

UNIVERSITY OF NEW ENGLAND

Department of Econometrics

Master of Economics Dissertation

“ Sampling theory and Bayesian approaches for the estimation of a labour supply model”

Submitted by:

Thuong Vu

Student number: 9396890

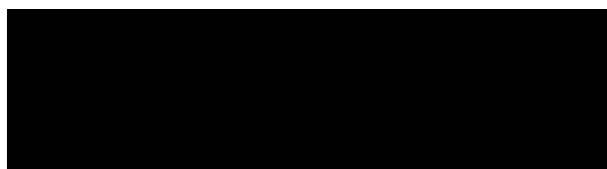
**Department of Econometrics
University of New England**

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Declaration

I certify that the substance of this dissertation has not already been submitted for any degree and is not currently being submitted for any other degree.

I certify that, to the best of my knowledge, any help received in preparing this dissertation, and all sources used, have been acknowledged.



Abstract

The objective of the dissertation is to develop a Bayesian procedure for the estimation of a labour supply model for women, as an improved alternative to the sampling theory approach. In doing so, comparison between the sampling theory and the Bayesian approaches, as well as between their estimates, is made.

Labour supply economic theory, the basis for econometric models, and the development from first generation models to second generation models are briefly reviewed, with the advantages of second generation models over first generation models being highlighted. Based on the characteristic features of second generation models and the available labour market data contained in the Mroz file, a working labour supply model is constructed, serving as tool for the development of alternative estimation procedures. The characteristics of the model are multivariate with censored data; these characteristics should be taken into account by estimation techniques. Firstly, the sampling theory procedures are derived, which consist of least squares techniques, such as ILS, 2SLS, 3SLS and SUR, and maximum likelihood techniques. Second generation studies until now ignored the problem of estimator efficiency resulting from correlations between model equations, so 3SLS and SUR have not been employed. Furthermore, the estimation of the reservation wage equation is discussed for the first time. Then the advantages and disadvantages of sampling theory are discussed. Secondly, a Bayesian procedure is developed, using Gibbs sampling, its advantages and disadvantages are also discussed. Finally the two approaches are compared to show that the Bayesian approach can overcome some disadvantages of the sampling theory approach, while based on the estimation results of the latter.

In conclusion, the two approaches are complementary in estimation of the labour supply model. In order to better exploit the derived combined procedure, the dissertation also suggests some ways for improving the labour supply model and data base.

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