GROWTH IN A PROTECTED ENVIRONMENT: PORTUGAL, 1850–1950

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ABSTRACT

From 1850 to 1913, the Portuguese economy expanded slowly and diverged from the European core. In contrast, during the interwar period, Portugal achieved higher growth and partially caught up to the levels of labor productivity of Western Europe. Higher growth in Portugal after World War I occurred in a framework of protection and increasing levels of state intervention. Growth was due to structural changes that favored sectors with higher levels of factor productivity. Such changes were associated with growth in domestic demand and higher levels of investment, and were helped by sustained export levels, the continuation of essential imports, and the restoration of capital inflows.

1. INTRODUCTION

A better understanding of the causes of European economic growth has much to gain from knowledge of the experiences of falling behind and catching up of the continent's poor periphery. Theories of the causes of rapid industrialization have to be validated by investigating why peripheral

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countries remained behind during most of the nineteenth century and why that changed during the twentieth century.

From the mid-nineteenth century to 1913, Portugal failed to get closer to the levels of income per capita and labor productivity of the front-runners, despite the fact that it was increasingly involved in the international economy. Between 1913 and 1950, Portugal's growth experience changed in a remarkable way. Its rate of economic growth increased and, for the first time since industrialization began, the gap between it and the European core was partially bridged (though part of the recovery was due to the slowing down of economic growth in the European core after 1929). Thus, the Portuguese economy expanded slowly when more favorable external conditions developed, and expanded more rapidly when international economic conditions were *less* favorable.

Portugal's growth experience in the century up to 1950 was not unique. In fact, in a few number of peripheral countries, rapid growth and catching up was also first achieved in the interwar period, as a prelude to the period of higher growth during the golden age, although many such experiences were more limited in time because of political instability or civil wars.[1]

The change in the pattern of economic growth in the poor European periphery in the period between the wars has attracted little attention in the literature and has not been given sufficient recognition. But understanding it is most relevant for the discussion of explanatory models of European economic growth, as it contributes to the study of the effects of different levels of openness and state intervention on the growth of the less industrialized economies, as well as the effects in changes in capital flows.

Historical evidence on the connection between growth fluctuations and changes in tariff policies in Europe is varied. Bairoch (1972, 1976) has argued that free trade hampered growth in France, Germany, and Italy after 1860 and that the return to protectionism in the 1880s was beneficial to growth. For him, tariff policy was particularly important for demand in the agrarian sectors, which still had a large share in the output of those countries; contrarily, free trade fostered growth only in Britain, because of the earlier start of industrialization and the larger share of industry in total output. O'Rourke (2000) confirms these findings for a larger sample of seven European countries, but he argues that tariffs impacted positively on growth by lowering the price of capital goods, relative to final goods, and thus fostering investment.[2]

Hadass and Williamson (2003) argue that the increase in the terms of trade for the world periphery between 1870 and 1914 – which they show in the paper – had a negative impact on growth in the periphery because it

reinforced the comparative advantage of agriculture and thus penalized industry, which was the sector that carried growth in those years. In contrast, the observed increase in the terms of trade of the core countries reinforced their comparative advantage in industry and thus overall growth. These authors point out however that these effects were relatively small – accounting for about one-fifth of growth – and that growth was above all conditioned on the fundamentals inside each country. After World War I, terms of trade collapsed in all the regions they analyze, and they conclude that decline favored industrialization. Portugal, however, does not fit these patterns in at least two main respects. First, growth during the nineteenth century was led by the industrial sector and not by agriculture, despite the predominance of agrarian exports and the increase in her terms of trade. Second, Portugal's terms of trade improved after World War I and growth in the following period occurred in both agriculture and industry.[3] The reasons for higher growth during the interwar period in Portugal lie elsewhere, namely in structural changes that favored sectors with higher levels of factor productivity.[4]

This paper is structured as follows. The next section describes the main fundamentals of the Portuguese economy in the period under analysis, discusses the economic and financial impact of World War I, and provides an explanation for the stabilization of the monetary and financial indicators from mid-1920s onwards. We shall see that the government's stabilization policies were associated with the improvement of the balances in the external accounts. Section 3 discusses the main trends in economic growth and structural change in the period from 1850 to 1950. We show there that the share of the industrial sector expanded fastest during the period of slower economic growth to World War I. After the war, the shares of industry and agriculture remained virtually constant and the economy expanded more rapidly. These shifts were associated with changes in tariff policy and state intervention. Section 4 analyses the growth of factor productivity and shows that the contribution of agriculture to overall growth after 1914 was due to higher growth of investment in the sector. The paper ends with a concluding section.

2. ECONOMIC OVERVIEW, WORLD WAR I, AND STABILIZATION

By the mid-nineteenth century, Portugal had the most backward economy in Western Europe, with a level of income per capita below that of Spain, Italy, and the Scandinavian countries.[5] A high level of backwardness was evident in many aspects. First, there were vast areas of the territory which were not put into productive use and large parts of land which were left fallow, despite the fact that the labor force was to a large proportion still employed in the agricultural sector. On top of that, the share of animal output in total agrarian production was relatively small which implied a deficient use of natural manure and animal power, that were not substituted by chemical fertilizers until late nineteenth century and machinery well into the twentieth century (Lains, 2003b). In the industrial sector, there was the predominance of traditional activities and limited use of mechanization and coal or other sources of non-animal energy. The transport sector was also poorly developed, with bad roads, few ports, and no relevant canals. Lisbon and Oporto were connected by railways only in 1877 and before that the best link between the country's two largest cities was by sea. The society at large also had many signs of serious underdevelopment. The state was relatively inefficient, constrained by political instability and scarcity of financial resources which implied low levels of investment in infrastructure and education. The military gained control over the southern province of Algarve only in the 1860s; until then the region was ruled by militias.

