

HISTORISK TIDSKRIFT  
(Sweden)

126:2. 2006

# Early Life Conditions, Child Mortality and the Demographic Transition

Kent Johansson, *Child Mortality during the Demographic Transition. A Longitudinal Analysis of a Rural Population in Southern Sweden, 1866–1894*, Diss, Lund Studies in Economic History 30, Almqvist & Wiksell, Stockholm 2004. 242 pp.

This is an important study which addresses an under-researched topic of broader significance in interpreting the demographic transition, whether in Sweden or elsewhere. The value of Johansson's contribution lies in his focus on the role of cohort factors in affecting child mortality trends which operated at the community, family and individual level, such as the disease load, socio-economic status at birth, maternal factors, birth seasonality, and sex. The analysis is based on a generalised Gompertz proportional hazard model which combines the strengths of life table and regression analysis and facilitates the formulation of equations relating independent variables to the hazard function (namely the risk of dying) analogous to conventional least-square regression. Although this approach has been applied by other scholars utilising material from the Scania Demographic Database, what stands out in this case is the careful and meticulous way in which the model has been developed for analysing the determinants of childhood mortality change. In three critical chapters (5, 6, 7) Johansson sets out both the theoretical and empirical elements in his model by focusing on the determinants of child mortality (the environment, food supply, disease load, family wealth, family knowledge, family values and preferences, genetics, maternal factors and sex), and their operationalisation within framework of the model (parish, local rye price, local mortality rate, socio-economic status, shared components, birth cohort, low or high maternal age, birth season, and sex).

Johansson adopts a critical approach to the central question as to whether early life conditions can be tested; he explores the available epidemiological evidence (drawn primarily from the contemporary experience of the developing world) to establish the existence of potential causal factors; he excludes factors such as hygiene and sanitation where historical data preclude any distinction between "children experiencing better or worse conditions" (p 127); and concentrates his analysis of two critical variables, namely nutrition and disease load. The model that he employs is technically well-specified: it takes into consideration problems of correlation over time and heterogeneity and although some econometricians may well have included information matrix tests or residual type plots to test for the existence of implicit-type residuals, the theoretical issues are well thought out and the key variables have been operationalised in an appropriate manner.

It would be impossible in the present context to do justice to the full range of Johansson's findings. By no means all the initial expectations were fulfilled: the absence of a significant effect of infancy rye price on child mortality among the landless socio-economic group was "unexpected", while the lagged rye price results were "strange" (pp 169, 179). In particular, for the landless group higher current prices were associated with a lower child mortality risk, whereas lagged rye had an adverse effect on relative survival. The overall conclusions, however, are potentially very interesting. Child mortality in the four Scanian parishes was clearly affected both by current and lagged current nutrition and socio-economic status was critically important, particularly during the first phase of the demographic transition which witnessed a widening of socio-economic differentials in child mortality. There is also clear evidence of a family effect on child mortality which became more significant over time.

Inevitably, in a study of this nature there are unavoidable problems, in terms of the distribution and representativeness of the sample, as well as the specification of individual variables, including the reliability of the socio-economic classification system, the use of the available price and wage data to interpret trends in living standards, and the definition of family knowledge and family preferences. But these points should not detract from an important piece of work which demonstrates the further potential of applying fairly sophisticated modelling techniques to historical data in order to extend our knowledge of the demographic transition.

*Robert Lee* \*

\* Faculty opponent