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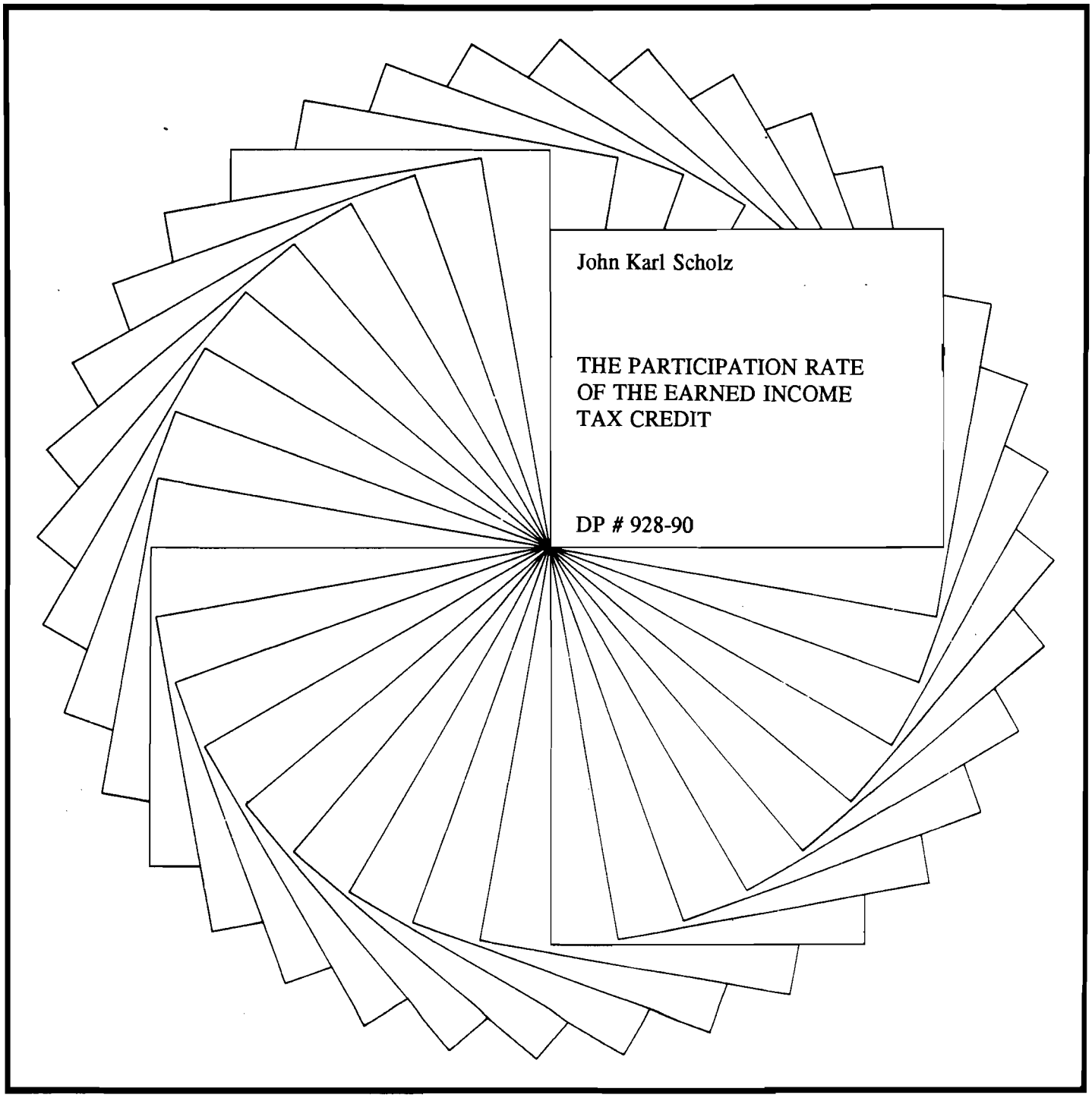

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The Participation Rate of the Earned Income Tax Credit

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Abstract

In this paper I use data from the Current Population Survey and Survey of Income and Program Participation to calculate the number of taxpayers eligible for the earned income tax credit (EITC) in 1979 and 1984. Comparing this population to the number of taxpayers receiving the EITC indicates that participation rates appear to be very high and may exceed 100 percent. Several explanations for this result are examined, and evidence is presented suggesting widespread noncompliance with the EITC. Incorporating this evidence changes the participation rate calculation to about 70 percent. The effects of the 1986 tax reform are examined by calculating participation rates for 1988. The rate was about 75 percent, which implies that roughly 2.1 million EITC-eligible taxpayers failed to receive the credit. The paper concludes with simulations of the effect current law and proposed changes in the EITC have on the poverty gap.

I. INTRODUCTION

In this paper I examine the participation or take-up rate of the earned income tax credit (EITC), where the participation rate is defined as the percentage of the eligible population that actually receives the credit. The EITC was conceived in 1975 as a way to relieve the burden of the social security payroll tax on low-wage working parents. The credit is a fixed percentage of earned income, currently 14 percent, has a maximum of $953, and is phased out at a rate of 10 percent for incomes between $10,740 and $20,270. It is the only refundable credit in the federal individual income tax (i.e., if the EITC exceeds a taxpayer's tax liability, he or she receives a payment from the Treasury for the difference). Since for poorer workers the EITC increases with hours of work, the credit appears to be an attractive tool for assisting the working poor.

The EITC has received a considerable amount of attention from those who wish to alter the income security system in a manner that will encourage work effort. Proposals to increase the EITC have been made by Danziger, Haveman, and Plotnick (1986), Wilson (1987), Ellwood (1988), Haveman (1988), and Forman (1989). In 1989 the Senate and in 1990 the House passed bills that would substantially expand the credit. The New York Times (7/15/90) gave editorial support to the House bill, the more generous of the two.

