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LABOR SUPPLY EFFECTS OF FEDERAL RENTAL SUBSIDIES

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Abstract

High marginal tax rates and other characteristics of federal rental subsidy programs would be expected to reduce labor supply among subsidy recipients and households on subsidy waiting lists. Earlier attempts to estimate the labor supply effect of housing assistance concluded that subsidies substantially reduce labor supply. The findings of these studies, however, were probably influenced by validity problems related to their identification and representation of variation in subsidy characteristics.

The rationing of housing subsidies allows the use of analytic methods which could not be validly applied to most means-tested programs. This paper uses two such methods. First, it compares the labor supply of AFDC recipients who receive housing assistance with the labor supply of those who do not, using the effect of changes in AFDC benefits on the calculation of housing subsidies as a source of variation in subsidy size. Second, it conducts a before-and-after analysis of labor supply among households entering housing assistance. These analyses, which avoid the most serious vulnerabilities of past research, show evidence that rental subsidies do in fact substantially reduce hours worked and labor force participation among recipients.

Because housing assistance is rationed, these findings take on a somewhat different policy significance than they would in the context of an unrationed program. A smaller, more broadly distributed subsidy would reduce the number of families exposed to the most extreme distortions of work incentives, and could also reduce the overall effect of subsidies on labor supply.

LABOR SUPPLY EFFECTS OF FEDERAL RENTAL SUBSIDIES

Federal rental subsidies delivered through the public housing and Section 8 voucher and certificate programs impose effective marginal tax rates as high as 30 percent on households as their earnings rise. In addition, the subsidy programs provide a substantial source of unearned income to recipients, and require non-recipients on waiting lists to maintain low incomes in order to remain eligible. These characteristics would be expected to reduce labor supply among households potentially eligible for housing assistance.

Painter (1997) and Currie and Yelowitz (1998) used reduced form models to estimate the effect of rental subsidies on labor supply of female heads of household. Each concluded that subsidies substantially reduce labor supply. However, the findings of both studies were probably influenced by validity problems with their identification and representation of variation in subsidy characteristics. In order to avoid the difficulties encountered by these efforts to estimate of the entire effect of rental subsidies on labor supply, this paper undertakes the more modest goal of identifying specific parts of that effect. It employs two relatively simple methods to do so.

First, it compares labor supply, represented by annual hours worked and labor force participation, of Aid to Families with Dependent Children (AFDC) recipients who receive housing assistance with labor supply of those who do not. Because all AFDC recipients are eligible for housing assistance, this approach avoids much of the endogeneity problem that requires the use of more complex methods to identify labor supply effects. To test the impact of the size of maximum housing subsidies, it conducts a difference-in-difference analysis comparing labor supply of AFDC recipients on and off housing assistance as subsidy size varies. This analysis uses the effect of changes in AFDC benefits on the calculation of housing subsidies as a source of variation in subsidy size. It finds large and significant effects, indicating that, at least among AFDC recipients, subsidies do have a substantial income effect on labor supply.

The second analysis compares labor supply levels among households before and after they begin receiving subsidies. Since households would have had to establish eligibility beforehand in order to enter a waiting list, this approach isolates the income and marginal tax effects of actually receiving subsidies both from exogenous labor supply change that makes households eligible and from labor supply change made deliberately in response to the waiting list requirements. Overall, the analysis found a statistically significant negative effect on participation, and a substantial, but

statistically insignificant, negative effect on hours. Parameterizing these effects to reflect labor supply trends in a larger population of public assistance recipients eliminated their statistical significance, but did not reduce their magnitude.

Overview of Federal Rental Subsidy Programs

This paper discusses three federal rental subsidy programs: public housing, Section 8 certificates and Section 8 vouchers. Public housing provides recipients with use of a publicly owned unit whose size is determined by the household's size and composition. Households are required to pay a rent of 30 percent of their income after several deductions have been calculated. Benefits from Temporary Assistance to Needy Families (TANF, formerly AFDC) are counted as income, but the Earned Income Tax Credit (EITC), Food Stamps, and most other forms of public assistance are not.

Section 8 certificates allow recipients to live in private housing units with monthly rents at or below the local fair market rent (FMR)[1]. The tenant contribution to the rent is calculated using the same formula as under public housing, and the government pays the remaining portion to the landlord. Section 8 vouchers function similarly, but allow tenants to choose to live in units with rents above the FMR. The voucher pays a share of the rent equal to the FMR minus 30 percent of the household's post-deduction income.

In order to be eligible for any of the three programs, most households must have "very low incomes," defined as below 50 percent of the median income for households of the same size in the same county or MSA. Local housing authorities can also provide small quotas of subsidies to households with incomes between the very low-income threshold and a "low-income" threshold at 80 percent of the local median, but most authorities choose to limit assistance to very low-income households.[2]

Once a household has begun receiving assistance, its income can rise above the very low-income threshold without triggering a cutoff of aid. Households receiving Section 8 certificates and vouchers can earn up to the low-income threshold without losing assistance, and in many cases the subsidy formula would already have reduced benefits to zero by that point. Public housing

[1] The FMR is the rent on a safe and sanitary unit in the 40th percentile of rents for units with the same number of bedrooms in a particular Metropolitan Statistical Area (MSA) or county.
[2] Painter (1997) pp 5.
Nelson and Khadduri (1992).

households are allowed to remain in their units and pay 30 percent of their incomes in rent no matter how much they earn.

Federal rental subsidies are not provided to all eligible households. Instead, assistance is rationed and most households must go on a waiting list for a period before they actually begin receiving benefits. Waiting lists vary in length from one housing authority to another. During the time that recipients are on waiting lists, they are provided with estimates of how much longer they will have to wait, and are usually required to show their eligibility regularly.[3] "Federal preferences" allow households who live in substandard housing, who have been involuntarily displaced from their previous homes, or who pay more than 50 percent of their income in rent to move to the head of waiting lists. In addition, housing authorities are permitted to set "local preferences" giving priority to particular types of households.

Labor Supply Disincentives Under Federal Rental Subsidies

Federal rental subsidy programs would be expected to discourage work through three mechanisms: the marginal tax declining benefits place on rising earnings, the income effect of the grant, and the eligibility requirements that households experience while they are on waiting lists.

Marginal Tax Effects

Under all three programs, benefits are reduced by 30 percent of any increase in countable income. Households who receive assistance therefore face higher marginal taxes on their earnings than those who do not.

Since TANF benefits are counted as income under the housing subsidy formula and are phased out as earnings rise, housing assistance imposes smaller marginal taxes on TANF participants than on other subsidy recipients. For example, a household in a state where TANF benefits are reduced by $0.67 per dollar earned would only gain $0.33 cents in countable income for every additional dollar earned. As a result, the size of the housing subsidy would fall by only $0.10 (30 percent of $0.33) when earnings rose by a dollar.

