

Labor Supply 3

- Imbens-Rubin-Sacerdote (2001): the income effect.
- Eissa and Liebman (1996): the labor supply effects of the EITC.

The income effect

- Typically, it's difficult to get an unbiased estimate of the income effect: individuals with high taste for work will also have accumulated more investment assets, have higher unearned income.
- Inheritances: probably well-known in advance, maybe labor supply has already adjusted.
- Government subsidies: perhaps, but relevant only for very low-income population.
- Ideally, we would like an unexpected shock to income that is randomly assigned...
- ...perhaps a lottery?

Imbens-Rubin-Sacerdote: "Estimating the Effect of Unearned Income...", (AER, 2001).

- Megabucks: Massachusetts State lottery.
- They obtained addresses of all lottery winners. Winners are divided into "non-winners", small and large winners.
 - Non-winners: one small, one-time prize, $< \$5,000$.
 - Winners: prizes between \$22,000 and \$9.7m, paid out in yearly installments for 20 years (and taxed!).
 - Big winners: yearly prize $> \$100,000$.
- Winners matched to social security numbers to get administrative earnings (six years before and six years after). Survey questionnaire on savings, consumption, etc.
- From lottery, information on number of tickets purchased (important, because assignment is random only *conditional* on number of tickets bought).

- Response rates not great, but probably not very surprising for this sample.

TABLE 1—RESPONSE RATES BY MAILING

Mailing	Date	Sent		Responses		Response rates		Total
		Winners	Nonwinners	Winners	Nonwinners	Winners	Nonwinners	
Pilot	July '95	50	50	17	25	0.34	0.50	0.42
Main	July '96	752	637	272	262	0.36	0.41	0.38
Follow-up (\$50 check)	Sept. '96	248	248	39	40	0.16	0.16	0.16
Follow-up (\$10 cash, \$40 check)	Sept. '96	49	49	11	12	0.22	0.24	0.23
Total		802	687	339	339	0.42	0.49	0.46

Notes: For each of the mailings, we report the number of surveys mailed out and received separately for the nonwinners and winners, as well as the response rates. In the follow-up, we offered some people a \$50 check and for others included a \$10 bill in the mailing, combined with an offer for a \$40 check in case of response. The follow-up was done using Federal Express.

• Results

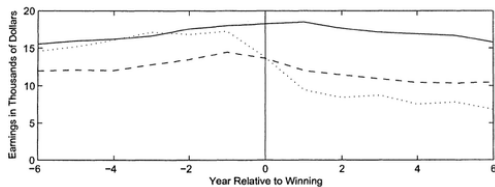


FIGURE 1. AVERAGE EARNINGS FOR NONWINNERS, WINNERS, AND BIG WINNERS

Note: Solid line = nonwinners; dashed line = winners; dotted line = big winners.

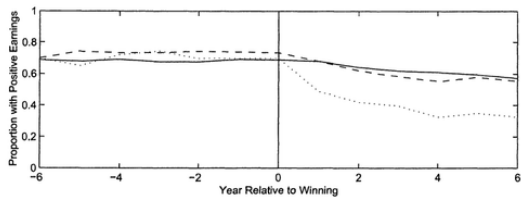


FIGURE 2. PROPORTION WITH POSITIVE EARNINGS FOR NONWINNERS, WINNERS, AND BIG WINNERS

Note: Solid line = nonwinners; dashed line = winners; dotted line = big winners.

TABLE 4—ESTIMATES OF MARGINAL PROPENSITY TO EARN OUT OF UNEARNED INCOME:
YEARLY LOTTERY PAYMENTS AS RIGHT-HAND-SIDE VARIABLE