Portugal's extreme backwardness was partially overcome in the years from 1850 to 1913. First, the industrial sector expanded faster than agriculture, as we shall see in more detail in the next section. There were also productivity gains in the agricultural sector. Other facets of change in the Portuguese economy included changes in the structure within both the agricultural and the industrial sector. In agriculture, a major transformation concerned the increase in the area under cultivation at the expense of the decline in the uncultivated area or the area left fallow. This was a major source of the increase in labor productivity as more land was put into use. In contrast, land productivity levels did not change in significant ways, as the introduction of new processes and techniques in agriculture was relatively slow. In the industrial sector, there were also some relevant productivity gains and changes in structure, which were associated with higher levels of protection. Yet, due to highly protective tariffs, both in the domestic and the colonial markets, at the outbreak of the War, Portugal had a relatively large share of its industrial labor force occupied in the textile sector, which was relatively inefficient.[6]

Notwithstanding tariff protection, the degree of internationalization of the Portuguese economy increased from at least 1870 to 1914, as foreign trade, capital imports and emigration expanded faster than the rest of the economy. Trends in capital imports were not sustained, though. Following a

balance of payments crisis, Portugal left the gold standard in 1891 and the state partially defaulted on its debt the following year. As a consequence, there was a sharp decline of foreign lending to the state, which had been up to then a major channel for capital imports. Exports also expanded at slower pace in the last two decades before the war, as Portugal did not manage to keep her share in the markets for agricultural products, such as wine and live animals, due to competition from Mediterranean and South American exporters.[7]

The slow pace of economic growth in the decades up to 1914 went together with the slow development of institutions and infrastructures. But there were some positive signs in institutional development. First, the control of the State over the territory increased significantly and was universally achieved by the eve of the War. Second, literacy rates rose in significant ways and, at the same time, mortality fell and urbanization increased.[8] Third, the financial system became more developed and widespread.[9] Finally, there was an important effort in building railways, roads, and other infrastructures, mainly up to the 1890s. Such developments were made possible by increasing government deficits that were financed either domestically or in the international capital markets. Such positive economic and institutional developments were nevertheless insufficient and Portugal failed to catch up to the levels of income per capita of the front-runners.[10] But half a century of slow but sustained growth led the Portuguese economy to a higher degree of maturity, in terms of its structure and overall productivity levels. Those changes proved to be fundamental for the response to the distresses provoked by World War I, as we shall see.

The war was greatly disruptive for the Portuguese economy, in spite of the fact that the country had only a minor participation and that its territory was not directly affected by warfare. In 1916, Portugal entered the war on the Allied side and the first immediate consequence was an increase in public expenditure and in government deficit, which led to an increase in the money supply and inflation.[11] The war also affected negatively the growth of exports from Portugal (by volume) and, more importantly, reexports from the colonies. Portugal was unable to take advantage of some export opportunities and the export of colonial produce declined following the trend in tropical products.[12] In contrast, imports maintained its upward trend. Emigrant remittances declined too and the financing of the country's balance of payments was severely affected. The participation in the war was compensated by a loan from the British government which temporarily eased the external and the government financial disequilibria (Valério, 1994). But that was not sufficient and, as state revenues did not keep up with expenses, the Banco de Portugal kept printing money and prices continued to rise sharply.[13]

After the war, several measures were taken in order for the government to gain more leverage over the economy, as was happening contemporarily in the rest of the European continent. That change occurred first as a response to the effects of the War on the supplies of energy, raw materials, and main food staples, in order to alleviate minor food shortages and to keep operating the industries which depended on imports of energy and other industrial inputs.

The interwar period was also marked by a high level of political instability which lasted to the very end of the Republican regime (1910–1926). Yet in the midst of political instability, the government managed to introduce fiscal and tariff reforms in 1922 and 1923, respectively. Both reforms aimed to restore import tariff levels and income taxes which had been eroded by high inflation, as most tariffs were specific and not ad valorem. In 1924, a foreign reserve fund was created which retained 50 percent of the earnings in gold and foreign currencies from exporters and there was an important sale of silver coin reserves by Banco de Portugal. A new bank law of 1925 imposed stricter measures for the sector, in terms of capital requirements, and redefined the role of the central bank, which ceased its activity as a commercial bank, and the government gained higher control of its administration. The war debt to Great Britain was virtually cancelled in 1926. Finally, emigrant remittances, traditionally a major source of financing the current account balance, recovered with monetary stabilization.

In 1926, a dictatorship was imposed by a military coup and a new surge of instability followed, which again had a negative impact on the main financial and monetary variables. In 1928, Salazar was designated Minister of Finance and from there he started gaining control of the government which he led as a dictator from 1932 to 1968. Social unrest and strikes marked Portugal's political life until well into the 1930s and it only stopped as the result of the repression and the limitation of political rights imposed by the dictatorship.[14]

The first years of consolidation of the new regime were not however accompanied by economic recovery. On the contrary, there was a small decline in the trend rate of growth of the economy after the 1934 peak (see below). The new finance minister enhanced the measures that had been taken before he came to power and the financial situation of the country kept improving steadily and the government could refuse a loan from the League of Nations, which had been negotiated by the finance minister before Salazar. One further major help in reaching the new equilibrium was

the return of domestic capital that had fled the country during the War, which was estimated at 60–70 million pound sterling, accumulated in 1929, and should be compared to an estimate of British investment in Portugal of 21–25 million pounds and exports which totalled 10 million pounds, also in 1929 (Telo, 1994, p. 797; Valério, 1994, p. 463). Also in 1929, final steps were made to redress the state finances by increasing further tariff levels. Finally, in 1930 a new colonial statute led to severe cuts in the central government's expenditures with the colonies, which led to the elimination of the deficit on that account.