[3] Painter (1997), pp 5.
U.S. Department of Housing and Urban Development staff, telephone interview, June 15, 1999.

Food Stamp benefits do not affect the calculation of housing subsidies, but for some households receipt of housing subsidies reduces Food Stamp benefits. The Food Stamp benefit formula allows families to deduct up to $250 in "excess shelter costs" from their countable income, and receipt of a housing subsidy reduces the costs that can be counted toward this deduction. The Food Stamp formula raises Food Stamp benefits of households using the deduction by $0.30 for every dollar reduction in the housing subsidy, in effect reducing the marginal tax added by housing programs to $0.21 for every dollar in earnings.[4]

As a result of these interactions, the effect of housing assistance on marginal tax rates depends on where a household lives and what types of assistance it receives. Subsidies add 30 percent to the marginal taxes of households receiving only housing benefits, and add smaller increments to the marginal taxes of households participating in TANF or Food Stamps. Appendix #1 shows incomes and marginal taxes at a range of earnings levels with and without housing assistance in four cities for a single parent with two children receiving AFDC, Food Stamps, and the EITC.[5] The household experiences a tax increment of 30 percent from housing subsidies during many income brackets, but the increment varies greatly and actually becomes negative during one bracket during which the family experiences a sharp drop in Food Stamp benefits.

For households who participate in multiple income support programs, the housing assistance marginal tax is often added onto total marginal tax rates that are already quite high. This is particularly true in the monthly earnings bracket, between $800 and $1600 for a single parent with two children, during which a household experiences drops in the EITC, Food Stamps, and , in some states, TANF along with housing subsidies. As Figure #1 shows, in the four cities examined here, marginal tax rates in this earnings bracket for households not receiving subsidies range from 64 percent to 87 percent. With housing subsidies included, tax rates rise by between 10 percent and 22 percent and reach as high as 97 percent in Los Angeles. As shown in Appendix #1, total marginal tax rates during shorter earnings intervals sometimes exceed 100 percent.

[4] U.S. Department of Agriculture staff, telephone interview, November 1, 1999.
[5] See Appendix #2 for assumptions and sources used in calculations.

Figure 1: Incomes and Marginal Tax Rates of FHA Recipients and Non-Recipients in Four Cities (Family of Three Participating in TANF, Food Stamps, and the EITC)					
City	**Total Income at $0 Earnings**	**Marginal Tax $0 to $800 Earnings**	**Total Income at $800 Earnings**	**Marginal Tax $800 to $1600 Earnings**	**Total Income at $1600 Earnings**
Dallas – with FHA	**$1,147**	**22.4%**	**$1,768**	**84.5%**	**$1,892**
– without FHA	$517	-4.4%	$1,352	62.3%	$1,654
– FHA Increment	$630	26.8%	$416	22.3%	$238
Los Angeles– with FHA	**$1,332**	**27.9%**	**$1,909**	**96.8%**	**$1,935**
– without FHA	$840	11.8%	$1,546	86.5%	$1,654
– FHA Increment	$492	16.1%	$363	10.3%	$281
Philadelphia– with FHA	**$1,242**	**32.1%**	**$1,785**	**85.4%**	**$1,902**
– without FHA	$739	21.5%	$1,367	64.1%	$1,654
– FHA Increment	$503	10.6%	$418	21.3%	$248
Scranton, PA – with FHA	**$1010**	**32.1%**	**$1,553**	**85.4%**	**$1,670**
– without FHA	$739	21.5%	$1,367	64.1%	$1,654
– FHA Increment	$271	10.6%	$186	21.3%	$16

These calculations omit a number of means tested programs, the most important of which are probably Medicaid and child care subsidies. Medicaid is not included because its value is difficult to measure, and because the provision of transitional benefits to households leaving AFDC complicates the relationship between income and eligibility. Child care subsidies are left out because they are rationed to a fraction of the eligible population in many states. For many households, however, loss of benefits not represented here would substantially raise overall marginal taxes.

In addition to the relatively steady subsidy marginal tax, some recipients would experience a sharp reduction in benefits (a "notch") at the point where their earnings cross the low-income threshold and they lose eligibility for benefits. Public housing households would not face a notch, however, and Section 8 households would only see a sharp drop-off in benefits if the low-income threshold in their area were low enough or the FMR high enough that the subsidy would not already have fallen to zero before the household reached the threshold. The sample subsidized three-person family with two children examined in the calculations discussed above would not experience a notch in any of the selected locations.

Income Effects

Independent of any changes in benefits as earnings rise, FHA could reduce labor supply through an income effect. Households who report very low earnings survive on a combination of public

assistance and unreported income from friends, family, private charities, or informal jobs.[6] Those who lack the resources to do so would be expected to have higher labor supply.

Housing assistance provides a substantial portion of the incomes of subsidized households with very low earnings. For the family of three in the calculations, the share of income provided by housing assistance at zero earnings ranges from 34% in Scranton, Pennsylvania to 56% in Dallas. Households that receive housing benefits would be more likely to be able to put together enough resources to survive with low amounts of reported work than those who do not. As a result, even if there were no marginal tax rate, it would be expected that households receiving subsidies would have lower labor supply than other households.

Waiting List Effects

The combination of rationing and eligibility requirements create work disincentives for households who are not yet receiving benefits. A household that is seeking benefits but not yet receiving them has to maintain an income below the very low-income threshold to enter and stay on a waiting list. In addition, households face incentives to qualify for the federal preferences toward families who spend more than half of their incomes on shelter.

Obstacles to Using Variation in Rental Subsidy Characteristics to Identify Labor Supply Effects

Painter (1997) and Currie and Yelowitz (1998) both attempted to determine whether and to what extent the apparent work disincentives created by federal rental subsidies actually affect labor supply decisions. Painter used a reduced form analysis to measure the impact of variation in FMRs and waiting time lengths on the labor force participation of female headed households. Currie and Yelowitz took a similar approach, but omitted waiting lists, added earnings as a dependent variable, and added very low-income limits and notch size as independent variables. The papers used year, location, family size, and, in the case of Currie and Yelowitz, family composition as sources of variation in their independent variables.

Both papers conclude that subsidies have substantial negative effects on labor supply.[7] There are, however, substantial difficulties involved with identifying and representing exogenous variation in each of the four program characteristics examined in the papers.

[6] Edin and Lein (1997)

Fair Market Rents

FMRs are derived directly from a U.S. Department of Housing and Urban Development estimate of the housing costs faced by low-income renters in a particular area and year. This creates two problems for analyses that use variation in FMRs to measure labor supply effects. First, since housing costs are a major component of local economies, a correlation between labor supply and FMR could occur through some mechanism related to housing costs but unrelated to housing subsidies. Second, variation in FMRs does not necessarily represent actual variation in subsidy value, since a substantial portion of the variation in FMRs will simply reflect higher local costs for housing of a constant quality.

