour. The great majority—75 percent— of these EITC-based expenditures will go to poor or near-poor workers. Only a small fraction, 2 percent, will go to upper income workers. Blacks will receive 21 percent of all benefits and female-headed families will receive 40 percent of all benefits. Hence, on income distribution grounds, the EITC program is clearly superior to further increases in the minimum wage.

But there are two additional reasons to permanently displace the minimum wage with the EITC as the policy tool of choice for increasing the effective earnings of low-income workers. The first reason recognizes the traditional economist's criticism of the behavioral effects of the minimum wage. At best, increasing the minimum wage will have no negative affect on employment. But, in fact, most empirical studies have found that hikes in the minimum wage reduce employment. And in the case of teenagers, the unemployment effect can be substantial. The EITC has no direct negative effect on the demand for labor since benefits are paid through the tax system rather than as mandated expenses paid by employers. For very low income workers, the EITC is likely to increase their desire to work since it supplements private wages with a government credit. At higher incomes, when the credit phase out begins, however, the EITC acts like a tax and will discourage work. Additional study is necessary to test the behavioral effects of the EITC on the overall supply of labor.⁹ But there can be no doubt that

per dollar generated for poor or near-poor families, the reduced employment effect of the EITC will be substantially less than that caused by a minimum wage hike.

A second and more fundamental issue centers on the factors causing low wages to be paid in the first place and who is responsible for providing more resources to those earning low wages. Many early Twentieth Century social reformers argued that low wages were caused by an unequal distribution of power in the hands of big business. Thus, it was necessary for government to ensure a living wage for workers. Few believe that an "unlevel playing field" is the principal reason some American workers still earn wages below \$5.00 per hour in the 1990s.

The fact is that for most low wage workers today, their current wages represent the actual value of the product they produce for the firms who hire them. Rather than large corporations, the vast majority of these employers are smaller firms which operate in highly competitive markets—restaurants, retail sales, etc. It is difficult to argue that such firms have sufficient market power to pay below competitive wages to their workers. Nonetheless, for those low wage workers who live in or near poverty, especially those who are raising children, there are compelling social reasons to provide them and their families with greater income until they acquire the education, skills, and training to earn higher wages on their own. And most Americans would prefer to provide this help in a way that encouraged work. Hence, transfer payments tied to wages are a much more popular policy for providing additional resources to low income families with children than are welfare programs like Aid for Dependent Children.

Both the minimum wage and the EITC succeed in providing the working poor with higher effective wages than they would have received in the absence of these programs. As we have shown, by increasing the wage of workers regardless of their individual circumstances, the minimum wage is a far more costly method of shifting income to the working poor. But more fundamentally it is not obvious why *employers* should bear the burden of redistributing income to the working poor.

Ironically, perhaps the last great barrier to the shift to a complete EITC approach to providing additional income to the working poor is an unwillingness of Congress to directly confront the cost of this transfer goals. Even though a minimum wage policy is inferior to the EITC on both behavioral and income distributional grounds, raising the minimum wage allows Congress to achieve "morality on the cheap" by shifting the cost of this redistribution off the government books and onto employers and their customers. But as this paper has demonstrated, the social costs for this sleight-of-hand trick are formidable. The minimum wage, the great hope of social reformers of the early Twentieth Century, has turned out to be the wrong remedy for the working poor of our time. While it is appropriate to recognize the historical significance of the social struggle for a minimum wage, it is time to stop paying homage to the past and use the EITC as the mechanism for providing temporary aid to the working poor until they acquire the skills necessary to earn "a living wage" on their own.

TABLE 1
THE DISTRIBUTION OF LOW-WAGE WORKERS ACROSS THE
INCOME DISTRIBUTION: 1939-1989
(in percentage)

Income-to-Needs Ratio	1939 ^a		1949 ^b		1959	
	Heads of Households ^c	All Workers ^d	Heads of Households ^c	All Workers ^d	Heads of Households ^c	All Workers ^d
Total 100 (poor) workers who were heads of:	100	100	100	NA	100	100
households	34	---	31	---	29	---
poor households	31	---	24	---	18	---
	1969		1979		1989	
Less than 1.00 (poor)	45	23	37	20	37	22
1.00 to 1.24	13	9	13	7	13	9
1.25 to 1.49	9	7	9	7	10	8
1.50 to 1.99	11	14	13	12	12	12
2.00 to 2.99	13	20	16	20	15	19
3.00 or above	<u>10</u>	<u>27</u>	<u>12</u>	<u>34</u>	<u>13</u>	<u>30</u>
Total	100	100	100	100	100	100
Percent of all low-wage workers who were heads of:						
households	25	---	21	---	22	---
poor households	11	---	8	---	8	---

^aIncome-to-needs ratio in 1939 excludes income from sources other than wages and salaries (see appendix).