Table 1 and Figs. 1–6 provide the data on the evolution of Portugal's main fundamentals. Table 1 depicts the high rates of price inflation and exchange devaluation which started off during the War and were aggravated in the post-war period. At an annual rate of 58.8 percent, between 1914 and 1918, Portugal had the highest war inflation in Western Europe, surpassed only by Italy, Finland and the hyperinflation in Germany and Austria. During the following period from 1918 to 1924 Portugal remained at the top of the inflation league in Europe. During this inflationary period, relative prices moved in favor of the industrial sector, in contrast to what happened during the second half of the nineteenth century (see Fig. 2).

The depreciation of the exchange rate followed closely the inflation pattern, because the *escudo* was left to float. Table 1 also shows the growth of the money supply, total public debt, and the ratio of the budget deficit to GDP. In all cases there was a considerable expansion, as compared to the

Table 1. Monetary and Fiscal Indicators for Portugal, 1854–1945.

	GDP Deflator (Annual Change %)	Exchange Rate (Annual Change %)	Money Supply (Annual Change %)	Total Public Debt (Annual Change %)	Budget Deficit (−)/ Surplus (+) % of GDP
1854–1891	0.39	0.00[a]	3.23	5.12	−1.5
1891–1914	0.92	0.69	0.68	0.46	−0.3
1914–1918	58.81	8.68	21.37	11.29	−6.8
1918–1924	30.84	60.28	37.68	41.70	−8.7
1924–1929	−3.33	−4.17	5.20	3.48	−3.3
1929–1939	−0.10	1.85	6.21	−2.84	+0.9
1939–1945	15.22	−1.58	27.77	5.54	−0.9

Source: GDP deflator and terms of trade: Appendix Table A2; Money supply (M1), total public debt, and exchange rate: Valério (2001, pp. 568–571, 707–710, 737), Budget deficit: Mata and Valério (1994, 1996, p. 205).

[a]Portugal was on the gold standard from 1854 to 1891.

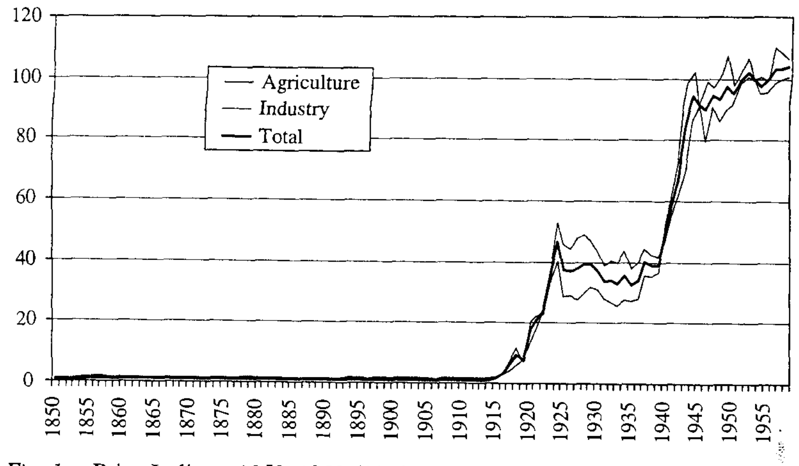

Fig. 1. Price Indices, 1850–1958 (1953 = 100). *Source:* Appendix Table A.

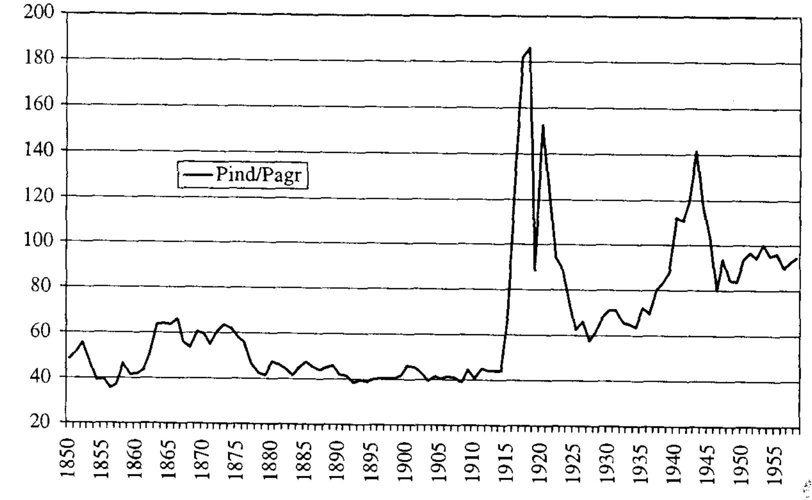

Fig. 2. Relative Prices, 1850–1958 (1953 = 100). *Source:* Appendix Table A.

pre-war levels and in all cases there was a sharp reduction in the years between 1924 and the outbreak of World War II.

