Setting Income Eligibility for Fuel Assistance and Energy Efficiency Programs in a Competitive Electric Industry:

The Marginal Impacts of Increasing Household Income

By:

Roger D. Colton
Fisher, Sheehan & Colton
Public Finance and General Economics
34 Warwick Road, Belmont, MA 02178
617-484-0597 * 617-484-0594 (FAX)**

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This paper addresses issues involved with setting eligibility limits for fuel assistance and energy efficiency programs within a competitive electric industry.[1] The paper seeks to explain the interaction between earned income (wages) for a low-income household and the receipt of public assistance (AFDC). Moreover, it explains how an increase in earned income affects a household when other factors such as increased taxes and reduced AFDC and Food Stamp benefits are taken into account. Finally, the paper introduces the difference between four concepts of income: (1) earnings; (2) total income; (3) disposable income; and (4) net available income.

The need to define who is a "low-income" household can arise within two different contexts for a competitive electric utility today. On the one hand, utilities are seeking to limit the reach of "low-income" programs such as rate discounts and energy efficiency initiatives. These limits may include an effort not only to reduce the level of assistance provided, but to reduce the number of households to whom assistance is provided as well. Distinctions are being offered between traditional definitions of "low-income" set at 150 percent of the federal Poverty Level and those argued to be "truly in need." In reacting to such proposals, there is a need to quantify the impacts of increasing income on households and to assess how those increasing incomes might affect ability-to-pay.

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[1] Whether or not the industry is, in fact, increasingly competitive is irrelevant since utilities and regulators are *acting* as though it is.

On the other hand, as electric utilities seek reduced regulatory oversight, there is concerted attention is being paid to mechanisms through which to fund "stranded benefits" for low-income households. Many states are, for example, talking about instituting a "wires charge" to fund crisis assistance, energy efficiency, and home energy cash assistance for low-income households.[2] As part of these proactive efforts, there will be a need to set eligibility limits by defining who is "low-income."

Many initiatives today seek to back away from the traditional definition of low-income as including households at or below 150 percent of the federal Poverty Level. These proposals depend on what is argued to be an "intuitively obvious proposition" that households who have higher earnings necessarily have an increased ability-to-pay.[3] This paper seeks to respond to those proposals. The ultimate issue is whether it is reasonable to assume that households which have incomes at from 100 to 150 percent of Poverty have a higher ability-to-pay than those who live at lower levels of Poverty. If they do, proposals to impose higher payment requirements, to provide fewer benefits, or to limit program eligibility may have some merit. If they do not, these proposals must be considered more thoroughly.

The analysis below will find that a working poor household with earnings substantially higher than a household receiving benefits through the Aid to Families with Dependent Children (AFDC) program[4] does not necessarily have a higher ability-to-pay home energy bills. This ability-to-pay will be measured through two different methodologies. First, an "earnings and benefits" analysis will be applied. Second, a "net available income" analysis will be applied. The State of Pennsylvania serves as our point of reference.

"EARNINGS AND BENEFITS" ANALYSIS OF RELATIVE ECONOMIC ADVANTAGE

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[2] *See e.g.*, R.Colton, ***Structuring a "Wires Charge" Proposal for Indiana*** (April 1996); R.Colton, ***Structuring a "Wires Charge" Proposal for Ohio*** (June 1996); R.Colton, ***Structuring a "Wires Charge" Proposal for Iowa*** (July 1996); R.Colton, ***Structuring a "Wires Charge" Proposal for Oklahoma*** (July 1996); R.Colton, ***Structuring a "Wires Charge" Proposal for Montana*** (August 1996); R.Colton, ***Structuring a "Wires Charge" Proposal for New Jersey*** (August 1996); R.Colton, ***Structuring a "Wires Charge" Proposal for Kentucky*** (August 1996).

[3] We will assume ordinary household expenses here. We set aside the observation that any household can have extraordinary expenses (such as medical bills) which will affect their ability-to-pay despite a higher household income.

