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HETEROGENEITY AND STATE DEPENDENCE IN
DYNAMIC MODELS OF LABOR SUPPLY

By

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This paper develops a dynamic model of the employment decisions of married women. The statistical model presented here nests previous dynamic models of labor supply as special cases of a more general model. The greater generality of the approach adopted here permits testing of important assumptions maintained in previous work. Special attention is devoted to the dynamic model estimated by Heckman and Willis; the empirical analysis of this paper leads to a reinterpretation of some of their findings

The major empirical finding reported here is that past employment experience is an important determinant of current employment decisions for women past the child bearing years, and that this relationship can be interpreted as arising in part from the impact of both general and specific human capital investment on current labor market choices. Utilizing new econometric methods developed for this analysis, it is possible to distinguish between two explanations for the empirical relationship between previous work experience and current work choices. The first explanation derives from the literature on the "mover-stayer" problem; if women differ in their propensity to work, differences are stable over time, and the differences cannot be directly measured, an observed relationship between current work choices and past participation can arise solely as a consequence of heterogeneity (Heckman and Willis, 1977). The second explanation is that there is a "real" effect of past work experience on current participation choices operating through human capital investment and other channels. This paper finds that both explanations apply to data on older women who are past their child bearing period. For these women, there is considerable evidence that documents the empirical importance of heterogeneity, and there is considerable evidence of an investment effect

Spilerman, 1976). That work assumes that unmeasured variables follow a components of variance scheme, i.e., an individual has a "permanent" component to which a serially uncorrelated "transitory" component is added. The work reported here strongly suggests that, at least for the case of the labor supply of married women, the heterogeneity problem cannot be modeled so simply. Unmeasured components appear to be better described by a first order Markov process. It is plausible that omitted variables determining current choices are increasingly less correlated as the time distance grows between choices. Misspecification of the heterogeneity process gives rise to an erroneous estimate of the impact of the true effect of past participation on current participation probabilities.

This paper is in three parts. Part I briefly reviews previous work on the employment dynamics of women, and outlines a deliberately simplified menu of alternative statistical models. Part II presents a dynamic model of female participation. In Part III, estimates of this model are presented and the implications of the estimates are explored.

I. Previous Work on the Employment Dynamics of Married Women and Some Simple Models

The modern literature on the labor supply of married women begins with the seminal work of Jacob Mincer (1962). Mincer's model is a one period model of female labor supply in which the period is a lifetime so that non-market time at one age is assumed to be a perfect substitute for nonmarket time at all other ages. Women choose the lifetime level of labor supply that they devote to the market based on "permanent" wage rates and income. Life cycle variation in costs of work and opportunities--due to such factors as children, unemployment of the spouse and general business cycle variation--