Fig. 3 depicts the evolution of the average tariff, measured as import duties divided by import values. This is a rough indicator of tariff protection due to changes in the composition of imports and also due to a defective

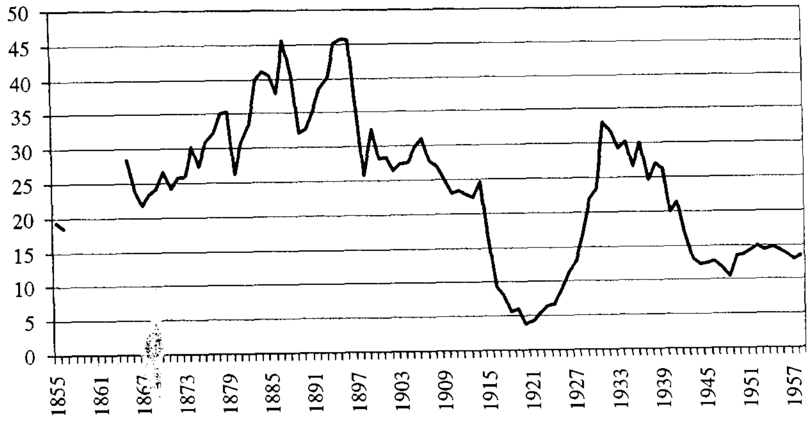

Fig. 3. Tariffs, 1855–1958 (% of Import Values). *Source:* Appendix Table A3.

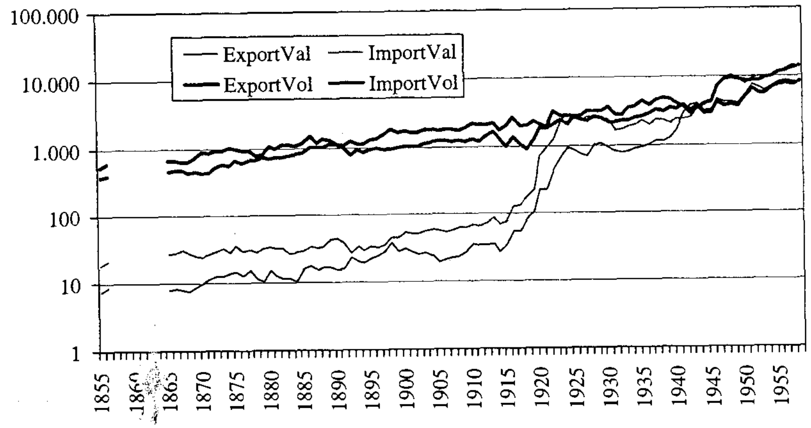

Fig. 4. Trade by Value and Volume, 1855–1958 (Semi-Log Scale). *Source:* Appendix Table A3.

evaluation of imports by Portuguese official trade statistics. Yet, the trends shown for the nineteenth century can be confirmed by a weighted index (Lains, 1987). For the twentieth century, the decline in average duties after the 1914 peak and the increase after the 1920 trough are probably exaggerated. In any case, the steep U curve shown by the data was the outcome of the fact that tariffs were predominantly set at fixed rates and thus they did

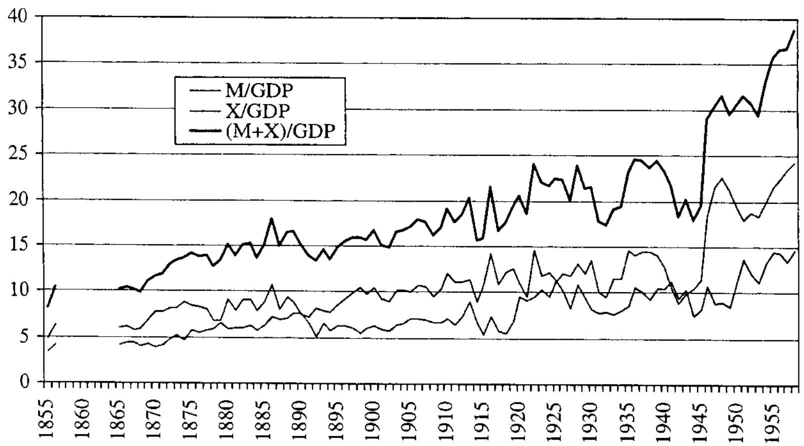

Fig. 5. Trade Ratios, 1855–1958 (% of GDP, by Volume). *Source:* Appendix Table A3.

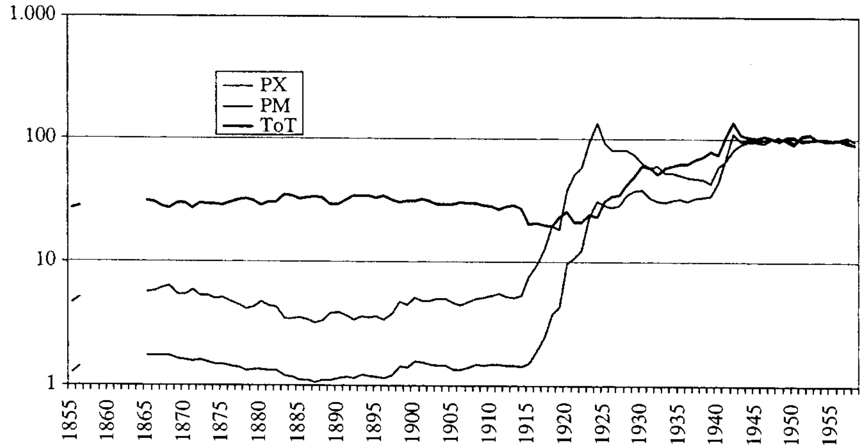

Fig. 6. Export and Import Prices, and Terms of Trade, 1855–1958 (Semi-Log Scale, 1953 = 100). *Source:* Appendix Table A2.

not accompany the increase in import prices. What the data show is that the measures taken after 1922 to increase tariff protection were effective and restored the levels of protection that were in place before the advent of the inflationary period.