Each of the three sources of variation in FMRs used by both papers – year, location, and family size – would be expected to be directly linked to variation in the actual market rents faced by eligible families. Currie and Yelowitz add a fourth type of variation based on program rules that determine the size of the apartment a family is subsidized to live in. The rules assume that two children of the same sex can share a bedroom, but that children of different sexes require separate bedrooms. As a result, families with odd numbers of children of each sex receive larger units, and higher FMRs, than families with the same total number of children but even numbers of at least one sex. Since the sex of children probably would not affect market rents, this source of variation would be expected to be independent of housing costs to an extent that year, location, and family size are not. However, because family composition is included in the same analysis with the other three types of variation, it does not eliminate the validity threats created by the link between housing costs and FMRs.

Yelowitz and Currie make no other attempt to control for the link between FMRs and housing beyond the inclusion of fixed effects variables for years, MSAs, and several other factors. Trends in housing costs and value affect different MSAs at different times, and any difference between the FMRs estimated by HUD and actual housing costs would seem as likely to be random as to be a constant effect of a year or an MSA. As a result, the inclusion of the fixed effect variables probably does not resolve the problems created by the association between FMRs and housing.

[7] A third paper, Keene and Moffitt, uses a simulation estimator to estimate a structural model of labor supply and participation in several income support programs for female heads of households. It uses fair market rents to represent the size of the maximum housing subsidy. Keene and Moffitt find significant effects on labor supply and program participation for AFDC, Medicaid, and Food Stamps, but not for

Painter's paper includes analyses in which FMRs are adjusted based on two cost of living indices: a state-level index for costs of all goods, and an MSA-level index for housing costs. Painter's use of these indices is intended to separate variation in the actual values of subsidies from variation in the FMR that is only a reflection of differences in cost of living. For two reasons, it probably does not fully achieve this separation.

First, as Painter points out, a cost of living index controls not only for geographic variation in costs for units of similar quality, but also for variation in average housing quality, amenities, and economic opportunities that are capitalized into housing costs. The first type of variation would not affect real subsidy value, but the second type would. As a result, adjusting by cost of living might underestimate the value of subsidies in areas where housing is actually more valuable.

Second, and more importantly, it is likely that the FMRs themselves are as good an indicator of the costs that influence the real value of housing subsidies as the indexes Painter uses. FMRs are based on an annual MSA-level HUD estimate of 40^{th} percentile rents that uses information from the Census, the between-census American Housing Surveys, Consumer Price Index Data, and random digit dialing surveys. Painter's state-level all-goods data would clearly miss the substantial variation in costs among cities within states. Furthermore, using an all-goods cost index to gauge the value of housing assistance requires assumptions about the fungibility of subsidies for which there is no evidence. Even Painter's MSA-level housing cost data, which presumably include costs for all types of units, are probably a less adequate index of housing costs faced by low-income renters than FMRs. It is likely that Painter's adjusted FMRs reflect not the actual value of subsidies, but rather the ratio of 40^{th} percentile housing costs to the general costs of living in an area, and to the housing costs faced by all households taken together.

An additional, though probably less serious, problem with using variation in FMRs to measure labor supply effects is that even if they did not vary in tandem with costs, FMRs would only be an approximation of the value of the maximum subsidy. The maximum subsidy received by a public housing household is really the free use of a unit whose value may or may not be close to the FMR. For Section 8 households, whose subsidies consist of a quantity of private housing whose market value is directly tied to the FMR, the FMR is the value of the maximum subsidy only if it

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housing subsidies. They suggest that they did not detect a significant effect for housing benefits because their model was not able to account for the effects of rationing.

is less than or equal to the amount that the household would have spent on housing if it received a cash grant of the same amount. Research has shown that Food Stamps are essentially equivalent to cash,[8] but it is not certain that a housing subsidy, often several hundred dollars larger than the Food Stamp grant, would be equally fungible. However, as long as the differences between FMRs and subsidy values are fairly constant across years, locations and family sizes, or any patterns in the differences are not closely correlated with labor supply, the inclusion of year and MSA fixed effects should prevent any substantial threat to the validity of the analyses discussed here.

Very Low Income Limits

Use of variation in the very low-income limit to measure labor supply effects is at least as problematic as use of variation in FMRs. In addition to being a factor in determining the subsidy eligibility of unsubsidized households, very low-income levels are a measure of how much people toward the lower end of the income distribution earn. It would be expected that in MSAs and years where households at 50 percent of the median had higher incomes, labor force participation and earnings of female headed households would be higher than in MSAs and years where those households had lower incomes. In fact, earnings at 50 percent of the median, which affect the whole low-income population, would probably have a greater impact on labor supply than housing subsidies, which only directly affect a fraction of low-income households. Since regions experience economic trends at different times and with varying intensities, a substantial part of the variation in very low-income levels may be linked to interactions between regions and years and would therefore not be controlled for by the MSA and year fixed-effect variables.

Notches

Currie and Yelowitz' notch variable, intended to represent the size of the subsidy that is lost when a household crosses an income eligibility limit, is a function of FMRs and income limits and therefore picks up many of the problems associated with those variables. Furthermore, because the notches faced by actual households depend on whether they already receive Section 8 or public housing benefits, and program participation is endogenous with labor supply, Currie and Yelowitz assign each household an average of the notches faced by all households in an MSA. Since Currie and Yelowitz report that at least 94 percent of households in every MSA were unsubsidized, and all households in public housing face notches of zero, nearly all of the variation in the notch variable was actually variation in the notch for unsubsidized households. Calculating

[8] Moffitt (1989)

the notch in this way masks the fact that subsidized households, which make up a substantial portion of the households whose behavior would be expected to change in response to housing subsidies, face small notches or no notches at all, and are not affected by the notch for unsubsidized households.

Waiting Times

Painter includes the average waiting time faced by all households in an area [9] in his analyses both as an independent variable, and, separately, as a factor used to discount housing subsidies. Using both methods, he finds that the inclusion of waiting list times raises his estimates of the effects of housing subsidies on labor supply. These findings suggest that longer average waiting times are generally linked to reduced effects of housing assistance on labor supply, and therefore higher labor supply.

It is not, however, clear that average waiting times should be expected to have this relationship with labor supply. Painter's discussion of the potential impact of waiting times treats them as a factor that reduces the net benefits of housing subsidies and therefore affects the utility maximizing choices households make in deciding whether to participate in housing programs. In fact, the result of rationing is that, as long as there is any waiting list at all, the subsidy allocation process rather than the choices of households controls how many households receive subsidies in a particular area. Waiting times would not be expected to have any influence on the magnitude of the labor supply effects that result from actual participation in subsidy programs.

