Helping the Working Poor: Employer- vs. Employee-Based Subsidies

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"We *can* reverse the critical decline of wages and employment among the disadvantaged in this country....The method is the introduction of employment subsidies.…They take the form of continuing tax credits to private enterprises for their continuing employment of low-wage workers."

Edmund S. Phelps, *Rewarding Work* (1997, p. 5)

Abstract

In the United States and Europe there has been renewed interest in subsidizing firms that employ disadvantaged workers as a means of addressing poverty and other social problems. In contrast, the prevailing practice is largely to provide social welfare benefits directly to individuals. Which approach is better? We re-examine the relative merits of employee- versus employer-based labor market subsidies and conclude there are good reasons to continue to rely on the direct, employee-based approach. In practice, low-wage workers are seldom either low-skill or low-income workers. Furthermore, workers who might qualify for a firm-based subsidy are reluctant to so identify themselves for fear of being stigmatized or labeled as "needy." Thus, employer-based subsidy programs have lower participation rates and correspondingly higher per capita expenditures than employee-based subsidy programs.

Introduction

There has been renewed interest in the topic of labor market subsidies to disadvantaged workers; in the United States it reflects a growing

concern over shifts in the distribution of earnings and income, and in Europe a consequence of chronic unemployment. A prominent feature of this interest—typified by Edmund Phelps' (1997) widely discussed proposal—is the notion of subsidizing employers of disadvantaged workers as a remedy to social ills. Using firms as a tool of social welfare policy stands in sharp contrast to the current norm of providing earnings subsidies, food, and health insurance directly to poor households or families.

Should we adopt a new approach? To decide the relative merits of firm-based subsidies versus employee-based subsidies one first needs to identify the target population: who are we trying to help? In the context of policies toward the disadvantaged, it is natural to focus on individuals in low-income families. Because wages are an important component of income, and because skill levels to some degree determine wages, measuring wage rates and skill levels would seem to be reasonable ways to identify low-income individuals. However, as we show below, low-income, low-wage, and low-skill are not perfectly interchangeable categories in practice, and the need to distinguish among them figures strongly in our conclusions.

Specifically, simple employer-based approaches that subsidize low-wage workers are unlikely to be well-targeted because low-wage workers are not necessarily either low-skill or low-income. It is possible to improve targeting by singling out workers from low-income families, but this practice tends to stigmatize workers, resulting in extremely low participation rates and higher per capita expenditures. As a consequence, a firm-based subsidy must be prohibitively large to be as effective as a direct, employee-based subsidy. Therefore, we prefer employee-based approaches and are pessimistic regarding the success of the employer-based approach.

Our bottom line reflects experience as well as theory. Firm-based programs, such as the Targeted Jobs Tax Credit and its successor, the Work Opportunity Tax Credit, have been characterized by low participation rates and limited success. In contrast, an employee-based approach such as the Earned Income Tax Credit appears relatively

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successful in targeting the desired population, inducing additional labor market participation, and raising incomes.

Analysis

The conventional approach predicts that employee- and employer-based subsidies have the *same* economic impact. (See Appendix 1 for the details of a formal model of the impact of wage subsidies.) Why? Intuitively, a subsidy to individuals who work increases the supply of workers, which lowers the wage employers have to pay. However, even at the lower market wage, the government subsidy raises the total wage received by employees. Another way to achieve the same outcome is to subsidize employers. This raises the demand for workers and leads to higher wages paid to employees. In this case, however, even at the higher wage the government subsidy results in a lower net cost for firms.

If the two approaches were truly equivalent, one could pick a strategy on the basis of some criterion other than the economic impact, e.g., ease of administration. Unfortunately, the conventional analysis ignores several important features of the policy program. First, if the objective is to help disadvantaged, low-income workers, then, we argue, one cannot simply target the program at low-wage or low-skill workers. Second, attempts to improve targeting typically rely on having potential participants identify themselves to their prospective employers as "needy," which most are reluctant to do. These complicating factors result in very low participation rates in employer-based subsidies relative to worker-based subsidies. We consider each of these in turn.

Targeting Issues

In practice, it can be quite challenging to identify members of the target population. To get a sense of the difficulty, consider the information in Tables 1 and 2, which is based on a 1994 sample of households from the Survey of Income and Program Participation (SIPP). The main message of Tables 1 and 2 is that it is a mistake to utilize the terms "low-wage," "low-skill," and "poor" interchangeably.[1]

Low-Wage Workers. Using Table 1 we begin by highlighting the fact that "low-wage" and "poor" are not the same. We define a low-wage worker as someone whose average hourly wage is in the bottom 20 percent of all wages; in our data the cutoff is a wage below $5.93.[2] We define poor as pre-tax and pre-transfer household income below the poverty line appropriate for the household size.

- **Using these definitions, only 15.0 percent of the households with low-wage workers are poor.**

Table 1
Descriptive Statistics for Poor and Low-Wage Households

Household Characteristics	Low-Wage[1] (n=2847)		Poor (n=1716)	
	Mean	Standard Deviation	Mean	Standard Deviation
Percent Poor	15.0	35.7	100.0	0
Earnings[2]	$32,189	26,903	$2,823	4,762
Pre-Transfer Income	$37,650	27,081	$5,654	4,755
Post-Transfer Income	$38,121	26,788	$7,947	4,754
Poverty Gap[3]	-$23,954	26,195	$5,925	5,023
Number of People	3.5	1.6	2.7	1.9
Number of Children	1.1	1.3	1.1	1.5
Number of Workers	2.1	1.0	0.5	0.7
Percent Headed by Single Mother	9.6	29.5	23.0	2.1
Percent Headed by Married Couple	68.2	46.6	25.7	43.7

[1]We define a low-wage worker as someone whose average hourly wage is below $5.93, which marks the lowest quintile of the wage distribution.
[2]All income and earnings amount are based on annual 1994.
[3]Poverty gap is the difference between the U.S. Census Bureau poverty line for the appropriate household size and the household's actual pre-tax and pre-transfer i ncome.