Table 2. Structure of Imports (1958 Prices, Percent).

	Foods, Beverage and Tobacco	Other Consumption Goods	Transport Equipment	Other Machines and Equipment	Intermediate Goods	Energy
1910–1913	15.8	10.0	1.9	4.3	60.6	7.4
1918–1928	14.1	7.6	2.5	4.2	62.8	8.8
1929–1937	10.8	11.3	4.6	6.9	57.1	9.4
1938–1950	[illegible].1	8.4	5.2	6.6	61.2	12.5

Source: Computed from Batista et al. (1997, p. 106).

Fig. 4 shows the evolution of foreign trade and Fig. 5 the evolution of the ratio of trade to GDP, both measured by value and volume. The increase in protection after 1920 did not stop imports from growing by volume. Trade ratios, however, stabilized in that decade because of the slight downturn in the evolution of exports by volume. Yet the terms of trade, shown on Fig. 6, moved in favor of Portugal in that same period and again that trend contradicted what happened in the second half of the nineteenth century.

After the war and particularly after 1929, the structure of Portuguese imports changed, as shown in Table 2. The main change was the decline in the share of imports of foodstuffs, beverages and tobacco, from 14.1 percent in 1918–1928 to 10.8 percent in 1929–1937. Contrarily, imports of other consumption goods, as well as transport equipment, machinery, and energy increased slightly. Intermediate goods for industry also declined slightly. These changes reflect protection for the agricultural sector, particularly cereals.

To sum up, during the interwar period, there was a sharp increase in prices and monetary instability, accompanied by large budget deficits. Yet, tariffs were restored, imports kept their increasing trends, and exports declined only slightly. The trade deficit – which the official data strongly exaggerates – was financed by the return of capital imports and emigrant remittances. Moreover, the Portuguese economy benefited from terms-of-trade improvements and the industrial sector benefited from an increase in relative prices.

3. ECONOMIC GROWTH AND STRUCTURAL CHANGE, 1850–1950

The main phases of the growth of Portuguese income per capita during the century to about 1958 are given in Table 3 in the form of growth rates in

Table 3. Growth of Real Income Per Capita in Portugal, 1855–1958 (Peak-to-Peak Annual Growth Rates; Percent).

1855–1870	−0.83
1870–1882	0.15
1882–1902	1.03
1902–1922	0.60
1922–1934	1.54
1934–1947	1.11
1947–1958	2.16
1855–1958	0.78

Note: Peak years (1855 and 1958 excepted) are derived from a log-linear time trend for 1851–1958.
Source: Appendix Table A1.

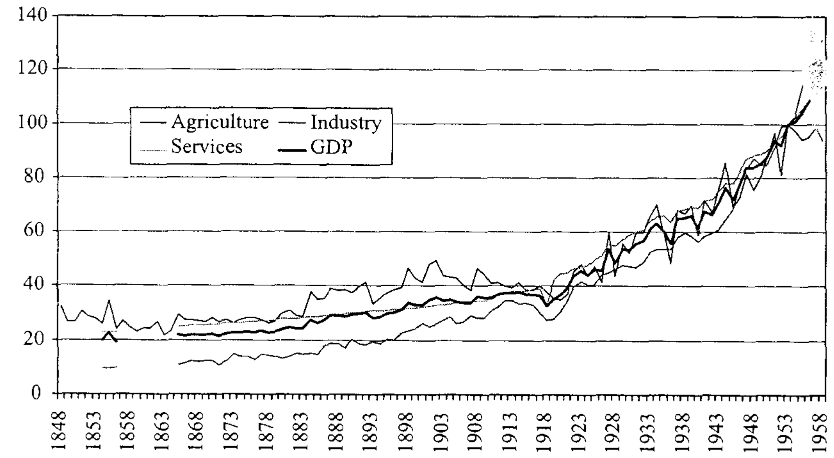

Fig. 7. Growth of Output, 1848–1958 (1953 = 100). *Source:* Computed from Appendix Table A1.

periods defined between peak years (see also Fig. 7). The data show that in the first phase from 1855 to 1870 there was a substantial decline in income per capita at the rate of −0.83 percent per year. The fall in income per capita was led by the sharp decline in agricultural output which was due to the fall of wine production as a consequence of the spread of disease in the vines. Portugal was a highly agricultural economy, in which wine accounted for about one-third of the total agrarian output, and thus economic growth was

much sensitive to changes in climate or other natural conditions.[15] Growth of income per capita resumed after 1870 but in a first phase income expanded only moderately. From the 1881 peak to the end of the nineteenth century, the trend rate of economic growth increased to 1.03 percent per year. According to the data in Table 3, most of the last quarter of the nineteenth century was spent in recovering the economic decline from the 1850s and the 1860s. During the first decade of the twentieth century, agriculture had again a negative phase, which partially offset the positive performance of the industrial sector. In sharp contrast with what happened in agriculture, industrial output expanded at relatively stable rates of growth throughout the decades from 1870 onwards and showed some tendency to rise at the end of the century (see Table 6 below). The peak year of 1923 marked an important turning point in Portugal's growth experience, as income per capita expanded since then at rates which had not been seen before. In the years after 1923, growth was common to the three sectors of the economy and in some periods there was a small increase in the share of agriculture in national output. There was a slight slowing down after 1934, but growth resumed at a faster pace after 1947.