There are no previous examinations of the participation rate of the EITC.[1] If policy directed toward the working poor is to rely heavily on this credit, it is important to assess whether those the policy is directed toward actually receive the credit. This concern is particularly relevant following the 1986 tax reform, which exempted a large number of low-income households from filing tax returns. Increasing the EITC to assist the working poor will be ineffective if taxpayers are not aware of the EITC and are not required to file tax returns. In addition, the participation rate of the EITC may affect the cost of any changes in the credit.

In principle, it should be straightforward to calculate the participation rate. The denominator of this fraction is the number of people eligible for the credit. Although no published government

statistics allow one to determine how many taxpayers might be eligible for the credit, it is a simple exercise to calculate the number of eligible taxpayers from a nationally representative data set such as the Current Population Survey (CPS).[2] The numerator of the participation rate is the number of people who actually receive the credit. Interestingly enough, this number is not available in the published income tax data (IRS, Statistics of Income (SOI) volumes)[3] but does appear in the Green Book compiled by the U.S. House of Representatives, Committee on Ways and Means (1989).[4]

Using the requisite data sources to calculate the pool of eligibles and recipients I get a startling result. Across three years of the CPS (1980, 1985, 1987) the EITC take-up rate appears to be between 97 and 144 percent.[5] In Section II I describe these calculations using the 1980 and 1985 CPS. These years were chosen as they allow me to benchmark the 1980 CPS against 1979 IRS tax data, and the 1985 CPS against the Survey of Income and Program Participation (SIPP) (for calendar year 1984) and 1984 IRS tax data. The tax data used throughout the paper are taken from the University of Michigan, Arthur Young Tax Research Database, a panel of individual income tax returns from 1979 through 1984. These data are described in Slemrod (1988).

The results of Section II raise a set of additional issues concerning the accuracy and quality of the underlying data: Are there systematic discrepancies between the CPS and other published statistics about the number of working-poor families in the United States? Are there systematic biases in the manner in which missing data in the CPS are handled which would lead to a misrepresentation of the number of poor households, as suggested by Lillard, Smith, and Welch (1986)? And finally, are there issues of tax compliance that might affect the quality of data reflecting the number of households who should (according to the law) and do receive the credit?

While these issues are difficult to completely resolve, in Section III I first present evidence that indicates modest differences exist between the SIPP and the CPS in the number of working-poor families with children. However, these differences are considerably smaller than the discrepancies

between IRS data on the one hand and CPS and SIPP data on the other, over the number of taxable heads of households. Secondly, contrary to Lillard, Smith, and Welch (1986), there is little evidence of systematic biases in the treatment of missing data in the CPS for the working-poor population. Finally, there is evidence of widespread taxpayer noncompliance with EITC. This issue of noncompliance can substantially alter conclusions about the EITC participation rate and may be an important issue when considering the efficacy of changes in the EITC.

In Section IV I use the 1989 CPS to provide illustrative take-up rate calculations for calendar year 1988. This simulation provides the first evidence on the degree to which the 1986 tax reform altered the EITC take-up rate.[6] In addition, I simulate the effect current law, the House bill, and the Senate bill have on the poverty gap. The paper concludes with a brief discussion of policy considerations raised by this work.

II. CALCULATING TAKE-UP RATES

To calculate the take-up rate I use data from the March 1980 and March 1985 CPS.[7] I use individual and household-level CPS data to construct family units, then simulate the income tax returns these family units file. Since the CPS is designed to be a nationally representative sample, this simulation approach will allow me to calculate the number of taxpayer units eligible for the EITC.

I treat all subfamilies, secondary families, primary individuals, and secondary individuals in the household to be potentially separate (from the primary family) tax filing units. The major factors affecting EITC eligibility (in 1979 and 1984) are: (1) having dependents present in the household; (2) having earned income between $.01 and $10,000, (3) and having less than $10,000 of adjusted gross income.[8]

I treat a tax unit as having a dependent if the taxpayer has a never-married child under 18. Earned income is computed by adding wage and salary, self-employment, and farm income of both the head and the spouse (if present), but ignoring the income from children and other family members. Adjusted gross income (AGI)[9] is computed by adding to earned income, interest income, dividends less the dividend exclusion ($100 or $200), rental and trust income, pension and retirement income, and alimony and child support, of both the head and the spouse. In addition, in 1984 10 percent of the wages and salaries (up to $30,000) of the lower-earning spouse is deducted from AGI.

Considerably more self-employment income is reported in the CPS and National Income and Product Accounts than is reported to the IRS (see, for example, U.S. Bureau of the Census, 1988). This has the potential to bias CPS-based estimates of earned income. In addition, with the exception of wages and salaries, it appears that there are substantial discrepancies between the CPS and independent estimates of other sources of income (Vaughan, 1989; U.S. Bureau of the Census, 1983, 1988). This may bias calculations of AGI. Given these concerns I calculate two measures for the number of EITC-eligible taxpayers. The first reflects the provisions of the law. A taxpayer is eligible for the EITC if he or she claims a dependent, has earned income between $.01 and $10,000, and AGI less than $10,000. The second measure includes all taxpayers with dependents and either wages and salaries or earned income (which includes income from self-employment) between $.01 and $10,000. The second measure is intended to provide an upper bound on the number of EITC-eligible taxpayers, since taxpayers may have earned income or AGI that exceeds $10,000 and still be counted as eligible under this definition. I then compare the population of "eligibles" calculated using the two definitions to the true number of recipients, based both on figures published in the Green Book (U.S. House of Representatives, Committee on Ways and Means, 1989) and on figures drawn from IRS microdata. The ratio of the actual number of recipients to the pool of eligibles is a measure of the EITC participation rate.