Household choice would control how many households participate in waiting lists, and should therefore affect the size of labor supply effects linked to waiting lists. It is likely, however, that the average waiting times used by Painter are themselves in large part determined by the level of waiting list participation. It seems probable that the negative association with labor supply that waiting time length would be expected to have as a direct indicator of level of waiting list participation would be more substantial than the positive association that it could have as a deterrent to waiting list participation.

[9] In order to avoid the bias that would have occurred if he had included in his analysis different waiting times for different households currently faced, Painter instead assigns to each household the average expected waiting time for all households in the area, including those receiving assistance or on waiting lists and those who have not applied for assistance.

That Painter finds waiting times to have a positive association with labor supply suggests that they are linked to labor supply through a mechanism other than the reduction of value of benefits to prospective applicants. It is possible that areas with longer waiting lists tend to have fewer subsidy slots relative to the number of eligible households than areas with shorter lists. If this were the true, a smaller proportion of the population would actually receive housing assistance and experience the income and marginal tax effects associated with it. This would tend to increase labor supply and produce positive coefficients like those in Painter's analysis. It is also possible that the relationship between waiting lists and labor supply reflects factors that are not directly related to the subsidy program. It may be, for example, that in areas and years in which there is more rapid economic growth and higher labor force participation, demand for low cost housing grows relative to supply and waiting times are therefore longer.

Empirical Analyses

While the characteristics of federal rental subsidy programs make the use of conventional models to estimate labor supply effects very difficult, they also create opportunities for other, relatively simple approaches that could not be applied to unrationed income support programs. This paper employs two such analyses: a regression that compares labor supply of AFDC participants who receive housing subsidies with labor supply those who do not, and uses variation in housing benefits caused by variation in AFDC benefits to assess the effects of housing assistance; and a before-and-after comparison of labor supply by households entering housing assistance. Neither of these analyses can quantify the overall effect of housing assistance on labor supply in the way that the approaches in the papers discussed above attempt to, but they can identify specific parts of that effect in ways that avoid the vulnerabilities of those approaches.

Effects of Housing Subsidy Receipt on Labor Supply of AFDC Recipients

A simple comparison of the labor supply of housing subsidy recipients with that of the rest of the population would have little meaning. Eligibility for subsidies is determined by income, and incomes would be expected to correlate closely with hours worked and labor force participation. As a result, such a comparison would be unable to determine whether labor supply changes were the cause or effect of program participation.

Because, however, the AFDC eligibility rules were (and TANF rules are) more restrictive than those for housing subsidies, nearly all AFDC recipients were potentially eligible for housing assistance. Many AFDC households would have chosen to go on housing assistance if they could

have, and were unsubsidized only because of rationing. Differences in labor supply were probably not the major reason why some AFDC participants received housing assistance and others did not, so it becomes more plausible to attribute any differences in labor supply to effects of the housing programs.

The analysis here uses data from the Panel Survey on Income Dynamics (PSID) between 1986 and 1992. During this time period, the housing subsidy program rules were very similar to the rules today. The full sample includes 1,620 observations of 555 single women ages 25 to 49 whose households received AFDC benefits at some point during the preceding year. This data is used in two types of analyses: linear regressions with annual hours worked by individuals as the dependent variable, and logistic regressions with labor force participation as the dependent variable. All regressions include state and year fixed effects, individual and household characteristics, and several program participation variables. Results are shown in Figure #2.

Regressions #1 and #2 include housing subsidy receipt as an independent variable. They find subsidy receipt to have substantial, highly significant effects, with coefficients of –134 on annual hours worked, and –0.28 on labor force participation.

Although all AFDC recipients, whether or not they received housing benefits, had to have very low earnings, housing recipients and non-recipients could be expected to differ in how long they have been in poverty. FHA recipients would have to have been eligible for their area waiting lists for some period of time, while other AFDC recipients could have become poor only recently. Since there may be a correlation between length of time in poverty and labor supply, this difference could account for some of the effects in regressions #1 and #2.

To attempt to control for length of time in poverty, I included a variable that indicates whether an individual had been in a household that received AFDC for zero, one, or two of the previous two years. Because of data limitations, this analysis only included observations between 1988 and 1992. Regressions #3 and #4, which do not include the years-on-AFDC variable, show that this group had a somewhat higher coefficient on FHA participation than the seven-year sample. In regressions #5 and #6, the years-on-AFDC variable did have a strong negative effect on hours and participation, but even with its inclusion the coefficient on FHA remained large and very significant.

These results do not rule out the possibility that some factor other than FHA program effects causes the differences in labor supply. It may be that federal housing subsidy preferences, which were in place throughout this period, selected people to receive housing assistance who tended to have lower labor supply. It is also possible that the variables included in regressions #5 and #6 did not fully control for the effects of length of time in poverty.

As a further test to determine whether the coefficients on FHA are actually an effect of the program, I included the variation in FHA subsidy size created by variation in AFDC benefits in the analysis. As discussed earlier, under both TANF and AFDC welfare benefits have been counted as income in the formula used to determine the size of housing subsidies. Since households have been required to contribute 30 percent of their income to rent, holding all else constant every $1.00 increase in the maximum welfare benefits would reduce the maximum housing subsidy by $0.30.

During the period examined, AFDC benefits varied widely over time and from state to state. In 1986, for example, benefits for a family of three ranged from $118 a month in Alabama to $617 a month in California. By 1992, benefits in those states had risen to $164 and $624 respectively. There was not, however, substantial variation in benefit reduction rates (BRRs). Throughout this period, recipients faced a 67 percent BRR during the first four months they worked while on welfare, and a 100 percent BRR if they worked more than four consecutive months while on aid. In addition, a small amount of earnings was not deducted from benefits. This "earnings disregard" was raised $15 in 1988, but otherwise held constant.

Without variation in BRRs, welfare benefits have no effect on the housing subsidy marginal tax. An AFDC recipient facing a 67 percent benefit reduction rate would see her housing subsidy fall by $0.10 for every dollar its earnings rose, regardless of how large the AFDC benefit was. Similarly, all AFDC recipients facing 100 percent BRRs would receive a constant subsidy as their earnings rose, since their countable incomes would not increase at all until their AFDC benefits had been reduced to zero.

Variation in AFDC benefits should, however, alter the size of the income effect of the housing subsidy. In areas and years where housing benefits are larger, the difference in ability to get by with low reported earnings between households with and without benefits would be greater, and the gap in labor supply would be expected to be wider as well.