	Specifications								
Outcomes ^a	I 496	II 496	III 496	IV 496	V 496	VI 237	VII 453	VIII 194	
Average post-lottery earnings	-0.051 (0.014)	-0.052 (0.013)	-0.048 (0.009)	-0.051 (0.008)	-0.114 (0.015)	-0.097 (0.012)	-0.043 (0.010)	-0.122 (0.020)	-0.101 (0.029)
Year 0 earnings	-0.019 (0.014)	-0.022 (0.013)	-0.017 (0.004)	-0.020 (0.004)	-0.038 (0.008)	-0.033 (0.007)	-0.015 (0.006)	-0.024 (0.010)	0.004 (0.015)
Year 1 earnings	-0.048 (0.014)	-0.049 (0.014)	-0.045 (0.007)	-0.050 (0.007)	-0.103 (0.014)	-0.089 (0.011)	-0.038 (0.009)	-0.094 (0.017)	-0.056 (0.025)
Year 2 earnings	-0.052 (0.014)	-0.054 (0.014)	-0.050 (0.009)	-0.054 (0.009)	-0.114 (0.016)	-0.098 (0.013)	-0.045 (0.011)	-0.117 (0.021)	-0.092 (0.031)
Year 3 earnings	-0.051 (0.014)	-0.053 (0.014)	-0.048 (0.010)	-0.053 (0.009)	-0.118 (0.017)	-0.100 (0.014)	-0.043 (0.012)	-0.134 (0.023)	-0.117 (0.033)
Year 4 earnings	-0.056 (0.014)	-0.057 (0.013)	-0.052 (0.010)	-0.055 (0.010)	-0.127 (0.019)	-0.107 (0.015)	-0.044 (0.012)	-0.151 (0.024)	-0.133 (0.034)
Year 5 earnings	-0.052 (0.014)	-0.050 (0.013)	-0.046 (0.011)	-0.050 (0.011)	-0.117 (0.020)	-0.099 (0.016)	-0.041 (0.013)	-0.137 (0.026)	-0.116 (0.036)
Year 6 earnings	-0.050 (0.014)	-0.049 (0.013)	-0.045 (0.012)	-0.046 (0.011)	-0.106 (0.021)	-0.090 (0.017)	-0.047 (0.013)	-0.101 (0.027)	-0.094 (0.037)

Notes: Specifications: I: No individual controls, no differencing of outcome, linear in prize; sample includes nonwinners and big winners. II: Small set of individual controls (years of education, age, dummies for sex, college, age over 55, age over 65), no differencing of outcome, linear in prize; sample includes nonwinners and big winners. III: Small set of individual controls, differenced outcomes, linear in prize; sample includes nonwinners and big winners. IV: Expanded set of individual controls (small set of controls plus number of tickets bought, year of winning, earnings in six years prior to winning, dummies for positive earnings in six years prior to winning, dummy for working at the time of winning), differenced outcomes, linear in prize; sample includes nonwinners and big winners. V: Expanded set of controls, differenced outcomes, quadratic in prize; sample includes nonwinners and big winners. Estimates reported are derivative with respect to prize at prize equal to zero and prize equal to \$32,000. VI: Expanded set of individual controls, difference outcomes, linear in prize; sample includes winners only. VII: Expanded set of individual controls, difference outcomes, linear in prize; sample includes nonwinners and winners < \$100,000 only. VIII: Expanded set of individual controls, difference outcomes, linear in prize; sample includes winners < \$100,000 only.

^a Outcomes: Average of Social Security earnings in years one through six after winning the lottery, and earnings in years zero to six after winning the lottery.

- Results: marginal propensity to *earn* (not exactly hours of work) about -0.11.
- About the midpoint of the range of estimates provided in previous surveys on labor supply.
 - Overall, the effect is not very large.
- Caveats:
 - Is sample representative?
 - Do people treat lottery earnings the same way they would treat welfare payments or tax rebates?

Welfare and labor supply

- Welfare as we knew it: Aid to Families with Dependent Children (AFDC, 1960s - 1996).
- Basic idea: provide cash transfer to poor families, independent of work effort.
- Successful in alleviating poverty, but by the mid 1990s, system does not work any more: large increase in caseloads, widespread feeling that the system was subject to abuse ("welfare queens").
- In 1996, President Clinton passes PRWORA, "welfare reform act," declare the "end of welfare as we know it."

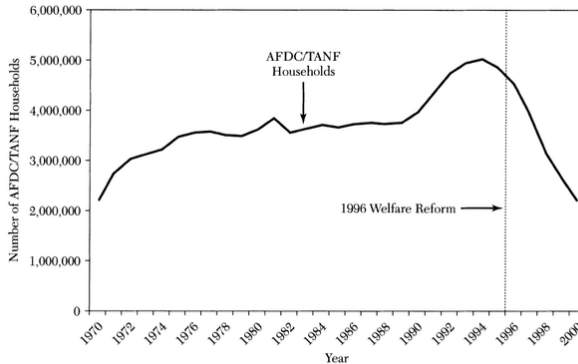


Figure 3. Total AFDC/TANF Caseloads

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

- What was wrong with the old welfare system?

