Fig 3. Dynamics, All taxpayers 1988 versus 1995



However, the econometric application of the piecewise linear budget constraint method has been called into question by the work of MaCurdy et al. (1990). They, and Pencavel (1986) earlier, showed that the probability of locating at a convex interior kink is positive-and the log likelihood is defined-only if the estimated coefficients yield a positive compensated substitution effect. When this
condition was not satisfied, researchers imposed it by constraining the income coefficient to be negative. MaCurdy et al. suggested further that the piecewise linear budget constraint method automatically imposes a positive compensated effect. Blomquist (1995) explained that this conclusion is not warranted. The compensated effect may be estimated to be positive without the researcher imposing it, and

Table 3
Experimental Payment minus Predicted Control Payment for 3-Year Dual-headed Experimental Families, Attrition Families Excluded (Standard Errors in Parentheses)

| G (\$) | $\tau$ | Declining Tax Rate | Preexperimental Payment (\$) | Payments for Year of Experiment (\$) |  |  | Postexperimental Payment (\$) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | 1 | 2 | 3 |  |
| 3,800 | . 5 | No | 193.78 | 248.46 | 368.95* | 389.24* | 138.56 |
|  |  |  | (143.45) | (149.58) | (170.75) | (182.99) | (188.20) |
| 3,800 | . 7 | No | 124.96 | 185.18 | 317.28 | 218.37 | -47.85 |
|  |  |  | (223.77) | (237.91) | (252.99) | (325.57) | (314.66) |
| 3,800 | . 7 | Yes | -33.37 | 68.94 | 158.44 | 324.84 | 29.28 |
|  |  |  | (178.05) | (176.07) | (213.59) | (230.50) | (222.42) |
| 3,800 | . 8 | Yes | 75.40 | 336.06 | 221.54 | 160.83 | 91.52 |
|  |  |  | (229.44) | (237.18) | (245.92) | (264.53) | (261.84) |
| 4,800 | . 5 | No | 52.02 | 85.17 | 294.55 | 337.23 | 70.22 |
|  |  |  | (192.31) | (184.85) | (201.73) | (221.73) | (219.58) |
| 4,800 | . 7 | No | 220.76 | 288.33 | 496.85* | 543.25* | 178.32 |
|  |  |  | (160.04) | (169.04) | (197.88) | (204.50) | (194.03) |
| 4,800 | . 7 | Yes | 136.99 | 281.98* | 423.30* | 348.03* | 23.96 |
|  |  |  | (127.36) | (137.19) | (157.51) | (162.38) | (140.58) |
| 4,800 | . 8 | Yes | $-16.87$ | 305.09 | 417.90 | 317.39 | 121.47 |
|  |  |  | (175.54) | (209.24) | (234.32) | (274.11) | (239.59) |
| 5,600 | . 5 | No | -163.12 | 200.75 | 664.41* | 717.15* | 124.93 |
|  |  |  | (252.05) | (258.13) | (283.28) | (280.65) | (287.04) |
| 5,600 | . 7 | No | -59.97 | 23.34 | 386.12 | 744.94* | 267.69 |
|  |  |  | (164.95) | (156.41) | (200.59) | (263.80) | (259.45) |
| 5,600 | . 8 | Yes | -27.64 | -51.03 | 117.85 | 273.44 $(157.96)$ | 121.53 |
|  |  |  | (121.47) | (126.67) | (138.52) | (157.96) | (169.26) |

Note.-Terms are explained in text.

* Denotes mean is more than twice its standard error.

In table 3 we present the basic results for families participating in the 3 -year program. The first three columns give the various program parameters. The column label "Preexperimental" gives the difference between the mean payments that would have been made to experimentals and controls based on preexperimental income. Since no family is exposed to an NIT at that point, this difference should be zero. In fact, none of the preexperimental differences are significantly different from zero, although some are rather large, particularly the $(3,800, .5, \mathrm{No})(4,800, .7, \mathrm{No})$ and the $(5,600, .5$, No $)$ programs. About one-half the preexperimental differences are positive.

The results for the 3 experimental years are given in the next three columns. All but one of the 33 differences in mean payments are positive, and 10 are significantly different from zero, thus showing evidence of some experimental effect on labor supply. The largest effects are in the $(5,600$, .5 , No) program, which has the largest break-even level $(\$ 11,200)$. The experimental-control differences tend to become larger over time.

It is difficult to tell from casual examination of these numbers if the
Table 4
Experimental Payment minus Predicted Control Payment for 5-Year Dual-headed Experimental Families, Attrition Families Excluded (Standard Errors in Parentheses)

