Trends in Cumulative Marginal Tax Rates

Facing Low-Income Families,

1997-2007

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Abstract

We present new calculations of cumulative marginal tax rates facing low income families participating in multiple welfare programs over the period 1997-2007, the period after 1996 welfare reform but before the program expansions of the Great Recession. Our calculations are for nondisabled, nonelderly families who pay federal and state income taxes and the payroll tax but receive benefits from up to four different transfer programs—Medicaid, Food Stamps, subsidized housing, and Temporary Assistance for Needy Families. Our results show enormous variation in MTRs across families who participate in different combinations of welfare programs, who live in different states, and who have earnings in different ranges. For all families who participate in either no or only a few welfare programs, which constitutes the large majority of low income families, MTRs at low ranges of earnings ranges are negative or positive but modest. But those families usually face considerably higher MTRs at higher earnings ranges, often up to 80 percent and even occasionally over 100 percent. The smaller fraction of families participating in a large number of transfer programs are higher as well.

The level of marginal tax rates in transfer programs has long been a concern for policy makers as well as a topic of research and study for economists. Going back at least to Milton Friedman and his proposals for a negative income tax, economists have generally emphasized the importance of keeping tax rates modest in size to preserve work incentives. One part of the issue that Friedman emphasized even in his earliest writings was what is now called the "cumulative" marginal tax rate facing families who participate in multiple programs. Even if rates are relatively low in individual programs, cumulative rates can be considerably higher when summed across multiple programs in which a family participates.

The landscape of transfer programs has been radically transformed since Friedman's first writings in the early 1960s, and some of the transformations have tended to increase marginal rates and others have tended to decrease them. While the only major transfer program in 1960 was the Aid to Families with Dependent Children (AFDC) program, with its 100 percent marginal tax rate at that time, the great expansions of the welfare system in the 1960s and 1970s which introduced or expanded the Food Stamp, Medicaid, and subsidized housing programs increased multiple receipt and hence cumulative marginal rates for many families. The Medicaid program was also extended to many more families in the 1980s and 1990s, and the recipiency rate in the Food Stamp program (now called the Supplemental Nutrition Assistance Program, or SNAP) has grown significantly, adding to the marginal rates facing newly enrolled families. On the other hand, the AFDC program was dramatically reformed in 1996 (and renamed TANF), leading to dramatically reduced caseloads and lower marginal tax rates for those remaining on the program. The caseload reduction reduced the incidence of multiple program receipt and hence lowered cumulative marginal rates for a large fraction of the low income population. The

expansion of the Earned Income Tax Credit (EITC) in the late 1980s and early 1990s also greatly reduced marginal taxes for the lowest earners and the subsequent creation of the Child Tax Credit (CTC) did likewise. Marginal rates in the federal income tax were reduced in 1986 as well as in the 2000s, during our study period.

This paper presents new calculations of cumulative marginal tax rates for families participating in multiple as well as single programs over the period 1997-2007. We begin in 1997 because we wish to only consider the modern transfer system, and that system was very different before the 1996 reform of the AFDC program. We stop in 2007 because the Great Recession began the next year and a number of temporary changes in transfer programs were made which were not representative of long-term trends and, indeed, most (but not all) of those changes have been phased out. We do not consider the post-recession period because that would require incorporating the rate changes resulting from the Affordable Care Act, which are complex and still on-going. However, we do remark on the probable effects of the Act on the rates we calculate in our final section.

Our first section briefly describes the tax and transfer programs we examine and summarizes our methods and how they compare to other recent calculations. We then present our results, which show that MTRs vary widely in the low income population across program combinations, states of residence, and earnings ranges. While the majority of the nondisabled, nonelderly low income population faces low or modest rates, a fraction of the population, particularly those at higher earnings levels, face very high rates. A short summary and conclusions end the paper.

The Programmatic Landscape and Recent Other Calculations

To make the exercise manageable, we restrict its scope by considering only means-tested transfer programs and not social insurance programs--hence we exclude the Social Security retirement and disability programs, Medicare, Unemployment Insurance, and Workers' Compensation--and we consider only programs for the non-disabled and the non-aged-- hence we exclude the Supplemental Security Income program. What remain are four major means-tested transfer programs: the SNAP (Food Stamp) program, Medicaid, TANF, and subsidized housing. On the tax side, we incorporate payroll taxes and federal and state income taxes, including the Earned Income Tax Credit (EITC) and Child Tax Credit (CTC).[1]

The marginal tax rates (henceforth, MTRs) on these individual programs are simple in principle and complex in practice. We capture all their major features related to MTRs but inevitably do not capture many of the smaller features of the benefit formulas which are unlikely to change our conclusions. A summary of the MTRs in each transfer and tax program follows.[2]

The SNAP program has a nominal 30 percent MTR but it is effectively 24 percent because of an earnings exclusion provision, and it has other deductions as well that are probably positively correlated with earnings (e.g., for housing expenditures). However, it has a gross income limit which limits beneficiaries to having income below a certain level regardless of the level of deductions, and this generates a notch with an MTR greater than 100 percent at a single point. The benefit formula has seen little change since 1997, although the caseload has grown enormously, even prior to the Great Recession; it grew by 15 percent from 1997 to 2007, our period.

[1] We do not include child care subsidies because those subsidies arise from a variety of different funding sources and there is no reliable data on how they are related to income.

[2] A comprehensive discussion of the rules of each of these transfer programs can be

The Medicaid program provides essentially free medical care to low-income adults and children, to the elderly and disabled, and for long-term care, and is by far the largest program in the country in terms of expenditure and caseload. The program has essentially no copays for recipients but has a zero percent MTR until the point of income eligibility is reached, after which all benefits are lost, creating a cliff, or notch, in the benefit schedule where the MTR exceeds 100 percent. While the benefit structure at this general a level has remained essentially unchanged for the most part of its history, it has undergone major expansion in eligibility and the income eligibility points have changed. From its inception in the 1960s to the 1980s, it was mostly (although not completely exclusively) tied to receipt of AFDC benefits, which restricted its caseload. In the 1980s and continuing for several years thereafter, eligibility was extended to families with children not on AFDC whose income fell below specific levels, but those levels were higher than those for the AFDC program and hence higher income families were made eligible. These changes reduced MTRs at low incomes (where the AFDC cutoff had been) but created a new 100 percent notch further up the income distribution. After 1996, adults in low income families with children were made eligible in all states but income eligibility levels were kept quite low and participation rates were modest, but over the rest of the1990s and 2000s, many states increased their maximum income limits and participation rates among adults subsequently rose. Again, this tended to lower MTRs at lower incomes and push the notch to higher incomes. In addition, the creation of the Children's Health Insurance Program (CHIP) in 1997 led many states to extend coverage to children further, often with even higher income eligibility cutoffs than children had had previously.[3]

The TANF program provides cash assistance for general consumption needs for low

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found in Moffitt (forthcoming).

income families (mostly single mothers and children) but its caseload is highly restricted by block grants fixed in nominal dollars (it is not an entitlement program, for families can only be served if funds are available) and because of work requirements and time limits. The MTRs in the program are less than 100 percent in most states and the modal value is around 50 percent, but a few even have 0 percent MTRs coupled with maximum income limits. There have been no major changes in MTRs over the 1997 to 2007 period.

Subsidized housing programs in the U.S. provide housing vouchers to low-income families, subsidized rent in public housing projects, and support for construction of low-income housing. We are not able to capture the effects of the third of these, but the first two provide an implicit subsidy by charging a rent which is below the market value of the unit. Both charge a rent equal to the maximum of 30 percent of income after deductions or 10 percent of gross income, and hence the MTR in the program is one of these two values. Again, no major change has occurred in the MTRs over the period we study, but the program, while large in terms of expenditure because housing is expensive, is not one of the largest programs in terms of recipients because it is also not an entitlement program and there are long waiting lists to obtain a housing unit or voucher.

