

New wine in old bottles: output and productivity trends in Portuguese agriculture, 1850-1950

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The slow development of the agricultural sector, in terms of transformations in production and organisation methods, can be a major feature of European economies in the earlier stages of development. Yet the slow pace of change in agriculture is not necessarily associated with the absence of output growth. In fact, it has been shown for France, during the last century of the *Ancien Régime* (Grantham 1989, Hoffman 1996), and for Italy and Spain, during most of the nineteenth century (O'Brien and Toniolo 1986, Prados 1988, Simpson 1995, Morilla *et al.* 1999), that there was agricultural growth in the absence of major institutional changes of the sort that occurred in more advanced economies, namely in Great Britain.

New indices for Portuguese agricultural output growth (Batista *et al.* 1997, Lains and Sousa 1998) and data on the evolution of the agricultural labour force and the use of land, provide the basis for a revision of the performance of Portugal's agriculture in a comparative framework, during 1850-1950. The new data show that the sector experienced a relatively rapid growth during 1870-1900, when output increased at 1.4% per year; and during 1930-1950, when output expanded at 2.4% per year (both rates in real terms). Moreover, in this later period, agricultural labour productivity increased at 1.5% per year, which compares rather favourably with contemporary trends elsewhere in Europe.

The present paper analyses the determinants of growth of agricultural labour productivity in Portugal in two steps. Firstly, we analyse productivity growth in terms of changes in the ratio of agricultural area per agricultural worker and in terms of changes in the ratio of agricultural output per agricultural area (Hayami and Ruttan 1971). Before 1930, the land-labour ratio increased slightly or remained stable and output per hectare increased only slightly. After 1930, the land-labour ratio *declined* and yet output per hectare increased at an unprecedented pace.

In order to understand the causes behind the increase in Portuguese agricultural labour productivity, after 1930, we need to analyse the reasons behind the increase in output per unit of land. As such, we study the increase in output per hectare in terms of changes in yields and product mix. Despite the intensification in the use of chemical fertilizers and the higher growth of the stock of capital, yields did not increase significantly after 1930. It will be shown that a large share of the

increase in agricultural output is explained by the increase in the sectors with higher levels of land productivity.

The fact that changes in the product mix show are more important in explaining the increase in land productivity leads to the study of demand for agricultural produce. It will be shown that domestic demand for agricultural produce increased more rapidly, after 1930. As a result, the increasing pressure of a growing agricultural labour force on a fixed amount of land was met, in Portugal, by a rapid growth of land productivity. The role of demand in fostering agricultural output growth in Portugal is further confirmed by showing that there was a positive correlation between long run output and price trends.