| $G(\$)$ |  | Declining Tax Rate | Preexperimental Payment (\$) | Payment for Year of Experiment (\$) |  |  |  |  | Postexperimental Payment (\$) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\tau$ |  |  | 1 | 2 | 3 | 4 | 5 |  |
| 3,800 | . 5 | No | 102.24 | 345.68 | 526.02 | 110.30 | 390.07 | 169.82 | 229.70 |
|  |  |  | (185.55) | (221.42) | (241.53) | (265.28) | (307.01) | (286.76) | (309.06) |
| 3,800 | . 7 | No | 81.16 | 23.30 | -99.33 | 98.20 | -16.42 | -122.01 | $-406.46$ |
|  |  |  | (309.85) | (316.06) | (330.14) | (383.52) | (388.07) | (352.95) | (314.40) |
| 3,800 | . 7 | Yes | 6.99 | 490.00 | 176.14 | 23.22 | 324.70 | -59.79 | -598.09* |
|  |  |  | (234.01) | (288.13) | (272.87) | (300.28) | (386.93) | (331.68) | (102.72) |
| 3,800 | . 8 | Yes | -130.30 | 349.73 | 189.80 | 329.94 | 1207.82* | 1108.49* | 307.38 |
|  |  |  | (271.23) | (286.56) | (280.63) | (365.58) | (463.10) | (487.83) | (453.29) |
| 4,800 | . 5 | No | $-23.66$ | $30.15$ | $160.40$ | $399.28$ | $+19.73$ | $+3+.30$ | $251.09$ |
|  |  |  | $\begin{gathered} (183.73) \\ -129.98 \end{gathered}$ | $\begin{gathered} (208.90) \\ 25.71 \end{gathered}$ | $\begin{gathered} (199.26) \\ -4.47 \end{gathered}$ | $\begin{gathered} (236.33) \\ 569.10 \end{gathered}$ | $\begin{gathered} (2+7.25) \\ 493.42 \end{gathered}$ | $\begin{gathered} (254.52) \\ 219.74 \end{gathered}$ | $\begin{gathered} (242.45) \\ -38.46 \end{gathered}$ |
| 4,800 | . 7 | No | $(185 .+6)$ | $(208.1+)$ | (211.44) | (314.73) | (357.32) | (340.60) | (228.01) |
| 4,800 | . 7 | Yes | 75.66 | 224.96 | 387.66 | $3+0.71$ | -130.10 | 34.61 | 189.49 |
|  |  |  | (234.21) | (280.43) | (367.56) | (404.05) | (308.90) | (445.67) | (491.52) |
| 4,800 | . 8 | Yes | 467.89 | 325.17 | 599.43* | 398.62 | 537.21 | 506.95 | 346.28 |
|  |  |  | (252.40) | (276.31) | (274.39) | (280.50) | (365.56) | (351.98) | (337.43) |
| 5,600 | . 5 | No | $-224.97$ | 560.51 | $723.08^{*}$ | 782.53* | 592.40 | 313.82 | -53.07 |
|  |  |  | (286.39) | (298.21) | (306.90) | (327.39) | (366.88) | (387.31) | (325.66) |
| 5,600 | . 7 | No | -158.74 | 500.18 | 1194.68* | 890.38* | 825.39 | 435.01 | 588.91 |
|  |  |  | (239.17) | (311.24) | (+16.25) | (391.61) | (467.76) | (609.49) | (510.52) |
| 5,600 | . 8 | Yes | $-6.48$ | $193.5 t$ | $617.29^{*}$ | $906.13^{*}$ | $888.72$ | $877.71$ | $75.21$ |
|  |  |  | $(175.15)$ | (199.51) | (255.89) | $(315.98)$ | $(337.38)$ | (398.38) | $(216.12)$ |

[^0]Table IIa Marginal Tax Rate

| Group | Before <br> TRA86 | After <br> TRA86 | Change | Relative <br> Change |
| :--- | :---: | :---: | :---: | :---: |
|  |  |  |  |  |
| High | .521 | .382 | -.139 | $(.002)$ |

The marginal tax rate is calculated using family wage and salary, self-employment, interest, dividend, farm and social-security income. I assume all couples file jointly, and that all itemize their deductions. Itemized deductions and capital gains are imputed using Statistics of Income data. These figures include the secondary earner deduction, as well as social security taxes. Standard errors are in parentheses. Before TRA86 is tax years 1983-1985; After TRA86 is tax years 1989-1991.

Table IIb
After-Tax Wage

| Group | Change | Relative Change |
| :--- | :---: | :---: |
| High | $29.1 \%$ |  |
| $75^{\text {th }}$ | $6.5 \%$ | $22.6 \%$ |
| Percentile | $12.3 \%$ | $16.8 \%$ |
| $90^{\text {th }}$ <br> Percentile |  |  |

I assume that the real average market wage for each group is constant. Therefore, the percent-change in the after-tax wage is calculated as the percent-change in the 'after tax share'- (1- $\tau$ ), where $\tau$ is the marginal tax rate.