Source: 1993 Panel of the Survey of Income and Program Participation, individuals aged 14 years or older. All calculations use SIPP sample weights.

The mean annual, pre-transfer income of families with a low-wage earner is $37,650, much higher than the average of $5,654 for poor households. These dramatic differences in economic status derive from large differences in labor force participation—households with a low-wage worker have an average of 2.1 workers, versus only 0.5 for poor households.

Table 2
Descriptive Statistics for Poor and Low-Wage Individuals

Individual Characteristics	Low-Wage Workers[1] (n=3408)		Poor Workers[2] (n=740)	
	Mean	SD	Mean	SD
Percent Poor	15.3	36.0	100.0	0
Wage	$4.32	1.41	$6.00	3.68
Hours Worked	972	704	1,005	686
Earnings	$4,424	3,668	$6,197	5,694
Pre-Transfer Income	$6,028	5,639	$6,994	5,737
Post-Transfer Income	$6,208	5,618	$7,612	5,615
Percent Receive Transfers	6.7	25.0	19.9	39.9
Household Pre-Transfer Income	$38,384	27,102	$9,431	5,541
Poverty Gap[3]	-$24,197	26,239	$5,480	4442
Percent Disabled	10.7	30.9	13.3	33.9
Percent Teenagers	28.7	45.2	10.7	30.9
Percent Elderly	7.1	25.7	2.0	14.1
Percent White	82.5	38.0	67.9	46.7
Percent Female	62.4	48.4	57.3	49.5
Percent Single Mothers	19.2	39.4	26.7	44.2
Percent Single Men	13.8	34.5	11.6	32.0
Percent Single Women	14.7	35.4	11.5	32.0
Percent Married w/Kids	20.6	40.4	33.6	47.3
Percent Married w/o Kids	13.5	34.2	3.6	18.7
Percent Married	34.1	47.4	37.3	48.4
Age	31.7	15.7	33.9	12.1
Years of Education	11.5	2.6	11.2	2.9

Table 2 (continued)				
Individual Characteristics	Non-Working Poor[1] (n=1902)		Low-Skilled Workers[2] (n=2677)	
	Mean	SD	Mean	SD
Percent Poor	100.0	0	11.3	37.2
Wage	0	0	$7.86	11.03
Hours Worked	0	0	1,250	766
Earnings	0	0	$10,985	10,362
Pre-Transfer Income	$2,342	3,141	$12,194	10,915
Post-Transfer Income	$4,174	3,473	$12,299	10,870
Percent Receive Transfers	42.8	49.5	3.9	19.4
Household Pre-Transfer Income	$5,725	5,122	$38,163	24,122
Poverty Gap[3]	$6,969	5711	-$23,960	23,371
Percent Disabled	27.9	44.8	10.0	30.0
Percent Teenagers	13.4	34.1	30.1	45.9
Percent Elderly	33.4	47.2	7.9	26.9
Percent White	65.5	47.5	82.8	37.8
Percent Female	67.8	46.7	41.6	49.3
Percent Single Mothers	19.1	39.4	15.6	36.3
Percent Single Men	13.4	34.1	14.5	35.2
Percent Single Women	28.4	45.1	8.3	27.6
Percent Married w/Kids	15.2	35.9	24.6	43.1
Percent Married w/o Kids	10.9	31.1	18.4	38.7
Percent Married	26.0	43.9	43.0	49.5
Age	47.8	22.1	35.3	16.8
Years of Education	9.8	3.2	8.9	2.5

[1]We define a low-wage worker as someone whose average hourly wage is below $5.93, which marks the lowest quintile of the wage distribution.

[2]All calculations use SIPP sample weights. All income, earnings, and hours are annual 1994.

[3]Poverty gap is the difference between the U.S. Census Bureau poverty line for the appropriate household size and the household's actual pre-tax and pre-transfer income.

Source: 1993 Panel of the Survey of Income and Program Participation, individuals aged 14 years or older, except self-employed individuals.

Demographic differences explain some of the difference in the rate of employment. In particular, households with a low-wage worker are much less likely to be headed by a single female (9.6 percent versus 23.0 percent) than poor households. This leads one to suspect that low-

wage workers may often be secondary earners in relatively well-off households, and therefore not the intended targets of wage subsidy programs. Table 2 confirms this hypothesis by highlighting the differences between low wage and poor *individuals*. On average, a low-wage worker contributes $6,028 to the average household income of $38,384, or roughly one-sixth. In contrast, a worker in a poor family averages $6,197 out of the mean household income of $9,431. Also, compared to workers in poor families, low-wage workers are more likely to be teenagers (18.7 percent versus 10.7 percent). Because low-wage workers have slightly higher levels of education (11.5 years versus 11.2 years) and are more likely to be white (82.5 percent versus 67.9 percent) than poor workers, they may have higher labor market opportunities than poor workers.

