

Contents

1. Introduction	1
2. The problem of bias caused by lagged dependant variables	1
2.1. The idea of instrumentation	1
2.2. Generalized Methods of Moments (GMM)	4
3. Dynamic Panel Data Estimation	5
3.1. The bias of the fixed effects model	5
3.2. Some proposed dynamic panel data estimators	7
3.2.1. The Anderson-Hsiao estimator	8
3.2.2. The Arellano-Bond estimator	10
3.2.3. The Blundell-Bond estimator	12
3.2.4. The direct bias correction	14
3.2.5. An alternative bias correction method	15
4. Monte Carlo study	16
4.1. The case of a strictly exogenous explanatory variable	17
4.2. The case of a predetermined endogenous explanatory variable	22
5. An empirical application of dynamic panel data estimation	24
5.1. Deutsche Bundesbank's Corporate Balance Sheet Statistics	24
5.2. Empirical results	24
6. Conclusion	27
References	28

List of Tables

Table 1: Simulation results, $T=10, N=100, \sigma_{\varepsilon}^2=1, \rho=0.5, \eta=0.5$	18
Table 2: Simulation results, $T=10, N=1000, \sigma_{\varepsilon}^2=1, \rho=0.5, \eta=0.5$	20
Table 3: Simulation results, $T=10, N=1000, \sigma_{\varepsilon}^2=1, \sigma_v^2=1, \rho=0.5, \eta=0.5, \delta=0.1$	23
Table 4: Empirical results of the dynamic Q -investment function	25
Table 5: Empirical results for the regression of Q on lagged values	26

List of Figures

Fig. 1: Bias and Root Mean Square Error of $\rho, N=100$	19
Fig. 2: Bias and Root Mean Square Error of $\beta, N=100$	19
Fig. 3: Bias and Root Mean Square Error of $\rho, N=1000$	20
Fig. 4: Bias and Root Mean Square Error of $\beta, N=1000$	21
Fig. 5: Measures of variation, $\rho, N=1000$	21
Fig. 6: Measures of variation, $\beta, N=1000$	22