Table III
Differences-in-Differences Estimates
CPS Married Women Before and After TRA86
A: Labor Force Participation

| Group | Before <br> TRA86 | After TRA86 | Change | Difference-inDifference |
| :---: | :---: | :---: | :---: | :---: |
| High | $\begin{gathered} 0.464(.018) \\ {[756]} \end{gathered}$ | $\begin{gathered} 0.554(.018) \\ {[718]} \end{gathered}$ | $\begin{gathered} 0.090(.025) \\ \{19.5 \%\} \end{gathered}$ |  |
| $\begin{aligned} & 75^{\text {h }} \\ & \text { Percentile } \end{aligned}$ | $\begin{gathered} 0.687(.010) \\ {[3799]} \end{gathered}$ | $\begin{gathered} 0.740(.010) \\ {[3613]} \end{gathered}$ | $\begin{gathered} 0.053(.010) \\ \{7.2 \%\} \end{gathered}$ | $\begin{gathered} 0.037(.028) \\ \{12.3 \%\} \end{gathered}$ |
| $90^{\mathrm{th}}$ <br> Percentile | $\begin{gathered} 0.611(.010) \\ {[3765]} \end{gathered}$ | $\begin{gathered} 0.656(.010) \\ {[3584]} \end{gathered}$ | $\begin{gathered} 0.045(.010) \\ \{6.5 \%\} \end{gathered}$ | $\begin{gathered} 0.045(.028) \\ \{13 \%\} \end{gathered}$ |

B: Hours Conditional on Employment

| Group | Before <br> TRA86 | After TRA86 | Change | Difference-inDifference |
| :---: | :---: | :---: | :---: | :---: |
| High | $\begin{gathered} 1283.0(46.3) \\ {[351]} \end{gathered}$ | $\begin{gathered} 1446.3(41.1) \\ {[398]} \end{gathered}$ | $\begin{gathered} 163.3(61.5) \\ \{12.7 \%\} \end{gathered}$ |  |
| $\begin{aligned} & 75^{\text {dh }} \\ & \text { Percentile } \end{aligned}$ | $\begin{gathered} 1504.1(14.3) \\ {[2610]} \end{gathered}$ | $\begin{gathered} 1558.9 \text { (13.9) } \\ {[2676]} \end{gathered}$ | $\begin{gathered} 54.8(20.0) \\ \{3.6 \%\} \end{gathered}$ | $\begin{gathered} 108.6(65.1) \\ \{9.4 \%\} \end{gathered}$ |
| $90^{\text {th }}$ <br> Percentile | $\begin{gathered} 1434.1(16.4) \\ {[2303]} \end{gathered}$ | $\begin{gathered} 1530.1(15.9) \\ {[2348]} \end{gathered}$ | $\begin{gathered} 96.0(22.8) \\ \{6.8 \%\} \end{gathered}$ | $\begin{gathered} 67.3 \text { (64.8) } \\ \{6.2 \%\} \end{gathered}$ |

Each cell contains the mean for that group, along with standard errors in (), number of observations in [], and \% increase in $\}$. Means are unweighted.

C: Annual Hours

| Group | Before TRA86 | After TRA86 | Change | Difference-inDifference |
| :---: | :---: | :---: | :---: | :---: |
| High | $\begin{gathered} 595.7(31.7) \\ {[756]} \end{gathered}$ | $\begin{gathered} 801.7(35.2) \\ {[718]} \end{gathered}$ | $\begin{gathered} 206.0(47.4) \\ \{34.5 \%\} \end{gathered}$ |  |
| $75^{\mathrm{Lh}}$ <br> Percentile | $\begin{gathered} 1033.3(15.0) \\ {[3799]} \end{gathered}$ | $\begin{gathered} 1154.5(15.3) \\ {[3613]} \end{gathered}$ | $\begin{gathered} 121.2(21.5) \\ \{11.7 \%\} \end{gathered}$ | $\begin{gathered} 84.8(51.5) \\ \{22.8 \%\} \end{gathered}$ |
| $90^{\text {th }}$ <br> Percentile | $\begin{gathered} 876.4(15.2) \\ {[3765]} \end{gathered}$ | $\begin{gathered} 1005.2(16.0) \\ {[3579]} \end{gathered}$ | $\begin{gathered} 128.8(22.1) \\ \{14.7 \%\} \end{gathered}$ | $\begin{gathered} 77.4 \text { (52.5) } \\ \{19.8 \%\} \end{gathered}$ |

Each cell contains the mean for that group, along with standard errors in 0 , number of observations in [], and $\%$ increase in $\}$. Means are unweighted.

Table 1: Earned Income Tax Credit Parameters, 1979-2001 (in nominal dollars)