^bData 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).

^cWorking Head-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.

^dTabulations 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.

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

TABLE 2

**VALUES OF R² BETWEEN HOURLY WAGES AND HOUSEHOLD
INCOME-TO-NEEDS RATIOS FOR WORKERS EARNING LESS
THAN THE MEDIAN WAGE: 1939-1989^a**

Year	Median Wage	Values of R ² for:			
		Heads of Households	Other Household Members	Unrelated Individuals	All Workers
1939 ^b	\$0.48	.241	.204	.667	.207
1949 ^c	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

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

^bIncome-to-needs ratios in 1939 exclude income from sources other than wages and salaries (see Appendix).

^cOwing to unusual sampling procedures in the 1950 Census (see Appendix), data for all workers and other family members are not available for 1949.

Source: Updated table from Burkhauser and Finegan (1993).

TABLE 3

**DISTRIBUTION OF WAGE INCOME INCREASES DUE TO AN INCREASE
IN THE MINIMUM WAGE FROM \$3.35 TO \$4.25^a**

Income-to-Needs Ratio	Total Benefit (\$ billion)	Mean Benefit Per Household (\$)	Distribution of Benefits (percentage)			
			Total	Blacks	Non-Blacks	Single Female-Headed Households
Less than 1.00 (poor)	\$0.7	\$874	17	6	11	11
1.00 to 1.25	0.2	760	5	1	4	2
1.25 to 1.50	0.4	786	9	2	7	2
1.50 to 2.00	0.5	728	12	2	10	5
2.00 to 3.00	0.9	760	21	2	19	5
Greater than 3.00	1.5	745	36	3	33	3
All Households	\$4.2	\$769	100	15	85	28

^aSimulation 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 1A for the cost of increasing the minimum to \$4.25 but including those earning less than \$3.00 per hour.)

Source: Estimated from the March 1990 *Current Population Survey*.

TABLE 4

EARNED INCOME TAX CREDIT PARAMETERS, 1975-92^a

Calendar Year	Credit Rate (percent) ^b	Minimum Income for Maximum Credit	Maximum Credit	Phaseout Rate (percent)	Phaseout Range	
					Beginning Income	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

Source: U.S. House of Representatives (1992).

TABLE 5

DISTRIBUTION OF BENEFITS FROM EARNED INCOME TAX CREDIT PROGRAM FROM 1989 TO 1992

Income-to-Needs Ratio	Total Benefit (\$ billion)	Mean Benefit Per Household (\$)	Distribution of Benefits (percentage)			
			Total	Blacks	Non-Blacks	Single Female- Headed Households
Less than 1.00 (poor)	\$1.2	\$338	30	8	22	12
1.00 to 1.25	0.7	486	17	3	14	5
1.25 to 1.50	0.7	455	16	3	13	6
1.50 to 2.00	0.9	410	21	4	17	9
2.00 to 3.00	0.5	321	13	2	11	7
Greater than 3.00	0.1	359	3	0	3	2
Totals	\$4.2	\$386	100	21	79	40

^aSimulation 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 Table 2A and 2B.)

Source: Estimated from the March 1990 *Current Population Survey*.

TABLE 6

**DISTRIBUTION OF WAGE INCOME INCREASES DUE TO AN INCREASE IN THE
MINIMUM WAGE FROM \$4.25 TO \$5.00^a**

Income-to-Needs Ratio	Total Benefit (\$ billion)	Mean Benefit Per Household (\$)	Distribution of Benefits (percentage)			
			Total	Blacks	Non-Blacks	Single Female- Headed Households
Less than 1.00 (poor)	\$1.4	\$1,065	14	4	10	9
1.00 to 1.25	0.6	1,008	6	1	5	2
1.25 to 1.50	0.7	1,142	7	1	6	2
1.50 to 2.00	1.4	1,056	15	3	12	4
2.00 to 3.00	2.3	1,045	24	3	21	5
Greater than 3.00	3.3	922	34	3	31	3
Totals	\$9.7	\$1,008	100	15	85	25

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

Source: Estimated from the March 1990 *Current Population Survey*.