Ordinarily it is unsatisfactory to compare tax-return data with data gathered on a family or individual basis. For example, a two-parent household with a teenage child might file three tax returns (separate returns for the husband and wife and a third return for the child), while the simulation would indicate only one return is filed. However, for the purposes of examining the EITC, this approach is less suspect. I do not need to identify children who consist of separate tax units, since the EITC is restricted to heads of households or couples filing joint returns with dependents. However, it is still the case that by not identifying the roughly 500,000 couples filing separate returns, I potentially overstate the number of families eligible for the EITC, since couples filing separate returns are not eligible for the credit.

Table 1 presents the number of families eligible for the EITC using both the statutory and the "upper bound" eligibility definitions. These figures suggest that between 5.8 and 7 million taxpayers were eligible for the EITC in 1979, and between 4.4 and 5.5 million were eligible in 1984, based on CPS data. The decline was presumably due to the failure to index the income eligibility limits for inflation. The table next shows the number of taxpayers who actually claimed the EITC. Combining these numbers, the EITC participation rate appears to be between 97 and 120 percent in 1979 and between 104 and 144 percent in 1984.[10] Since the higher figures represent the specific provisions of the law, the participation rates calculated from the CPS suggest that fewer people are eligible for the EITC than actually take the credit. These participation rates are much higher than those calculated for various transfer programs. For example, Haveman (1987, pp. 87-88) reports that Food Stamp and SSI participation rates were from 50 to 60 percent in the late 1970s while AFDC participation varied from 95 percent (in the District of Columbia) to 56 percent (in Arizona) in 1975-76. The figures presented in this section indicate that the EITC participation rate is very high, but the magnitude of these figures raises several questions.

Table 1

Participation Rate of the EITC, 1979 and 1984

Year	Statutory Definition of Eligibility[a] (in 1000's)	Upper-Bound Definition of Eligibility[b] (in 1000's)
Number of taxpayers eligible		
1979	5,800	6,986
1984 (CPS)	4,435	5,528
1984 (SIPP)	5,272	6,968
	Green Book	IRS Microdata
Number of taxpayers taking the EITC		
1979	6,954	6,798
1984	6,376	5,758
Range of implied participation rates		
1979		97.3% - 120.0%
1984 (CPS)		104.2% - 143.8%
1984 (SIPP)		82.6% - 120.9%

Source: Data for this table come from the 1979 and 1984 Current Population Survey, the 1984 Survey of Income and Program Participation, U.S. House of Representatives, Committee on Ways and Means (1989), and the Arthur Young Tax Research Database, University of Michigan.

[a]$0 < earned income < $10,000, and AGI < $10,000.
[b]$0 < wages and salaries or earned income < $10,000.

III. EXPLAINING THE PUZZLE

The participation rates in the previous section were calculated by dividing the number of EITC recipients, taken from IRS data, by the number of taxpayers eligible, taken from the CPS. Several problems could arise when making these calculations. I may be making inappropriate assumptions when constructing tax-filing units from the CPS, or the CPS could be fundamentally incomparable with IRS data; there may be systematic biases in imputations performed on low-income households in the CPS; or there may be biases in the IRS data. In the following subsections I consider each of these issues.

A. Comparisons of CPS with IRS and SIPP Data

The purpose of this section is to examine the consistency of different sources of data on the working poor. If the distributions of households in the CPS differ markedly from the distributions in tax return data, participation rate calculations may simply reflect dissonance in the data rather than accurate measurement of household behavior. In addition, an alternative to the CPS, the SIPP, has a more frequent sampling frame and greater targeting of low-income families and, thus, might be substantially different than the CPS.[11]

Table 2 shows the distribution of taxpayers, wages and salaries, and adjusted gross income (AGI), by wage and salary class, in the CPS, SIPP, and IRS tax data for taxpayers who have children and file joint returns. The CPS and SIPP both substantially underestimate the number and incomes of wealthy married taxpayers with children. However, it is well known that survey data typically underreport income and wealth among affluent households (see, for example, Avery, Elliehausen, and Kennickell, 1988). This seems to be a somewhat more serious problem in the SIPP than the CPS. It is also the case that the SIPP indicates there are roughly 18 percent more tax units with wages and salaries under $10,000 than suggested by the CPS. Thus, the upper tail of the SIPP appears thinner,

Table 2

Distribution of Taxpayers, Wages and Salaries, and Adjusted Gross Income by Wage and Salary Class, 1984: Joint Returns with Children

Wage and Salary Class (1000's)	Number of Taxpayers (1000's)			Total Wage and Salaries (in $ millions)			Adjusted Gross Income (in $ millions)		
	CPS	SIPP	IRS	CPS	SIPP	IRS	CPS	SIPP	IRS
-0	1,716	2,065	1,270	0	0	0	29,148	71,504	66,791
0-6	1,425	1,787	1,750	4,178	5,208	5,480	17,017	36,329	17,659
6-10	1,280	1,367	1,580	10,718	11,082	12,768	16,159	22,513	18,107
10-15	2,116	2,281	2,300	26,937	28,624	28,970	32,346	43,255	33,524
15-25	5,294	6,615	5,540	108,290	133,571	110,765	118,100	151,893	111,421
25-50	10,324	10,490	11,910	367,975	361,535	426,344	379,864	375,691	424,677
50-	2,656	1,854	3,740	178,392	119,135	286,369	186,884	123,142	267,769
Total	24,810	26,459	28,100	696,491	659,155	870,695	779,518	824,327	939,946

Source: Data are from the Current Population Survey, Survey of Income and Program Participation, and Arthur Young Tax Research Database, University of Michigan, all for calender year 1984. Columns may not add up to totals due to rounding.

