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Women's lifetime labor supply and labor market experience

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ABSTRACT

The pattern of joining the labor force only at an advanced stage of the life-cycle was widespread among American women in the 1960s and 1970s, but not since the 1980s. To explain this change we conduct a theoretical analysis of the interrelation between women's lifetime labor supply choices and the dynamic macroeconomic environment. In our model women choose the late-entry pattern only at early stages of the growth process when wages are sufficiently low and grow sufficiently rapidly. As the economy grows, this lifetime labor profile vanishes and women either join the labor force either early in life or not at all.

1. Introduction

The steady increase in women Labor Force Participation (LFP) rates in the U.S. since World War II masks a dramatic change that took place during that time in the lifetime labor supply of American women. Initially a large number of new entrants were married women past their child-rearing age with low skills and little labor market experience. Since the late 1970s, however, entering the labor market at an advanced stage of the life-cycle has become much less widespread and the dominant factor in the continuing rise of women's LFP has become the surge in the participation rates of women who entered the labor market at a young age and did not leave it before retirement age. Fig. 1 exemplifies this change in the pattern of women's lifetime labor supply choices using two cohorts: the one born between 1921 and 1930 and the one born between 1951 and 1960.

The most important effect of this change was on the dynamics of the ratio of women's average earnings to men's. As the empirical works of Smith and Ward (1989), Goldin (1989, 1990) and O'Neil and Polachek (1993) show, during the 1960s and 1970s the massive entry of relatively old women with low skills and little labor market experience has lowered women's average labor market experience and women's average labor market skills, relative to men's. This has prevented the ratio of average earnings from rising, rendering it constant at about 0.6 throughout these two decades. Then, as entering the labor market at an advanced stage of the life-cycle has become much less widespread, the ratio of average earnings took-off sharply, going from 0.6 in 1981 to 0.74 in 1996.[1]

While the above mentioned studies provide a thorough quantitative account of how the economy was affected by the different patterns of women's lifetime labor supply, they refrain from studying how these patterns have emerged and treat

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[1] The data on the ratio of average earnings is from O'Neil (2003).

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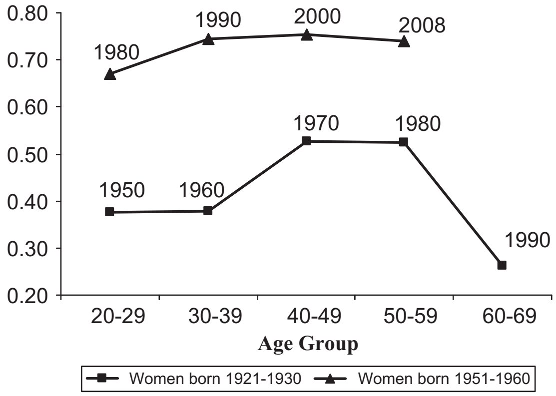

Fig. 1. Women's labor force participation rates by age-groups of the cohorts born 1921–1930 and 1951–1960. The labels next to the points show the years when each cohort was in each age group. Source: authors' calculations of IPMUS-USA and IPMUS-CPS data.

them as exogenous. The purpose of the current study therefore is to add to the literature a theoretical analysis of how these lifetime labor supply patterns emerge endogenously as the outcome of individual choices. Specifically, we focus on the following two questions: First, what are the conditions that make entering the labor market in a late stage of the life-cycle a widespread choice of women? Second, is it indeed possible that along the economy's equilibrium dynamic path these conditions should initially prevail and later on cease to prevail?

Regarding the first question, we find that a massive entry of women in a relatively advanced stage of their life-cycle into the labor force occurs in times in which wages are sufficiently low and grow sufficiently rapidly. In such times the rapid wage growth makes the wages a woman faces when she is young and when she is older sufficiently different from one another to induce a difference in her LFP choices for these different stages of her life. In contrast, in times in which wages grow sufficiently slow, the similarity of the wages the woman faces in the different stages of her life-cycle makes her LFP decisions in those stages similar to one another too.

We also show, regarding our second question, that along the economy's dynamic equilibrium path, periods of rapid wage growth indeed appear before those of the second type. Based on the standard assumption of decreasing marginal productivity of capital, this is in fact a common result in macroeconomic dynamic models. Moving from theory to reality, U.S. data for the post World War II period suggest that this was indeed the case. Specifically, Table 14 in McGrattan and Rogerson (1998) shows that during 1950–1960, and during 1960–1970, real compensation per hour in the business sector has grown by 3.4 percent and 2.9 percent per annum, respectively. In contrast, during 1970–1980, and during 1980–1990, real compensation per hour in the business sector has grown by merely 0.9 percent and 0.4 percent per annum, respectively.

Following the Mincer (1962) approach, we model the LFP expansion as the outcome of a gradual increase in the wages women face. Following Galor and Weil (1996), we model this wage growth as the result of gradual capital accumulation. The individuals are organized in overlapping generations where each generation lives and works for two periods. The economy comprises three production sectors: home production, a physical sector and a modern sector. At home and in the physical sector labor is the sole input, while the modern sector production utilizes both labor and capital. We refer to employment in the physical and the modern sectors as labor market participation. Men and women have the same distributions of the abilities that are relevant to the modern sector. The only difference assumed between women and men's abilities is that men have higher productivity in the physical sector. A key assumption in the model is that by entering the labor force in the first period of life, individuals acquire labor market experience that increases their labor market productivity in their second period of life.[2] Several simplifying assumptions regarding productivity at home and in the physical sector ensure that women never choose to work in the physical sector and men never choose home production.

Due to these assumptions, in the initial stage of the economy's growth, women labor supply can follow three alternative dynamic labor profiles: The least able women work at home in both their lives' periods; abler women work at home in the first period of their life and in the modern sector in the second period; the ablest women work in the modern sector in both periods. The "middle group" exists because in this initial stage wages grow rapidly, attracting women in their second period of life to the modern sector. As the wages growth decelerates, the middle group disappears.

This paper is also related to a strand in the literature that explains the expansion in female LFP via channels other than wage growth. Greenwood et al. (2005) and Albanesi and Olivetti (2007) have done so using models in which technological improvements in the production at home promote women's LFP. By enabling the same production at home with more time at the labor market, the technological improvements lower the alternative cost attached to LFP. Hazan and Maoz (2002)

[2] Angrist (1990) shows a strong impact of labor market experience on lifetime earnings.