TABLE 7

EARNED INCOME TAX CREDIT PARAMETERS IN 1992 AND 1996

	Rules	Credit Rate (percent) ^b	Minimum Income for Maximum Credit	Maximum Credit	Phaseout Rate (percent)	Phaseout Range	
						Beginning Income	Ending Income
One child	1992	17.6	\$7,520	\$1,324	12.57	\$11,840	\$22,370
	1996	34.0	6,000	2,040	15.78	11,000	23,766
Two children	1992	18.4	7,520	1,384	13.14	11,840	22,370
	1996	36.0	8,425	3,033	20.22	11,000	27,002
No children	1992	N/A	N/A	N/A	N/A	N/A	N/A
	1996	7.65	4,000	306	7.65	5,000	9,000

Source: Congressional Record (1993)

TABLE 8

DISTRIBUTION OF INCREASED BENEFITS FROM EARNED INCOME TAX CREDIT PROGRAM CHANGE FROM 1992 TO 1996 FOR THOSE WITH CHILDREN^a

Income-to-Needs Ratio	Total Benefit (\$ billion)	Mean Benefit Per Household (\$)	Distribution of Benefits (percentage)			
			Total	Blacks	Non-Blacks	Single Female- Headed Households
Less than 1.00 (poor)	\$3.75	\$1,012	35	9	27	15
1.00 to 1.25	1.74	1,189	16	3	13	6
1.25 to 1.50	1.62	1,069	15	3	12	5
1.50 to 2.00	2.24	765	21	3	16	7
2.00 to 3.00	1.18	485	11	2	8	6
Greater than 3.00	0.26	505	2	0	3	1
Totals	\$10.80	\$856	100	21	79	40

^aSimulation 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 Table 3A and 4A.)

Source: Estimated from the March 1990 *Current Population Survey*.

TABLE 9

**DISTRIBUTION OF INCREASED BENEFITS FROM EARNED
INCOME TAX CREDIT CHANGE FROM 1992 TO 1996
FOR THOSE WITHOUT CHILDREN^a**

Income-to-Needs Ratio	Total Benefit (\$ billion)	Mean Benefit Per Household (\$)	Distribution of Benefits (percentage)		
			Total	Blacks	Non-Blacks
Less than 1.00 (poor)	\$0.33	\$181	53	8	45
1.00 to 1.25	0.09	122	14	2	12
1.25 to 1.50	0.05	108	8	2	6
1.50 to 2.00	0.05	154	8	1	7
2.00 to 3.00	0.07	156	11	2	9
Greater than 3.00	0.04	142	6	1	5
Totals	\$0.62	\$155	100	16	84

^aSimulation 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 Table 3A and 4A.)
Source: Estimated from the March 1990 *Current Population Survey*.

APPENDIX

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

Estimating Average Hourly Earnings from Census Data

We had to estimate hourly earnings from responses to questions on annual 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 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 youngsters. 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 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 a strong positive

association among families headed by very low-wage workers in 1960 between family size and the incidence of poverty. 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 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 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. While some of the difference may be sampling error, we think that more flows from an overstatement of the poverty rate in census data due to greater under-reporting of 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 choose 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, comes 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. The next step was to eliminate any worker who reported average hours per week to be less than 15 or who reported working fewer than 14 weeks during the year. 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 Fair Labor Standards Act. 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 with estimated wages below \$3.00 per hour were assumed to be working in an uncovered job and hence, ineligible for benefits. Second, all workers whose estimated wage per hour was 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 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 which 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 Earned Income Tax Credit Simulation Procedure

Our general approach to estimating the Earned Income Tax Credit (EITC) was to apply, within the limitations inherent in the data, the EITC program rules as specified by the Internal Revenue Service (IRS). We have the actual program rules for 1989 and 1992, however they do not exist for 1996. Therefore we used 1992 rules for our 1996 simulations, changing only those provisions explicitly outlined in the recently passed legislation. 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 earned income, we used data from the *Current Population Survey*, March 1990 file. This file contains retrospective data on earnings and household characteristics for 1989. The structure of this data set is ideal for studies which 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. In particular, these tests are (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. Additionally 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 six months of the year (twelve 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 straight-forward manner. The only exception is the disabled child who has no age restriction. The CPS survey only 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 the age and relationship tests are met by a child in the household, then the family is considered to be eligible for the program in the simulation. The next step then 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 earned income tax credit. 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 sub-group within the household is straight-forward as it will be either the married couple or single parent who heads the family. Larger family structures that span more than two generations requires more analysis however.