Note: Not all of the "tax units" listed under the CPS and SIPP columns will file tax returns.

and the lower tail fatter, than the CPS. Despite these discrepancies, these distributions appear broadly consistent.[12]

Table 3 presents the same distributions for taxpayers with head-of-household status. Once again, the SIPP indicates there are 18 percent more low-income single-parent households than the CPS. Nevertheless, the CPS and SIPP distributions are broadly consistent. However, unlike the distributions presented in Table 2, the relationship between the CPS and SIPP on one hand and the IRS data on the other are strikingly different. Many more heads of households with wage and salary income exceeding $6,000 appear in the IRS data. These households report almost twice as much wage and salary income as do taxpayers in the CPS and SIPP. There is no obvious explanation for this discrepancy though the summary figures for all taxpayers, presented in Appendix Table A.1, may provide some clues. Even though some "tax units" in the CPS and SIPP columns will not file returns, the number of exemptions for children claimed in the IRS data exceeds the number of children in both the CPS and SIPP. The finding that more dependent exemptions are claimed on tax returns in 1984 than exist in the SIPP and CPS data is consistent with one of the responses to the provision of TR86 that required parents to provide the social security numbers of dependents over the age of five. In 1987 seven million fewer dependents than expected, based on previous returns, were claimed (see, for example, Forbes, 2/19/90, p.74).[13] Thus, the discrepancies in the head-of-household returns may partly reflect households inappropriately filing head-of-household returns by claiming false exemptions.[14]

The data examined in this section indicate that the CPS and SIPP are broadly consistent. The CPS appears to have slightly better coverage of high-income households than SIPP, while SIPP indicates there are roughly 18 percent more low-income households with children. Participation rates using the SIPP (Table 1) range from 83 percent to 121 percent, substantially lower than those in the CPS. There are major discrepancies between the tax data and other data over the distribution and

Table 3

Distribution of Taxpayers, Wages and Salaries, and Adjusted Gross Income by Wage and Salary Class, 1984: Head-of-Household Returns

Wage and Salary Class (1000's)	Number of Taxpayers (1000's)			Total Wage and Salaries (in $ millions)			Adjusted Gross Income (in $ millions)		
	CPS	SIPP	IRS	CPS	SIPP	IRS	CPS	SIPP	IRS
-0	2,873	3,250	370	0	0	0	4,863	7,247	4,566
0-6	1,691	2,167	1,920	4,621	6,075	6,484	6,826	8,896	6,582
6-10	1,101	1,279	1,620	9,204	10,191	13,028	10,470	12,093	13,424
10-15	1,093	1,381	2,090	13,781	16,860	25,730	15,265	18,699	27,374
15-25	1,234	1,106	2,180	23,966	21,228	40,882	25,946	23,487	41,517
25-50	499	414	1,000	16,131	13,447	32,024	16,933	14,257	32,394
50-	40	21	170	2,768	1,537	14,102	2,928	1,632	10,395
Total	8,531	9,617	9,350	70,470	69,338	132,250	83,231	86,312	136,253

Source: Data are from the Current Population Survey, Survey of Income and Program Participation, and Arthur Young Tax Research Database, University of Michigan, all for calender year 1984. Columns may not add up to totals due to rounding.

Note: Not all of the "tax units" listed under the CPS and SIPP columns will file tax returns.

incomes of heads of households. These discrepancies could be quite important to analyses of social program, such as child care credits and the EITC, that are administered through the tax system but analyzed using CPS data.[15] It remains an interesting question whether the provision of social security numbers, required by TR86, has ameliorated this situation.

B. Imputations

In this section I consider an issue raised by Lillard, Smith, and Welch (1986). They suggest that the "hot deck" imputation procedure used on missing components of income in the CPS may severely distort income imputations for nonrespondents with incomes below $6,000, the range over which the EITC provided its greatest benefit in 1984.[16] The problems posed by missing data are potentially important. Roughly 12 percent of the CPS sample have wage and salary data that are imputed, 29 percent have an imputation in some component of adjusted gross income. Among families with children, 16 percent have an imputation made on wage and salaries, or farm income, or self-employment income.

There are two ways the missing data problem can affect participation rate calculations. It is possible the imputation procedures lead me to overstate earnings, which would imply that too many families have wages and salaries and earned income that exceed the $10,000 threshold. Alternatively, I may be understating the number of labor market participants among the low-income population. The following methodology is used to investigate these possibilities. I separate the sample into two subsamples, those with and those without imputations on wages and salaries.[17] A probit human capital model of earnings is used to estimate the probability a family has wages and salaries of less than $10,000 in the sample without imputations. I then use these coefficient estimates to compare predictions of the number of families with wages and salaries of less than $10,000 in the sample with imputations, to the number recorded in the imputed data. This procedure allows me to directly

examine whether the imputed sample has too few families with wages and salaries of less than $10,000.

The coefficients of the probit earnings equation are presented in Table 4. Variables include years of school, years of school squared, experience, experience squared, experience multiplied by school, family size, and dummy variables for preschool children, female, black, married, metropolitan location, region of residence, occupational type, broad industry type, currently in school, and unemployed in the previous year.[18] The coefficient estimates conform to expectations. As is typical in the human capital literature, more well-educated and experienced people are less likely to have low incomes, but this effect diminishes with age and education. Women, students, and persons who were unemployed in the previous year are more likely to have wages and salaries under $10,000. Those with well-defined occupations are less likely to have low incomes, relative to their unclassified counterparts.