Low-Skilled Workers. Table 2 also shows that targeting "low-skilled" workers is not the same as targeting "low-wage" or "poor" workers, where low-skilled is defined as having less than a high-school education. In many ways, the low-skilled workers are neither low-wage nor poor.

- **Only 11 percent of low-skilled workers are poor, that is, live in poor households, and low-skilled workers on average earn higher hourly wages ($7.31) than either low-wage workers ($4.02) or poor workers ($5.60).**

The earnings of low-skilled workers contribute a larger share to the total household income than the earnings of low-wage workers, suggesting that low-skilled workers are not as likely to be secondary wage earners.

Finally, recall that most of the poor individuals are not working. One reason is that 33.4 percent of the non-working poor are elderly. These individuals may be "poor" only by our limited definition of pre-tax and transfer income. Moreover, they are unlikely to be the main beneficiaries of labor market-based policies.

These computations are intended to be illustrative. Even so, they indicate that targeting subsidies based on observable characteristics such as education levels or wage rates does not guarantee a well-targeted program. Because low-wage employees, low-skilled employees, and individuals in poor households are not the same people, an employer-based subsidy to low-wage workers is not equivalent to an employee-based subsidy to poor households. Most importantly, a subsidy to *all* low-wage employees would likely encompass secondary earners in non-poverty households; the (working) elderly, who may have substantial assets; and a myriad of other configurations of skills and incomes outside the targeted population.[3]

As noted at the outset, Edmund Phelps (1997), an economics professor at Columbia University, proposes a comprehensive employer-based subsidy to "reward employment of workers in eligible, low-wage jobs" (p. 106), an approach intended to relieve the unemployment and concomitant social ills of low-income households. But the cautionary lesson of Tables 1 and 2 is that the adopted solution may not fit the diagnosed problem.

Stigma

One way to circumvent the targeting problem is to require that individuals identify themselves to employers that are participating in a firm-based subsidy program. Unfortunately, this raises the specter of a stigma associated with being part of the targeted population (Moffitt 1983). Stigma is more than a theoretical possibility. As a number of experiments have shown, requiring members of the target group to identify themselves to potential employers results in substantially worse outcomes compared to when the target group does not identify themselves: lower job-finding success, and lower participation rates because groups required to identify themselves to employers to be eligible for the subsidy often did not. (See Burtless 1985; Dubin and Rivers 1993; and Hollenbecke and Wilke 1991.) Thus, issues in targeting raise substantial questions regarding the efficiency of an employer-based approach.

Participation

Firms and households that consider participating in labor market subsidy programs must weigh the costs of participation. Since these programs are voluntary, firms will participate only if the economic surplus on new hires plus the cost-saving on those already employed exceeds the costs of compliance costs, such as paperwork. Similarly, households will participate only if the new earnings more than offset the compliance costs, such as filing a tax return.

When the participation rates of firms and households differ, direct subsidies to workers and subsidies to firms are less likely to have the same economic impact. In the extreme case, the point is obvious: if no single firm participates (but households do), it will not be possible to help workers via firms. The net effect of each approach depends upon the participation rate, the degree to which subsidies induce additional employment, and the size of the subsidy.

How different are the approaches? Suppose that firms participate in employer-based subsidies only 80 percent of the time, while households participate in employee-based programs at a rate of 85 percent. Under realistic labor market conditions, this requires an employer subsidy at the rate of 25 percent to achieve the same increase in employment as a 10 percent wage subsidy directly to workers.[4] Empirical evidence indicates that the participation rate of firms in employer-based wage subsidies is well below 80 percent, making the size of an effective employer credit prohibitively large.

Direct Subsidies to Workers

The best example of a subsidy directly to workers is the Earned Income Tax Credit (EITC). The EITC is a refundable income tax credit targeted primarily at workers in low- and moderate-income families. By "refundable" we mean that if the EITC for which a family is eligible is greater than the amount of income tax it owes, the IRS issues a check to the family for the difference.[5] As income rises, taxpayers initially continue to receive the maximum credit, but eventually the credit is phased out. (See Appendix 2 for details, including a summary of

statutory changes since its creation.) The refundable credit is paid most frequently as a lump sum in a tax return.[6] Childless taxpayers are only eligible if they are between ages 25 and 65, and benefits are substantially lower than for families with children, but there are no additional categorical requirements for eligibility.

The EITC is based on the income of the tax unit, which is typically the family—this avoids subsidizing low-wage workers in high-income families. The age restriction for childless taxpayers guarantees that teenagers and elderly, who are likely to be secondary earners, are not eligible for the credit. There is some evidence that the EITC is well-targeted at demographic groups who are thought to be at risk for long-term labor force detachment. For example, estimates in the 1990s suggest that between 47 and 60 percent of eligible participants were single mothers (Eissa and Liebman 1996; Whitehouse 1996). In short, the EITC appears to be targeted effectively.

It is not, however, perfect. If poverty defines the target group, the EITC is not well-targeted in one major way. In an effort to minimize labor supply disincentives, many families with incomes above the poverty line receive the EITC. For example, Liebman (1998) estimates that under 1996 rules, 80 percent of households with income between 100 percent and 150 percent of the poverty line receive the EITC.