| Year | $\begin{gathered} \text { Phase-in Rt } \\ \% \end{gathered}$ | Phase-in Range | Max Credit | Phase-out Rte (\%) | Phase-out Range |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 1975-78 | 10.0 | \$0-\$4,000 | \$400 | 10.0 | \$4,000-\$8,000 |
| 1979-84 | 10.0 | 0-5,000 | 500 | 12.5 | 6,000-10,000 |
| 1985-86 | 11.0 | 0-5,000 | 550 | 12.22 | 6,500-11,000 |
| 1987 | 14.0 | 0-6,080 | 851 | 10.0 | 6,920-15,432 |
| 1988 | 14.0 | 0-6,240 | 874 | 10.0 | 9,840-18,576 |
| 1989 | 14.0 | 0-6,500 | 910 | 10.0 | 10,240-19,340 |
| 1990 | 14.0 | 0-6,810 | 953 | 10.0 | 10,730-20,264 |
| $1991{ }^{\text {a }}$ | $\begin{aligned} & 16.7^{1} \\ & 17.3^{2} \end{aligned}$ | 0-7,140 | $\begin{aligned} & 1,192 \\ & 1,235 \end{aligned}$ | $\begin{aligned} & 11.93 \\ & 12.36 \end{aligned}$ | $\begin{aligned} & 11,250-21,250 \\ & 11,250-21,250 \end{aligned}$ |
| $1992^{\text {a }}$ | $\begin{aligned} & 17.6^{1} \\ & 18.4^{2} \end{aligned}$ | 0-7,520 | $\begin{aligned} & 1,324 \\ & 1,384 \end{aligned}$ | $\begin{aligned} & 12.57 \\ & 13.14 \end{aligned}$ | $\begin{aligned} & 11,840-22,370 \\ & 11,840-22,370 \end{aligned}$ |
| $1993{ }^{\text {a }}$ | $\begin{aligned} & 18.5^{1} \\ & 19.5^{2} \end{aligned}$ | 0-7,750 | $\begin{aligned} & 1,434 \\ & 1,511 \end{aligned}$ | $\begin{aligned} & 13.21 \\ & 13.93 \end{aligned}$ | $\begin{aligned} & 12,200-23,050 \\ & 12,200-23,050 \end{aligned}$ |
| 1994 | $\begin{gathered} 23.6^{1} \\ 30.0^{2} \\ 7.65^{3} \end{gathered}$ | $\begin{aligned} & 0-7,750 \\ & 0-8,245 \\ & 0-4,000 \end{aligned}$ | $\begin{array}{r} 2,038 \\ 2,528 \\ 306 \end{array}$ | $\begin{array}{r} 15.98 \\ 17.68 \\ 7.65 \end{array}$ | $\begin{gathered} 11,000-23,755 \\ 11,000-25,296 \\ 5,000-9,000 \end{gathered}$ |
| 1995 | $\begin{gathered} 34.0^{1} \\ 36.0^{2} \\ 7.65^{3} \end{gathered}$ | $\begin{aligned} & 0-6,160 \\ & 0-8,640 \\ & 0-4,100 \end{aligned}$ | $\begin{array}{r} 2,094 \\ 3,110 \\ 314 \end{array}$ | $\begin{array}{r} 15.98 \\ 20.22 \\ 7.65 \end{array}$ | $\begin{gathered} 11,290-24,396 \\ 11,290-26,673 \\ 5,130-9,230 \end{gathered}$ |
| 1996 | $\begin{gathered} 34.0^{1} \\ 40.0^{2} \\ 7.65^{3} \end{gathered}$ | $\begin{aligned} & 0-6,330 \\ & 0-8,890 \\ & 0-4,220 \end{aligned}$ | $\begin{array}{r} 2,152 \\ 3,556 \\ 323 \end{array}$ | $\begin{array}{r} 15.98 \\ 21.06 \\ 7.65 \end{array}$ | $\begin{gathered} 11,610-25,078 \\ 11,610-28,495 \\ 5,280-9,500 \end{gathered}$ |
| 1997 | $\begin{gathered} 34.0^{1} \\ 40.0^{2} \\ 7.65^{3} \end{gathered}$ | $\begin{aligned} & 0-6,500 \\ & 0-9,140 \\ & 0-4,340 \end{aligned}$ | $\begin{array}{r} 2,210 \\ 3,656 \\ 332 \end{array}$ | $\begin{array}{r} 15.98 \\ 21.06 \\ 7.65 \end{array}$ | $\begin{gathered} 11,930-25,750 \\ 11,930-29,290 \\ 5,430-9,770 \end{gathered}$ |
| 1998 | $\begin{gathered} 34.0^{1} \\ 40.0^{2} \\ 7.65^{3} \end{gathered}$ | $\begin{aligned} & 0-6,680 \\ & 0-9,390 \\ & 0-4,460 \end{aligned}$ | $\begin{array}{r} 2,271 \\ 3,756 \\ 341 \end{array}$ | $\begin{array}{r} 15.98 \\ 21.06 \\ 7.65 \end{array}$ | $\begin{array}{r} 12,260-26,473 \\ 12,260-30,095 \\ 5,570-10,030 \end{array}$ |
| 1999 | $\begin{gathered} 34.0^{1} \\ 40.0^{2} \\ 7.65^{3} \end{gathered}$ | $\begin{aligned} & 0-6,800 \\ & 0-9,540 \\ & 0-4,530 \end{aligned}$ | $\begin{array}{r} 2,312 \\ 3,816 \\ 347 \end{array}$ | $\begin{array}{r} 15.98 \\ 21.06 \\ 7.65 \end{array}$ | $\begin{array}{r} 12,460-26,928 \\ 12,460-30,580 \\ 5,670-10,200 \end{array}$ |
| 2000 | $\begin{gathered} 34.0^{1} \\ 40.0^{2} \\ 7.65^{3} \end{gathered}$ | $\begin{aligned} & 0-6,920 \\ & 0-9,720 \\ & 0-4,610 \end{aligned}$ | $\begin{array}{r} 2,353 \\ 3,888 \\ 353 \end{array}$ | $\begin{array}{r} 15.98 \\ 21.06 \\ 7.65 \end{array}$ | $\begin{array}{r} 12,690-27,413 \\ 12,690-31,152 \\ 5,770-10,380 \end{array}$ |
| 2001 | $\begin{gathered} 34.0^{1} \\ 40.0^{2} \\ 7.65^{3} \end{gathered}$ | 0-7,140 0-10,020 0-4,760 | $\begin{array}{r} 2,428 \\ 4,008 \\ 364 \end{array}$ | $\begin{array}{r} 15.98 \\ 21.06 \\ 7.65 \end{array}$ | $\begin{array}{r} 13,090-28,281 \\ 13,090-32,121 \\ 5,950-10,708 \end{array}$ |