Using variation in AFDC benefits has several advantages over using variation in FMRs. First, while FMRs are determined by federal formulas based on the housing costs faced by low-income families, AFDC benefits are the result of state political processes. While political outcomes may be correlated with social and economic conditions that are in turn correlated with labor supply, it is probable that the inclusion of state fixed effects variables can control adequately for these links.[10]

Furthermore, a change in the AFDC grant has a direct impact on the budgets of subsidized households relative to unsubsidized households. Regardless of the value it places on its housing subsidy, a household that receives an additional $100 from AFDC will have to contribute $30 more in cash toward its rent. Using the AFDC benefit avoids estimating a value for public housing units, determining the fungibility of subsidies, or identifying what portion of a larger FMR reflects a larger amount of housing consumption.

In addition, while this analysis cannot attempt to measure the effects of rationing, neither is it vulnerable to distortions resulting from rationing. Its scope is limited to the income effects of households actually receiving housing subsidies, so the proportion of households who are subsidized would not affect the outcome.

To test the relationship between AFDC benefit levels and housing subsidy effects, I added three variables to regressions #7 and #8. The first of these was the maximum AFDC benefit for an individual based on number of children, state, and year. The second was the number of children multiplied by the FHA participation dummy variable. This was intended to control for the fact that both FHA and AFDC benefits are higher for larger families. The third variable was the size of the AFDC guarantee multiplied by the FHA dummy variable. A positive coefficient on this third variable would indicate that the negative impact of housing subsidies on labor supply falls as rising AFDC benefits reduce the size of the maximum subsidy.

The regression results from both the hours and the participation analyses show positive coefficients on the interaction between FHA participation and AFDC benefits, significant at the 0.10 level. These coefficients suggest that the $30 dollar cut in the monthly housing subsidy that

[10] See Hoynes (1997).

Figure #2: Results of Analyses of Labor Supply among AFDC Recipients

Linear Regression

Dependent Variable: Annual Hours Worked

Single Females Ages 25 to 49 in Households that Have Received AFDC Benefits During the Previous Year

1986-1992: N= 1620
1988-1992: N= 1171
Unstandardized Coefficients, Standard Errors in Parentheses

	#1 (1986-1992)	**#3 (1988-1992)**	**#5 (1988-1992)**
Constant	933.799 (151.555)	685.830 (178.598)	777.576 (177.624)
Age	10.597 (3.153)	10.455 (3.683)	11.042 (3.645)
Black	-107.176 (58.120)	5.648 (67.367)	28.354 (66.786)
Hispanic	-283.520 (129.055)	-329.170 (144.260)	-302.859 (142.774)
More than twelve years of education	156.407 (55.282)	149.218 (61.278)	142.656 (60.618)
Fewer than twelve years of education	-116.947 (40.947)	-142.856 (44.639)	-120.153 (44.390)
Number of children in household	-31.151 (17.601)	-25.189 (20.258)	-17.494 (20.096)
Number of children under six in household	-7.734 (21.476)	-4.696 (24.430)	-12.983 (24.221)
Residence in a Metropolitan Statistical Area	-34.127 (10.928)	-16.445 (12.915)	-16.491 (12.773)
In household that received Food Stamps	-201.608 (60.029)	-210.654 (72.078)	-176.556 (71.624)
In household where someone was covered by Medicaid	-319.097 (44.755)	-350.958 (54.585)	-325.539 (54.233)
In household that received housing assistance	-124.782 (36.627)	-183.280 (42.328)	-163.683 (42.053)
How many of previous two years in household receiving AFDC			-136.029 (27.785)

State and year fixed-effects are included in the regressions, but not shown in the table.

Linear Regression
Dependent Variable: Annual Hours Worked

Single Females Ages 25 to 49 in Households that Have Received AFDC Benefits During the Previous Year

1986-1992: N= 1620
1988-1992: N= 1171
Unstandardized Coefficients, Standard Errors in Parentheses

	#7 (1986-1992)	**#9 (1988-1992)**	**#11 (1988-1992)**
Constant	1086.145 (247.632)	880.219 (335.042)	967.041 (331.922)
Age	10.141 (3.157)	9.757 (3.689)	10.358 (3.652)
Black	-127.002 (58.664)	-7.111 (68.132)	15.758 (67.564)
Hispanic	-256.230 (129.273)	-318.290 (144.984)	-292.573 (143.522)
More than 12 years of education	173.182 (55.475)	165.651 (61.635)	158.558 (60.989)
Fewer than 12 years of education	-107.670 (40.935)	-134.102 (44.562)	-112.291 (44.312)
Number of children in household	34.613 (36.354)	48.519 (43.508)	52.269 (43.047)
Number of children under six in household	-12.746 (21.485)	-10.484 (24.412)	-18.390 (24.205)
Residence in a Metropolitan Statistical	-37.599 (10.992)	-19.367 (13.012)	-19.351 (12.872)
In household that received Food Stamps	-213.910 (59.941)	-220.236 (71.758)	-185.701 (71.344)
In household where someone was covered by Medicaid	-318.400 (44.638)	-348.802 (54.417)	-323.876 (54.077)
How many of previous two years in household receiving AFDC			-133.915 (27.683)
Maximum AFDC benefit	-.504 (.438)	-.511 (.528)	-.495 (.522)
Maximum AFDC benefit multiplied by housing participation	.414 (.196)	.269 (.222)	.268 (.220)
Number of kids multiplied by housing participation	-107.827 (28.648)	-115.961 (32.791)	-108.852 (32.471)

State and year fixed-effects are included in the regressions, but not shown in the table.

Logistic Regression
Dependent Variable: Labor Force Participation
Single Females Ages 25 to 49 in Households that Have Received AFDC Benefits During the Previous Year

1986-1992: N= 1620
1988-1992: N= 1171
Unstandardized Coefficients, Standard Errors in Parentheses

	#2 (1986-1992)	**#4 (1988-1992)**	**#6 (1988-1992)**
Constant	1.4600 (.5197)	.3532 (.6285)	.5827 (.6376)
Age	.0079 (.0110)	.0105 (.0132)	.0126 (.0133)
Black	-.4502 (.1974)	-.1452 (.2348)	-.0780 (.2376)
Hispanic	-.7367 (.4565)	-1.0361 (.5751)	-.9465 (.5746)
More than 12 years of education	.4958 (.1874)	.5284 (.2116)	.5167 (.2132)
Fewer than 12 years of education	-.5397 (.1426)	-.5580 (.1597)	-.4969 (.1617)
Number of children in household	-.0221 (.0606)	-.0242 (.0714)	-.0013 (.0721)
Number of children under six in household	-.1513 (.0747)	-.1909 (.0874)	-.2199 (.0887)
Residence in a Metropolitan Statistical	-.1143 (.0390)	-.0989 (.0471)	-.1015 (.0472)
In household that received Food Stamps	-.0139 (.2070)	.0008 (.2568)	.1095 (.2625)
In household where someone was covered by Medicaid	-.7742 (.1531)	-.8942 (.1931)	-.8314 (.1954)
In household that receive housing assistance	-.2546 (.1265)	-.3837 (.1506)	-.3349 (.1518)
How many of previous two years in household receiving AFDC			-.3899 (.0985)

State and year fixed-effects are included in the regressions, but not shown in the table.