There are at least three additional ways in which the EITC may not be as effective as it could be. First, it is possible that the credit is subsidizing high-skilled individuals who simply work few hours. Second, Wiseman (1995) suggests that the EITC is not well-targeted at very low-income households who are liquidity constrained on a month-to-month basis, because it is most frequently paid in a lump sum at the end of the year. Similarly, if the family's income is below the minimum taxable income threshold, so that they are not required to file income taxes, they may not trigger eligibility for the EITC, which is based on submission of an income tax return. Third, if the household unit is different from the income tax unit (consisting of legal spouse and dependents), the EITC may be subsidizing families who are not in low-income households. One example is unmarried, cohabiting couples

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whose joint income would make them ineligible for the EITC if they were to marry.

There is no stigma attached to participation in the EITC. Ninety-nine point five percent of recipients simply claim the EITC by filing personal income tax returns; the remainder receive the EITC in their paychecks throughout the year.[7] Their employers need not know their family income status. The costs of participating are also low: the family only needs to file a tax return, and the Internal Revenue Service will calculate their EITC.

Lack of stigma and ease of claiming are likely responsible for the high participation rates in the EITC. Using 1990 data, gathered prior to the expansions of the EITC enacted in 1990 and 1993, Scholz (1994) finds that approximately 85 percent of those eligible for the EITC received it. This participation rate is well above other income transfer programs such as Food Stamps or the former Aid to Families with Dependent Children (AFDC).[8]

The tradeoff with high participation rates has historically been high rates of noncompliance.[9] A 1997 report of the Internal Revenue Service (1997) estimated that 25.8 percent of EITC benefits were overclaimed in 1994.[10] The primary source of error is taxpayers claiming children who did not live with them for more than half the year (Scholz 1997). In short, the EITC appears to be received by an appropriately targeted group and succeeds in widespread participation.

But does it subsidize work? To the extent that the key issue is the decision to work at all (not how much one works), the EITC appears successful in subsidizing work. Analytically, the credit is designed to have an unambiguously positive effect on labor force participation, and this prediction is supported by empirical research. Eissa and Liebman (1996) estimate that the labor force participation of single mothers increased 2.8 percentage points relative to the labor force participation of women without children (who were then ineligible for the EITC) following the expansion of the EITC in the Tax Reform Act of 1986. More recently, Meyer and Rosenbaum (1997) find that the EITC

explains 39 percent of the increase in the labor force participation rate of single mothers between 1984 and 1996.

However, for those already working, the EITC is not well-designed for increasing hours worked. Subsidizing the earnings of workers may result in individuals choosing to work fewer hours and consume more leisure, without lowering their income. Secondary earners, in particular, have large incentives for lowering their hours or exiting the labor force because their earnings would place the family in the EITC's phase-out range or leave the family ineligible for the EITC.

For the most part, these predictions are upheld in the empirical literature. Eissa and Hoynes (1998) find that the EITC expansions between 1984 and 1996 lowered the labor force participation rate of married women by 3.1 to 4.2 percentage points and reduced the hours worked by married men 2 percent, or 45 hours/year, and women by 3.5 percent or 73 hours/year. One exception to these findings is Eissa and Liebman (1996), who find that the expansion of the EITC after the Tax Reform Act of 1986 had little effect on hours worked for single parents.

Ignoring any behavioral responses to the EITC, the Center on Budget and Policy Priorities (1998) shows that the EITC moved 4.6 million people, including 2.4 million children, out of poverty in 1996. This accounts for 8 percent of the pre-government transfer poor (14.5 percent of the pre-government transfer poor children). Liebman (1998) estimates that the EITC offsets 12 percent of the total poverty gap for households with children.

However, as just noted, it is not strictly appropriate to ignore behavioral responses, because individuals can actually increase their income while working fewer hours. The Eissa and Liebman (1996) finding that single women did not change their hours in response to an expansion of the EITC suggests that income (net of EITC) of those in the labor force increased. Eissa and Hoynes (1998) find that on average the expansions in the EITC between 1984 and 1996 increased income by an average of $927 for married couples, conditional on no changes in labor force participation. They note that accounting for secondary earners dropping

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out of the labor force lowers this number by at least 10 percent, and reductions in hours worked by those who remain in the labor force would lower this average even more.

Subsidies To Employers

Current incarnations of the employer-based wage subsidies, such as the Work Opportunity Tax Credit and the Welfare to Work Tax Credit, reimburse employers for a fraction of wages paid to targeted group employees up to a maximum. Administered through the tax system, the targeted groups include people at risk for long-term labor force detachment, such as welfare recipients, at-risk youths, ex-felons, and veterans. The federal credits are available to firms that hire members of these targeted groups within a specified time range.[11]

These income-tax credits also place very strict compliance requirements on employers. For example, employers must begin to certify the eligibility of the employee by the day the individual begins work and have completed the process by the twenty-first day after the individual begins work (Internal Revenue Service 1998a and 1998b). Eligibility is often dependent on the employee being paid some minimum wage and working a minimum number of hours. In addition, existing programs limit the length of time a firm can claim the same employee—typically one or two years.

One obvious benefit of requiring employees to be members of those categorical groups is that the employer-based programs are better targeted than the EITC. By definition, the employer-based wage subsidy recipients are members of groups at risk for long-term labor force detachment.

Although the existing employer-based subsidies, e.g., the Work Opportunity Tax Credit and the Welfare to Work Tax Credit, are too new to evaluate their effectiveness, their design is similar to the Targeted Jobs Tax Credit (TJTC), which was in place between 1978 and 1997. Lessons from the TJTC are not promising for the success of existing programs.