Source: 1998 Green Book, Committee on Ways and Means, U.S. House of Representatives, U.S. Government Printing Office, page 867. 1998 through 2001 parameters come from Publication 596, Internal Revenue Service
${ }^{a}$ Basic credit only. Does not include supplemental young child or health insurance credits.
${ }^{1}$ Taxpayers with one qualifying child.
${ }^{2}$ Taxpayers with more than one qualifying child.
${ }^{3}$ Childless taxpayers.

Table 2: State Earned Income Tax Credits, Tax Year 2001

| Refundable Credits | State (year adopted) | Percentage of Federal Credit |
| :--- | :---: | :---: |
|  | Colorado (1999) | 10 |
|  | District of Columbia <br> (2000) | 25 |
|  | Kansas (1998) | 10 |
|  | Maryland (1987) | Massachusetts (1997) |

Source: Nicholas Johnson, 2001, "A Hand Up: How State Earned Income Tax Credits Help Working Families Escape Poverty in 2001: An Overview," Center on Budget and Policy Priorities, December, Particularly Table 4. Adoption years are from Dickert-Conlin and Houser (2002), which in turn are from Johnson.
${ }^{a}$ A Maryland taxpayer may claim a refundable credit or a non-refundable credit (equal to 50 percent of the federal credit), but not both.
${ }^{\mathrm{b}}$ Minnesota's credit for families with children, unlike the other credits shown in the table, is not expressly structured as a percentage of the federal credit. Depending on income levels, the credit may range from 22 percent to 46 percent of the federal credit.

Table 3: Maximum Real EITC Credit, Real Spending and Number of Participants (in 1999 dollars)

| Year | Real Maximum <br> EITC | Real EITC Spending <br> (millions) | Number of <br> Claimants <br> (thousands) |
| :---: | :---: | :---: | :---: |
| 1975 | 1,239 | 3,871 | 6,215 |
| 1976 | 1,171 | 3,792 | 6,473 |
| 1977 | 1,100 | 3,098 | 5,627 |
| 1978 | 1,022 | 2,678 | 5,192 |
| 1979 | 1,147 | 4,709 | 7,135 |
| 1980 | 1,011 | 4,015 | 6,954 |
| 1981 | 916 | 3,504 | 6,717 |
| 1982 | 863 | 3,064 | 6,395 |
| 1983 | 836 | 3,002 | 7,368 |
| 1984 | 802 | 2,626 | 6,376 |
| 1985 | 852 | 3,233 | 7,432 |
| 1986 | 836 | 3,054 | 7,156 |
| 1987 | 1248 | 4,973 | 8,738 |
| 1988 | 1231 | 8,303 | 11,148 |
| 1989 | 1223 | 8,861 | 11,696 |
| 1990 | 1215 | 9,614 | 12,542 |
| 1991 | 1511 | 13,584 | 13,665 |
| 1992 | 1643 | 15,470 | 14,097 |
| 1993 | 1742 | 17,913 | 15,117 |
| 1994 | 2842 | 23,725 | 19,017 |
| 1995 | 3400 | 28,374 | 19,334 |
| 1996 | 3776 | 30,607 | 19,464 |
| 1997 | 3795 | 31,800 | 19,490 |
| 1998 | 3839 | 31,959 | 19,516 |
| 1999 | 3816 | 32,270 | 19,419 |
| 2000 | 3762 | 31,471 | 19,363 |

Source: 1998 Green Book, and general IRS Statistics of Income data on individuals available at http://www.irs.ustreas.gov/prod/tax_stats/soi/ind_gss.html. The data reflect claims (allowed through math error processing) and do not reflect subsequent IRS enforcement actions after math error processing


Figure IV displays the 1986 and 1988 earned income tax credits (in 1992 dollars) as functions of income. The predicted impact of the EITC expansion on hours of work depends on the taxpayer's income. For most workers in region A (incomes between $\$ 0$ and $\$ 14,081$ ), the EITC expansion is predicted to have an ambiguous impact on hours of work since the expansion had offsetting income and substitution effects. Workers in region B (incomes between $\$ 14,081$ and $\$ 25,000$ ) are predicted to reduce their hours of work because they are either in the expanded phaseout region and face a 10 percent higher marginal tax rate in addition to having their incomes increased or because they have incomes just beyond the expanded phase-in region and might reduce their hours of work to take advantage of the credit. Workers in region C (incomes above $\$ 25,000$ ) are unlikely to be affected by the increase in the credit. ${ }^{17}$