Logistic Regression
Dependent Variable: Labor Force Participation
Single Females Ages 25 to 49 in Households that Have Received AFDC Benefits During the Previous Year

1986-1992: N= 1620
1988-1992: N= 1171
Unstandardized Coefficients, Standard Errors in Parentheses

	#10 (1986-1992)	**#12 (1988-1992)**	**#14 (1988-1992)**
Constant	2.3528 (.8666)	1.2008 (1.2380)	1.4155 (1.2462)
Age	.0057 (.0111)	.0065 (.0133)	.0086 (.0134)
Black	-.5093 (.2005)	-.1839 (.2389)	-.1162 (.2416)
Hispanic	-.6717 (.4588)	-1.0104 (.5789)	-.9286 (.5796)
More than 12 years of education	.5732 (.1901)	.6176 (.2165)	.6036 (.2182)
Fewer than 12 years of education	-.5066 (.1436)	-.5235 (.1610)	-.4652 (.1630)
Number of children in household	.2407 (.1254)	.2315 (.1543)	.2464 (.1557)
Number of children under six in household	-.1727 (.0754)	-.2162 (.0886)	-.2440 (.0898)
Residence in a Metropolitan Statistical Area	-.1319 (.0400)	-.1141 (.0485)	-.1164 (.0486)
In household that received Food Stamps	-.0445 (.2077)	-.0163 (.2579)	.0929 (.2639)
In household where someone was covered by Medicaid	-.7684 (.1534)	-.8901 (.1941)	-.8301 (.1964)
How many of previous two years in household receiving AFDC			-.3796 (.0989)
Maximum AFDC benefit	-.0024 (.0015)	-.0020 (.0019)	-.0019 (.0019)
Maximum AFDC benefit multiplied by housing participation	.0016 (.0007)	.0013 (.0008)	.0013 (.0008)
Number of kids multiplied by housing participation	-.3670 (.1017)	-.4158 (.1223)	-.4002 (.1229)

State and year fixed-effects are included in the regressions, but not shown in the table.

would result from a $100 increase in the maximum AFDC benefit would be linked to a 13 percent rise in labor force participation and an increase of 36 in annual hours worked among welfare recipients who also receive housing assistance.

Within the smaller sample used for the years-on-AFDC analysis, the coefficients on the FHA participation and AFDC benefit interaction are of roughly the same magnitude, but are not significant at conventional levels. The inclusion of the years-on-AFDC variable has almost no effect on these coefficients.[11]

One key assumption here is that there is not a correlation between AFDC benefits and FMRs that is not controlled for in the analysis. State and year fixed effect variable are included in the regressions, so only a trend that involves an interaction between states and years would be problematic. Since the sources of the decisions that set benefits and FMRs are so different, this seems a reasonable assumption, but it is possible that a correlation exists that would distort the findings.

Another possible source of bias is the likelihood that both the AFDC and the AFDC/FHA populations would to be made up of different individuals after an increase in the maximum AFDC benefit than before. Raising the maximum benefit, while leaving the BRR the same, would increase the earnings level at which benefits are cut off. Some households with earnings between the old and the new cutoffs would choose to go on aid, and some with even higher earnings might lower their labor supply enough that they would become eligible. However, while it would be likely that the new recipients would have higher overall labor supply than the previous recipients, there does not seem to be a strong reason to expect that the new recipients would be less affected by receipt of housing assistance.

Finally, the simple increase in income from an AFDC benefit increase may reduce the impact of FHA receipt on labor supply independent of any effect on the size of the FHA benefit. Even a constant FHA benefit would make up a larger proportion of a family's income, and perhaps that would lead to a greater effect. If this were the case, a portion of the effect identified would not be attributable to variation in the housing subsidy.

[11] As an additional test, all of the regressions described above were rerun with individual fixed effects added to the analyses. The magnitudes of all effects were reduced substantially and their statistical significance eliminated, but in all cases the effects continued to be in the same direction as those detected without the individual fixed effects.

On the whole, however, variation in the housing subsidy appears to be the strongest explanation for the identified effect. This suggests that housing subsidies have a substantial income effect on the labor supply of AFDC recipients. While it is possible, there does not seem to be a clear reason to expect that this effect would not extend to other subsidy recipients

Comparison of Labor Supply Before and After Beginning Receipt of Housing Assistance

The second analysis compares labor supply of individuals during the year before their households go on housing assistance with labor supply of those same individuals during the latest year for which data is available after their households begin receiving aid. The sample is again drawn from the PSID between 1986 and 1992, and includes 425 individuals ages 25 to 49.

As with the first analysis, this comparison is made meaningful by the rationing of housing subsidies. A simple before-and-after comparison of labor supply by households beginning receipt of Food Stamps or TANF could not show labor supply effects of those programs, because households are able to receive aid almost immediately after their incomes become low enough to meet eligibility limits. It would, again, be unclear whether lower labor supply allowed households to go on aid, or the prospect of going on aid induced households to lower their labor supply.

By contrast, households that receive housing assistance would not go on aid immediately after becoming eligible. They would meet the very low-income eligibility requirement, go on a waiting list for some period of time, and then begin to receive aid. It would be expected that both exogenous labor supply changes that allowed households to become eligible and labor supply decisions made in response to the very low-income eligibility limit would occur at the point when the household went on the waiting list. Changes in labor supply at the point where a household actually went on housing aid could be attributed to the income effect of the total subsidy, to the subsidy marginal tax, and to the removal of the very-low income limit required for entry into the subsidy programs. The income and marginal tax effects would be expected to reduce labor supply, while the removal of the income limit would be expected to raise labor supply.

Overall, annual hours worked among this sample fell by 59 hours after they went on aid, while participation fell by 5.4 percent. Results are shown in Figure #3. Women and single men experienced declines in both hours worked and participation, while married men worked more

hours and had higher participation rates. Of these findings, the changes in participation among the population as a whole and among single men were statistically significant at a level of 0.10.

Other trends in the characteristics and circumstances of individuals occurred at the same time as the transition onto housing assistance. All individuals were older and living in a later year at the time of the after-going-on-aid measurement. In addition, individuals overall tended to have more education and more children, and to participate in more public assistance programs after going on housing assistance than before.

