Taxes and female labor supply ☆

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A B S T R A C T

The Economic Recovery Tax Act of 1981 and the Tax Reform Act of 1986 changed the U.S. income tax structure in a dramatic fashion. In particular, these two reforms reduced the marginal tax rates for married households. In this paper I investigate what part of the rise in labor force participation of married women between 1980 to 1990 (a rise of 13 percentage points) can be accounted by the changes in taxes. I build an heterogeneous agent model populated by married households. Households differ by age and educational attainment levels of their members and decide whether the second earner, the wife, should participate in the labor market. I select parameter values so that the model economy is consistent with the 1980 U.S. economy in terms of income tax structure, wages (skill premium and gender gap), marital sorting (who is married with whom), and female labor force participation. Using counterfactual experiments I find that 20–24 percent of the rise in married female labor force participation is accounted for by the changes in the income tax structure. Changes in wages account for 62–64 percent, and changes in marital sorting account for 14–16 percent of the rise in the participation rate of married women.

1. Introduction

The U.S. income tax structure has changed dramatically during the 1980s. This change was result of two landmark legislations, the Economic Recovery Tax Act of 1981 (ERTA) and the Tax Reform Act of 1986 (TRA). These reforms lowered marginal statutory tax rates significantly and reduced the number of tax brackets from 16 to 4. Fig. 1 shows marginal statutory income tax schedules for married households filing jointly before and after each tax reform. Although these changes affected all tax payers, high income earners realized the largest benefits from these reforms. The top marginal tax rate declined from 70 to 31 percent whereas marginal tax rate that a married household with mean income faces dropped from 37 to 28 percent.

A critical aspect of these tax reforms is their effect on labor supply behavior. Possibly the most important recent change in the U.S. labor markets is the drastic rise in labor force participation of married women. In the second half of the twentieth century the participation rate of married women has more than tripled. In particular, between 1980 and 1990 the participation rate of married women between ages 20 and 59 has increased from 57.2 to 70.2 percent. During the same period weekly market hours per working married women has increased from about 32 hours per week to 36 hours as well.[1]

[1] As reported by Jones et al. (2003), the bulk of the rise in female labor supply during the second half of 20th century is due to married females. Therefore, the paper focuses only on the labor supply of married individuals.
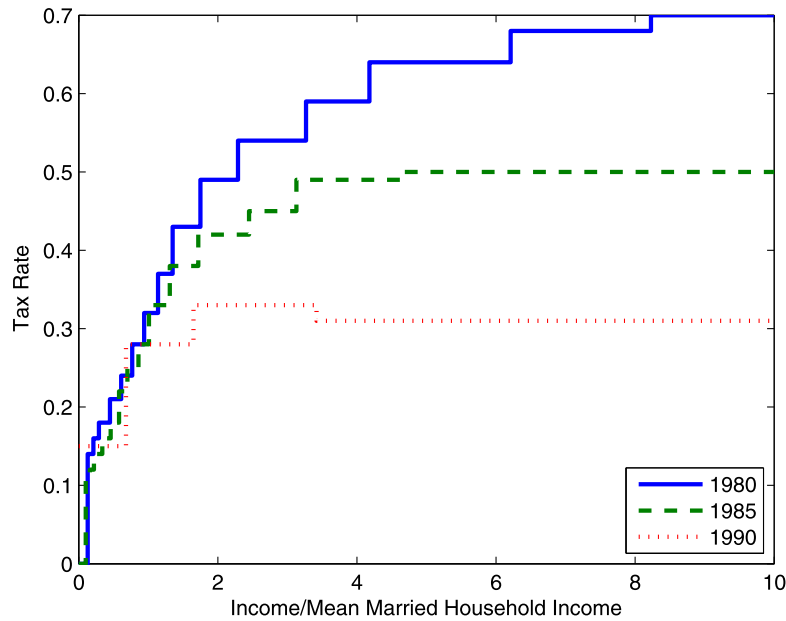
Fig. 1. Statutory marginal tax rates (for married households filing jointly).

A reduction in income tax rate affects labor supply behavior in two ways. First, it increases the rewards of supplying additional hours for workers. This may or may not increase the labor supply depending on whether the substitution or the income effect dominates. The second effect is on participation margin. For people who are out of the labor force, benefit of participating in the labor market increases with lower taxes. A well-known feature of the U.S. tax system is that primary and secondary earners in a married household are not treated equally. The marginal tax rate that the second earner faces for the first dollar of her/his earnings is the rate that the primary earner faces for the last dollar of his/her earnings. As a result, a large reduction in the marginal tax rates can create significant participation incentives for secondary earners if she/he is not in the labor force.[2] Since the majority of secondary earners are married women, about 96 percent were even in 1990, ERTA and TRA were likely to play an important role in the rise in the participation rate.

During the 1980s, along with these tax reforms, there were also other changes in the U.S. economy that possibly have affected the labor force participation rate of married women. First, the educational composition of married population has changed. During this period the fraction of college graduate females has increased, while the fraction of females with less than a high school degree has declined. In addition, the degree of marital sorting has increased. Second, there were changes in the wage structure. Gender gap has declined as the hourly earnings of married females have improved relative to hourly earnings of married men. This increased the opportunity cost of staying at home for married women. Furthermore, college premium has increased for all workers.[3]

In this paper I evaluate the contribution of the decline in the income tax rates, the changes in earnings, and the changes in the educational composition of married population to 13 percentage point increase in the labor force participation of married women between 1980 and 1990. To do this, I first document how earnings (by education, gender and age), and educational composition of households have changed in this decade. Then, I estimate effective tax functions for 1980 and 1990. I use the income tax data from Internal Revenue Service to estimate a smooth effective tax function which relates actual tax payments to household income. Next, I build a static heterogeneous agent model populated by married households, in which households differ by age and educational attainment levels of their members. A household belongs to one of four age groups (20–29, 30–39, 40–49, or 50–59), and one of three education groups (less than high school, high school degree, or college degree or more). While the model consists of households with different ages, it abstracts from life-cycle dynamics. A household makes labor supply decisions for its members. Following Cho and Rogerson (1988), I assume that if the husband and the wife both participate in the labor market, the household incurs a fixed utility cost. I select parameter values so that the model economy is consistent with the 1980 U.S. economy in terms of income tax structure, wages (skill premium and gender gap), marital sorting (who is married with whom), and female labor force participation. Then, I ask the following question: *If the households of the 1980 were taxed at 1990 rates, how much higher the participation rate of wives would be?*

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[2] For a review of incentive effects of the U.S. tax structure for married women, see McCaffery (1997).

[3] See Section 2 for an overview of changes in the earnings structure and educational attainment of population.