A more important aspect to the analysis is the ability of the model to correctly predict households with low wages and salaries. The model, by definition, classifies households accurately within sample, that is, 9315 households in the no-impute sample have low wages and salaries, whereas the model predicts there will be 9,300.[19] When the model is used to predict out of sample, the estimates imply that 2,055 households in the imputed sample should have wages and salaries less than $10,000, whereas 2,156 actually do. Given the reasonable parameter estimates of the human capital model and the similarity between predicted and imputed results for the sample with imputations, I conclude the imputations are sound, at least for the purposes of examining the EITC.[20]

Table 4

Probit Earnings Equations to Examine Wage and Salary Imputations: No-Impute Sample Estimation

Variable	Coefficient	T-Statistic	Mean of Variable
Constant	3.714	22.89	1.00
Education	-.366	18.35	12.88
Education squared	.007	9.68	174.68
Experience	-.164	35.39	20.25
Experience squared	.002	42.06	601.13
Ed*exp	.005	22.47	246.56
Family size	.009	1.14	2.70
Preschool kids	.027	1.59	.30
Female	.721	30.28	.27
Black	.202	6.88	.09
Married	-.211	8.21	.59
Resident of SMSA	-.260	9.71	.32
Central City	-.138	4.98	.24
Non-SMSA	.025	.93	.27
Live in Northeast	-.019	.70	.21
Midwest	.050	2.00	.24
South	.112	4.66	.30
Manufacturing Industry	-.194	4.70	.32
Trade	.507	12.31	.17
Service	.329	8.59	.40
Manager Occupation	-1.091	20.42	.25
White Collar	-.788	15.69	.29
Blue Collar	-.531	10.58	.42
In school	1.614	27.59	.03
Unemployed last year	1.173	51.87	.14
Log-likelihood		-13,815	
Observations		35,416	
Observed low income (Y=1)		9,315	

	Predictions[a]	
	Within Sample	Imputed Sample
Prediction (Y=1)	9,300	2,055
Actual (Y=1)	9,315	2,156

Source: Data are from the 1985 CPS.

Note: The dependent variable takes the value one if wage and salaries are under $10,000, zero otherwise.

[a]The predictions were made by summing $\Phi(X\beta)$ over all observations where, for the imputed sample, the X's are the data from the imputed sample, β is taken for the no-impute estimation, and Φ is the cumulative normal distribution function.

C. Noncompliance

To this point I have been focusing on the reliability of the denominator of the participation rate. However, it is also possible that taxpayers filing for the EITC are not complying with the tax law. Unlike other incentives for tax cheating, potential EITC claimants with little or no earned income should overstate earned income in order to receive the credit. Since the EITC is refundable, households with zero, or very low, earnings have an incentive to file a return and report extra earnings to maximize the difference between the EITC and positive tax liability. For a family of four in 1984 this occurs at $5,000 of earned income, which would generate a credit of $500.[21]

Taxpayers with children and incomes higher than the phase-out range, ($10,000 in 1984, $20,270 in 1990) have the usual incentive to underreport wage and salary or self-employment income. This would lower their tax liability and, if AGI and earned income fall below the top phase-out threshold, entitle the taxpayer to the EITC.[22] Several additional aspects of the tax law can affect compliance. Low-income single taxpayers or married couples without children may inappropriately receive the EITC by claiming a child on their tax return. This may be particularly troublesome for single taxpayers because relatively complex rules govern both the filing of head-of-household returns and the claiming of dependents in the case of divorce or separation. In addition, the law requires that over half of the household's income be constituted as earned income to be eligible for the EITC. This requirement is virtually unenforceable, since information on public transfers is not gathered on tax returns. Moreover, no mention is made of this provision on the EITC instructions included in the tax forms.

Table 5 presents evidence from two cycles of the Taxpayer Compliance Measurement Program (TCMP) of the IRS on the degree of EITC noncompliance in 1982 and 1985.[23] The magnitude of noncompliance is strikingly large. In 1982 37 percent of all taxpayers who took the EITC took too much, 27 percent of those who took the credit were completely ineligible. The net dollar amount of

Table 5

Taxpayer Compliance Measurement Program: Data on the Earned Income Tax Credit, 1982 and 1985

	1982	1985
Number of returns (in millions)		
Claiming the EITC	6.014	6.424
Had EITC increased	.214	.253
Had EITC decreased	2.248	2.953
Had EITC decreased to zero	1.722	2.496
Total returns entitled to EITC	4.366	4.004
Total earned income tax credit (in millions of dollars)		
Total EITC claimed	1,749	2,091
Amount that should have been claimed	1,236	1,325
Dollar amount of EITC adjustment (in millions of dollars)		
Increased	21	25
Decreased	555	818
Decreased to zero	485	765

Source: These data are from unpublished worksheets of the Internal Revenue Service, Taxpayer Compliance Measurement Program, 1982 and 1985. The 1982 figures come from TCMP, Phase III, Cycle 8, 2/27/86. The 1985 figures come from TCMP, Phase III, Cycle 9, 4/11/89.

Note: An additional category is excluded from the table, taxpayers who made a mistake elsewhere in their return and thus were entitled to the EITC but failed to claim the credit. This category, which contains a small number of taxpayers, is labeled "not reported but established." This accounts for the slight difference between the figures in the table and in the text.

inappropriately claimed credit was $513 million out of total credit payments of $1,749 million. In 1985 these figures were even larger. Forty-six percent of all taxpayers who took the EITC took too much, while 39 percent of those who took the credit were completely ineligible. Out of $2,091 million claimed EITC, $766 million was claimed inappropriately.

There are no publicly available data on the characteristics of the households inappropriately claiming the EITC, so it is difficult to say what accounts for these figures. IRS officials suggest that the major problems arise from taxpayers inappropriately filing head-of-household returns[24] and failing to meet the 50 percent earned income criterion. The same officials suggest that it is relatively uncommon for taxpayers to "make up" children in order to receive the credit, or for the TCMP to fail to locate families.[25] However, without more data these issues cannot be satisfactorily resolved.

The compliance data suggest a very different conclusion about the EITC participation rate. IRS tax return data indicate that 5.758 million taxpayers claimed the EITC in 1984. If 27 percent were ineligible (the estimated 1982 percentage) 4.2 million (strictly) eligible taxpayers claimed the EITC. If 39 percent were ineligible (the estimate for 1985) only 3.5 million legally claimed the credit. The 1984 SIPP indicates that between 5.27 and 6.97 million taxpayers were eligible for the EITC, consequently the EITC participation rate was apparently between 50 and 80 percent. It also appears that a substantial number of ineligible taxpayers received benefits from the EITC. However, we do not know the characteristics of these taxpayers.