For federal taxes, we include the payroll tax, the federal income tax, and state income taxes We capture the main features of the federal income tax including the Earned Income Tax Credit (EITC) and Child Tax Credit (CTC). The EITC offers refundable tax credits to families with children (and a very small credit to childless families and individuals) which is phased in over a low range of earnings and then phased out over higher ranges. The phase-in rates vary with the number of children and can be quite high, up to 45 percent. The phase-out rates are

[3] A handful of states also extended benefits to childless families.

lower, about 21 percent, which also implies that the credit extends fairly high up into the earnings/income distribution. Treated as a welfare program--which we treat it here as such regardless of how it is viewed by the public--it is the second-largest program in the country, second only to Medicaid. While there were no major changes in the EITC between 1997 and 2007, there were across-the-board reductions in federal income tax rates in the 2000s as a result of Congressional legislation. The CTC, which began in 1998, provides a small tax credit for low income families with children but it is only partial refundable for families with no federal tax liability, with the refundability portion set as a modest percent of earnings (e.g., 15 percent) but only of earnings over a threshold which was quiet high during our sample period, meaning that few of the poorest families were able to receive a refundable portion. The credit is also capped and the maximum began at $500 in 1998 but has since risen to $1,000. The nonrefundability means that the MTR is zero over low earnings ranges then becomes negative (i.e., a subsidy) after positive tax liability is obtained. The credit has a slow taper rate (i.e., MTR) and is consequently phased out completely only at very high earnings levels (e.g., $75,000-$110,000). The CTC was created by 1997 Congressional legislation but only took effect in 1998, and the credit cap was small but then gradually expanded. Our sample period will capture both its introduction and its slow liberalization. We also include state income taxes, using schedules calculated by NBER TAXSIM. Many states offer EITCs part of their income taxes, usually stated as a fraction of the federal EITC. We include these as well.

Cumulative marginal tax rates for families who participate in multiple programs, and with the additional of positive taxes, are not always equal to the straight sum of the MTRs across programs because of interactions among them. Most transfer programs allow some kind of deduction for positive taxes paid, thereby offsetting their effect. But most also do not tax EITC

or CTC refunds at all. The SNAP, Medicaid, and subsidized housing programs count cash income from most transfer programs as income, meaning that TANF is included if the family participates in that program, but how Medicaid treats other program income is at state option. That lowers the cumulative MTR from what it would be if the MTRs were simply summed. Some states reduce TANF grants if a family is receiving subsidized housing, thereby implicitly taxing its receipt. None of the transfer programs we study are included in taxable income by the federal or state governments.

Past Work. While there have been several calculations of cumulative MTRs in the country's welfare system over the years, two recent calculations have provided perhaps the best insights into their levels. Maag et al. (2012) calculated cumulative MTRs in 2008 for a single parent with two children participating in TANF, Food Stamps, and paying federal and state income taxes and the employee portion of payroll taxes. They calculated the MTRs for such a family when moving from zero earnings to earnings at one-half the poverty line, then to the poverty line, then to one-and-a-half times the poverty line, and then to twice the poverty line, and they performed calculations separately for all 51 states and jurisdictions. They found average MTRs of 2.4, 17.9, 50.5, and 47.3 percent when moving across the four ranges, respectively. Cumulative MTRs therefore begin low but rise and eventually tail off slowly. However, because there is such large cross-state variation in TANF MTRs, they found large cross-state variation in cumulative MTRs as well. When moving from no earnings to earnings at half the poverty line, the MTR could be as low as -27.9 percent (compared to the 2.4 average), while moving from earnings at the poverty line to one-and-one-half the poverty line, the MTR could be as high as 104.7 percent (compared to the 50.5 average). Above one-and-one-half the poverty line, the cross-state variation becomes very small because the family is off TANF and all

variation is only a result of state income tax variation.[4]

The U.S. Congressional Budget Office (CBO) (2012, 2015) provide a variety of different cumulative MTR calculations for the year 2012 and 2016, respectively. One set of calculations provided MTRs for a family participating in the SNAP program and paying all federal and state income taxes and payroll taxes in 2012. The median MTR for the same four poverty-line ranges examined by Maag et al. were 13, 24, 32, and 31 percent, respectively. These rates are higher at the bottom range than those of Maag et al. probably because the latter were for a hypothetical single parent family while those for the CBO are the medians across the U.S. population of families with incomes at those levels, and the population varies by family size and other characteristics that affect the MTRs.[5] The CBO MTRs are lower than those for Maag et al. at the upper earnings ranges as well. But, like Maag et al., the CBO found rates to rise as income rises, and found there to be major dispersion across families, some negative MTRs at low earnings to rates as high as 61 percent at higher earnings ranges, although the variation in this case is not so much from program variation as from family characteristics. The CBO (2015) report updated the estimates reported above to 2016 (and including the same set of programs), with similar results.

Our Contribution. We make four contributions to this literature. First, we include Medicaid in all our calculations, unlike Maag et al. or the CBO.[6] Medicaid is the largest means-

[4] The authors perform separate calculations for families who are on welfare only part of the year, and they provide some calculations when Medicaid is included and valued at government cost. Their paper contains a useful review of prior work on cumulative MTR calculations as well. Steuerle (2015) provided updated estimates.

[5] In Figure 2 of CBO (2012), some hypothetical single parent MTRs were also presented assuming participation in TANF as well as SNAP. These MTRs were considerably higher.

[6] As noted in n.5 above, Maag et al. provided a sample additional calculation including Medicaid, valuing it at government cost. They also emphasized the importance of including health benefits. The CBO showed income eligibility cutoffs for Medicaid but did not include

tested transfer program in the country and has undergone changes in eligibility and in maximum income limits, including over our study period 1997-2007. However, rather than valuing Medicaid at government cost, we discount that cost because the subsidy is partly shared by providers. Finkelstein et al. (2015) estimate that discount to be between .20 and .40. We use the midpoint estimate of .30 and will conduct sensitivity analyses to this value in our analyses in future drafts.

Second, we likewise include subsidized housing in our calculations, which is usually ignored. But here, too, we discount its value because it, like Medicaid, is an in-kind transfer and is not equivalent to cash income. There are no extant estimates of the appropriate discount factor for housing in the same way there are for Medicaid, so we modify the Census Bureau "fungibility" approach of valuing the subsidy as the amount of funds released for other uses (Short,2015). But we assume that some of the subsidy will be used for housing and hence we discount it by .70, the approximate budget share for non-housing goods assumed by Census. We will also conduct sensitivity analyses to this figure.[7]

Third, we conduct an analysis of historical MTRs going back to 1997, and we also provide trend analyses, albeit only over the 1997-2007 period. Prior work has not focused on trends.

Fourth, we include, in partial fashion, the effect of participation in combinations of transfer programs into our work, recognizing that the importance of cumulative MTRs must be gauged by how many low-income families actually face them. While the CBO did present figures on participation, it was not incorporated into their work and the estimates noted above

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them in their MTR calculations.

[7] We do not discount the third in-kind transfer, SNAP, because most analysts regard it as approximately equivalent to cash. Note that Short (2015) caps the value of the housing subsidy

were only for families participating in SNAP. Maag et al.'s main estimates were only for families combining TANF with SNAP, who constitute only a small fraction of the low income population (see below).

In other respects, we follow past work. We calculate MTRs for moving from one discrete earnings level to another--specifically, fractions of the federal poverty line--rather than for one extra dollar of earnings. The latter is misleading if families decide whether to work some discrete number of hours such as working part-time or full-time. Most workers do not, or are not allowed, to change their work effort by single-hours amounts.[8] We also make calculations for every state and jurisdiction in the U.S. for all our years, not for sample states, and we give a sense of the range as well as the central tendency.

Results

As noted in the last section, we calculate MTRs over different ranges of earnings for tax programs and for four welfare programs—Medicaid, SNAP, subsidized housing, and TANF. While we have calculated rates for every state and jurisdiction and for every year between 1997 and 2007, for brevity we will only show results for selected states and only for the beginning and ending years, 1997 and 2007. As is conventional in this literature, we will present rates separately for different demographic groups defined by the number of adults and the number and presence of children, specifically, for (i) single parent families with 1 or 2 children, (ii) married parents with 1 or 2 children, and (ii) single and married childless adults. However, we restrict

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at the share of the poverty threshold allocated to housing costs.

[8] The sample estimates provided by Maag et al. (2012) and Steuerle (2015) which include Medicaid do have the one-dollar MTRs, and many of the CBO estimates do as well. However, their results cited above are for discrete earnings changes as a percent of the poverty line.

our attention entirely to nondisabled, nonelderly families.

Our results go considerably beyond past work by showing MTRs for multiple combinations of programs. This is important because multiple receipt is very different for different combinations. Table 1 shows participation rates of very poor families—those with private incomes between 0 and one-half of the poverty line—in our four welfare programs by the nondisabled, nonelderly population in 2004, a year within our study period. Among all such families, almost 58 percent received none of the four; hence a minority of families participate in any program. The most common program combination received was, in fact, a single program—Medicaid—which was expanded greatly during our period, as noted previously. For multiple programs, the most common combination was Medicaid and SNAP, where over 9 percent received both benefits. For combinations involving three or all four programs, receipt was much smaller, between 3 and 4 percent.[9]

Some program combinations were much more commonly received among families with children, however. About a fifth of all one-parent families received both Medicaid and SNAP and another fifth received Medicaid only. Between 9 and 10 percent received benefits from three and four programs, respectively. Receipt rates were generally lower for two-parent families but still higher than for the general population, and were higher than those for one-parent families for the receipt of Medicaid alone. However, even for families with children, most of the possible receipt combinations were quite rare. Childless families, as should be expected, have much lower rates of receipt. However, this group is of policy interest because there have been proposals for expanding the EITC for them and there have been ongoing discussions of the conditions under which they can receive SNAP benefits.