Table 4 compares the growth of Portugal's GDP per capita with growth in three European peripheral and an average for nine European core countries, during what can be termed Maddison's phases of economic growth. The table shows that the comparative performance of the Portuguese economy was relatively poor during the first two phases down to 1913. During the period from 1913 to 1929, Portugal's income per capita growth rate increased, although it performed worse than Spain and Greece. Yet Portugal kept on growing after 1929, in contrast to Spain, which was affected by the Civil War (1936–1939). After 1938, Portugal's growth performance was also better than that of Greece and that can be explained by the fact that Greece was directly affected by World War II and the civil war that followed. As a result, Portugal performed better than the rest of the peripheral countries shown in the table when the whole 1913–1950 period is considered.

Table 5, based on estimates for GDP per capita, tells the same story of catching up to the European core. As is shown, Portugal diverged in 1870–1890, at −0.41 percent per year, and even more in 1890–1913, at −0.92 percent per year. It is interesting to note that divergence after 1890 was more important in Portugal and that it also occurred in Spain and Ireland, in contrast to what happened in those countries in the period before 1890. In the case of Portugal, there was a slight divergence during 1913–1929, but after the New York Stock Exchange crash, Portugal started catching up for the first time, again in marked contrast to what was happening in the rest of

Table 4. Growth of Real Income Per Capita in the European Periphery and Core, 1870–1950 (Maddison's Phases of Development; Annual Growth Rates between 3-Year Averages; Percent).

	Portugal	Spain	Greece	Ireland	European Core
1870–1890	0.66	1.48	–	1.21	1.07
1890–1913	0.40	0.76	–	0.84	1.32
1913–1929	1.35	1.65	2.45	0.33	1.39
1929–1938	1.28	–3.53	1.50	0.87	1.16
1938–1950	1.56	1.48	–2.72	0.94	1.00
1870–1913	0.52	1.09	0.54	1.01	1.21
1913–1950	1.40	0.31	0.51	0.66	1.21
1870–1950	0.93	0.73	0.53	0.85	1.21

Note: European core is based on an unweighted average index for the following countries: Belgium, Denmark, France, Germany, Italy, the Netherlands, Norway, Sweden, and UK. Three-year averages, except for 1870/1871, for Spain (1870 and 1890) and Ireland (1870, 1890, and 1913).
Source: Maddison (1995, 2001) and Appendix Table A1 for Portugal.

Table 5. Catching Up of Real Incomes Per Capita in the European Periphery, 1870–1950 (Maddison's Phases of Development; Annual Growth Rates between 3-Year Averages; Percent).

	Portugal	Spain	Greece	Ireland
1870–1890	–0.41	0.41	–	0.14
1890–1913	–0.92	–0.56	–	–0.48
1913–1929	–0.04	0.26	1.04	–1.04
1929–1938	0.12	–4.64	0.33	–0.29
1938–1950	0.55	0.47	–3.69	–0.06
1870–1913	–0.68	–0.11	–0.66	–0.19
1913–1950	0.19	–0.89	–0.69	–0.54
1870–1950	–0.28	–0.47	–0.64	–0.35

Note: Convergence defined according to:

$$\phi = [(y_i/y9)_{(t+n)}/(y_i/y9)_{(t)}]^{[1/n]}$$

where y_i is income per capita for the four countries in the table and $y9$ the average for the United Kingdom, France, Germany, Belgium, the Netherlands Italy, Sweden, Denmark, and Norway.
Source: See Table 4.

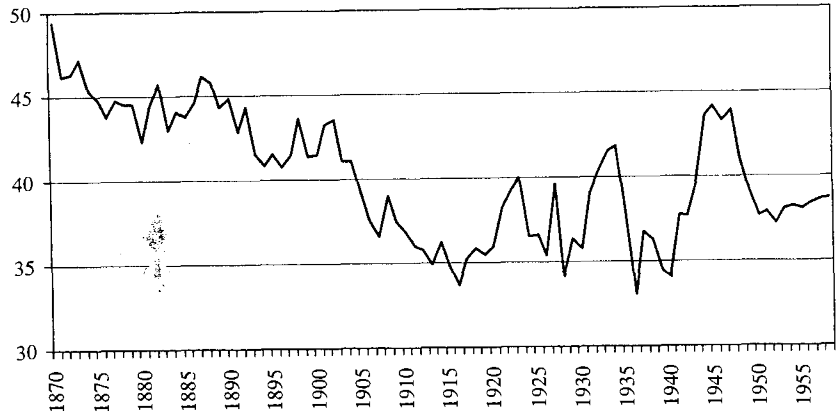

Fig. 8. Portuguese GDP Per Capita as Per Cent of the European Core, 1870–1958. *Source:* Computed from Appendix Table A1 and Maddison (1995).

the countries of the European periphery shown in the table. Catching up was further helped by the reduction of growth in the European core after 1929. Fig. 8 shows that the ratio of Portuguese GDP per capita to the average of the nine European core countries declined quite sharply, between 1870 and 1875, from 50 to 45 percent, stabilized in the years up to 1890, declined only slightly to 1900, and then sharply again to 1915. From then on, the ratio evolved in an irregular way but with a positive trend to at least 1947. However, in this year, Portugal's relative position was still below the one that existed in 1870.