In particular, a striking feature of the TJTC was the low participation rate—estimates of the participation rate by eligible group members in the TJTC are all below 10 percent. For example, Katz (1996) estimates that in the mid to late 1980s, approximately only 9 percent of those eligible to participate were ever claimed, and Lerman (1982) estimates that fewer than 4 percent were claimed through 1980. Recall that an estimation of the EITC participation rate is 80 percent.

Two explanations for the discouragingly low participation rates have been offered in the literature. First, to claim the credit, the employer has to know the employee is a member of the target group and, as we described above, this identification may cause stigma and lower program participation. This hypothesis is supported by the experiments described above that tested for stigma. With respect to the TJTC, Bishop and Kang (1991) found that many employers cited the anticipated low quality or skill of the targeted group members as a reason for not recruiting among this group. These issues do not arise in the EITC when employers do not have the same level of information about their low-wage employees.

The expense of meeting strict compliance requirements are a second explanation for the low participation rates in the TJTC. For example, Katz (1996) notes that many of the firms that chose to participate in the TJTC were large firms that could afford the fixed cost of contracting with management assistance companies to review and certify the eligibility of potential employees. The implication is that smaller firms could not incur the additional cost.

Because the existing employee-based wage subsidies require employees to identify themselves as members of the targeted group, and because the compliance costs are similar to those in the TJTC, we hypothesize that current wage subsidies will also be plagued by very low participation rates.

Low participation rates suggest that the employer-based wage subsidies have limited potential for increasing labor force participation or income. Still, the TJTC was found to have a positive effect on

employment participation among the targeted groups. Using data from before and after a statutory change in the TJTC that lowered the maximum age for eligible youths, Katz (1996) shows that the TJTC had a modest effect on employment for disadvantaged youths. This result is generally consistent with earlier research and suggests that, like the EITC, employer-based subsidies have the ability to increase labor force participation.

Conclusion

The notion of using firms as a tool to implement social policy toward the disadvantaged has become increasingly more popular. Our goal has been to evaluate employer-based versus employee-based wage subsidies. In practice, wage subsidies to firms for hiring low-wage workers do not necessarily reach low-skilled workers or poor households. Therefore, to achieve distributional objectives using a wage subsidy to employers the program must be very highly targeted. This restriction leads to stigmatization of the potential employees and results in a program that reaches a very low percentage of eligible individuals. Although participation rates are very low, empirical evidence from previous employer-based wage subsidies suggests that these subsidies do have the potential to raise the employment levels of the targeted groups. Unfortunately, low participation and the resulting higher per capita cost implies that the total size of an employer-based subsidy program must be quite large to yield the same benefits as an employee-based program.

Wage subsidies paid to employees do not require the same strict targeting. For example, the income tax system is a mechanism for identifying low-income families. The EITC is available to all families with income below a given level and the participation rate in the EITC is very high. The more universal coverage of the employee-based wage subsidy comes at the cost of being less well-targeted than an employer-based wage subsidy. To minimize labor force disincentives, many non-poor families receive the employee-based wage subsidies.

However, existing empirical evidence suggests that the EITC has had widespread success at raising the labor force participation rate of many primary earners, including single mothers. We doubt that an employer-based subsidy could overcome the barriers it creates to reach a similar magnitude. Further analysis of the Welfare to Work Tax Credit and the Work Opportunity Credit, which were implemented during a tight labor market, may provide insight into this hypothesis.

Endnotes

1   The SIPP surveys households every 4 months. We base our statistics on household composition in December of 1994 and use the household head in that month to aggregate over a year. The household information is based on the information reported by the head. We, therefore, drop households whose heads were not in the sample for the entire year (approximately 20 percent of the sample) because the annual income variables would be incomplete. We only include individuals in the summary statistics if they are present for the entire year when we calculate summary statistics for individuals. Additionally, we drop approximately 200 persons because they do not accurately match up with a household head or because they are in a household that reports negative pre-transfer income. Finally, we exclude self-employed individuals from the individual statistics due to the difficulty of measuring wages.

2   We use point-in-time measures of wages to be consistent with other data sets like the Current Population Survey. For individuals who do not report a wage, we calculate their wage as monthly hourly earnings. The results are similar when we use average annual wage. We define workers in our sample as individuals who report positive hours and earnings.

3   This has also been the topic of recent minimum wage discussions including Burkhauser et al. (1996) and Neumark et al. (1998).

4   This calculation assumes that firms have modestly elastic demand for labor $\left(\varepsilon^{d} = -1.1\right)$ and workers relatively inelastic supply $\left(\varepsilon^{s} = 0.6\right)$ of labor.

5   Ten states also have EITCs that are tied to the federal EITC.

6   Employees have the option to receive the EITC with their paychecks. According to the General Accounting Office (1992), only 0.5 percent of EITC recipients get the credit in advance.

7   Holtzblatt and Liebman (1998) note that one difficulty with the advance payment of the EITC is that "workers have to forecast what their total earned income, modified adjusted gross income and family status will be at the end of the tax year" (p. 12). A miscalculation could result in workers having to repay some or all of the advance payment. The issue is further complicated for workers who have more than one job or workers in a two-earner family because the tables for calculating the advance payment are not designed to reflect more than one job (Holtzblatt and Liebman 1998).

8   Liebman (1998) cites two sources that suggest that the administration costs of the EITC are also very low, between 1 and 3 percent of benefits paid (compared to 16 percent for AFDC).

