Evaluation of four tax reforms in the United States: Labor supply and welfare effects for single mothers[☆]

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Abstract

An emerging consensus is that labor force participation is more responsive to taxes and transfers than hours worked. To understand the implications of participation responses for the welfare analysis of tax reform, this paper embeds this margin of labor supply in an explicit welfare theoretic framework. We apply the framework to examine the welfare effects on single mothers in the United States following four tax acts passed in 1986, 1990, 1993, and 2001. We propose a simulation method combining features of fully structural microsimulation studies and simple deadweight loss calculations. Our approach accounts for the observed heterogeneity in the microdata, but is simple to implement because we do not need to specify utility functions and estimate utility parameters. We find that each of the four tax acts created substantial welfare gains, and that the gains were concentrated almost exclusively on the participation margin. Our results imply that standard approaches not modeling the participation decision can make large errors.
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1. Introduction

The last two decades represent an unusually active period in the modern history of the United States tax system. A series of tax acts—passed in 1981, 1986, 1990, 1993, 2001 and 2003—has dramatically changed the federal income tax code. These tax acts differed substantially in their scope and coverage, but all had important effects on the tax liabilities and incentives faced by taxpayers. For low-income taxpayers, the primary effect of these reforms has been to

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reduce income tax liabilities through a combination of provisions, but mainly through the expansion of the Earned Income Tax Credit (EITC). A relatively modest program until 1986, the EITC has since evolved into the single largest cash transfer program for low-income families at the federal level. In fact, the EITC now implies negative tax liabilities on labor income (including all federal, state, and social security taxes) for a representative single mother.

This paper evaluates the welfare effects on single mothers from the tax acts passed in 1986, 1990, 1993, and 2001. We take note of recent empirical evidence showing strong labor force participation responses to EITC expansions, unmatched on the hours-worked margin even though the changes in incentives on that margin have been substantial (Eissa and Liebman, 1996; Meyer and Rosenbaum, 2001). These recent findings are consistent with earlier Negative Income Tax experiments showing that participation was more sensitive than hours worked for both single female heads and married women (Robins, 1985), as well as with indirect evidence showing larger estimated elasticities for all than for working married women (Mroz, 1987; Triest, 1990).

Recent work on optimal income taxation has shown that the policy recommendations change once participation responses are explicitly introduced (Saez, 2002). More precisely, it may be optimal to impose negative marginal tax rates at the bottom of the earnings distribution, similar to an EITC. By contrast, an EITC would be inefficient in a standard model with only intensive responses. These results on optimal taxation suggest that a correct modeling of labor supply behavior will also be important for tax reform analysis.

Our paper examines the impact of participation responses on the welfare evaluation of tax reforms. We set up a welfare theoretic framework with labor supply responses along both the extensive (participation) and intensive (hours worked) margins. We model labor supply in a manner consistent with the empirical distribution of hours worked showing very few workers at low annual or weekly hours of work. This requires we drop the standard convex framework, which implies that small increases in after-tax wages induce entry at small (infinitesimal) hours of work. Our framework allows for discrete labor market entry by way of non-convexities in preferences and budget sets created by fixed costs of work (as in Cogan, 1981). We show that such non-convexities allow first-order welfare effects along the extensive margin.

Our model identifies the parameters that are important for evaluating the welfare effects of tax reform. Welfare effects are shown to depend on elasticities along each of the two margins of labor supply; on the initial tax-benefit position of each individual; and on the reform-induced changes in tax rates. The distinction between the two margins of labor supply is crucial because each margin has a different tax wedge. As in traditional analysis, the welfare effect on the intensive margin depends on the effective marginal tax rate (including the marginal phase-out rate applied to any benefits). Along the extensive margin, however, the welfare effect depends on the effective average tax rate (including the average reduction rate on benefits). Our results show that conflating these two tax wedges in the welfare analysis can be fundamentally misleading. The reason is simple and intuitive. Programs such as the EITC, TANF, Food Stamps and Medicaid generate highly non-linear and discontinuous tax-transfer schedules that imply substantially different tax rates on participation and on hours worked.

Our simulations account for all relevant changes to the federal income tax code introduced by the four tax acts. The tax simulations are based on Current Population Survey (CPS) data and NBER's TAXSIM model. Because of the central role of the public assistance system, we also construct a benefit calculator incorporating cash assistance as well as Food Stamps and Medicaid to characterize fully the extensive and intensive tax wedges for each observation in the sample.

We find that all four tax reforms created substantial welfare gains for single mothers, but the largest gain was found for the 1986 reform. Moreover, for all four reforms, we show that almost all of the welfare gain is generated along the extensive margin. Perhaps surprisingly, this concentration of welfare gains occurs even with identical participation and hours-worked elasticities. The reason is that non-linearities and discontinuities create different tax distortions along the two margins, and that the tax acts changed the average tax rate (for example, −11.9 percentage points in 1993) more than the marginal tax rate (−3.0 percentage points). These features of the tax schedule render the composition of the total labor supply elasticity a crucial element for the welfare evaluation of tax reform. In fact, we find that conflating the participation and hours-worked elasticities may lead to the wrong sign on the welfare effect, and conclude that the composition of the labor supply elasticity may be as important as its size.

Our paper contributes to the large literature on the welfare costs of taxation and tax reform.[1] A common feature in this literature is the assumption of a standard convex labor supply model, ruling out (discrete) participation responses. A recent exception is the paper by Immervoll et al. (2007), which incorporates the participation response in its analysis of

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[1] This literature includes theoretical papers (e.g. Allgood and Snow, 1998; Dahlby, 1998), microsimulation studies (e.g. Browning and Johnson, 1984; Triest, 1994; Bourguignon and Spadaro, 2005), and Computable General Equilibrium analyses (e.g. Ballard et al., 1985; Ballard, 1988).