[9] Some combinations are not shown in the table. Their participation rates were very low.

With this context in mind, we now present MTRs for all these demographic groups, but only for the most important 7 combinations revealed by Table 1. We also present MTRs for families receiving no program and for not receiving the EITC (we assume that all federal, state, and the employee portion of payroll taxes are always paid). Finally, we present results in this draft only for three selected states: Mississippi, New York, and Ohio, which represent, very roughly speaking, states with on-average low benefits (at least those under the control of the state), high benefits, and medium-level benefits, respectively.

Most of our initial analysis focuses on one-parent families, the group with the highest rates of receipt, and we start with the fewest program combinations and proceed to increasing numbers of program benefits received. Figure 1 illustrates the way in which we will portray MTRs, in this case for federal and state income taxes and the payroll tax but no EITC or CTC. The figure shows MTRs when moving across four different earnings ranges relative to the poverty line for a single parent with two children in 1997 and 2007. The pattern of MTRs is similar in all three states because the federal income tax and payroll tax are identical for all of them; only the state income tax differs. In 1997, at the lowest earnings range (moving from no earnings to earnings at 50 percent of the poverty line), the MTR ranges from 8 to 11 percent and then rises to 21 to 23 for families just below the poverty line. The rate rises by only a small amount for higher earnings, with a rate no higher than 29 percent. The same general patterns appears in 2007, but the rates generally fall because of several tax bills passed by Congress in the 2000s which lowered rates essentially across the board.

Figure 2 shows the same state MTRs in 1997 and 2007 but with the EITC and CTC included. While rates still rise with income, they are negative for earnings below half the poverty line in 1997 and for earnings anywhere below the poverty line in 2007, and can be as

low as -40 percent. The lower rates in 2007 are the result of the introduction and liberalization of the CTC. At the same time, the MTRs over the two higher earnings ranges are now higher than they were in Figure 1, now as high at 56 percent in 1997 and 48 percent in 2007, mainly because of the EITC phaseout. By definition, lowering rates through subsidies at lower earnings ranges have to be accompanied by higher rates at higher level of earnings in order to phase out the subsidies.

Relative to this base case, participating in welfare programs can only increase rates. Those at the bottom of the distribution should be expected to become less negative or positive, and those at higher earnings ranges should be expected to be higher than 48-56 percent. Figures 3-5 show the magnitudes for a family participating in only one program, either Medicaid (Figure 3)—by far the most commonly received category, as shown in Table 1—or subsidized housing (Figure 4) or SNAP (Figure 5). In Figure 3, for Medicaid participation, some cross-state differences now appear because it is a state-level program. For example, Medicaid benefits for adults are limited to much lower income ranges in Mississippi than in New York or Ohio, so adult Medicaid is lost in the first earnings interval in Mississippi but only in the second earnings level in the latter two states. Hence MTRs are raised in the first earnings interval in Mississippi but only in the second earnings interval in the other two states (while the sign—positive or negative—is unchanged, the magnitudes are). Nevertheless, the MTRs in the lower two earnings ranges remain very modest, never more than 20 percent and usually much less or negative. However, child Medicaid benefits have income eligibility levels maintained to be higher than those for adults, which means an increase in the MTRs in the two higher earnings intervals as well, increasing from the 48-56 percent to the high 50s and 60s (maximum is 68 percent for New York in 1997). Another pattern that can be seen in Figure 3 is that the increase in income

eligibility levels for Medicaid from 1997 to 2007 tended to lower MTRs in the 100-150% earnings range but to raise them in the 150-200% range.

Recipients of subsidized housing (Figure 4) experience steady MTRs on their rent spread more evenly across the earnings ranges, unlike Medicaid, and hence all MTRs typically rise except those in the top interval, where families are usually ineligible for housing benefits. Rates rise somewhere between 7 and 19 percent, depending on the earnings range and the state and year. Rates still remain modest or even negative for the poorest families but are now more likely to be positive, though usually modest in magnitude, for earnings just below the poverty line. Recipients of SNAP (Figure 5) have higher MTRs as well, although because of earnings deductions, the rates for the poorest families are all still negative. They are all positive just below poverty, however, and higher in the larger earnings intervals. The largest increases tend to occur in the 100% to 150% range, where SNAP adds 31 to 37 percent to the MTR (depending on the year)—these are the result of hitting the SNAP gross income test—which are added on top of the Figure 2 MTRs for taxes and the EITC and CTC which were in the 48-56 percent range. The resulting MTR in that range is typically between 80 and 89 percent.

Cumulative rates when participating in more than one welfare program are necessarily higher. The most common combination is Medicaid and SNAP only (Figure 6). Since the two programs do not interact, the MTRs are just the sum of those from the two programs. At low earnings range (e.g., below the poverty line), MTRs remain negative for the poorest families but were significantly higher in 1997 for earnings just below the poverty line (up to 40 percent, in New York) but were small in 2007 because of the introduction of the CTC, as noted earlier. However, in the 100%-150% range, where SNAP and Medicaid child benefits are often phased out in the same range, MTRs are usually above 90 percent or even above 100 percent in one case

(New York in 1997). The next most common two-program combination is Medicaid and subsidized housing (Figure 7). Because housing benefits are phased out relatively smoothly, without the cliffs and notches in the Medicaid and SNAP programs, MTRs are raised more uniformly across the board and do not reach the very high levels for the Medicaid-SNAP combination in a single earnings window. Still, rates in the higher earnings ranges can be large.

Finally, MTRs for single parent families with two children who participate in the commonest three-program and four-program combinations are shown in Figures 8 and 9, respectively. While only around 9-10 percent of this group participates in these combinations, they are important. Not surprisingly, participating in both Medicaid, SNAP, and TANF programs, or in Medicaid, SNAP, TANF, and subsidized housing, yield high rates. However, the impact of TANF is primarily at low ranges of earnings because, as is well known to students of the program, maximum income eligibility levels are typically below the poverty line and often substantially so. In Mississippi, for example, families with earnings more than half the poverty line are no longer eligible for the program, and in the other two states, benefits usually end somewhere in the 50-100% earnings range. The MTRs for earnings above the line are not affected by TANF. In the lower earnings ranges, however, TANF adds another 30 to 50 percent to the MTRs for these three states in these two years, although because TANF benefits are included in SNAP income, SNAP MTRs are somewhat reduced from what they would be if simply summed

Participating in all four programs leads to yet higher MTRs, with housing benefits increasing MTRs across most of the earnings intervals except the top one. Rates in the 50-100% range now can as high as 89 percent and as high as 115 percent in the 100-150% range (both in New York). Rates for the poorest families are modest in Mississippi, only a little over 30

percent in 2007, but are considerably higher in New York and Ohio, where they range from 30 to 51 percent.

Other Family Structures. For single parent families, the number of children affects the magnitudes of many of these MTRs but not the general structure of how they vary over the earnings range. Appendix Table A-1 shows the rates for a single parent family with only one child in our medium-benefit state, Ohio, for illustration. The differences in MTRs with those for single parents with two children appear in all tax and transfer programs because the number of children and family size have a nontrivial impact on all taxes and welfare benefits. Federal income taxes vary with the number of exemptions, for example, which affects the MTRs at low earnings ranges. Also, the EITC provides a greater subsidy rate for families with two children than for those with one child, so those with one child have a less negative MTR at low earnings ranges and, by implication, a smaller positive MTR at higher earnings ranges. The CTC is valued less for those with fewer children, which means that the subsidy rate is also lower at low earnings ranges. We have valued Medicaid by the number of family members, each of whom is covered, and have therefore valued Medicaid more highly for a three-person family than a two-person family. This implies that the MTR at the point where eligibility is lost is smaller for the two-person family because the magnitude of the loss is smaller. This reduces Medicaid MTRs by about 3 percentage points in ranges where eligibility is lost compared to that for a single-parent family with two children. Our valuation of subsidized housing is also affected by family size because the value of a rental unit depends on the number of bedrooms but rent paid does not, so the valuation for a two-person family is smaller than that for a three-person family and hence MTRs are generally smaller. SNAP benefits vary by family size but the gross income cutoff does not, again implying smaller benefits for smaller family sizes and lower MTRs. For example, a

single parent family with only one child receiving only SNAP faces only a 59 percent MTR in the critical 100-150% range where eligibility is lost, compared to a 84 percent MTR for the family with two children. Similar factors are at work for TANF. On net, MTRs at low earnings ranges typically are less negative or more positive for those with one child than those for two, and are sometimes higher and sometimes lower at higher earnings ranges.