The observed pattern of growth of income per capita can be related to changes in the structure of the economy before we turn to the analysis of the evolution of factor productivity. Data on the evolution of the structure of the output of the Portuguese economy during the century from 1850 to 1950 are presented in Table 6. The data are based on direct evaluation of output at 1958 prices for the period from 1910 to 1950. For the previous period, we have indices for physical output growth (agriculture and industry) and a proxy index for the growth of services to compute backward extrapolations of the structure in 1910. As shown there, Portugal had in the beginning of the period a small level of industrialization, as the industrial sector accounted for only 11.7 percent of total output, whereas the agricultural sector accounted for 47.8 percent. The share of the agricultural sector in GDP declined thereafter to 40.4 percent, in 1880, to increase in the following two decades. Such evolution of the weight of the agricultural sector is closely

Table 6. Portugal: Composition of GDP, 1850–1950 (Percent).

	Agriculture	Industry	Services
1850[a]	47.8	11.7	[40.5]
1860[b]	38.6	17.4	[44.0]
1870	40.8	17.2	[42.1]
1880	40.4	17.1	[42.6]
1890	40.9	21.5	[37.6]
1900	40.1	24.7	[35.3]
1910	37.1	27.1	35.8
1920	30.4	25.8	43.9
1930	31.5	28.0	40.5
1940	30.6	28.7	40.6
1950	32.1	30.3	37.6

Source: Appendix Table A1.
[a]1851.
[b]1861.

related to trends in the growth of output. In fact, the decline of the agricultural output share down to 1860 happened in a decade of severe contraction of output, whereas the recovery of the share between 1880 and 1910 was associated with the expansion of output.[16] Portuguese economic growth had to be somehow related to the performance of its largest sector, agriculture, but the fact that economic growth could be driven by an increasing participation of the agricultural sector has to be explained. By 1910, the share of agricultural output in total output was virtually the same as in 1860, and from 1920 to 1950 the agricultural share increased only very slightly. The largest increase in the share of the industrial sector occurred between 1850 and 1860, from 11.7 to 17.4 percent, and then it took five decades to reach a level of 27.1 percent. After 1910, the share of the industrial sector remained relatively stable, increasing only in the decade from 1940 to 1950.

The evolution of the labor force and of its structure can only be assessed indirectly due to lack of data. Table 7 sets down the available data on total population, population in the 15–64 years bracket, and active population. The data on active labor force provided by the three censuses from 1890 to 1911 imply that the male active population is larger than the number of males in the 15–64 years bracket. After 1911, male active population is marginally smaller than males in the same age bracket. In other words, population censuses up to 1911 include child labor and labor after 65 years of age, in contrast with the censuses thereafter. Consequently, the census

Table 7. Population and Labor Participation Rates.

	Total Population (000)		15–64 Years as % of Total Population		Active as % of Total Population		Active as % of 15–64 Years	
	Total	Males	Total	Males	Total	Males	Total	Males
1864	4,188	2,006	61.3	59.3	–	–	–	–
1878	4,551	2,176	61.4	59.7	–	–	–	–
1890	5,050	2,430	60.5	58.9	50.1	66.2	82.8	112.4
1900	5,423	2,592	60.3	58.7	45.3	66.6	75.1	113.4
1911	5,960	2,829	59.6	57.6	42.7	65.3	71.7	113.4
1920	6,033	2,856	61.0	59.2	40.2	–	65.9	–
1930	6,826	3,256	61.7	60.4	36.9	56.0	59.8	92.7
1940	7,722	3,712	61.3	60.4	35.9	57.7	58.7	95.6
1950	8,441	4,060	63.5	63.1	37.9	60.9	59.6	96.5

Source: Valério (2001, pp. 51, 55–56, 164, 178) and Mitchell (1996; Table A2).

data imply a substantial contraction in total labor force participation rates, from 50.1 percent in 1890 to 37.9 percent in 1950, and a once and for all decline of 10 percent points between 1910 and 1930. Thus, we opted to use as a proxy for the evolution of the labor force the evolution of males in the 15–64 years bracket, which implies that we consistently do not include child labor and labor older than 65 years of age throughout the years. This option affects to a relevant extent only the evolution of labor force during 1910–1930 and that should be taken into account in the interpretation of the results. Our option depicts a growth of active population in line with estimates based on a model for interpolation of active population between census years.[17] According to that data, there was a gradual decline in the expansion of the total labor force all the way to 1920, although in this latter decade the reduction in the rate of growth was more important. After 1920, however, the labor force expanded more rapidly, due to the contraction in emigration after that year. Table 8 shows the shares of the total labor force in the three sectors based on the structure of active population given by two parish censuses for 1841, 1862, and the official population census for 1890, 1900, 1911, 1930, 1940, and 1950. The structure for the intermediate census years is estimated by linear interpolation.[18]

Table 8. Evolution and Sectorial Distribution of Male Labor Force, 1841–1950.

	Total Male Labor Force (000)	Percent Agriculture	Percent Industry	Percent Services
1841	993	67.5	15.9	16.6
1862	1,161	65.9	15.5	18.5
1864	1,189	[66.0]	[15.7]	[18.2]
1878	1,298	[66.6]	[17.0]	[16.3]
1890	1,432	66.9	18.3	14.8
1900	1,522	66.4	18.8	14.8
1911	1,629	61.0	21.7	17.3
1920	1,691	[60.9]	[21.2]	[17.9]
1930	1,967	60.9	20.7	18.4
1940	2,241	57.8	21.0	21.[illegible]
1950	2,562	53.8	24.6	21.[illegible]

Note and Source: Total males in the 15–64 bracket computed from Table 7, except for 1841 and 1862 which are based on growth rates for labor force to 1890 from Reis (2005). Shares from Reis (2005) (for 1841 and 1862) and Valério (2001, p. 164) (for 1890 to 1950, except for 1864, 1878, and 1920, which are linear interpolations from adjoining years).

