

**Reassessing Mediterranean Agriculture: Stagnation and Growth in Tuscany,  
1870-1914**



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system in London grew out of a gradual development of institutional change; the new system in Paris arose from the bold reforms of John Law between 1717 and 1720.

By 1719, the rise of London and Paris created three focal points in the international financial system of Western Europe in place of a sole focus in Amsterdam. The process of financial innovation and increasing integration of financial markets among the three cities culminated in the Mississippi and South Sea Bubbles in 1719 and 1720. The changes in the financial system of London survived the bubbles, but the changes in Paris did not. After 1720, the French reverted to a rigid monetary system that eschewed banks and a large, active stock market. The result was that the capital markets in Paris became isolated from the integrated international capital market that linked London and Amsterdam for the rest of the eighteenth century.

Having established the rise of a system of more integrated capital markets in Western Europe, I presented a guide for tracking international capital flows among these markets. The relevant financial variables in this guide were discount and exchange rates, gold prices, and the agio, or premium, of bank money over currency. Under normal circumstances, the background noise in these variables often obscured the effects of capital flows. Therefore, the framework works best when analyzing financial crises. During a financial crisis, interactions among these variables created two distinctive signals: one that marked a panic in a domestic capital market, and another that marked the intervention of an international lender of last resort.

The framework for tracing capital flows extends T. S. Ashton's ad hoc analysis of financial crises and permits more detailed empirical study of various international financial crises discussed by Charles Kindleberger. Combined with the large pool of financial data that is available, the guide can determine the timing and scope of the crises that occurred in the eighteenth and nineteenth centuries.

To illustrate the techniques of tracing capital flows, I analyzed two crises that have been thoroughly studied—the financial panics of 1763 and 1772/73—and a crisis whose international links have not been completely established by previous research—the capital flight arising from the outbreak of the Anglo-Dutch War in 1780/81. I continued by devoting a separate chapter to tracing in detail the capital flows of the largest, longest, and most significant international financial crisis of the eighteenth century—the stock market bubbles of 1719 and 1720. The data from exchange currents and British newspapers established or confirmed the timing of the international movement of speculators among the Mississippi Bubble in Paris, the South Sea Bubble in England, the Brazil Bubble in Portugal, and the insurance bubbles of Holland and Germany. An important discovery was that the Bank of England acted as an international lender of last resort for the Dutch and the French in the fall of 1720.

Using extensive amounts of data culled from the financial press of the eighteenth century, my dissertation demonstrates that from the 1720s to the 1790s, Western Europe had a tightly integrated international capital market that centered on the financial ties between London and Amsterdam. I discuss the transformation of financial markets in London and Paris between 1688 and 1720 that created this integrated system and climaxed in the Mississippi and South Sea Bubbles. In examining financial disturbances within this system, I developed a framework that is an important tool for tracing international capital flows in the eighteenth and nineteenth centuries.

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### *Reassessing Mediterranean Agriculture: Stagnation and Growth in Tuscany, 1870–1914*

Agricultural technology in the Mediterranean basin in the nineteenth century is often characterized as “backward” compared with the techniques of Northern European

farming.<sup>1</sup> Scarce diffusion of fodder crops, belated mechanization, and low livestock density have all been taken as evidence that some forces (often attributed to tenurial systems) delayed the extension of "improved" farming to Southern Europe.<sup>2</sup> Little has been said concerning the most formidable obstacle to the application of northern technology in the Mediterranean: climate. Increased fodder production constituted a fundamental aspect of northern agriculture because fodder helped restore soil fertility and permitted higher livestock density. However, fodder crops are particularly sensitive to drought, a characteristic which made them unsuitable to the Mediterranean where summers are typically dry.<sup>3</sup> A realistic evaluation of the level of technical progress in Southern Europe has to be based on the realization that the difficulty in producing fodder posed limitations on the technology local farmers could adopt.

Focusing on farm level data, I studied the process of technical change in Mediterranean farming. With an analysis of the account books of five farms in Tuscany (Central Italy) over the years 1870 to 1914, I show that significant productivity gains were achieved in the local agriculture.<sup>4</sup> The data reveal that the gains derived from a set of technical innovations which had little in common with those of Northern European farming. From 1870/78 to 1906/14, gross output per man-year grew on these farms by between 47.1 percent and 124.0 percent. Almost all of the increase was registered after the early 1880s, when renewed convertibility of the lira and stiff competition from American imports reinforced an already present decline in grain prices.<sup>5</sup> Tuscan farmers responded to the crisis by attempting to reduce grain production costs and by adjusting the crop mix away from grains. By 1887, threshers were used on all five farms, where only one had a thresher before 1881. Rotations were modified in the same period, as some legumes (beans, favas) came to be sown more often. In contrast to the route followed by northern farmers, there was no increase in livestock density, and fodder crops such as alfalfa, rye grass, and clover (all highly sensitive to drought) remained virtually unknown.<sup>6</sup>

The most significant change was a new emphasis on viticulture. Vine cultivation increased and vine-growing techniques underwent a series of changes. To a degree, the invasion of phylloxera in the 1880s reinforced the process by encouraging increased fungicide application, resulting in an overall decline of pest-induced diseases.<sup>7</sup> Yet, the causes of rapidly rising wine productivity (on average over 200 percent) lie in the introduction of new pruning techniques and in the reorganization of field layout. The latter consisted of a shift away from the traditional Tuscan pattern of intercropping, where vines were grown in long lines with grains sown in between, toward specialized

This dissertation was completed at the Economics Department, University of Toronto in 1987 under the supervision of Jon S. Cohen.

