
2 Literature review

The labour supply of women has been the subject of extensive study both in Australia and internationally.¹ Despite this, only a few international and Australian studies have examined the inter-temporal labour supply behaviour of women, and it remains a less understood area of labour supply research (Hyslop 1999).² However, study in this area is growing rapidly due to the increasing availability of panel data and improved computational power and techniques.

This chapter reviews a selection of studies of inter-temporal labour supply of women in Australian and overseas.

2.1 Past research

Several international studies have examined inter-temporal persistence in labour supply. Shaw (1994) used the Panel Study of Income Dynamics (PSID) over the period 1967-1987 to measure persistence in (annual) working hours of white women in the United States. She found evidence of (statistically) significant persistence in an individual's labour supply even after controlling for other influencing factors — such as wages, the age and number of children and individual health status. Further, the extent of persistence was found to have changed little over the 20 year period studied. Shaw also found that unobserved (time invariant) individual heterogeneity played an important role in the persistence. However, the study did not examine whether the persistence also resulted from unobserved transitory shocks (or errors) that might be serially correlated.

Hyslop (1999), also using the PSID data (for the period 1979-1985), examined the dynamics of labour force participation of married women in the United States and found evidence of state dependence. While unobserved individual heterogeneity was found to contribute to the persistence of labour force participation, transitory

¹ For a detailed survey of the international literature on women's labour supply, see Killingsworth (1983), Killingsworth and Heckman (1986) and Heckman (1993).

² A few studies also examine inter-temporal labour supply behaviour of men, such as Muhleisen and Zimmermann (1994) for Germany and Arulampalam, Booth and Taylor (2000) for the United Kingdom.

errors were found to be negatively correlated over time, suggesting that failing to control for serially correlated transitory errors would lead to underestimation of state dependence. The non-labour income of married women, measured by their partner's earnings, was also found to have a negative effect on their labour force participation. Permanent non-labour income was found to be more important in affecting a woman's labour force participation than transitory non-labour income. The age and number of young children were also found to have a significant negative effect on the labour force participation decisions of women.

Inter-temporal persistence in women's labour supply was also examined by Lee and Tae (2005) using the first four waves (1998-2001) of the Korean Labour and Income Panel Study. Without considering serial correlation of transitory errors, the authors found that both state dependence and unobserved individual heterogeneity were important in explaining inter-temporal persistence in the labour force participation of women. They also found that the extent of state dependence of labour force participation varied with education, marital status and age. State dependence was found to increase with age, and was higher for married than for single women and higher for women with a junior college level of education relative to those with other levels of education.

In the Australian context, very little research exists on the inter-temporal persistence of labour market activity. One study, Knights et al. (2002), examined labour market dynamics of Australian youth (those aged 15-29 years), using the Australian Longitudinal Survey over the period 1985-1988. Dynamic labour market activity of both males and females was analysed separately, with each group being further divided into high and low education groups. High education was defined as the completion of secondary school; with the low education defined as secondary school not being completed. Only two labour force states were examined — employed or not employed (binary variable). The authors found that an individual's employment status in the previous year predicted his/her employment status in the currently year for all the four gender-education groups, suggesting evidence of state dependence of employment status. They also found evidence that unobserved individual heterogeneity was important explanatory factor in the persistence of employment status for all groups examined. Like Lee and Tae (2005), however, Knights et al. (2002) did not examine whether the observed persistence was due to serially correlated transitory errors.

Some studies have also examined the effect of serially correlated transitory errors on inter-temporal persistence. Tatsiramos (2008), for example, examined female employment dynamics in seven European countries (Denmark, France, Germany, the Netherlands, Italy, Spain and the United Kingdom) to test the effects of fertility had on employment status. State dependence was found in the employment status for

women in all countries after controlling for observed and unobserved individual heterogeneity and serially correlated transitory errors. The magnitude of state dependence as measured by average partial effects was very similar across all the countries studied, with the probability of a woman being employed being 31 to 49 percentage points higher if employed in the previous year. Like Hyslop (1999), Tatsiramos (2008) also found that transitory errors are negatively correlated over time for all countries, and only in the case of Denmark, was the serial correlation insignificant. Permanent non-labour income was found to have a significant and negative effect on labour supply for all countries except Denmark and the United Kingdom, where the effect was positive. In case of the Netherlands and Italy, a woman's transitory non-labour income was also found to decrease labour supply.

2.2 Summing up

Much of the existing literature of the inter-temporal behaviour of labour supply has focused on whether or not a woman is involved in paid work — a binary choice measured as labour force participation or employment status. In contrast, the approach taken in this study is to examine working hours as a measure of labour supply, and thus treat non-employment (those with zero working hours) as a censored outcome.³ Further, there are no Australian (and few international) studies that have examined both the effect of observed and unobserved individual heterogeneity and serially correlated transitory errors on inter-temporal labour supply.

Despite this, studies of labour force participation by Australian women, comprehensively reviewed by Birch (2005), provide a valuable guide to the choice of explanatory variables. Although the estimates vary across studies and are sensitive to model specifications and estimation techniques, some patterns emerge. The studies generally found that increases in a woman's wages, educational attainment, labour market experience, and the cost of living, all have a positive effect on a woman's labour supply. Conversely increases in family income and the number of dependent young children had a negative effect.

³ In this study the focus is on hours worked of individuals. The individual level measures are used to obtain corresponding aggregate indicators of labour supply such as the labour force participation rate, the employment rate and total hours worked of all employed persons, and average hours worked per employed person.