The MTRs for a family with married parents with two children also differ from those for a single parent family with the same number of children (Appendix Table A-2). One definitional reason is that poverty line incomes are higher for two-parent families than one-parent families, implying that the former have greater earnings in dollar terms at any given percent of the poverty line than the latter. This means that two-parent families will typically hit income eligibility cutoffs (which are usually not adjusted for anything but family size) earlier, raising their MTRs at early ranges but lowering them at higher earnings ranges. Thus the near-universal pattern of MTRs for married couples versus single parent couples is that the former face higher MTRs in the 50-100% earnings range but lower ones in the 100-150% range. The differences can be as much as 20 percentage points and hence are nontrivial.

Childless families, as noted earlier, receive many fewer benefits from the tax and transfer system, the main ones being SNAP and Medicaid, but only 4 to 6 percent of families receive benefits even from these (see Table 1). They also do not receive CTC or (except for a small amount) EITC transfers. As a result, they do not experience the negative rates at low earnings nor the phaseout rates at high earnings that families with children face in these ranges. Their MTRs are always positive even at low earnings ranges (see Appendix Tables A-3 and A-4). They typically value Medicaid benefits less because of smaller family sizes and receive smaller SNAP benefits than families with children, which also lowers the MTRs at income cliffs and

cutoff points. Single childless families generally hit the cutoffs in the 50-100% range of earnings, leading to cumulative MTRs than can be in the upper 40 percent range, but their rates in lower earnings ranges are typically 20-30 percent and their rates at higher earnings are typically 25-50 percent. Married childless families usually hit programmatic income limits earlier than do single childless families, for the reason noted above, and hence often have higher MTRs in the 50-100% earnings range but lower MTRs in the 100-150% range.

Summary and Conclusions

Perhaps the most important conclusion from this analysis of marginal tax rates facing the low income population from tax and transfer programs in the 1997-2007 period is their enormous variation across families. This point has been made before in this literature, but the analysis here emphasizes the contributions to that variation arising from variation in participation rates in welfare programs as well as variation in Medicaid and subsidized housing, which are rarely included in past calculations yet both of which have significant cross-state variation. But we also emphasize the enormous variation in MTRs across earnings ranges which, again, have been shown in past work but which are especially prominent in the results here. Variation in participation rates arises because only about 40 percent of the nonelderly, nondisabled low income population with the lowest incomes received any transfer benefits at all during 1997-2007, yet about 80 percent of single parent families and 60 percent of two parent families with children did. Participation rates are lower for families with greater earnings levels but still poor. Participation rates for childless families are closer to 20-25 percent. However, even for families with children, many participate in only one welfare program. Only 60 percent of the poorest one-parent families receive benefits from more than one program and only a third of the poorest

two-parent families do. Consequently, if cumulative MTRs are high primarily for those who participate in multiple programs, they necessarily occur only for a portion of the low income population. In fact, for families participating in only one welfare program, MTRs are always negative for the poorest families (those with earnings less than half the poverty line) and generally modest though positive for families with earnings just below the poverty line, particularly in 2007 after the introduction and liberalization of the CTC and the increase in income eligibility limits for Medicaid.

Nevertheless, for those who participate in multiple programs, MTRs can be very high, although not always at lower earnings ranges. In the most commonly received two-program combination, for Medicaid and SNAP, rates for those with earnings below the poverty line in 2007 are generally never more than about 20 percent but rates for those with earnings above the poverty line can be very high, upwards of 80 percent and even over 100 percent in some cases. Both Medicaid and SNAP hit cliffs and notches in the same general earnings range. Further, as Medicaid income eligibility limits rose over the 2000s, the cliffs and hence the MTRs were pushed higher up the earnings distribution, leading to reductions in MTRs in, for example, the 100%-150% range of earnings but increases in the 150-200% range. Families participating in three or four welfare programs, even though a modest fraction of the poorest families (about 7 percent overall but 9 percent for two-parent families and almost 20 percent of one-parent families), necessarily often face higher rates, often in the 30-50 percent range at low earnings levels and 89 to 115 percent rates, for example, at higher earnings ranges.

While we have not analyzed all states in this paper, even the three states we have analyzed show significant cross-state variation. While this has been emphasized in past work as well, our inclusion of Medicaid and subsidized housing, which both vary across states, makes

this source of variation even larger than in past work.

Marginal tax rates at the current time are likely to differ for two reasons. The less important is that some of the increases in benefit generosity enacted by the federal government in the Great Recession have not been phased out but have been made essentially permanent. This includes some alterations in the EITC and CTC and some changes in asset test rules in SNAP. The more important is the introduction of the Affordable Care Act, whose implications for Medicaid have been extensively discussed elsewhere. For those states adopting the ACA's Medicaid expansions, the legislation will tend to increase MTRs for some families and decrease them for others. The legislation mandated, for example, income eligibility thresholds for adults which are considerably above those that many states had previously had, which will lower MTRs in the lower earnings ranges and increase them in the higher ranges. However, the cliff will be mostly eliminated to the extent that the exchanges provide coverage smoothly just above the Medicaid eligibility limits, although increasing MTRs as those subsidies are phased out (states which do not adopt the Medicaid expansions in the ACA will provide lower MTRs to work up to the exchange level). But for groups for whom the ACA will extend Medicaid coverage for the first time, such as childless families in many states, the beneficial effect of health insurance coverage will necessarily be accompanied by a new positive MTR at the point of benefit cutoff. On the other hand, childless families, as demonstrated in this paper, face modest MTRs from the welfare system at the current time because of their low rates of participation in most transfer programs. These issues will undoubtedly receive much attention in future work on marginal tax rates in the low income population.

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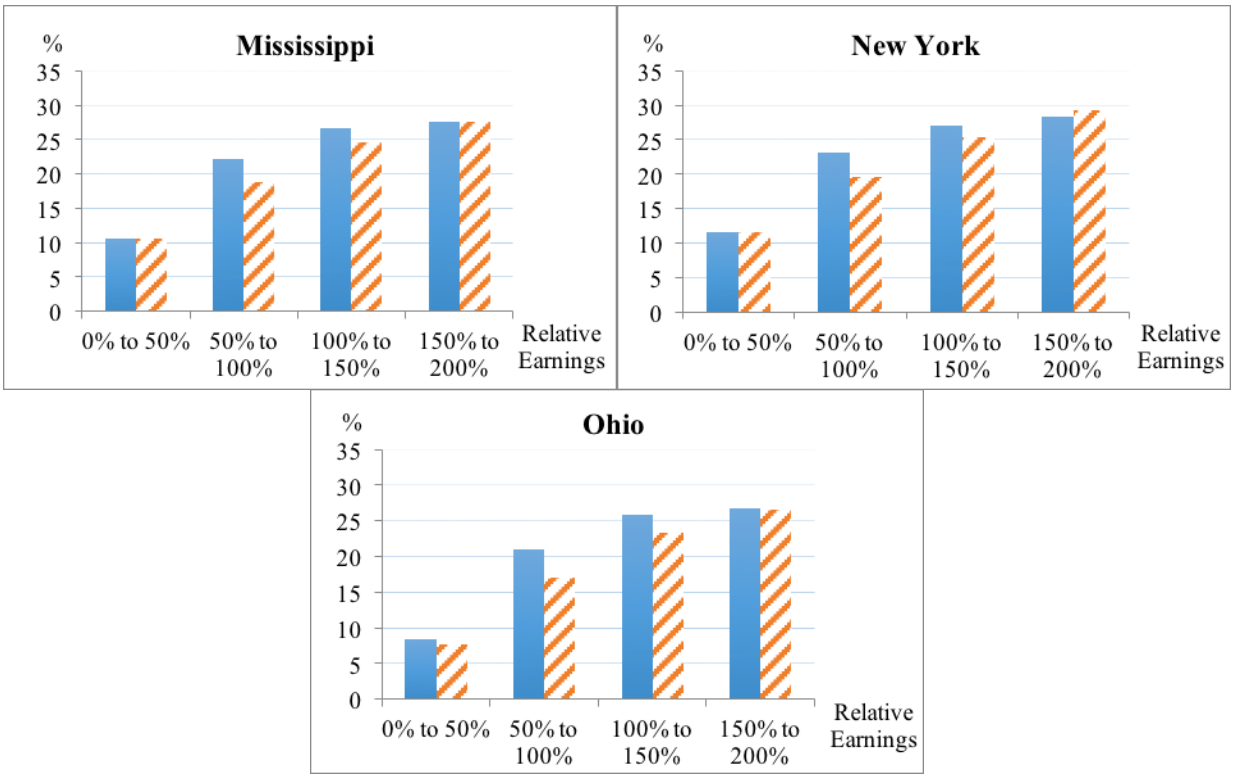
Table 1: Percent of Non-Disabled, Non-Elderly Families with Private Income below 50 Percent of the Poverty Line Receiving Different Combinations of Four Welfare Programs, 2004