In order to control for these differences, all of which could be expected to affect labor supply, additional analyses were carried out using parameters based on the effects associated with these factors in a larger sample. Parameters were based on regression coefficients on each characteristic in an analysis of individuals ages 25 to 49 in the PSID sample from 1986 to 1992, shown in Appendix #5.[12] Since it could be expected that low income individuals experience different parameters than the population as a whole, the analysis used to set the parameters was limited to those whose household participated in housing assistance, AFDC, Medicaid, or Food Stamps at some point during the seven years examined.

In all cases, the parameterized labor supply changes were in the same direction as the unparameterized changes, although the magnitudes were sometimes very different. Partly because the standard errors of the differences between parameterized labor force participation rates were about twice as high as those between the unparameterized rates, none of the changes that had been statistically significant in the unparameterized analysis remained significant. Overall, the addition of parameters raised the effect on labor supply from 5.4 percent to 6.8 percent, and the effect on hours from 59 to 64.

[12] In order to test the statistical validity of the parameters, a set of parameters in each gender/marital status category was calculated using one half of the sample. The "predicted" parameters based on this analysis were then compared with the actual parameters identified in the other half of the population, and an f-test was used to determine whether the hypothesis that they were from the same population could be disproved. F-scores ranged from 1.00 to 1.34, well below the score of 1.86 that would have been required to rule out identical populations at the .10 level. See Lapham (1971)

Figure #3: Before and After Comparison Results

Annual Hours Worked					
Gender and Marital Status	**Number of Individuals**	**Hours Two Years Before Going on Aid**	**Change In Actual Hours From Year Before Aid to Last Observation After Going on Aid (S.E.)**	**Change In Hours From Year Before Aid to Last Observation After Going on Aid Parameterized Using Public Assistance Recipients (S.E.)**	**Change In Hours From Year Before Aid to Last Observation After Going on Aid Parameterized Using Full Sample (S.E.)**
Single Female	150	1022 (78)	-102 (108)	-169 (95)	-112 (92.9)
Married Female	87	1128 (95)	-94 (138)	-43 (171)	-35 (132
Single Male	94	1225 (103)	-70 (147)	-76 (135)	-70 (130)
Married Male	94	1881 (82)	53 (120)	96 (109)	86 (107)
All	425	1279 (47)	-59 (68)	-64 (67)	-43 (59)

Labor Force Participation					
Gender and Marital Status	**Number of Individuals**	**Labor Force Participation Two Years Before Going on Aid**	**Change In Actual Participation From Year Before Aid to Last Observation After Going on Aid (S.E.)**	**Change In Participation From Year Before Aid to Last Observation After Going on Aid Parameterized Using Public Assistance Recipients (S.E.)**	**Change In Participation From Year Before Aid to Last Observation After Going on Aid Parameterized Using Full Sample (S.E.)**
Single Female	150	69.3%	-2.7% (5.4%)	-28.1% (18.8%)	-13.5% (14.2%)
Married Female	87	78.2%	-9.2% (6.7%)	-11.9% (12.5%)	2.9% (14.1%)
Single Male	94	77.7%	-11.7% (6.5%)	-10.2% (18.5%)	-4.8% (23.7)
Married Male	94	93.6%	0.0% (3.6%)	35.5% (22.7%)	33.0% (20.2%)
All	425	78.4%	-5.4% (2.9%)	-6.8% (15.4%)	2.1% (11.1%)

An alternative set of parameters was calculated using the entire PSID sample between ages 25 and 49. This set of parameters altered some results substantially. Most importantly, they changed the signs on labor force participation for married women and for the sample as a whole from negative to positive. It would be expected that the actual parameters for the sample examined here would be closer to those of public assistance recipients than the general population, so this result does not necessarily reduce the validity of the findings. Nonetheless, it does illustrate that the finding is highly sensitive to the methods used to calculate the parameters.

Conclusions and Policy Implications

The findings of this paper strongly suggest that federal rental subsidies reduce labor supply through income and marginal tax effects on individuals who are currently receiving assistance. While the analyses used here give no indication of whether the program affects the labor supply of unsubsidized households, and cannot provide an estimate of the overall impact of the subsidies, they are able to show evidence of labor supply effects while avoiding the most serious vulnerabilities of past research.

These findings are not surprising. As discussed above, housing subsidies make up a substantial proportion of the incomes of families with very low earnings, and impose marginal tax rates as great as 30 percent on families that often already face very high marginal tax rates.

While labor supply effects probably represent a cost of housing subsidies, they are not of themselves an indication that something is wrong with the program. For most means tested benefits, changing the program characteristics that appear to deter work, such as the marginal tax rate, involves difficult tradeoffs. Absent increased public spending to allow a more gradual phase out, marginal tax rates can only be reduced by cutting maximum benefits, usually those received by the poorest families. Furthermore, the marginal tax rates of the housing program are not strikingly high when compared those of other means tested programs. All but a few state TANF programs, for example, cut benefits at rates more rapid than the 30 percent used in the rental subsidy programs. The findings of this paper do not necessarily lead to the conclusion that the benefits of reducing marginal tax rates would be worth reducing maximum housing subsidies, or that housing subsidy marginal tax rates are any more harmful than those of other programs.

What does, however, distinguish housing assistance from most other means tested benefit programs is the rationing of subsidies. Rationing concentrates both benefits and marginal taxes on some eligible families, and denies assistance to other, sometimes equally needy, families. A more broadly distributed subsidy could both cut the marginal tax rates experienced by participants and extend assistance to many additional families, without changing the income level at which benefits are cut off or increasing program costs.

Currently, federal housing programs reach about 30 percent of poor renters nationally,[13] and, to give one example, push the total marginal tax rate faced by a Philadelphia family of three as its monthly earnings rise from $1000 to $2000 to 87 percent. A universal subsidy 70 percent smaller than the current benefit could reach an additional 70 percent of poor renters and reduce the overall marginal tax rate to 60 percent while maintaining program costs approximately at their current level. It is, however, unlikely that 100 percent of poor renters would actually take up a housing benefit. A more incremental broadening that cut subsidies by 25 percent, again roughly cost neutral, could subsidize an additional 10 percent of poor renters and reduce the total marginal tax rate by 6 percent.

Under this type of policy change, the reduction in earnings disincentives among participants would be at least partially offset by an increase in disincentives among families to whom new benefits were extended.[14] Extension of benefits to a larger proportion of those eligible could also either lengthen or shorten waiting lists, with accompanying affects both on labor supply and family well-being.[15] Nonetheless, a broadening of subsidies would certainly increase the number of needy families assisted and reduce the number of families exposed to the most extreme distortions of earnings incentives, and would probably also reduce the overall effect of subsidies on labor supply.