9   Noncompliance has been a large concern with the EITC. Scholz (1994) estimates that 30 percent of the EITC claimants were ineligible in 1988. The General Accounting Office (1997) reports that in 1994, of the $17.2 billion in EITC claims, $4.4 billion was overclaimed.

10   This number does not reflect recent changes in legislation aimed at decreasing noncompliance, nor does it account for the fact that the family may have been eligible for some portion of the payment-in-error (Center on Budget and Policy Priorities 1998).

11   Many states have employer-based wage subsidies in their state income taxes and as a component of their recent welfare reform pages. The federal Work Opportunity Credit is currently set to expire for individuals hired after June 1999.

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Appendix 1

To begin, revisit the basic supply and demand framework shown in Figure 1. In the diagram, $\ell^d(w)$ denotes the demand for low-skill labor and $\ell^s(w)$ denotes the supply of low-skilled labor. The equilibrium quantity of labor $(\ell *)$ and the equilibrium wage (w^*) are determined by their intersection.
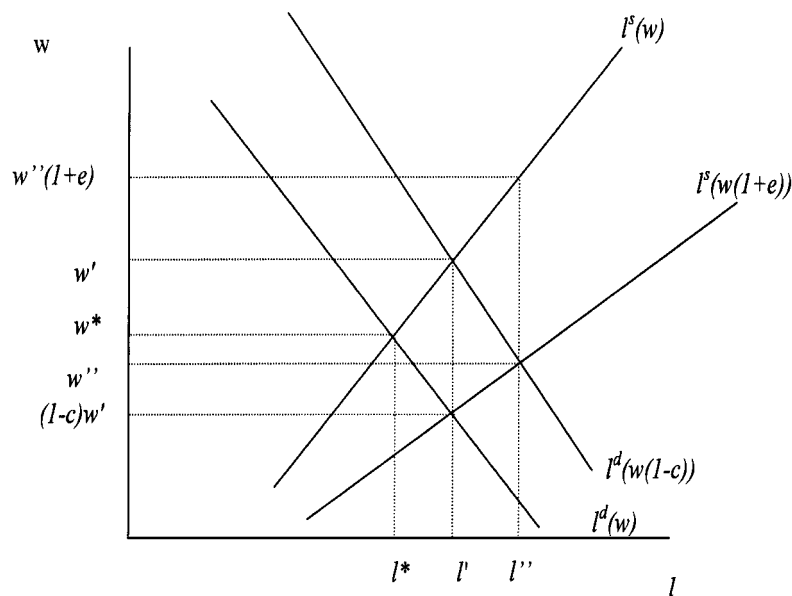

Figure 1. Basic Supply and Demand Framework of Employer- and Employee-Based Wage Subsidy Programs

Consider the introduction of a subsidy to employers of low-skill workers taking the form of a tax credit at the rate of *c* per dollar of wage payments to these workers. As shown in the figure, this produces three important effects. First, the demand for labor shifts outward; at each level of wage payments to workers, the effective cost to firms

falls. Second, the equilibrium quantity of labor used rises to ℓ'. Finally, the market wage rises to w' at the same time the cost to employers falls to $(1-c)w'$. In effect, the workers capture a wage increase equal to $w' - w^*$, while employers benefit from a decline in wages equal to $w^* - (1-c)w'$.

Of course, in this simple setting, it is equally possible to represent a subsidy given directly to workers; in this case it takes the form of a tax credit equal to *e* per dollar of wage earnings. Again, the subsidy produces three effects. First, the supply curve for labor shifts outward; at each wage, *w*, offered by firms the workers receives a total of $w(1+e)$, leading to greater labor supply. Second, the equilibrium quantity of labor rises to ℓ''. Finally, the cost to firms (the market wage) falls to w'', while the wage *cum* subsidy for workers rises to $w''(1+e)$.

The most important lesson from the basic framework is that for equivalent subsidies (those where *e=c/(1-c)*), the impact of the employer-based subsidy and the impact of the employee-based subsidy is *identical*. That is, $\ell' = \ell'', (1-c)w' = w''$, and $w' = w''(1+e)$.

From the standpoint of policy, there are two important implications of this equivalence. First, *ex post*, the evaluation of the program must acknowledge the economic repercussions. Since payments to employers will help workers just as much (or little) as direct payments to the individuals, we cannot rely simply on the size and statutory recipient (employer or employee) of subsidy payments to decide the impacts.

Second, because the economic benefits will be determined by market fundamentals, the administrative structure of the program may be chosen to minimize the difficulties of implementation. That is, the administrative structure of the program and distributional objectives are not linked in this simple framework.

Consider a more realistic framework. To begin, return to an employer-based subsidy. For simplicity, assume that that subsidy takes the form of a credit at the rate *c* per dollar of wage payments to the targeted
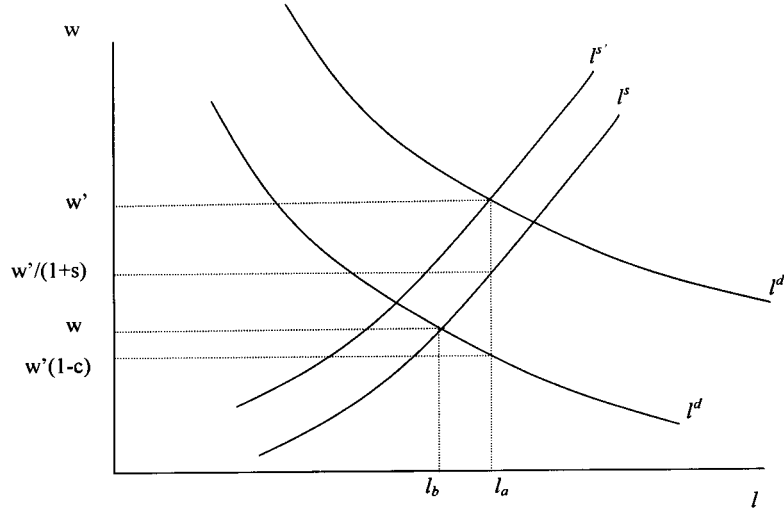
Figure 2. Supply and Demand Framework of Employer-Based Wage Subsidy Program with Stigma