	All	Two Parent Families	One Parent Families	Childless, Married Families	Childless, Non-married Families
No Programs	57.90	39.19	19.83	81.24	76.42
TANF only	0.01	0.00	0.00	0.00	0.02
SNAP only	3.81	1.96	1.77	4.14	5.15
Housing only	2.00	0.48	0.91	1.26	3.15
Medicaid only	12.27	23.82	20.46	6.15	6.80
SNAP & TANF only	0.06	0.20	0.00	0.00	0.06
SNAP & Housing only	0.79	1.34	0.31	0.59	0.93
SNAP & Medicaid only	9.40	18.76	20.10	2.08	3.41
Medicaid & TANF only	0.64	0.71	0.87	1.45	0.38
Medicaid & Housing only	1.67	1.66	3.47	0.90	0.93
TANF & Housing only	0.02	0.00	0.00	0.00	0.03
SNAP, TANF & Housing only	0.01	0.00	0.00	0.12	0.00
SNAP, TANF & Medicaid only	3.84	6.76	9.06	0.91	1.18
SNAP, TANF, Medicaid & Housing	3.14	2.69	9.88	0.22	0.49

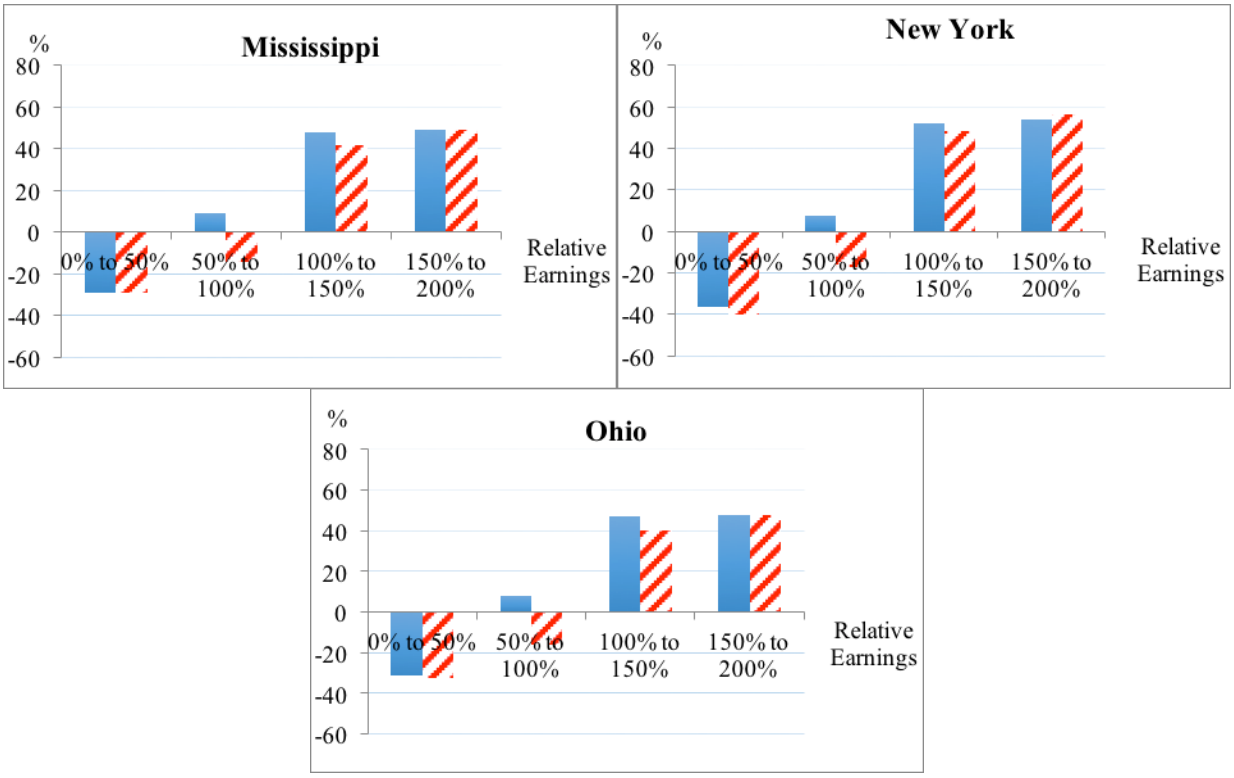
Source: Tabulations from the 2004 Survey of Income and Program Participation by Gwyn Pauley in joint work with Robert Moffitt.

Figure 1: Marginal Tax Rates with No Program Participation, no Earned Income Tax Credit, and no Child Tax Credit for Single Parents with Two Children



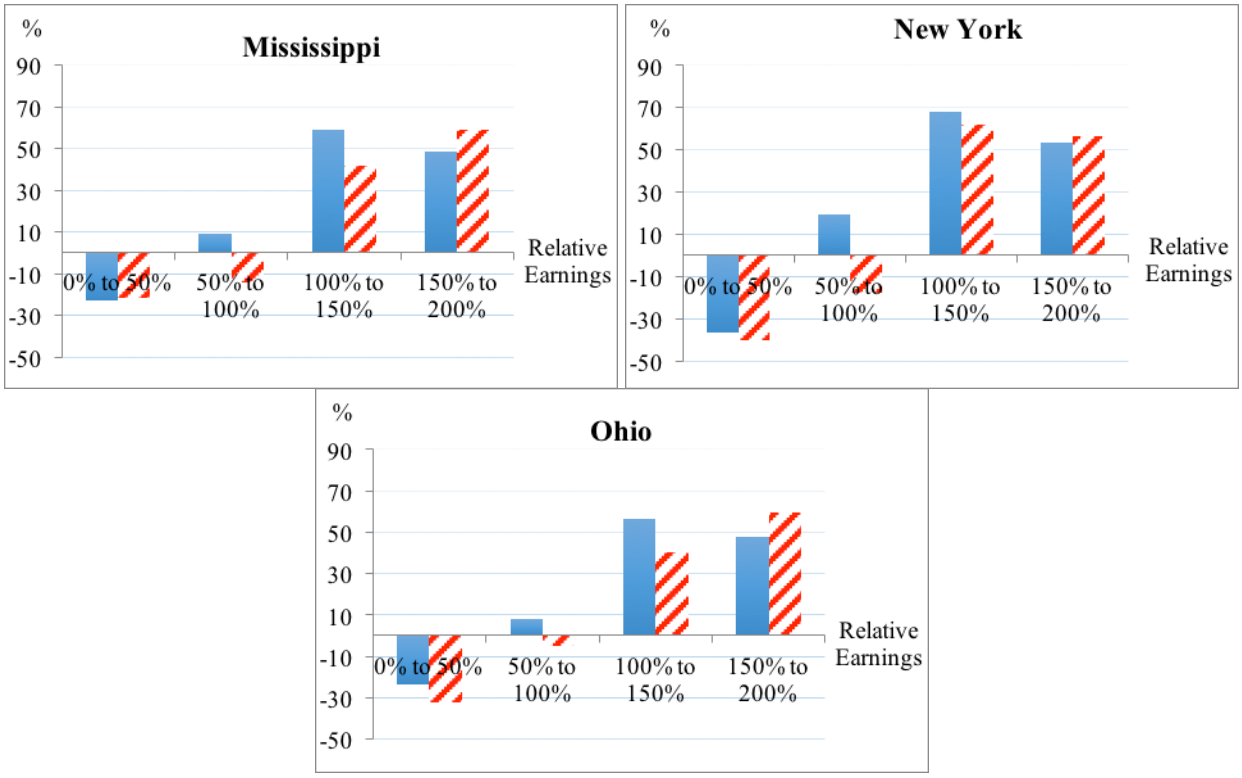
Note: Solid columns refer to 1997 and cross-hatched columns refer to 2007. Relative Earnings refers to earnings relative to the Federal Poverty Line.