D. Summary

The data problems addressed in this section make it difficult to address the conceptually simple question: What is the participation rate of the EITC? While the large number of imputations in the CPS is a cause for concern, it appears that there are no systematic biases in the imputations of earnings and labor market participation in these data. Comparisons of the CPS and IRS data indicate

that there are discrepancies between these two sources, particularly in the incomes of single-parent households. The SIPP indicates there are more low-income taxpayers than suggested by the CPS, thus, the implied participation rates calculated from the SIPP are lower. Yet, the conclusion one would draw from both the CPS and SIPP data is that the take-up rate of the EITC in 1984 (and 1979) was very high, perhaps on the order of 90 to 100 percent. This conclusion has to be amended, however, given the striking evidence that there is substantial noncompliance associated with the EITC. While there are no publicly available data on the characteristics of taxpayers who erroneously file for the EITC, the existence of a substantial number of these taxpayers indicates that the take-up rate of those legally eligible for the EITC is substantially lower than is conventionally thought.[26] Data from the 1984 SIPP, where roughly 5.5 million taxpayers appear eligible, and the 1982 and 1985 TCMP (assuming a 33 percent noncompliance rate), yield an EITC participation rate of 70 percent.

IV. EITC TAKE-UP IN 1988

The 1986 tax reform (TR86) eliminated the filing requirement for a large number of low-income families. This has raised the concern of many that low-income families who are eligible for substantial EITC payments may fail to file and thus fail to receive their payments.[27] In this section I present the first evidence, from the 1989 CPS, on the post-TR86 EITC participation rate.

Using the 1989 CPS (covering calendar year 1988) and the two definitions of EITC eligibility used in Table 1, I find that 7,887,147 tax units are eligible for the EITC under the specific provisions of the law,[28] and 9,607,398 have wages and salaries or earned income between $0 and $17,000. The preliminary tax return data from 1988 (IRS, 1989) indicate that in 1988 10,266,000 households claimed the EITC. Thus, the unadjusted participation rate from the CPS is between 107 and 130 percent. Given the limitations of the data, it is difficult to say whether TR86 has caused EITC participation to fall. For example, the SIPP indicates that there are roughly one million more

low-income households potentially eligible for the EITC than reflected in the CPS. Thus, it is plausible that close to 9 million taxpayers were eligible for the credit in 1988. If rates of noncompliance are similar, perhaps one-third of all EITC claimants inappropriately file for the credit.[29] This would imply that the EITC participation rate in 1988 was about 76 percent, and that roughly 2.1 million households failed to receive the credit that they were entitled to.

Table 6 presents simulations that show the degree to which the EITC in 1990 raises the incomes of families below the poverty line, and the effect the House and Senate bills would have on the poverty gap. The simulations assume that all taxpayers who are eligible for the credit receive the credit and that there are no behavioral responses to receipt of the credit.[30] The House bill increases total EITC expenditures 65 percent when compared to current law.[31] The EITC provisions of the Senate bill are somewhat smaller, increasing the EITC only for households with children four years old or younger.[32] Nevertheless, the Senate bill would increase EITC payments by about 20 percent. As shown in Table 6, roughly half the EITC recipients have incomes below the poverty line, while slightly more than half the payments go to taxpayers below the poverty line. It is also clear that even the relatively generous House bill will not by itself raise the majority of working-poor families out of poverty. In the simulations, the House bill would succeed in raising only 13 percent of the EITC recipients below the poverty line (prior to receipt of the EITC) out of poverty.

V. CONCLUSIONS

This paper has focused on a small aspect of a complete policy analysis of the earned income tax credit, namely, the participation rate.[33] While a wide range of estimates can be generated, my central estimates (for 1988) suggest the participation rate is about 76 percent. This implies that roughly 2.1 million low-income families who are entitled to the credit fail to receive it. In light of

Table 6

Effect of the EITC on the Poverty Gap: 1990 Current Law; 1990 House Bill; and 1990 Senate Bill

EITC-Eligible Taxpayers	Current Law	House Bill	Senate Bill[a]
	(all figures are in 1000's)		
No. of EITC-eligible taxpayers above the poverty line	5,319	5,356	5,319
$ amount of EITC to these households	2,681,390	4,237,457	3,173,235
No. of taxpayers below the poverty line before receiving EITC	5,079	5,079	5,079
$ amount of EITC to these taxpayers	3,226,473	5,487,070	3,911,788
Poverty gap ($) for these households[b]	32,186,522	32,186,522	32,186,522
No. of taxpayers below the poverty line after receiving EITC	4,702	4,406	4,555
$ amount of EITC to these taxpayers	2,891,271	4,484,460	3,386,479
Poverty gap ($) for these taxpayers[b]	29,134,134	27,186,731	28,534,145

Note: These simulations are based on the 1988 CPS, simulating the EITC under 1990 law, the House bill, and Senate bill. See the text for a description of the rates in the House and Senate bills. The simulations assume that all eligible households receive the credit and there are no behavioral responses to the credit. The exact provisions of the law are used to determine eligibility.

[a]The Senate bill includes provisions to make 90 percent of the dependent care tax credit refundable and establishes a new health insurance tax credit. These provisions are not included in the simulations.

[b]The poverty gap is defined as the 1988 poverty line for the household minus pretransfer income.

this evidence, campaigns to publicize the credit, particularly through employers of low-wage workers, may have considerable social value.

There is striking evidence of significant noncompliance with the EITC. This is an important issue when evaluating policies that support the working poor through an expansion of the EITC. Unfortunately, it is also an extremely difficult issue to analyze, since data are not available on the relative importance of various avenues of noncompliance. One clear improvement can be made by eliminating the requirement that more than half an EITC recipient's income consist of earned income. This provision is almost impossible to enforce and makes little analytic sense.[34] In addition, changes to simplify the determination of head-of-household filing status would probably contribute to improving EITC compliance.