workers. This has the immediate effect of shifting the demand curve from l^d to $l^{d'}$, as shown in Figure 2, and lowering the employer's cost of labor. In contrast to the basic framework, however, there are further effects. First, to the extent that being identified with the targeted population is associated with stigma, the need to identify the recipients acts to inhibit the supply of this type of labor. In the context of Figure 2, there is an upward shift in the supply curve to $l^{s'}$ from l^s. The new equilibrium wage is now *w'*. The effective wage received by employees is *w'/(1+s)*, where *s* is the "wage-equivalent" rate of stigma. From the perspective of firms the cost of labor falls from *w* to *w'(1-c)*. Obviously, unless *w'/(1+s)* is greater than *w'(1-c)*, in other words, *c* exceeds *s/(1+s)*, there is no effective subsidy as a result of the program. Assuming that *c* is sufficiently large, the outward shift in demand exceeds the shift backward in supply, the quantity of labor rises from ℓ_b ("before") to ℓ_a ("after").

Will firms participate? If the fixed costs of running the program are *F*, then the firm will net an economic advantage if

$$\int_{\ell_b}^{\ell_a} [MP_\ell - w'(1-c)]d\ell + [w - (1-c)w']\ell_b \geq F. \qquad (1)$$

That is, the sum of the surplus on new labor plus the cost-saving on extant workers must exceed the fixed costs. Clearly, firms with low labor productivity and/or high fixed costs will be less likely to participate. To further clarify, assume that $MP_\ell = w$—i.e., that we are operating in the region of the initial equilibrium. If so, this reduces to

$$[w-(1-c)w']\ell_a \geq F \ \text{ or } \ w-(1-c)w' \geq \frac{F}{\ell_a}. \tag{2}$$

A firm will participate if the wage-saving per worker exceeds the fixed costs per worker. The likelihood of participating will rise with the size of the subsidy (c), and will decline as the fixed costs (F) decline. Recall that w' is valued at $w'/(1+s)$ so that the larger is s the lower is the likelihood that the firm will participate.

For comparison, let us turn now to an employee-based system. Individuals choose their participation based on the utility function $U(C,L\text{-}h)$ where C is consumption, L is the endowment of leisure, and h is labor supply. If the program consists of an earnings credit at a rate e, and A is non-labor income, then in the absence of the program the individual will have consumption of

$$c_b = wh_b + A. \tag{3}$$

In contrast, in the presence of the program it will be given by

$$c_b = w''(1+e)h_a + A \tag{4}$$

where w'' is the wage paid by firms. The individual will participate if the utility gain is sufficient to outweigh the fixed compliance costs, G (measured in utility terms) of the program, that is, if

$$U\left(w''(1+e)h_a + A, L-h_a\right) - G - U\left(wh_b + A, L-h_b\right) \geq 0. \tag{5}$$

To gain a better feel for the decision, we can linearize around the no-program level of utility, yielding

$$U\left(w(1+e)h_a + A, L-h_a\right) \approx U\left(wh_b + A, L-h_b\right)$$
$$+U_C\left\{w''(1+e)h_a - wh_b\right\} - U_L\left\{h_a - h_b\right\}$$

(6)

Thus, an individual will participate if:

$$w''(1+e)h_a - wh_b - \frac{U_L}{U_C}(h_a - h_b) - \frac{G}{U_C} \geq 0$$

(7)

Note that *if* the individual is supplying labor in the absence of the program, U_L/U_C is equal to the wage. However, if the individual is not participating (as would likely be the case for the target population), U_L/U_C equals the reservation wage, w^*, needed to induce participation. If, as before, we examine the participation decision in the vicinity of $w^* = w$, the individual will participate if

$$[w''(1+e) - w^*]h_a \geq \frac{G}{U_C} \text{ or } [w''(1+e) - w^*] \geq \frac{G}{U_c h_a}.$$

(8)

As with firms, individuals will participate if the wage incentives (in this case increases) are sufficient to outweigh the fixed costs per unit. Examining this condition more closely, it is apparent that individuals with higher reservation wages (e.g., single mothers or others with a high value of leisure) will be less likely to participate. It follows that individuals will be more likely to participate in the program as their reservation wage falls, or as the subsidy rate rises. Similarly, as the complexity (as measured by *G*) or other overhead aspects of the program become smaller, individuals will be more likely to participate.

Are the employer- and employee-based approaches still equivalent? With the added detail, this appears far less likely. For the programs to be equivalent, they must induce equal changes in the labor market. Specifically, if N_f is the number of firms and *p* is the probability that a firm participates, the post-subsidy labor demand under the firm program is given by $pN_f \ell_a$. Similarly, if *r* is the fraction of

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individuals who participate out of the N_h households, the post-program employment is $rN_h h_a$. Thus, we require that

$$p(\,F,c,s\,)N_f \ell_a = r(\,G,e\,)N_h h_a \tag{9}$$

which shows that p and r depend on the structure of the programs. In turn, ℓ_a and h_a depend upon the elasticities of labor demand and supply (respectively) and the fall (rise) in the net wage facing firms (households).