Figure 2: Marginal Tax Rates with only Earned Income Tax Credit Participation for Single Parents with Two Children



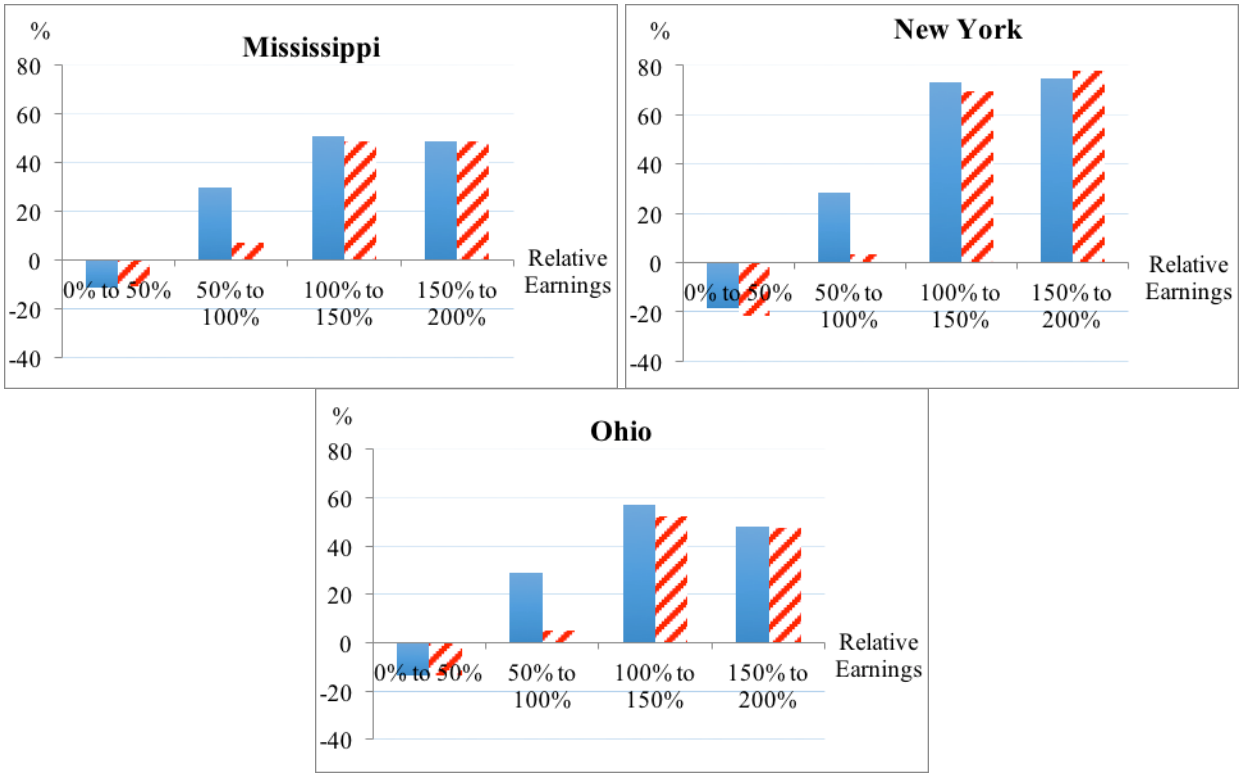
Note: Solid columns refer to 1997 and cross-hatched columns refer to 2007. Relative Earnings refers to earnings relative to the Federal Poverty Line.

Figure 3: Marginal Tax Rates with only Medicaid Participation for Single Parents with Two Children



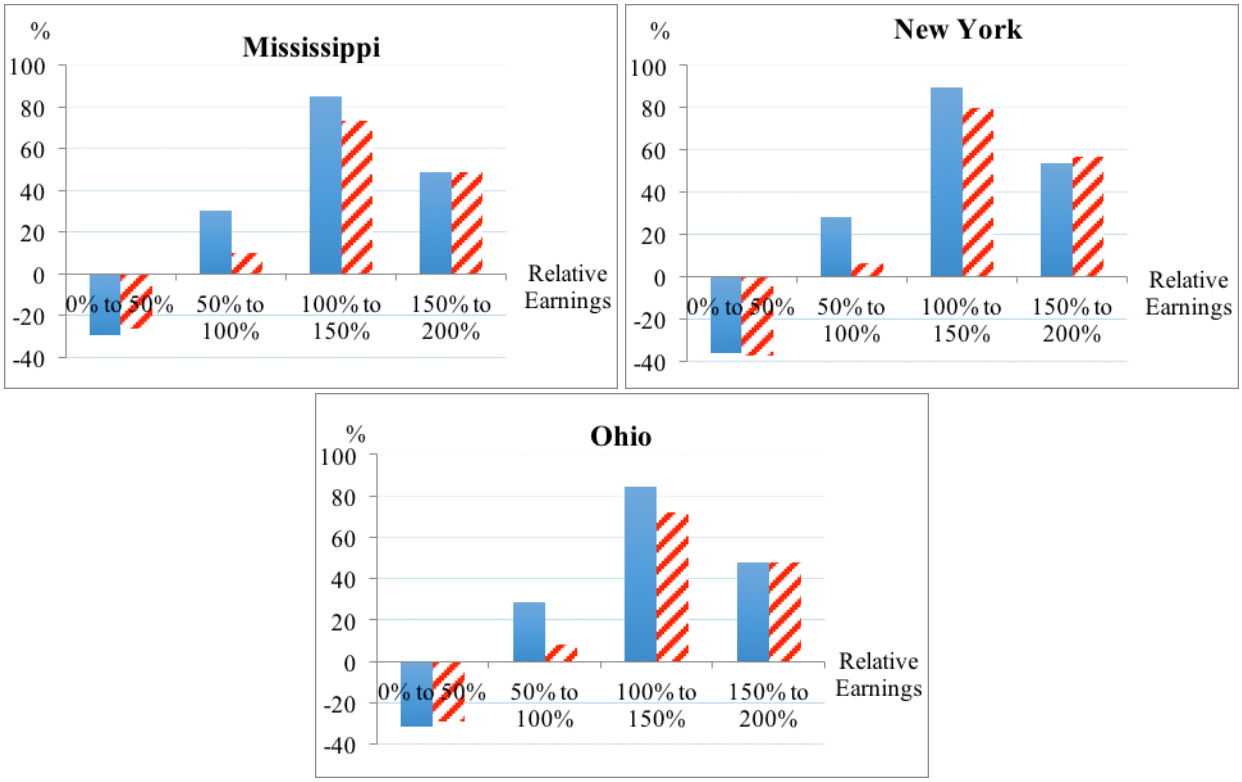
Note: Solid columns refer to 1997 and cross-hatched columns refer to 2007. Relative Earnings refers to earnings relative to the Federal Poverty Line.

Figure 4: Marginal Tax Rates with only Subsidized Housing Participation for Single Parents with Two Children



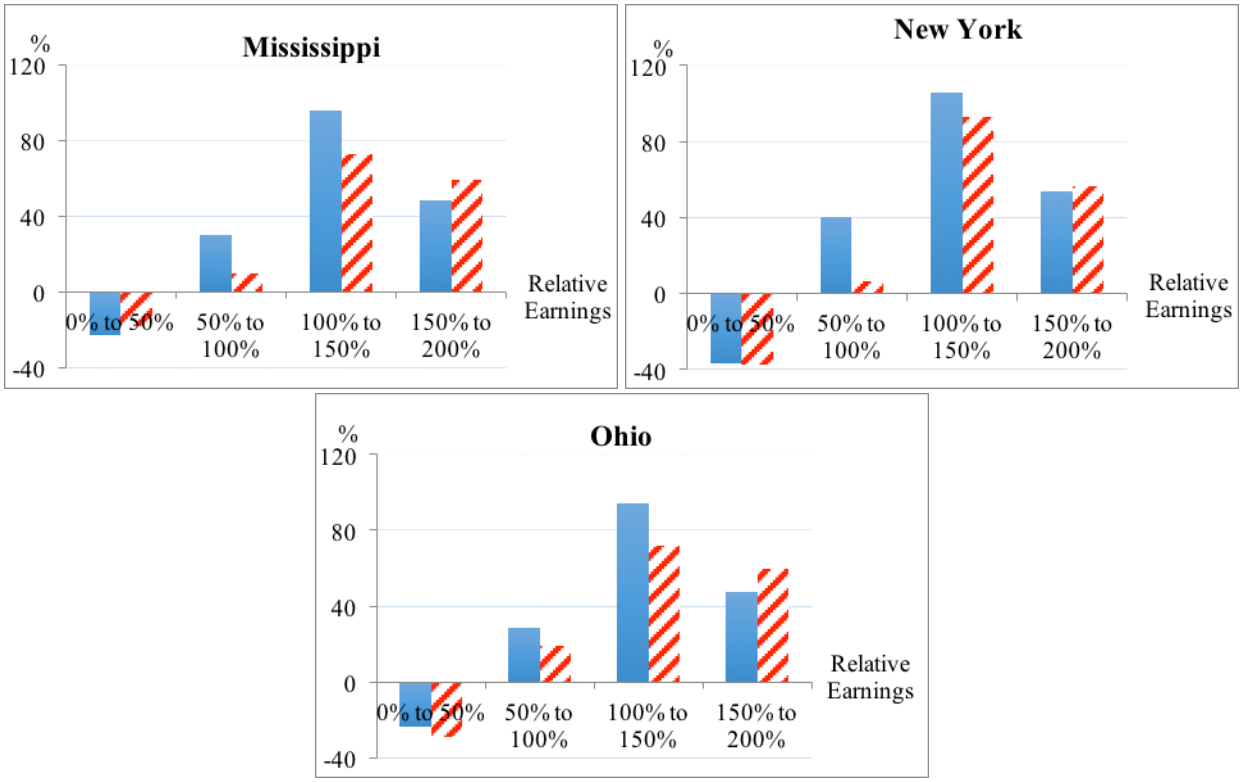
Note: Solid columns refer to 1997 and cross-hatched columns refer to 2007. Relative Earnings refers to earnings relative to the Federal Poverty Line.