<sup>1</sup> See for example Alan S. Milward and S. B. Saul, *The Development of the Economies of Continental Europe* (London, 1977), p. 235.

<sup>2</sup> For this view see Carlo Pazzagli, *L'agricoltura toscana nella prima metà dell'800* (Florence, 1973).

<sup>3</sup> Girolamo Azzi, *Agricultural Ecology* (London, 1956), pp. 49-52, 73-75, 141.

<sup>4</sup> The methodology used in collecting the farm data is discussed in Reginaldo Cianferoni, "Gli antichi libri contabili delle fattorie quali fonti della storia dell'agricoltura e dell'economia toscana: metodi e problemi della loro utilizzazione," *Revista di Storia dell'Agricoltura*, 13 (Fall 1973); for a description of the primary sources employed in this work see Francesco L. Galassi, "Reassessing Mediterranean Agriculture: Stagnation and Growth in Tuscany, 1870-1914," *Revista di Storia Economica, International Issue*, series 2, 3 (Dec. 1986), pp. 95-97 and fn. 16.

<sup>5</sup> See P. Bandettini, "I prezzi sul mercato di Firenze," *Archivio Economico dell'Unificazione italiana*, series 1, 5 (Spring 1957), p. 13, table 1; and Enrico Avanzi, *Influenza che il protezionismo ha spiegato sul progresso agrario in Italia* (Pisa, 1917).

<sup>6</sup> Galassi, "Reassessing Mediterranean Agriculture" table 4, p. 102.

<sup>7</sup> Vittorio Alpe, "Sulla situazione fillosserica in Toscana e sui provvedimenti presi e da prendere," *Atti dell'Accademia dei Georgofili*, series 4, vol. 11 (Mar. 1888).

vineyards. The benefit of intercropping was that the close proximity of vines and grains helped the land retain moisture and prevented soil erosion. While boosting grain output, intercropping reduced grape yields. As the terms of trade moved against grains, the opportunity cost of intercropping rose. The movement toward specialized vine cultivation was, however, slow because of the large sunk costs involved. Further, the scarcity of long-term agricultural credit also militated against a rapid expansion of vineyards, whose initial set-up costs were quite high.<sup>8</sup>

Vine pruning methods underwent considerable change. Vines were usually pruned "high," that is allowing the plant to develop a strong trunk and branching it out at about shoulder level. High vines were virtually self-supporting, but suffered from a drainage of nutrients into unproductive wood. The introduction of "low" pruning, which entailed keeping the trunk short and branching the plant along iron wire held by posts, permitted productivity increases in the order of 300 percent.<sup>9</sup> Low pruning appears to have been adopted in the last years of the nineteenth century.

Another important technological advance was the introduction of artificial fertilizers around the turn of the century.<sup>10</sup> The adoption of these substances has to be related to the growth of the Italian economy after 1896 which boosted demand for farm products. To meet the rising demand, farmers could no longer resort to a reallocation of inputs across crops as they had done in the past. The heavy tariff on grains, introduced in 1887, discouraged any shift of the crop mix against cereal crops, and the technical changes of the previous two decades had made viticulture highly profitable. The response to the evolution of market forces after the turn of the century therefore took the form of an attempt to expand output via the productivity-enhancing effects of artificial fertilizers.

The data indicate that agricultural productivity grew rapidly in Tuscany from 1870 to 1914. Increased productivity was based on technical changes radically different from those in Northern Europe. The growth occurred without a modification of local tenure systems, something which suggests that the characterization of tenure as backward and change-inhibiting is misleading. In fact, what has been mistaken for backwardness is really no more than a different set of technical choices open to the farmers of Southern Europe.

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<sup>8</sup> Giuliano Muzzioli, *Banche e agricoltura. Il credito all'agricoltura italiana dal 1861 al 1940* (Bologna, 1983), chaps. 1, 2.

<sup>9</sup> Girolamo Caruso, "Esperienze intorno alla fruttuosita delle viti senza sostegno potate ad alberello e delle viti sostenute da fili di ferro," *Atti dell'Accademia dei Georgofili*, series 4, vol. 15 (Feb. 1892).

<sup>10</sup> Galassi, "Reassessing Mediterranean Agriculture," table 5, p. 103; table 6, p. 104.

### *The Pragmatic Economy: Liberal Reforms and the Grain Trade in Upper Normandy, 1750–1789*

The terms "moral economy" and "market economy" have figured at the center of recent debates over the development of capitalism in Western Europe. In his now classic article on eighteenth-century food riots in England, E. P. Thompson created the phrase moral economy to describe popular visions of justice in the grains trade.<sup>1</sup> The

This dissertation was completed in 1987 at Duke University under the supervision of William Reddy of the Department of History. Other readers were John TePaske and Joel Colton of Duke University and Donald Reid of the University of North Carolina, Chapel Hill.

<sup>1</sup> "The Moral Economy of the English Crowd in the Eighteenth Century," *Past and Present*, 50 (Feb. 1971), pp. 76–136.