[4] This paper addresses past AFDC benefits; it does not address AFDC as it will become through the state-by-state block grant program enacted in the summer of 1996.

One measure which portrays the relative economic advantage to an AFDC household as earnings increase is an "earnings and benefits" analysis. Such an analysis is presented in Table 1 below using 1994 data. The impact of the level of earnings begins at $0 and increases to $20,000.[5] The analysis below assumes a mother with two children.

Changes in Earnings and Benefits

A comparison of earnings and AFDC benefits shows that these sources of income do not represent an either/or proposition for low-income households. A family of three, living solely on AFDC benefits (*i.e.*, having earnings of $0), experiences a "disposable income" of $7,548 per year.[6] As Table 1 shows, however, as a family begins to derive income from earnings, it may continue to receive income from AFDC as well. A family earning $7,000 per year will still receive an annual AFDC benefit of nearly $900. One must be careful to keep in mind, therefore, the observation that low-income households can be "mixed income" households. A "mixed income" household is one which has both "earnings" income and AFDC benefits.[7]

Table 1 shows that as earnings increase for a family of three, the resulting "disposable income" --"disposable income" is the net income after subtracting taxes and the costs of producing the earnings-- increases as well. This Table shows that it is *not* true that a household with earnings which place it at increasing levels of the federal Poverty Level actually loses ground due to a corresponding loss of public assistance and the imposition of taxes. A household earning $7,000 is "better off" than a household earning $6,000. A household earning $20,000 is better off than a household earning $15,000.

This conclusion, however, does not tell the entire story. Table 2 sets forth "disposable income" as a ratio to "total income." Total income includes the sum of earnings, AFDC, Food Stamps and the federal Earned Income Tax Credit (EITC). Table 2 shows that persons urging the need to consider the impact of decreased or lost benefits and increased taxes *do* make a valid point, even if not as cogent as perhaps advanced. While disposable income continues to increase even as earned income brings increased taxes and decreased public benefits, that disposable

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[5] The dollar value of 150 percent of Poverty for a household of three persons was $18,805 in 1994. Hence, the analysis here increases to roughly that amount.

[6] Note that the term "disposable income" is not used synonymously with the term "net available income" or "net spendable income" used elsewhere. "Disposable income" means total income minus the expenses incurred to generate that income.

[7] Being a "mixed income" household implies that the household incurs some "work expense." A "work expense" is an expense incurred in the production of the earned income.

income represents a smaller and smaller proportion of total income. Hence, while a move from roughly $10,000 to $20,000 in total income increases total income by 100 percent, it increases disposable income by only 50 percent ($13,384 - $8,923 / $8,923 = 50%). Looked at another way, the ratio of disposable income to total income with $2,000 of annual earnings is 0.92, while the ratio falls to only 0.64 with annual earnings of $20,000. A household earning $2,000 has a disposable income of 92 cents for each dollar earned, while a household earning $20,000 has a disposable income of only 64 cents for each dollar earned.

Table 3 presents a final way to look at the same phenomenon. Table 3 shows that due to offsets (such as reduced public assistance and increased taxes), increases in earnings far exceed increases in total income. In addition, and perhaps more surprisingly, increases in disposable income significantly lag behind increases in total income. For example, an increase in earnings from $9,000 to $10,000 (+$1,000) yields an increase in total income of only $820 and an increase in disposable income of only $414. A $5,000 increase in earnings from $15,000 to $20,000 yields an increase in *total* income of only $2,807[8] and an increase in *disposable* income of only $778.

"NET AVAILABLE INCOME" ANALYSIS

Apart from the "earnings and benefits" analysis, a second method to use in assessing to what extent households are "better off" with increasing incomes is to examine their "net available income" or "net spendable income" as their total income increases. As seen from Table 4, there are two major conclusions from an analysis that looks at the net available income of customers who are above 100% of the federal Poverty Level as compared to those who are below 100 percent of Poverty:

I. The customers who are above 100% of Poverty are "better off" than those who are below that level of income; *but*

II. Even the customers who are above 100 percent of Poverty have negative net available incomes on average. These customers do not have sufficient income to cover necessary expenses, and this is *before* including such necessary expenses as home energy, school expenses, household goods and clothing.