Figure 5: Marginal Tax Rates with only Supplemental Nutrition Assistance Program Participation for Single Parents with Two Children



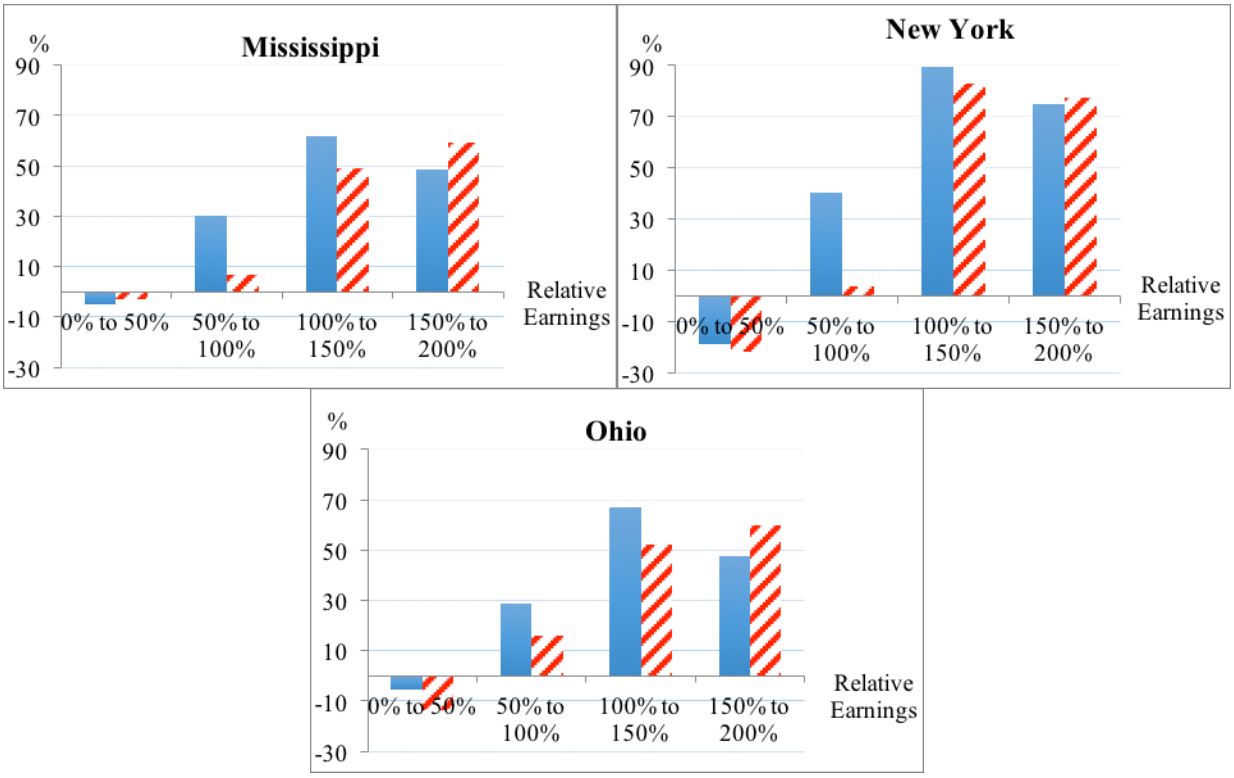
Note: Solid columns refer to 1997 and cross-hatched columns refer to 2007. Relative Earnings refers to earnings relative to the Federal Poverty Line.

Figure 6: Marginal Tax Rates with only Medicaid and Supplemental Nutrition Assistance Program Participation for Single Parents with Two Children



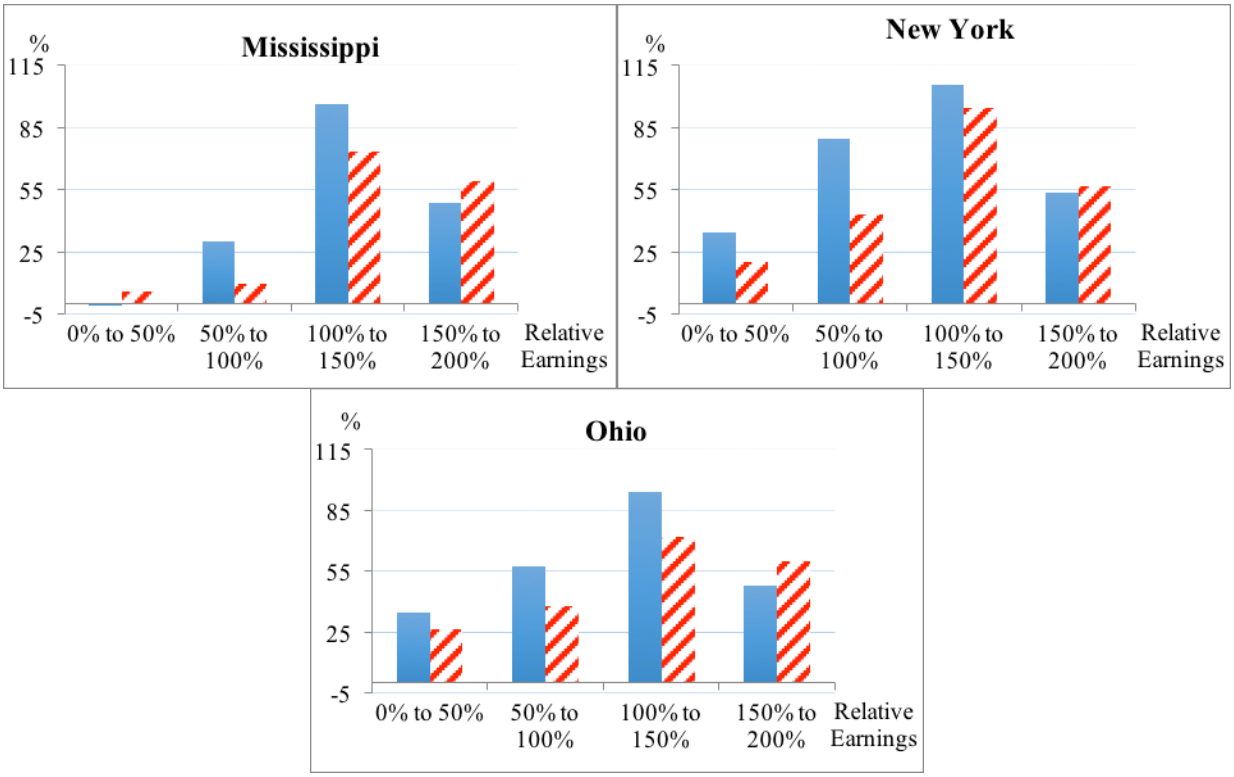
Note: Solid columns refer to 1997 and cross-hatched columns refer to 2007. Relative Earnings refers to earnings relative to the Federal Poverty Line.