[^1]TABLE II
Labor Force Participation Rates of Unmarried Women

|  | Pre-TRA86 <br> (1) | Post-TRA86 <br> (2) | Difference <br> (3) | Difference-indifferences <br> (4) |
| :---: | :---: | :---: | :---: | :---: |
| A. Treatment group: |  |  |  |  |
| With children | 0.729 (0.004) | 0.753 (0.004) | 0.024 (0.006) |  |
| [20,810] |  |  |  |  |
| Control group: |  |  |  |  |
| Without children | 0.952 (0.001) | 0.952 (0.001) | 0.000 (0.002) | 0.024 (0.006) |
| [46,287] |  |  |  |  |
| B. Treatment group: |  |  |  |  |
| Less than high school, with children | 0.479 (0.010) | 0.497 (0.010) | 0.018 (0.014) |  |
| [5396] |  |  |  |  |
| Control group 1: |  |  |  |  |
| Less than high school, without children [3958] | 0.784 (0.010) | 0.761 (0.009) | -0.023 (0.013) | 0.041 (0.019) |
| Control group 2: |  |  |  |  |
| Beyond high school, with children [5712] | 0.911 (0.005) | 0.920 (0.005) | 0.009 (0.007) | 0.009 (0.015) |
| C. Treatment group: |  |  |  |  |
| High school, with children [9702] | 0.764 (0.006) | 0.787 (0.006) | 0.023 (0.008) |  |
| Control group 1: |  |  |  |  |
| High school, without children $[16,527]$ | 0.945 (0.002) | 0.943 (0.003) | -0.002 (0.004) | 0.025 (0.009) |
| Control group 2: |  |  |  |  |
| Beyond high school, with children [5712] | 0.911 (0.005) | 0.920 (0.005) | 0.009 (0.007) | 0.014 (0.011) |

[^2]
## All Unmarried Females



Unmarried Males With Less Than High School Education


Figure II
Labor Force Participation Rates 1981 to 1992, Unmarried Females Ages 16-44

Fig. 9. Earnings distributions after EITC expansion, 1995-1997, wage earners vs. self-employed
A. Wage earners, EITC eligibles, $2+$ kids (12,404 obs.)
B. Wage earners, EITC eligibles, one kid (12,456 obs.)


C. Self-employed, EITC eligibles, $2+$ kids (4,973 obs.)
D. Self-employed, EITC eligibles, one kid (3,327 obs.)



Figure 3
Total AFDC/TANF Caseloads


Source: Agency for Children and Families, Department of Health and Human Services (http://acf.dhhs.gov)

Figure 4
Labor Force Participation Rates for Women by Marital Status and Children (Ages 20-65)


Source: Tabulations of March Current Population Survey Data

Key Demographic Trends, 1970-1999


Source: National Center for Health Statistics, National Vital Statistics Reports. (http://www.cdc.gov/nchs)

## Maximum Benefit Levels Across States

(2000 Dollars)

| Selected Points In Benefit <br> Distribution | 1990 |  | 1995 | 2000 | Percent Change <br> $1995-2000$ |
| :--- | :---: | :---: | :---: | :---: | ---: |
| 20th Percentile State | $\$ 358(\mathrm{NC})$ | $\$ 319$ | (IA) | $\$ 288$ | (IN) |$⿻-19.60 \%$

Source: State Policy Documentation Policy (www.spdp.org) and The Urban Institute (www.urban.org/).
Note: Maximum benefit levels for family of three. 51 states (including D.C.) used in analysis.

Figure 1: The Unemployment Rate and the Welfare Caseload in New York City, January 1978 -January 2002


Source: Office of Policy and Program Analysis, New York City Human Resources Administration

Figure 4: The Percent of Eligible HR Recipients that Start a Job, November 3, 1999


Figure 5: The Percent of Eligible HR Recipients that Start a Job on Nine Dates With Largest Enrollment








Figure 6: The Percent of Eligible HR Recipients that Start a Job Comparing Treatment Group and Control Group


Figure 7: Coefficient on Treatment Dummy with Various Explanatory Variables Included

TABLE 1
Response of Taxable Income of Nonaged Married Taxpayers to Changes in Marginal Tax Rates between 1985 and 1988

| 1985 Marginal Tax Rate | $\begin{gathered} 1985 \mathrm{AGI} \\ (\$ 000) \\ (1) \end{gathered}$ | Observations <br> (2) | Percentage Changes of |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Net of Tax Rate (3) | Adjusted Full AGI <br> (4) | Adjusted AGI Excluding Capital Gains (5) | Adjusted Taxable Income <br> (6) | Adjusted Taxable Income Plus Gross Loss (7) |
| 22 | 30.7 | 800 | 9.0 | 9.4 | 8.4 | 13.6 | 13.4 |
| 25 | 36.1 | 909 | 13.3 | 4.5 | 2.4 | 3.5 | 3.7 |
| 28 | 42.7 | 713 | 16.3 | 3.9 | 4.7 | 6.0 | 5.0 |
| 33 | 51.5 | 771 | 8.7 | 2.2 | 2.2 | 2.5 | 2.5 |
| 38 | 67.5 | 345 | 16.1 | 8.0 | 8.1 | 9.6 | 8.8 |
| 42 | 94.3 | 152 | 24.1 | 18.8 | 14.7 | 22.0 | 22.3 |
| 45 | 126.9 | 45 | 30.9 | 12.4 | 14.8 | 18.5 | 15.3 |
| 49 | 177.7 | 35 | 41.2 | 27.1 | 29.6 | 42.7 | 33.9 |
| 50 | 479.0 | 22 | 44.0 | 18.4 | 70.6 | 92.4 | 51.1 |
| 22-38 |  | 3,538 | 12.2 | 5.1 | 4.6 | 6.2 | 6.4 |
| 42-45 |  | 197 | 25.6 | 17.0 | 14.7 | 21.0 | 20.3 |
| 49-50 |  | 57 | 42.2 | 21.3 | 53.7 | 71.6 | 44.8 |