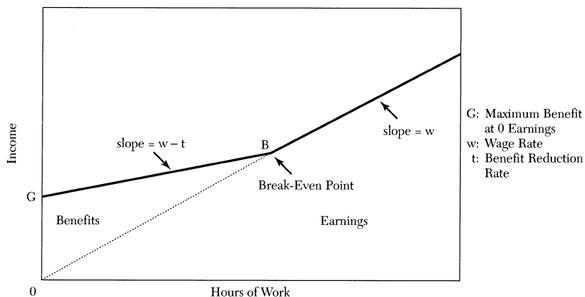


Figure 2. Income Constraint Resulting from a Typical Welfare Program

Note: Assumes no income other than welfare benefits and earnings.

- Strong incentives not to work at all.
- What PRWORA did:
 - Lifetime limits on welfare receipt.
 - Work requirements.
 - Expansion of the Earned Income Tax Credit (EITC)
- Results:
 - Lower welfare caseloads
 - More labor force participation
 - Poverty rates fell, even after the end of the 1990s boom (but they have picked up again during Great Recession).

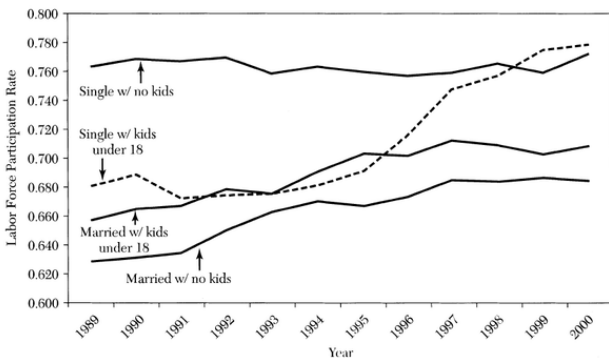


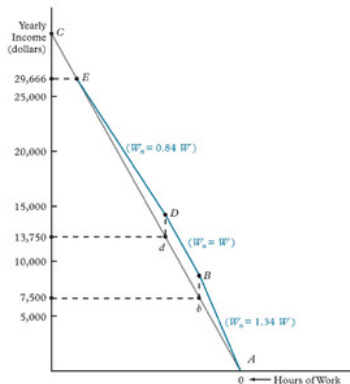
Figure 4. Labor Force Participation Rate for Women by Marital Status and Children (Ages 20-65)

Source: Tabulations of March Current Population Survey Data

The Earned Income Tax Credit

- Main policy tool used today to aid low-income families.
- Basic structure of the EITC:

FIGURE 6.17 Earned Income Tax Credit
(Unmarried, One Child), 2003



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Eissa and Liebman (1996)

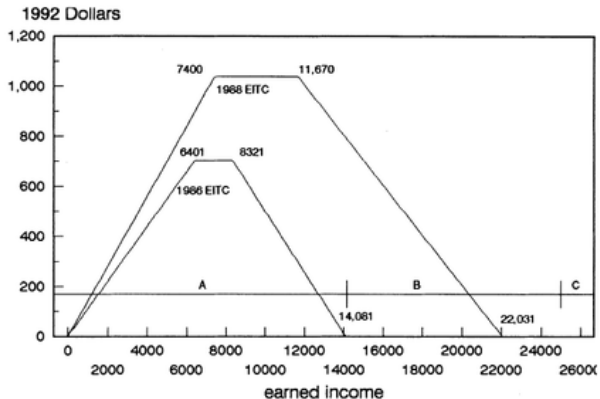


FIGURE IV
1986 and 1988 Earned Income Tax Credit

- What was the effect of 1986 EITC expansion on labor supply?
- Theory: increase in labor force participation rates, but fewer hours for those already working.
- Estimation strategy: differences in differences.
- Treatment group: unmarried women with children
- Control group(s): other unmarried women, unmarried women with low education (with/without children)

TABLE II
LABOR FORCE PARTICIPATION RATES OF UNMARRIED WOMEN

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

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.

- Results on LFP consistent with theory
- But caveats on the construction of the control group: unmarried women without children are very different from unmarried women with children.