Figure 7: Marginal Tax Rates with only Medicaid and Subsidized Housing Participation for Single Parents with Two Children



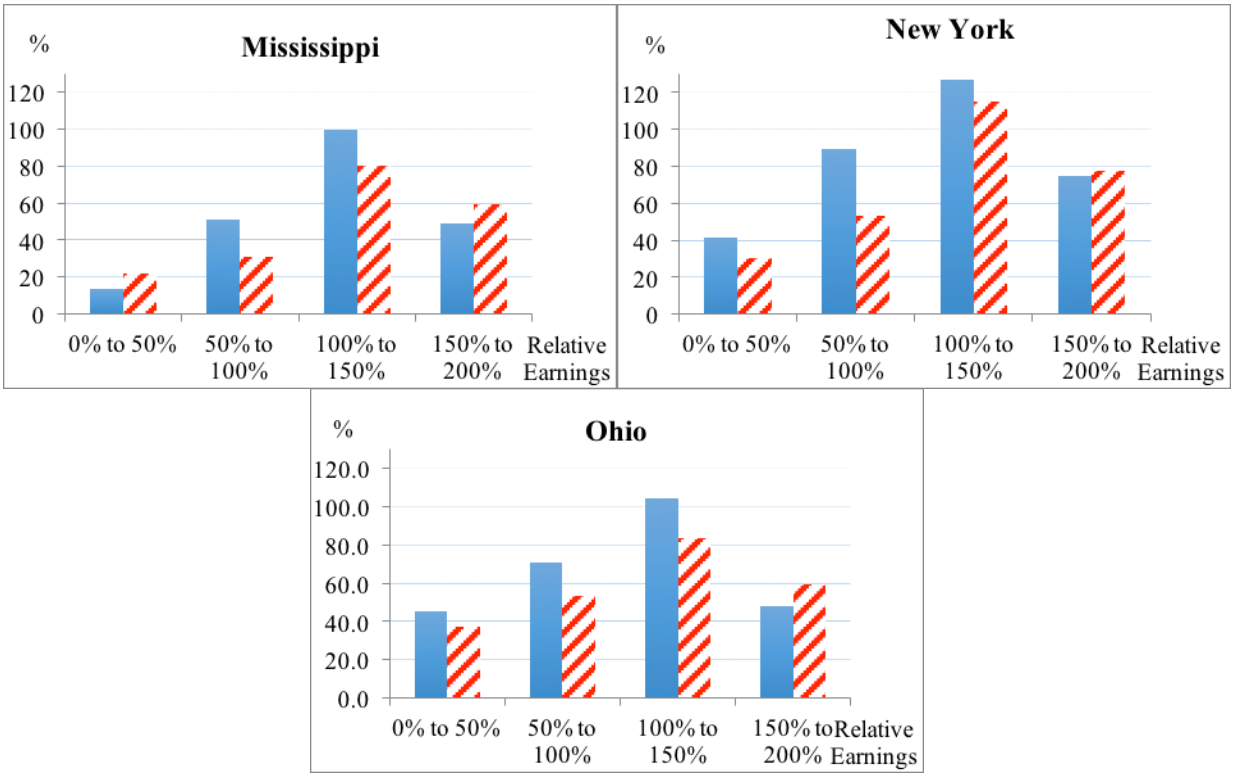
Note: Solid columns refer to 1997 and cross-hatched columns refer to 2007. Relative Earnings refers to earnings relative to the Federal Poverty Line.

Figure 8: Marginal Tax Rates with only Medicaid, Supplemental Nutrition Assistance Program, and Temporary Assistance to Needy Families Participation for Single Parents with Two Children



Note: Solid columns refer to 1997 and cross-hatched columns refer to 2007. Relative Earnings refers to earnings relative to the Federal Poverty Line.

Figure 9: Marginal Tax Rates with Medicaid, Supplemental Nutrition Assistance Program, Temporary Assistance to Needy Families, and Subsidized Housing Participation for Single Parents with Two Children



Note: Solid columns refer to 1997 and cross-hatched columns refer to 2007. Relative Earnings refers to earnings relative to the Federal Poverty Line.

Table A-1: Marginal Tax Rates for Single Parents with One Child in Ohio

	1997				2007			
	0-50% FPL	**50-100% FPL**	**100-150% FPL**	**150-200% FPL**	**0-50% FPL**	**50-100% FPL**	**100-150% FPL**	**150-200% FPL**
No Programs, No EITC	9.0	24.0	25.6	26.4	8.1	18.7	23.1	26.5
No Programs, EITC only	-25.0	18.1	39.1	42.3	-26.4	-0.8	36.6	42.5
Medicaid only	-15.4	23.7	39.1	42.3	-26.4	11.9	36.6	49.6
Housing only	-5.8	39.1	56.3	42.3	-6.8	20.2	56.0	42.5
SNAP only	-21.1	42.1	58.9	42.3	-17.9	23.2	51.9	42.5
Medicaid & Housing only	3.8	44.7	56.3	42.3	-6.8	32.9	56.0	49.6
Medicaid & SNAP only	-11.5	47.7	58.9	42.3	-17.9	35.9	51.9	49.6
Medicaid, SNAP & TANF only	43.6	74.1	58.9	42.3	32.7	55.1	51.9	49.6
Medicaid, SNAP, TANF & Housing	54.1	87.2	76.1	42.3	43.2	70.3	71.3	49.6

Note: The marginal tax rates are reported in percentages. FPL refers to the Federal Poverty Line.

Table A-2: Marginal Tax Rates for Married Parents with Two Children in Ohio

	1997				2007			
	0-50% FPL	**50-100% FPL**	**100-150% FPL**	**150-200% FPL**	**0-50% FPL**	**50-100% FPL**	**100-150% FPL**	**150-200% FPL**
No Programs, No EITC	8.5	20.3	26.4	26.9	7.7	16.9	22.5	26.6
No Programs, EITC only	-31.5	26.6	47.4	39.5	-33.1	3.0	43.6	41.1
Medicaid only	-18.4	34.3	47.4	39.5	-33.1	20.2	43.6	50.7
Housing only	-13.0	47.6	57.2	39.5	-14.0	24.0	54.0	41.1
SNAP only	-28.9	50.6	79.8	39.5	-25.8	27.0	71.4	41.4
Medicaid & Housing only	0.1	55.3	57.2	39.5	-14.0	41.2	54.0	50.7
Medicaid & SNAP only	-15.8	58.3	79.8	39.5	-25.8	44.2	71.4	50.7
Medicaid, SNAP & TANF only	40.6	79.7	79.8	39.5	25.9	59.7	71.4	50.7
Medicaid, SNAP, TANF & Housing	51.1	94.3	89.6	39.5	36.4	76.0	81.9	50.7

Note: The marginal tax rates are reported in percentages. FPL refers to the Federal Poverty Line.

Table A-3: Marginal Tax Rates for Single Childless Families in Ohio

	1997				2007			
	0-50% FPL	**50-100% FPL**	**100-150% FPL**	**150-200% FPL**	**0-50% FPL**	**50-100% FPL**	**100-150% FPL**	**150-200% FPL**
No Programs, No EITC	13.8	23.8	24.6	25.6	11.3	17.7	24.5	25.9
No Programs, EITC only	6.2	28.8	27.2	25.6	3.7	22.7	27.1	25.9
Medicaid only	6.2	28.8	27.2	25.6	3.7	22.7	27.1	25.9
Housing only	27.2	49.8	48.2	38.7	24.7	43.7	48.1	42.3
SNAP only	18.6	48.0	30.1	25.6	18.8	39.9	29.3	25.9
Medicaid & Housing only	27.2	49.8	48.2	38.7	24.7	43.7	48.1	42.3
Medicaid & SNAP only	18.6	48.0	30.1	25.6	18.8	39.9	29.3	25.9
Medicaid, SNAP & TANF only	18.6	48.0	30.1	25.6	18.8	39.9	29.3	25.9
Medicaid, SNAP, TANF & Housing	39.6	69.0	51.1	38.7	39.8	60.9	50.3	42.3

Note: The marginal tax rates are reported in percentages. FPL refers to the Federal Poverty Line.

Table A-4: Marginal Tax Rates for Married Childless Families in Ohio

	1997				2007			
	0-50% FPL	**50-100% FPL**	**100-150% FPL**	**150-200% FPL**	**0-50% FPL**	**50-100% FPL**	**100-150% FPL**	**150-200% FPL**
No Programs, No EITC	8.6	23.9	25.2	26.1	7.9	18.0	20.5	25.2
No Programs, EITC only	2.4	30.0	25.2	26.1	1.7	23.4	21.3	25.2
Medicaid only	2.4	30.0	25.2	26.1	1.7	23.4	21.3	25.2
Housing only	23.4	51.0	42.3	26.1	22.7	44.4	41.0	25.2
SNAP only	17.4	54.0	35.3	26.1	18.7	47.4	29.3	25.2
Medicaid & Housing only	23.4	51.0	42.3	26.1	22.7	44.4	41.0	25.2
Medicaid & SNAP only	17.4	54.0	35.3	26.1	18.7	47.4	29.3	25.2
Medicaid, SNAP & TANF only	17.4	54.0	35.3	26.1	18.7	47.4	29.3	25.2
Medicaid, SNAP, TANF & Housing	38.4	75.0	52.4	26.1	39.7	68.4	49.0	25.2

Note: The marginal tax rates are reported in percentages. FPL refers to the Federal Poverty Line.