The IRS requires that married couples file a joint return in order to be eligible for the earned income tax credit. 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 going to be 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 head 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, with a qualifying child(s) of her own, but who lives with her parents 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. Whomever has the higher adjusted gross income between the two will receive the credit.

The second rule was used for all cases of multi-generational households in the 1992 simulations (1989 rules differ and will be discussed below). The first rule is much rarer than the second in the data, and given that multi-generational households only comprise around 5 percent of the

CPS households, we felt little would be gained by attempting to incorporate the first rule (which would be computationally difficult).

As noted, the above discussion on the two tie-breaking rules for multi-generational households applies only to 1992. 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 1989 simulations, 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 tie-breaker 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 use 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 which 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 \$1 in earned income, and was either the head of a household (including single individuals) or a spouse of a head. Thus, the income tax filing unit which received the credit is always the head of a household and his/her spouse if married.

Income Criteria. Once the appropriate tax filing unit was determined, the income criteria was 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 (1) wage income and (2) 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 only included 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 effects our results is discussed below). However, we feel that our estimate 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 these two sources either as the CPS does not have the information for one 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 only included one credit adjustment in our measure of adjusted gross income. Namely, one-half of the self-employment tax can be subtracted out. Other credits not available were IRA contributions, Keough 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 wage incomes and adjusted gross incomes of the head and spouse were added together to get the earned income and the adjusted gross income measures that apply to the appropriate tax filing unit. In the cases of a single parent who receives the EITC, the individual's earned income 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 1A). Referring to Figure 1A, 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 taxfiling unit exceeds I_3 (which equaled \$19,340 in 1989 and \$22,370 in 1992; in 1996 I_3 varies by household composition equaling \$23,766, \$27,002, and

\$9,000 for families with one child, two plus children, and no children respectively—refer to 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 earned income 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 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 \$11,000 or \$5,000 in 1996 depending upon household composition—refer to Figure 1), then earned income is the appropriate income measures. 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 earned income, and use earned income if otherwise).

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 numerous 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 household (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 respectively. If that child happens to have been born in 1992 then these rates increase by 5.00 and 3.57 (thus becoming 22.60 and 16.14) respectively. If the household has two or more qualifying children then the two rates are 18.40 and 13.14. Once again if one of these qualifying children was born in 1992 then the rates receive the same 5.00 and 3.57

increases (resulting in 23.40 and 16.71) as described above. All in all, 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 all having 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 earned income tax credit for certain households. This credit is the supplemental health credit and it applies only to individuals who paid, out of his/her own pocket, for any health premiums which included coverage for the qualifying child(s). 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 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 earned income tax credit 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 for households with one child, two or more children, or no children, respectively. Similarly the phase-out rate, s_2 , equals 15.70, 20.22, and 7.65 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 \$6,000 to \$11,000 with a maximum credit of \$2,040. For households with two or more children, I_1 is \$8,425 and I_2 is \$11,000 with a maximum credit of \$3,033. 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 the procedure used for households. 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. Without any specific guidelines on how to handle this situation we chose a conservative route. We use only the earned income of the members who actually meet the age test to determine the size of the credit. If that measure of earned income exceeds the right end of the plateau (I_2) we then use the larger measure of adjusted gross income or earned income for the entire households.

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 the case 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 earned income of the one member who meets the age test is counted, but after I_2 the entire couples income is wanted.

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 then recalculated the new credit. The difference between our simulated proposed program and our simulated actual program as it existed is then reported as the increase to the government of our proposal. 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. These workers increase in yearly wage income was directly added into their yearly wage 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 wage income and adjusted gross income will be biased downward in some instances. For households in the phase-in range, only wage income counts. At these income levels our measure of wage income should be quite good due to our belief in the dearth of complex income sources for these households. Nevertheless an underestimation of wage 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 towards 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.

It is for this reason that we did not make one common adjustment; namely adjusting for inflation. Recall that our estimates for 1992 and 1996 are based on 1989 data. 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. As an example, we estimated the cost of the EITC in 1992 both with the adjustment for the minimum wage and without it. As expected the estimated cost without the increased incomes due to the adjustment was higher by approximately \$20 million, a small amount by government standards. For this reason we chose not to make the inflationary adjustment.