There are many dimensions along which this equivalency may break down. First, the employee-based approach does not raise the possibility of supply-inhibiting stigma from forcing workers to identify themselves as, for example, welfare recipients. Second, the determinants of firms' participation in the low-wage subsidy program (productivity, administrative costs) are not mirrored by the determinants of individuals' participation in the employee-based subsidy program (reservation wages, complexity) leading to differences in p and r.

We can add a little analytic detail to this introspection. Assume for the moment that $p(F, c, s)$ and $r(G, e)$ are constants and recognize that $h_a = (1 + \hat{h})h_b$ and $\ell_a = (1 + \hat{\ell})\ell_b$, where $\hat{h}$ and $\hat{\ell}$ are percentage changes in labor demand and supply, respectively. In turn, recognize that changes in the quantity of labor derive from changes in wages induced by the program parameter. That is:

$$\hat{\ell} = \frac{\varepsilon^d \varepsilon^s}{\varepsilon^d - \varepsilon^s}(c - s),\, \hat{h} = \frac{\varepsilon^d \varepsilon^s}{\varepsilon^d - \varepsilon^s}(e) \tag{10}$$

where ε^d is the wage elasticity of demand and ε^s is the wage elasticity of supply. Finally, note that $N_f \ell_b = N_h h_b$ if the labor market is initially in equilibrium and collect terms to yield

$$p\left(1 + \frac{c - s}{\beta}\right) = r\left(1 + \frac{c}{\beta}\right) \tag{11}$$

where

$$\beta = \frac{\varepsilon^d - \varepsilon^s}{\varepsilon^d \varepsilon^s} \ .$$

As a final step, we can rearrange equation (11) to highlight the relationship between equivalent-outcome employer-based subsidies and employee-based subsidies. Specifically:

$$c = s + \left(\frac{r}{p}\right) e + \beta \left(\frac{r}{p} - 1\right) \qquad\qquad (12)$$

The expression in (12) has several implications for the design of a subsidy program. Notice first that for any given size of employee-based subsidy (e) the presence of stigma effects (s) directly raises the size of the employer subsidy necessary to have equivalent effects. Second, note that if participation by workers in the employee-based program exceeds that by firms in the employer-based program, then (r/p) > 1 and c must exceed e, *ceteris paribus*. Essentially, even if there is no change in behavior, lower (relative) participation necessitates a higher rate of subsidy to achieve the same outcome.

Appendix 2: Federal Employer- and Employee-Based Subsidy Programs

Employer-Based Subsidies

Work Opportunity Tax Credit

▪ **Target Group:** (1) Individuals who live in a family that received AFDC/TANF (Temporary Assistance for Needy Families) in 9 of the 18 months before the hire; (2) 18- to 24-year-olds or veterans in families receiving Food Stamps; (3) SSI (Supplemental Security Income) recipients; (4) ex-felons and several other at-risk groups.

▪ **Subsidy Rate in 1999:** 40 percent of qualified wages up to $6,000 for employees who work at least 400 hours; 25 percent for employees who work btween 120 and 400 hours (for employees hired between September 1996 and July 1999).

▪ **Compliance Requirement:** Employer must certify eligibility of employee by the day the employee begins work, or the 21st day after the individual begins work.

▪ **Other Notes:** Employer cannot claim *both* the Work Opportunity Tax Credit and the Welfare to Work Tax Credit for the same employee.

▪ **Time Limit:** One year.

Welfare to Work Tax Credit

▪ **Target Group:** Long-term welfare recipients: (1) individuals who have received AFDC/TANF for at least 18 consecutive months prior to hire, or received AFDC for any 18 months after August 5, 1997; (2) individuals ineligible for assistance because welfare time limits are binding.

▪ **Subsidy Rate in 1999:** 35 percent of qualified wages up to $10,000 for the first year of employment; 50 percent of qualified wages for the second year.

- **Compliance Requirement:** Employer must certify eligibility of employee by the day the employee begins work, or the 21st day after the individual begins work.

- **Other Notes:** Employer cannot claim *both* the Work Opportunity Tax Credit and the Welfare to Work Tax Credit for the same employee. Employer can claim this credit only if employee worked at least 180 days or 400 hours.

- **Time Limit:** Two years.

Employee-Based Subsidy

Earned Income Tax Credit (EITC)

- **Target Group:** Low-income households with earnings; available to childless individuals who are at least 25 but less than 65 years old.

- **Subsidy Rate in 1999:** *No children,* 7.65 percent of earnings beetween $0 and $4,530, maximum credit of $347, phased out at 7.65 percent for income between $5,670 and $10,200. *One child,* 34 percent of earnings between $0 and $6,800, maximum credit of $2,312, phased out at 15.98 percent for income between $12,460 and $26,928. *Two or more children,* 40 percent of earnings between $0 and $9,540, maximum credit of $3,816, phased out at 21.05 percent for income between $12,460 and $30,580.

- **Compliance Requirement:** Must file personal tax return; must report child's social security number.

- **Other Notes:** Refundable credit; paid as a lump sum.

- **Time Limit:** None.