The best way to explain these conclusions is to provide a line-by-line explanation of Table 4. There are 20 lines:

[8] An increase in earnings will yield a decrease in Food Stamp and AFDC benefits. Thus, while *earnings* may increase by $5,000, when offset by other losses, *total income* will increase somewhat less.

1. Income includes cash (earnings and AFDC) and in-kind (food stamps) income. It also includes some income which, in fact, is not "income" at all, but is rather a credit toward expenses (such as school lunch subsidies).

2. AFDC benefits are not a set amount. Note that a household can receive AFDC while at the same time receiving wages. The distinction between AFDC recipients and the "working poor" is perhaps not as clear as some would make it. "Mixed income" households --those households receiving both earnings and AFDC benefits-- exist.

3. A non-AFDC household receiving an annual income of $15,000 is probably working a fulltime job. An annual income of $15,000 means an hourly fulltime wage of more than $8.50.

4. EITC is the federal Earned Income Tax Credit. The EITC increases up to a point as earned income increases. Pennsylvania does not have a state EITC.

5. Child care subsidies involve two different programs. There is a child care subsidy program for AFDC households. There is a separate program for "at risk" children who risk falling into AFDC if the household does not work. Eligibility for the second household in this Table is assumed (even though such eligibility is not assured).

6. Subsidized lunches are included with one caveat. The "income" is not calculated at the value of the subsidy to the household, but rather at the amount of the subsidy to the school. It might be argued that to include this is somewhat misleading, since there is no "school lunch expense" on the expense side to offset against this particular "income."

7. Food stamp program participation is ubiquitous, even though not universal.

8. Total income is not the income used to calculate at what percent of the federal Poverty Level a household lives. Poverty Level is calculated using AFDC plus earned income.

9. Expenses do not include all expenses. As mentioned above, for example, there is no expense line item for clothing, household expenses (*e.g.*, soap, toilet paper), school expenses, and the like.

10. Neither level of income is sufficient to generate a federal income tax liability.

11. FICA is a percentage charge on wages.

12. An earned income of $2,000 is not sufficient to generate a state income tax liability in Pennsylvania.

13. Rent is calculated as an actual cost based on 1990 Census data for Philadelphia County. It is a derived number.

14. Water/sewer bills assume a monthly consumption of 7000 gallons/household. It is based on Philadelphia rates.

15. Transportation expense is a calculated figure consisting of two components: fixed costs and variable costs. The fixed costs of transportation are assumed to include items such as vehicle insurance and licenses which do not vary based on income. Variable costs are assumed to include gasoline and motor oil as well as maintenance and repairs which do vary.

16. Food is based on the USDA's *Low-Cost Food Budget*, not on the *Thrifty Food Budget*, which is generally considered to be nutritionally inadequate. This is a uniform national figure, not a state-specific or local-specific figure.

17. Medical expenses are assumed to be covered by Medicaid for AFDC households. A household with an income of $15,000 is not eligible for Medicaid.

18. Child care expenses are actual national average figures. These national figures distinguish between households above and below Poverty. The "above Poverty" figures here have been adjusted downward to reflect the fact that not *all* persons above Poverty are included in this figure.

19. Total expenses include the sum of all line-item expenses listed above.

20. Net available income includes all income minus expenses. It does *not* include either electric expenses or home heating expenses.

Table 4 leads to three primary conclusions:

1. The extent to which the higher income household is "better off" is substantially smaller than what most people would expect.

2. Even more significantly, households at both levels of income have negative net available income before paying home energy, and without considering the full range of necessary household expenses.

3. Finally, while the household with the higher income is "better off" in that it has a smaller negative number, the net available income is, nonetheless, still negative.