TABLE 1A

**DISTRIBUTION OF WAGE INCOME INCREASES DUE TO
AN INCREASE IN THE MINIMUM WAGE
FROM \$3.35 TO \$4.25^a**

Income-to-Needs Ratio	Total Benefit (\$ billion)	Number of Households (millions)	Mean Benefit per Household (\$)	Distribution of Benefits (percentage)
Less than 1.00 (poor)	\$1.10	0.891	\$1,205	12
1.00 to 1.25	0.72	0.42	1,711	8
1.25 to 1.50	0.75	0.58	1,294	8
1.50 to 2.00	1.33	0.86	1,541	15
2.00 to 3.00	1.82	1.37	1,325	21
Greater than 3.00	3.20	2.54	1,259	36
Totals	\$8.92	6.69	\$1,333	100

^aSimulation 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.

Source: Estimated from the March 1990 *Current Population Survey*.

TABLE 2A**DISTRIBUTION OF EARNED INCOME TAX CREDIT
BENEFITS IN 1989 USING 1989 RULES^a**

Income-to-Needs Ratio	Total Benefit (\$ billion)	Number of Households (millions)	Mean Benefit per Household (\$)	Distribution of Benefits (percentage)
Less than 1.00 (poor)	\$2.13	3.62	\$589	44.8
1.00 to 1.25	0.85	1.38	618	17.9
1.25 to 1.50	0.66	1.23	532	13.9
1.50 to 2.00	0.68	1.67	405	14.3
2.00 to 3.00	0.32	0.89	356	6.7
Greater than 3.00	0.11	0.27	426	2.3
Totals	\$4.75	9.06	\$524	100.0

^aSimulation assumes that all eligible workers apply for benefits and there is no change in work behavior.

Source: Estimated from the March 1990 *Current Population Survey*.

TABLE 3A**DISTRIBUTION OF EARNED INCOME TAX CREDIT
BENEFITS IN 1989 USING 1992 RULES^A**

Income-to-Needs Ratio	Total Benefit (\$ billion)	Number of Households (millions)	Mean Benefit per Household (\$)	Distribution of Benefits (percentage)
Less than 1.00 (poor)	\$3.37	3.67	\$919	37.8
1.00 to 1.25	1.55	1.44	1,076	17.4
1.25 to 1.50	1.32	1.45	910	14.8
1.50 to 2.00	1.57	2.17	724	17.6
2.00 to 3.00	0.86	1.68	509	9.6
Greater than 3.00	0.25	0.39	628	2.8
Totals	\$8.92	10.80	\$826	100.0

^aSimulation assumes all eligible workers apply for benefits and there is no change in work behavior.
Source: Estimated from the March 1990 *Current Population Survey*.

TABLE 4A

**DISTRIBUTION OF EARNED INCOME TAX CREDIT
PROGRAM IN 1989 USING 1996 RULES^a**

Income-to-Needs Ratio	Total Benefit (\$ billion)	Mean Benefit Per Household (\$)	Distribution of Benefits (percentage)			
			Total	Blacks	Non-Blacks	Single Female- Headed Households
Less than 1.00 (poor)	\$7.16	\$1,911	36	9	27	16
1.00 to 1.25	3.28	2,242	17	3	13	6
1.25 to 1.50	2.93	1,934	15	3	12	6
1.50 to 2.00	3.80	1,297	19	3	16	7
2.00 to 3.00	2.03	834	10	2	8	5
Greater than 3.00	0.51	975	3	0	3	1
Totals	\$19.70	\$1,563	100	21	79	41

^aSimulation assumes all eligible workers apply for benefits and there is no change in work behavior.
Source: Estimated from the March 1990 *Current Population Survey*.

Endnotes

1. Recent research by Katz and Krueger (1992) and Card (1992) however, provide some evidence which challenges this conventional view. Their findings in turn have been challenged by Neumark and Wascher (1992).
2. 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.
3. The data here and in subsequent tables 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*. Except for the wage data used in the simulations, 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 the Appendix.)
4. 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.
5. See Burkhauser and Finegan (1989) for a fuller discussion of this transformation.
6. 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.
7. The Fair Labor Standards Act 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).
8. Beginning in 1994, the EITC will be 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.
9. Moore (1993) argues that the phaseout rate that goes into place in the expanded EITC program may have quite severe work disincentive effects.

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