[^3]TABLE 2
Estimated Elasticities of Taxable Income with Respect to Net-of-Tax Rates

| Taxpayer Groups Classified by 1985 Marginal Rate | Net of Tax Rate (1) | Adjusted Taxable Income (2) | Adjusted Taxable Income Plus Gross Loss (3) |
| :---: | :---: | :---: | :---: |
|  | Percentage Changes, 1985-88 |  |  |
| 1. Medium (22-38) | 12.2 | 6.2 | 6.4 |
| 2. High (42-45) | 25.6 | 21.0 | 20.3 |
| 3. Highest (49-50) | 42.2 | 71.6 | 44.8 |
|  | Differences of Differences |  |  |
| 4. High minus medium | 13.4 | 14.8 | 13.9 |
| 5. Highest minus high | 16.6 | 50.6 | 24.5 |
| 6. Highest minus medium | 30.0 | 65.4 | 38.4 |
|  | Implied Elasticity Estimates |  |  |
| 7. High minus medium |  | 1.10 | 1.04 |
| 8. Highest minus high |  | 3.05 | 1.48 |
| 9. Highest minus medium |  | 2.14 | 1.25 |

Note.-The calculations in this table are based on observations for married taxpayers under age 65 who filed joint tax returns for 1985 and 1988 with no age exemption in 1988. Taxpayers who created a subchapter $S$ corporation between 1985 and 1988 are eliminated from the sample.
method, that is, by comparing the differences in the percentage change in taxable income between pairs of marginal tax rate groups to the differences in the percentage change in the net-of-tax rates between the same groups.

This method implicitly assumes that there is a relation between the percentage change in taxable income between 1985 and 1988 and the percentage change in the net-of-tax rate with a common "constant term" that does not differ between marginal tax rate groups. The differencing eliminates the common constant term and provides an estimate of the slope term. Since both changes are measured as percentages, this slope coefficient is an estimated elasticity. ${ }^{20}$

Consider for example the comparison of the middle and high marginal tax rate groups. The net-of-tax rate increased by 12.2 percent for the first group and by 25.6 percent for the second group (shown

[^4]TABLE 1.
Thresholds and Average Incomes in Top Income Groups in 2000

| Percentile <br> threshold <br> $(1)$ | Income <br> threshold <br> $(2)$ |  | Income Groups <br> $(3)$ | Number of tax <br> units <br> $(4)$ | Average <br> income in each <br> group <br> $(5)$ |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Full Population | $133,589,000$ | $\$ 42,709$ |
| Median | $\$ 25,076$ |  | Bottom 90\% | $120,230,100$ | $\$ 26,616$ |
| Top 10\% | $\$ 87,334$ |  | Top 10-5\% | $6,679,450$ | $\$ 100,480$ |
| Top 5\% | $\$ 120,212$ |  | Top 5-1\% | $5,343,560$ | $\$ 162,366$ |
| Top 1\% | $\$ 277,983$ |  | Top 1-0.5\% | 667,945 | $\$ 327,970$ |
| Top .5\% | $\$ 397,949$ |  | Top 0.5-0.1\% | 534,356 | $\$ 611,848$ |
| Top .1\% | $\$ 1,134,849$ |  | Top 0.1-0.01\% | 120,230 | $\$ 2,047,801$ |
| Top .01\% | $\$ 5,349,795$ | Top 0.01\% | 13,359 | $\$ 13,055,242$ |  |

Notes: Computations based on income tax return statistics.
Income defined as annual gross income reported on tax returns excluding capital gains and all government transfers (such as Social Security, Unemployment Benefits, Welfare Payments, etc.) and before individual income taxes and employees' payroll taxes. Amounts are expressed in current 2000 dollars.

Column (2) reports the income thresholds corresponding to each of the percentiles in column (1). For example, an annual income of at least $\$ 87,334$ is required to belong to the top $10 \%$ tax units, etc.


Marginal Tax Rates and Average Real Incomes for the Bottom 99\% and the Top 1\%

[^5]

[^6]

FIGURE 4.
Tax Rates and Income Shares for the Very Top Groups


FIGURE 5.

## The Top 1\% Income Share and fitted Values from Elasticity Regressions

Source: Series based on regression analysis presented in Table 3, columns (1) and (5).
The diamond line is the top $1 \%$ income share. The dotted line is the fitted regression curve including only the net-of-tax rate. The solid line is the fitted regression curve including time controls. The dashed line is the same fitted regression curve but freezes the marginal tax rate at the 1960 value.