Table 1:
Earnings and Benefits for a Mother with Two Children with Day Care Expenses--After 4 Months on Job (January 1994)
(Pennsylvania)

Earnings	EITC	AFDC /1/	Food Stamps /2/	Medicaid	Taxes			Work Expenses /4/	"Disposable" Income
					Social Security	Federal Income Tax /3/	State Income Tax		
$0	$0	$5,052	$2,406	Yes	$0	$0	$0	$0	$7,548 /5/
$2,000	$600	$4,892	$2,184	Yes	$153	$0	$0	$600	$8,923 /5/
$4,000	$1,200	$3,292	$2,304	Yes	$306	$0	$0	$1,200	$9,290 /5/
$5,000	$1,500	$2,482	$2,364	Yes	$383	$0	$0	$1,500	$9,473 /5/
$6,000	$1,800	$1,692	$2,424	Yes	$459	$0	$0	$1,800	$9,657 /5/
$7,000	$2,100	$892	$2,484	Yes	$536	$0	$0	$2,100	$9,840 /5/
$8,000	$2,400	$0	$2,568	Yes /6/	$612	$0	$0	$2,400	$9,956 /5/
$9,000	$2,528	$0	$2,388	No /7/	$689	$0	$4	$2,700	$10,523 /5/
$10,000	$2,528	$0	$2,208	No /7/	$765	$0	$34	$3,000	$10,937
$15,000	$1,820	$0	$1,308	No /8/	$1,148	$0	$174	$4,200	$12,606
$20,000	$936	$0	$0	No	$1,530	$58	$314	$5,200	$13,384

NOTES:

/1/ Assumes deductions: $120 monthly standard allowance and child care costs equal to 20% of earnings up to maximum of $350 for two children.
/2/ Assumes deductions: 20 percent of earnings, $131 monthly standard deduction, and child care expenses equal to 20% of earnings up to maximum of $350 for two children.
/3/ Head of household rates in effect for 1994. The dependent care tax relief reduces tax liability at earnings of $15,000 and above.
/4/ Assumed to equal 10 percent of earnings up to a $100 maximum, plus child care costs equal to 20% of earnings up to maximum of $350 for two children.
/5/ Value of Medicaid benefits not added since the extent to which they add to disposable income is not clear.
/6/ Family would still qualify for Medicaid since mother is still "eligible" for AFDC even though no benefit is paid because he monthly benefit does not equal at least $10.
/7/ Household would qualify for Medicaid for 12 months after leaving AFDC.
/8/ After losing her Medicaid transitional benefits, to regain eligibility, mother must spend down on medical expenses to State's medically needy income limit ($5,604 in January 1994).

Table 2: Ratio of Total Income to Disposable Income as Earnings Increase 3-Person Family (Pennsylvania)						
Earnings	EITC	AFDC	Food Stamps	Total Income	Disposable Income	Disposable Income Ratio
$0	$0	$5,052	$2,496	$7,548	$7,548	1.00
$2,000	$600	$4,892	$2,184	$9,676	$8,923	0.92
$4,000	$1,200	$3,292	$2,304	$10,796	$9,290	0.86
$5,000	$1,500	$2,482	$2,364	$11,346	$9,473	0.83
$6,000	$1,800	$1,692	$2,424	$11,916	$9,657	0.81
$7,000	$2,100	$892	$2,484	$12,476	$9,840	0.79
$8,000	$2,400	$0	$2,568	$12,968	$9,956	0.77
$9,000	$2,528	$0	$2,388	$13,916	$10,523	0.76
$10,000	$2,528	$0	$2,208	$14,736	$10,937	0.74
$15,000	$1,820	$0	$1,308	$18,128	$12,606	0.70
$20,000	$936	$0	$0	$20,936	$13,384	0.64

Table 3:
Percent Increase in Total Income and Percent Increase in "Disposable Income" as Earnings Increase
Three Person Family (Pennsylvania)