A complete analysis of the EITC would consider several additional issues. The EITC imposes positive marginal tax rates when the credit gets phased out. IRS data (1989) indicate that more than 50 percent of the EITC recipients have incomes in this range. More needs to be known about the other tax rates these families face, either through the direct taxation of the payroll tax, sales and excise taxes, state and local income taxes, and property taxes,[35] or through indirect taxes such as those imposed through the transfer system. To the extent these marginal tax rates are high, the presumed beneficial labor supply incentives of the EITC may be swamped by the layering of other marginal tax rates. In addition, more can usefully be learned about the income dynamics of this population. Is the EITC intended to boost the earnings of a population that has fluid earnings, but is temporarily working-but-poor, or is the EITC a response to a long-term problem? These issues are important when considering the optimal design of policy.

The difficulties encountered in calculating a participation rate for the EITC illustrate the problems inherent in using CPS or SIPP data to analyze policies administered through the federal tax

system. Issues of data consistency, especially for taxpayers filing head-of-household returns, and compliance should be mentioned, if not incorporated into these analyses.

Notes

[1]Several previous papers have examined other aspects of the EITC. Steuerle and Wilson (1986, 1987) present a general description and analysis of the credit, Lewis and Morrison (1988) examine the interactions of implicit taxes generated by combinations of transfer programs including the EITC, and Gabe (1989) presents a static incidence analysis of several proposals to alter the EITC.

[2]To be eligible for the credit a taxpayer must have earned income within a specified range, adjusted income below the upper limit of the range, and have dependents. Published statistics from the Current Population Survey or the Survey of Income and Program Participation do not contain this information.

[3]The IRS SOI volume reports data on three categories of tax returns: the number of returns that use the EITC to offset income tax before credits; earned income credit used to offset other taxes; and earned income credit, refundable portion. Since these categories are not mutually exclusive, it is impossible to determine the total number of taxpayers claiming the EITC.

[4]There are, however, some discrepancies between numbers recorded on unpublished Internal Revenue Service (IRS) worksheets and the figures presented in the Green Book.

[5]The variation is a consequence of different assumptions used to calculate the pool of eligible taxpayers. Simulating the exact provisions of the law leads to figures in the high end of the range, making more extreme "upper bound" assumptions leads to figures in the lower end of the range.

[6]As will be discussed in greater detail below, TR86 contains two provisions that could substantially affect EITC participation rates. The most widely noted was that a large number of low-income families are no longer required to file tax returns. Consequently, it may be the case that a substantial number of taxpayers, who might be eligible for an EITC of up to $1,002, no longer file

returns. TR86 also required taxpayers, for the first time, to record the social security numbers of their dependents. This is likely to reduce the amount of noncompliance on the EITC.

[7]The CPS is collected by the Census Bureau and is a standard source for information on incomes and employment. Lillard, Smith, and Welch (1986) report that over the period 1976-1986 over 100 articles appeared in five leading economics journals that used the Census or CPS data for studies of income.

[8]In the simulations I ignore an additional criterion for eligibility and thus potentially overstate the number of EITC-eligible households. If more than half of a taxpayers's income is from AFDC or another source other than own income or resources, the EITC cannot be taken (U.S. House of Representatives, Committee on Ways and Means, 1989). In both the 1980 and 1985 CPS, roughly 8 to 10 percent of the "EITC-eligible" taxpayers had AFDC or public assistance income that exceeded earned income. This provision is difficult to enforce since AFDC receipts are not and other sources of income may not be reported on the tax return. However, it is important when examining the available evidence on noncompliance. I discuss this issue further in Section III.C.

[9]This definition of AGI differs from that found on tax returns in that I exclude capital gains and all adjustments to AGI other than the two-earner deduction in 1984, due to the lack of information pertaining to these items in the CPS.

[10]This result has been corroborated with the March 1987 CPS by Andrew Reschovsky, who used a variant of the Urban Institute's TRIM model. In 1986 6.277 million taxpayers received the EITC, while the CPS data suggest that 5.25 million households were eligible. This implies the EITC take-up rate is roughly 120 percent.

[11]An overview of the SIPP is given by Kasprzyk (1988) and a discussion of SIPP quality is given in King, Petroni, and Singh (1987). Vaughan (1989) presents an extensive set of comparisons and

nice discussion of differences between the CPS and SIPP for the general population, but does not focus on taxpayers with children.

[12]It should be emphasized that the simulated tax units in the CPS and SIPP may not actually be required to file tax returns, while all observations in the IRS data have filed. Thus, it is to be expected that the SIPP and CPS have more taxpayers without wage and salary income than the IRS data. Identical comparisons have been done with the 1979 tax, CPS, and decennial census data. As expected, the CPS and Census data are equivalent, while similar patterns are present between the IRS and CPS (Census) data.

[13]In 1988 there was a total of 66.5 million exemptions for dependents taken.

[14]For example, a separated couple may each claim a child in joint custody as a dependent, thus "entitling" each to file as head of household. In fact, a parent must provide more than half the child's support and live with the child more than six months of the year to file a head-of-household return.

[15]See, for example, Barnes (1989), Gabe (1989), Hendrickson and Sawhill (1989), and Scholz (1989).

[16]David et al. (1986) perform a detailed examination of CPS imputations using a 1980 exact match of CPS and IRS data but do not focus on the EITC-eligible population.

[17]I also have used a broader definition of the imputed sample, selecting those families that have an imputation made on at least one component of total income. Total income includes wage and salaries, self-employment, farm, SSI, AFDC, interest, dividends and other capital income, veterans' benefits, unemployment and worker's compensation, and pensions. Twenty-eight percent of the sample meets this criterion. The results are not affected by the two definitions of the imputation sample.

[18]These variables are chosen to correspond to the human capital earnings equations described in Willis (1986).

