

A model of demographic and economic change in Roman Egypt after the Antonine plague

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A model

Demography has long been an essential ingredient of economic history. Students of the “ancient economy”, by contrast, have been late to give demography its due weight, and attempts to illustrate the potential relevance of population issues have been rare.¹ This case-study of Roman Egypt aims to interpret empirical evidence of economic change with reference to demographic factors. I will argue that in the late 2nd c. A.D. a severe mortality crisis triggered price and wage shocks, and that during the following century the resultant population loss contributed to a decrease in the return on land and to a rise in the real wages of workers. I must stress at the outset that my model is deductive in so far as it predicts specific developments based on the internal logic of economic and demographic relationships as illustrated or corroborated by comparative evidence from other periods, and also in that it seeks to situate and explain disparate samples of empirical data within a preconceived unifying interpretative framework. In this it is my goal to provide the most economical and internally consistent explanation for the largest possible amount of the available data. No explanatory model can ever be “complete” or even “correct” to the extent that it would accommodate every single artifact of historical information, eliminate the need for complementary explanations, or fully disentangle the complexity of historical events; rather, it needs to be judged in terms of whether it exceeds (actual or potential) comparably comprehensive alternative models in its capacity to interpret and explain the evidence in a logically coherent and historically plausible fashion.²

In an earlier article in this journal, R. P. Duncan-Jones shed new light on the disruptive force of the epidemic that reached the Roman empire in A.D. 165.³ Usually identified as smallpox (or perhaps a mixture of smallpox and measles), it appears to have been the first catastrophic manifestation in centuries of this disease to have ravaged the Mediterranean region.⁴ Duncan-Jones was able to link a whole range of disparate evidence of severe disruptions of the rhythms of daily life to this momentous event. In the absence of proper mortality statistics, these convergent proxy data are crucial indicators of the likely scale of the mortality crisis. His survey covered population figures from Egyptian villages (with a drop in the number of recorded tax-payers of from 33 to 93%, caused by death and/or flight, the latter itself a result of the epidemic), changes in the character of Egyptian land leases (with a reduction in the size of leased units and an increase in the duration of leases — both arguably responses to labour

1 See briefly W. Scheidel, “Progress and problems in Roman demography,” in id. (ed.), *Debating Roman demography* (Leiden 2001) 72 and n.294.

2 Critical engagement with my handling of the evidence or the adduction of further information may either corroborate or undermine my interpretation. At best, my model will be judged to have cast new light on the workings of the economy of Roman Egypt; at worst, it will encourage the formulation of more adequate explanations. Either way, deductive reasoning would seem the best way to make sense of scattered and fragmentary data.

3 R. P. Duncan-Jones, “The impact of the Antonine plague,” *JRA* 9 (1996) 108-36.

4 See R. J. Littman and M. L. Littman, “Galen and the Antonine plague,” *AJPh* 94 (1973) 243-55; W. H. McNeill, *Plagues and peoples* (New York 1977, repr. 1998) 130-32. The Antonine plague may have been the western arm of a pandemic that struck China between A.D. 161 and 185: cf. Duncan-Jones (supra n.3) 117 and n.102. However, Chinese demographers reckon with a precipitous demographic contraction from 185 to 221, i.e., after rather than during the epidemic (C. Y. C. Chu and R. D. Lee, “Famine, revolt, and the dynastic cycle: population dynamics in historic China,” *Journal of Population Economics* 7 [1994] 354 fig. 1).