Earnings		Total Income		Disposable Income	
Total Dollars	Percent Increase	Annual Dollars	Percent Increase	Annual Income	Percent Increase
$0	n/a	$7,548	n/a	$7,548	n/a
$2,000	n/a	$9,676	28%	$8,923	18%
$4,000	100%	$10,796	12%	$9,290	4%
$5,000	25%	$11,346	5%	$9,473	2%
$6,000	20%	$11,916	5%	$9,657	2%
$7,000	17%	$12,476	5%	$9,840	2%
$8,000	14%	$12,968	4%	$9,956	1%
$9,000	13%	$13,916	7%	$10,523	6%
$10,000	11%	$14,736	6%	$10,937	4%
$15,000	50%	$18,128	23%	$12,606	15%
$20,000	33%	$20,936	15%	$13,384	6%

Table 4
Relative Ability-to-Pay: AFDC Household vs. Working Poor Household ($15,000 Annual Income)
(Pennsylvania)

Line	Item	One Parent/Two Children		
		AFDC w/ Earned Income	Working Poor	Notes
1	Income /a/			
2	AFDC benefit	$4,892	$0	
3	Wages	$2,000	$15,000 /b/	3-person household earning $2,000 still receives $4,892 in AFDC.
4	EITC	$600	$1,820	Federal Earned Income Tax Credit (EITC).
5	Child care subsidy	$4,200	$4,200	Assumes working poor qualifies for "at risk" child care subsidy.
6	Subsidized lunch /c/	$277	$213	Assumes 8 school months, at 5 meals a week, 4 weeks a month.
7	Food Stamps	$2,184	$1,308	
8	Total Income	$14,153	$24,725	
9	Expenses			
10	Federal Income Tax	$0	$0	Neither level of earned income results in federal tax liability.
11	FICA	$153	$1,148	FICA on wages equals 7.65 percent.
12	State Income Tax	$0	$174	Annual wages of $2,000 do not result in state tax liability.
13	Rent /d/	$2,572 /e/	$5,061 /f/	
14	Water/sewer /g/	$463	$463	Assumes no difference in water/sewer bills based on income.
15	Transportation /h/	$2,554	$2,985	Assumes no vehicle purchase or financing costs.
16	Food /i/	$4,477	$4,477	Assumes no difference in food expenditures based on income.
17	Medical /j/	$0 /k/	$1,080	Includes insurance, drugs and medical supplies, health care medical.
18	Child care /l/	$7,758	$10,218 /m/	Assumes child care paid for 52 weeks per year.
19	Total Expenses	$17,977	$25,606	

20	Net Available Income			
21	Net Available Income	($3,824)	($881)	Income minus expenses.

NOTES:

/a/ 100% of federal Poverty Level for 3 person household = $12,590. Thus, a combined income (earnings plus AFDC) of $6,892 would put a household at 55% of Poverty. An income of $15,000 in earnings would put a household at 125% of Poverty.

/b/ Equal to wage of $8.57/hour for 35 hours per week, 50 weeks per year. The average number of hours worked each week by total non-farm employees was 34.5 in 1990.

/c/ *1994 Green Book*, at page 824. Subsidy is $1.73/meal for households below 130% of Poverty. Subsidy is $1.33/meal for households at 130% - 180%.

/d/ Both households assumed to be renters, not homeowners.

/e/ Weighted rent for households with incomes of $12,590 in Philadelphia County ($214).

/f/ Weighted rent for households with incomes of $18,885 in Philadelphia County ($422).

/g/ Ernst and Young, *Water and Waste Water: 1992 Survey*.

/h/ *Statistical Abstract of the United States: 1995*, Tables 719, 737, 1044.

/i/ Uses U.S. Department of Agriculture's *Low Cost Food Plan* for one adult (female, aged 20-50) and two children (aged 9-11).

/j/ *Statistical Abstract of the United States: 1995*, Table 168. Average annual expenditure per consumer unit for lowest quintile of income.

/k/ Assumes Medicaid supplants insurance premiums.

/l/ *1994 Green Book*, Table 12-8, page 541.

/m/ Assumes working poor child care 75% of average expense for households above Poverty Level.