FIGURE 8.
The Top 0.01\% Income Share and Composition, 1960-2000
Source: Tables B1 and Table D1 in the working paper version Saez (2004).
The figure displays the income share of the top $.01 \%$ tax units, and how the top $.01 \%$ incomes are divided into seven income components: wages and salaries (including exercised stock options), S-corporation profits, partnership profits, sole proprietorship profits, dividends, interest income, and other income.


Marginal Tax Rates and Average Real Wage Incomes for the Bottom 99\% and the Top 1\%

[^7]TABLE 3.
Elasticities of the top $1 \%$ income share with respect to net-of-tax rates

|  | OLS <br> (Newey-West <br> s.e.) | 2SLS (Top Rate Instrument) | OLS (Newey-West s.e.) | 2SLS (Top Rate Instrument) | OLS (Newey-West s.e.) | 2SLS (Top Rate Instrument) | OLS (Newey-West s.e.) | 2SLS (Top Rate Instrument) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| Elasticity | $\begin{gathered} 1.58 \\ (0.28) \end{gathered}$ | $\begin{gathered} 1.70 \\ (0.19) \end{gathered}$ | $\begin{gathered} 0.85 \\ (0.21) \end{gathered}$ | $\begin{gathered} -0.02 \\ (0.34) \end{gathered}$ | $\begin{gathered} 0.62 \\ (0.12) \end{gathered}$ | $\begin{gathered} 0.59 \\ (0.08) \end{gathered}$ | $\begin{gathered} 0.68 \\ (0.15) \end{gathered}$ | $\begin{gathered} 0.61 \\ (0.09) \end{gathered}$ |
| Time Trend |  |  | YES | YES | YES | YES | YES | YES |
| Time Trend Square |  |  |  |  | YES | YES | YES | YES |
| Time Trend Cube |  |  |  |  |  |  | YES | YES |
| Adjusted R-Square | 0.72 | 0.71 | 0.86 | 0.74 | 0.98 | 0.98 | 0.98 | 0.98 |
| First Stage t-statistics |  | 10.10 |  | 5.37 |  | 10.1 |  | 11.7 |

Notes: Estimates obtained by time-series regression of log(top 1\% income share)
on a constant, log (1-average marginal tax rate), and polynomials time controls from 1960 to 2000 (38 observations).
In columns 1, 3, 5, and 7, simple OLS regression is run, Standard Errors from Newey-West with 8 lags.
In columns 2, 4, 6, and 8, 2SLS regression is run using log(1-top marginal tax rate) as an instrument.
A. Canada (including Ontario Provincial Tax)

B. United States (excluding state income taxes)


FIGURE 8
Marginal Tax Rates and Income Share for the Top 0.1\% in Canada and the United States, 1960-2000

Source: Canada marginal tax rate computations based on Table E1 in Saez and Veall (2003)
Marginal tax rates in Canada include federal and Ontario provincial income taxes, as well as applicable surtaxes and credits
Estimation details are provided in Appendix Section E of Saez and Veall (2003).
United States, Saez (2004) computations using micro tax return data and TAXSIM calculator (does not include state income taxes).


Top 0.1\% Income Shares in Anglo-Saxon countries versus Continental Europe, 1913-2000

Source: United States, Piketty and Saez (2003), United Kingdom, Atkinson (2002), Canada, Saez and Veall (2003)
The unit for all countries except Canada is the family. The unit for Canada is the individual adult.


Source: United States, Piketty and Saez (2003), Switzerland, Dell, Piketty, and Saez (2003)


[^0]:    Note:-Terms are explained in text.

    * Denotes mean is more than twice its standard error.

[^1]:    17. The TRA86 tax rate changes reinforced the effect of the EITC on the hours of work of household heads relative to single filers. TRA86 reduced marginal tax rates by between three and eight percentage points for most single taxpayers with incomes in the EITC phaseout range, while reducing marginal tax rates for household heads by only two to three percentage points. Thus, the substitution effect from TRA86 should cause a larger increase in hours from single taxpayers than from household heads. In addition, as we explained in the participation section, the new TRA86 brackets, through their interaction with the in-
[^2]:    Data are from the March CPS, 1985-1987 and 1989-1991. Pre-TRA86 years are 1984-1986. Post-TRA86 years are 1988-1990. Labor force participation equals one if annual hours are positive, zero otherwise. Standard errors are in parentheses. Sample sizes are in square brackets. Means are weighted with CPS March supplement weights.

[^3]:    Note.-All observations pertain to married taxpayers under age 65 who filed joint tax returns for 1985 and 1988 with no age exemption in 1988 . Taxpayers who created a subchapter S
    corporation between 1985 and 1988 are eliminated from the sample.

[^4]:    ${ }^{20}$ John Navratil has repeated this analysis for the years 1983 and 1985, when there were no changes in tax rates or tax rules, to see whether there is any systematic tendency for higher marginal tax rate individuals to experience relatively greater income increases. He found no evidence of faster income growth among higher marginal tax rate groups, confirming that the patterns reported in tables 1 and 2 are due to the 1986 tax reforms.

[^5]:    Source: Series obtained from Tables A and B1

[^6]:    Source: Series obtained from Tables B1 and B2

[^7]:    Source: Series obtained from Tables A, C1, and C2.