[19]Predictions are calculated as the sum of $\Phi(X\hat{\beta})$ over all observations in the sample. Just as OLS regressions will fit the mean of the dependent variable, the probit should fit the average probability of the dependent variable being one.

[20]It is difficult to do a comparable analysis of participation decisions, since there is meager information about the quality of the participation data. For example, the CPS does not provide information about whether the coding of a family's labor market experience in the previous year was imputed. Furthermore, only .2 percent of the sample has an imputation on hours worked in the previous week and .1 percent has an allocation on participation in the previous week. Among the 16 percent of the sample with missing data on earnings, all have a positive level of imputed earnings and thus presumably participated. It is not surprising given that virtually every household in the sample without imputations is coded as participating, that participation probabilities calculated from a reduced form probit participation equation on the no-impute sample indicates that participation is somewhat higher in the impute-group than would be expected. This suggests that understated labor market participation is unlikely to be the explanation for the underrepresentation of EITC-eligible families in the CPS.

[21]Figures in 1990 are $7,160, which would lead to a credit of $1,002.

[22]Returns filed with the IRS that fail to claim the EITC but are eligible for the credit are adjusted by the IRS so that the correct payment or refund is made.

[23]The Taxpayer Compliance Measurement Program (TCMP) monitors the returns of roughly 50,000 tax filers every three years to examine various aspects of tax compliance.

[24]For example, a taxpayer must provide at least half the child's support and live with the child more than six months of the year to file as a head of household. Moreover, a mother living with her parents is often not considered to be providing shelter.

[25]Families who are not located are assumed to be ineligible.

[26]Howard Chernick and Andrew Reschovsky (1990) report a phone conversation with Richard Kasten of the Congressional Budget Office who suggests the EITC take-up rate is on the order of 90 percent. Scholz (1989) presents similar evidence of a very high take-up rate.

[27]For example, the Greater Milwaukee Committee (1990) ran an innovative outreach program to publicize the EITC. The Center on Budget and Policy Priorities has supported a similar national campaign (Wall Street Journal, 7/13/89, p. A16).

[28]Taxpayers must file a head-of-household return or joint return with a dependent, have earned income between $0 and $17,000, and AGI less than $17,000.

[29]Changes since 1984 generate offsetting incentives to falsely (or inadvertently) file for the EITC. Taxpayers must now provide the social security numbers for their dependents, which should reduce noncompliance, however, the value of the EITC has increased, which will increase the return for successful noncompliance.

[30]Simulations were also done accounting for noncompliance, but without further assumptions about what groups were inappropriately claiming the credit. The calculations are similar to those given in Table 6.

[31]The House and Senate bills are analyzed in Center on Budget and Policy Priorities (1990). Current law provides a 14 percent credit on earned incomes between $1 and $7,160. The credit is phased out at 10 percent for earned income or AGI (whichever is larger) between $11,280 and $21,300. The House bill uses roughly the same income brackets as current law. The credit rates are 17 percent (one child older than six), 23 percent (one child under six), 21 percent (two children, none under six), 27 percent (two children, one under six), 25 percent (three or more children, none under six), and 31 percent (three children, at least one under six). The "clawback" rates are 12, 16.25, 15, 19.25, 18, and 22.25 percent, respectively.

[32]The Senate bill maintains current law for households with no children under age four. For households with one child under four the EITC increases to 21 percent, for two or more children under four the EITC increases to 24 percent. The "clawback" rates are 15 and 17 percent respectively. The income brackets remain the same under all situations. The Senate bill also contains provisions to refund 90 percent of the dependent care tax credit and establishes a new health insurance tax credit to help low-income families purchase insurance. These provisions are not reflected in the simulations.

[33]While the focus of this paper has been on participation rates, "target efficiency" is only one of many aspects of program design and evaluation. See Garfinkel (1982, especially chapters 1 and 13) for a critical discussion of target efficiency measures.

[34]The fact that a household may have significant amounts of transfer income has little bearing on the objectives of the EITC, whether the credit is intended to relieve the regressive burden of the payroll tax for social security or intended to encourage labor supply among the working poor.

[35]Chernick and Reschovsky (1990) present evidence on this issue.

Appendix Table A.1

Distribution of All Taxpayers, Dependents, Wages and Salaries,
and Adjusted Gross Income by Wage and Salary Class, 1984

Wage and Salary Class (1000's)	Number of Taxpayers (1000's)			Number of Dependents (1000's)			Total Wages and Salaries (in $ millions)			Adjusted Gross Income (in $ millions)		
	CPS	SIPP	IRS	CPS	SIPP	IRS	CPS	SIPP	IRS	CPS	SIPP	IRS
-0	27,442	33,918	12,960	9,061	10,752	3,170	0	0	0	219,506	291,445	253,882
0-6	10,280	19,136	19,180	5,672	7,169	6,580	29,559	52,683	55,773	77,255	130,928	108,019
6-10	6,894	10,121	10,760	4,297	4,984	6,190	57,283	80,958	86,081	77,234	109,362	105,444
10-15	8,895	11,348	11,420	5,814	6,594	8,460	113,370	140,316	141,829	133,915	172,529	159,410
15-25	15,992	18,076	16,500	12,023	15,233	14,450	322,295	356,706	323,188	355,148	396,605	336,187
25-50	20,969	19,573	21,080	19,802	20,185	25,590	740,778	669,244	733,203	778,848	700,156	737,456
50-	5,474	3,435	5,930	4,726	3,286	7,930	370,248	221,731	459,572	393,945	232,839	467,999
Total	95,946	115,606	97,830	61,395	68,204	72,370	1,633,532	1,521,640	1,799,645	2,035,851	2,033,863	2,168,395

Source: Data are from the Current Population Survey, Survey of Income and Program Participation, and Arthur Young Tax Research Database-University of Michigan, all for calender year 1984. Columns may not add up to totals due to rounding.

Note: Not all of the "tax units" listed under the CPS and SIPP columns will file tax returns.

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