[13] Suisin (1997) citing U.S. Bureau of the Census, *American Housing Survey for the United States in 1989*, 1991; and U.S. Department of Housing, *A Picture of Subsidized Housing*, 1996.
[14] Concentrated benefits would probably create greater overall earning disincentives than dispersed benefits if a change in the marginal tax of the same magnitude would have a greater affect on earnings at higher than at lower total marginal tax levels. If the household who received the dispersed benefits were affected differently by disincentives than the households who had received the concentrated benefits, this would also affect the relative overall impact on labor supply.
[15] See Lindsay and Feigenbaum, (1984).

Appendix #1: 1998 Monthly Income Tables for a Single Parent with Two Children

Dallas, TX

Maximum TANF Benefit	188	2 Bedroom FMR	694
TANF BRR	0.667	Low-Income Limit	3625
TANF Disregard	120		

Earnings	0	200	400	600	800	1000	1200	1400	1600	1800	2000	2200	2400	2600
TANF	188	135	1	0	0	0	0	0	0	0	0	0	0	0
Food Stamps	322	301	310	274	238	202	166	130	0	0	0	0	0	0
FICA	0	-15	-31	-46	-61	-77	-92	-107	-123	-138	-153	-168	-184	-199
EITC	0	81	161	241	313	313	275	233	192	149	107	64	22	0
Housing Assistance	638	606	598	538	478	418	358	298	238	178	118	58	0	0
Income with FHA	**1147**	**1307**	**1438**	**1607**	**1768**	**1856**	**1907**	**1948**	**1892**	**1966**	**2037**	**2108**	**2179**	**2326**
Marginal Tax with FHA	---	20%	34%	16%	19%	56%	75%	80%	128%	63%	65%	65%	64%	27%
Income without FHA	**517**	**729**	**860**	**1124**	**1352**	**1500**	**1611**	**1712**	**1654**	**1788**	**1919**	**2050**	**2179**	**2326**
Marginal Tax without FHA	---	-6%	35%	-32%	-14%	26%	45%	50%	129%	33%	35%	35%	35%	27%
Marginal Tax Increment from FHA	---	26%	-1%	48%	33%	30%	30%	30%	-1%	30%	30%	30%	29%	0%

Los Angeles, CA

Maximum TANF Benefit	565	2 BR FMR	737
TANF BRR	0.5	Low-Income Limit	3079
TANF Disregard	225		

Earnings	0	200	400	600	800	1000	1200	1400	1600	1800	2000	2200	2400	2600
TANF	565	565	478	378	278	178	78	0	0	0	0	0	0	0
Food Stamps	200	164	154	148	142	138	138	130	0	0	0	0	0	0
FICA	0	-15	-31	-46	-61	-77	-92	-107	-123	-138	-153	-168	-184	-199
EITC	0	81	161	241	313	313	275	233	192	149	107	64	22	0
FHA	568	520	498	468	438	408	378	341	281	221	161	101	41	0
Income with FHA	**1332**	**1514**	**1659**	**1788**	**1909**	**1959**	**1976**	**1991**	**1935**	**2009**	**2080**	**2151**	**2220**	**2326**
Marginal Tax with FHA	---	9%	28%	36%	39%	75%	92%	93%	128%	63%	65%	65%	65%	47%
Income Without FHA	**840**	**1070**	**1236**	**1395**	**1546**	**1624**	**1665**	**1712**	**1654**	**1788**	**1919**	**2050**	**2179**	**2326**
Marginal Tax Without FHA	---	-15%	17%	21%	24%	61%	80%	77%	129%	33%	35%	35%	35%	27%
Marginal Tax Increment from FHA	---	24%	11%	15%	15%	14%	12%	16%	-1%	30%	30%	30%	30%	20%

Philadelphia, PA

Maximum TANF Benefit	421	2 Bedroom FMR	704
TANF BRR	0.5	Low-Income Limit	3175
TANF Disregard	0		

Earnings	0	200	400	600	800	1000	1200	1400	1600	1800	2000	2200	2400	2600
TANF	421	321	221	121	21	0	0	0	0	0	0	0	0	0
Food Stamps	243	237	231	231	231	202	166	130	0	0	0	0	0	0
FICA	0	-15	-31	-46	-61	-77	-92	-107	-123	-138	-153	-168	-184	-199
EITC	0	81	161	241	313	313	275	233	192	149	107	64	22	0
Housing Assistance	578	560	542	512	482	428	368	308	248	188	128	68	8	0
Income with FHA	**1242**	**1383**	**1523**	**1658**	**1785**	**1866**	**1917**	**1958**	**1902**	**1976**	**2047**	**2118**	**2187**	**2326**
Marginal Tax with FHA	---	29%	30%	33%	36%	60%	75%	80%	128%	63%	65%	65%	65%	31%
Income without FHA	**739**	**899**	**1057**	**1216**	**1367**	**1500**	**1611**	**1712**	**1654**	**1788**	**1919**	**2050**	**2179**	**2326**
Marginal Tax without FHA	---	20%	21%	21%	24%	33%	45%	50%	129%	33%	35%	35%	35%	27%
Marginal Tax Increment from FHA	---	9%	9%	12%	12%	27%	30%	30%	-1%	30%	30%	30%	30%	4%

Scranton, PA

Maximum TANF Benefit	421	2 BR FMR	472
TANF BRR	0.5	Low-Income Limit	2333
TANF Disregard	0		

Earnings	0	200	400	600	800	1000	1200	1400	1600	1800	2000	2200	2400	2600
TANF	421	321	221	121	21	0	0	0	0	0	0	0	0	0
Food Stamps	243	237	231	231	231	202	166	130	0	0	0	0	0	0
FICA	0	-15	-31	-46	-61	-77	-92	-107	-123	-138	-153	-168	-184	-199
EITC	0	81	161	241	313	313	275	233	192	149	107	64	22	0
Housing Assistance	346	328	310	280	250	196	136	76	16	0	0	0	0	0
Income with FHA	**1010**	**1151**	**1291**	**1426**	**1553**	**1634**	**1685**	**1726**	**1670**	**1788**	**1919**	**2050**	**2179**	**2326**
Marginal Tax with FHA	---	29%	30%	33%	36%	60%	75%	80%	128%	41%	35%	35%	35%	27%
Income without FHA	**739**	**899**	**1057**	**1216**	**1367**	**1497**	**1590**	**1672**	**1654**	**1788**	**1919**	**2050**	**2179**	**2326**
Marginal Tax without FHA	---	20%	21%	21%	24%	35%	54%	59%	109%	33%	35%	35%	35%	27%
Marginal Tax Increment from FHA	---	9%	9%	12%	12%	25%	21%	21%	21%	9%	0%	0%	0%	0%

Appendix #2: Assumptions and Sources for Benefit and Tax Calculations

Assumptions

It was assumed that parents are single and not elderly, and have two children over two years old. Families were also assumed to spend 10 percent of earnings per child on child care, pay rent equal to the 1998 Fair Market Rent for a two-bedroom apartment, and have no federal and state income tax liability.

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