Table 9. Growth of Output, Labor Force and Labor Productivity, 1860–1950 (Annual Growth Rates, Percent).

	Agriculture	Industry	Services	Total
Output[a]				
1860–1880	1.03	0.95	0.70	0.87
1880–1890	2.77	3.23	0.90	2.10
1890–1900	1.36	3.00	0.65	1.45
1900–1910	−0.40	1.97	1.00	0.68
1910–1920	−1.64	0.15	2.14	0.31
1920–1930	4.51	4.35	2.97	3.83
1930–1940	1.81	2.02	1.73	1.84
1940–1950	2.82	4.16	2.66	3.15
Labor force				
1860–1880	0.77	1.28	−0.09	0.70
1880–1890	0.86	1.44	0.01	0.82
1890–1900	0.54	0.88	0.61	0.61
1900–1910	−0.15	1.94	2.06	0.62
1910–1920	0.40	0.16	0.80	0.42
1920–1930	1.52	1.28	1.80	1.52
1930–1940	0.78	1.46	2.71	1.31
1940–1950	0.62	2.96	1.59	1.35
Labor productivity				
1860–1880	0.26	−0.33	0.79	0.17
1880–1890	1.91	1.79	0.89	1.28
1890–1900	0.82	2.12	0.04	0.84
1900–1910	−0.25	0.03	−1.06	0.06
1910–1920	−2.04	−0.01	1.34	−0.11
1920–1930	2.99	3.07	1.17	2.31
1930–1940	1.03	0.56	−0.98	0.53
1940–1950	2.20	1.20	1.07	1.80

Source: Output from Appendix Table A1 and labor force from Table 8, with linear interpolations.
[a]The years for output are the centre of three-year averages.

Table 9 shows aggregate and disaggregate growth rates for output, labor force, and labor productivity. Labor productivity in the whole economy expanded faster during 1880–1900, at 1.39 percent per year, and slowed down in the following two decades. After 1920, labor productivity growth was again more rapid, at 2.13 percent per year, and despite the slowing down in the 1930s, on the whole, labor productivity expanded more rapidly after World War I. The productivity of labor employed in the agricultural sector in some occasions expanded at a similar pace or even more rapidly than that of the industrial sector, as was the case in the decade from 1880 to 1890 and in the three decades from 1920 to 1950. Thus, the increasing importance of the agricultural sector was clearly associated with a better overall economic growth performance. This was so particularly during the 1920s and the 1940s. In order to explain the increasing contribution of agriculture to Portuguese economic growth after World War I, we have to go beyond the analysis of labor productivity and evaluate the contribution of capital investment.

4. PRODUCTIVITY GROWTH AND THE CONTRIBUTION OF AGRICULTURE

In this section, we carry out an analysis of the factors behind productivity increases in the agricultural sector and the aggregate economy within a growth accounting framework. Table 10 provides a summary of the available data on the growth of factors and factor productivity in the agricultural sector and the total economy, based on proxy estimates for the growth of capital in agriculture for the century ending in 1950 and for the growth of total capital in the interwar period. In the agricultural sector, we see that the growth of labor and capital productivity expanded at quite similar rates during 1865–1902, 0.67 and 0.78 percent per year, respectively. This period of higher growth was followed by one of slower growth of labor productivity

Table 10. Growth Labor, Capital and Total Factor Productivities, 1910–1950 (Annual Growth Rates; Percent).

	1	2	3	4 = 3–2	5 = 1–2	6 = 1–3	7
	Output	Labor	Capital	K/L Ratio	Labor Productivity	Capital Productivity	TFP
Agriculture							
1865–1902	1.41	0.74	0.63	−0.11	0.67	0.78	0.72
1902–1927	0.35	0.13	0.86	0.73	0.22	−0.51	0.20
1927–1951	2.36	0.97	1.44	0.47	1.39	0.92	1.59–1.63
All sectors							
1910–1934	2.17	1.00	1.25	0.25	1.17	0.92	0.72
1934–1947	2.09	1.31	3.89	2.97	0.78	−1.80	−0.02

Source: Lains (2003a, 2003b).

and decline of capital productivity, till 1927. From then on, both productivity growth rates increased again, although the performance of labor was better than that of capital. Table 10 also shows that the ratio of capital to labor in agriculture increased throughout the period and that such capital deepening was associated with overall total factor productivity growth. Agrarian investment was materialized in more cattle, the expansion of tree cultures, such as olive oil and vines, and the increase in the use of fertilizers and the use of mechanization.[19] Total factor productivity in agriculture expanded at 1.6 percent per year after 1927 which compares relatively well with factor productivity growth elsewhere in Europe.[20]

For the aggregate economy, we only have data starting in 1910 because we lack data on total capital investment before that year. The lower part of Table 10 shows that aggregate labor productivity expanded at a faster pace than aggregate capital productivity and considerably so after 1934, when there was a marked decline in the productivity of capital. Such patterns are reflected in the growth of total factor productivity which virtually stagnated in the period from 1934 to 1947. The ratio of capital to the labor force in the aggregate economy expanded rather fast after 1934 and that was mainly due to the increase in investment in the non-agricultural sector. By the account given here, this implies that capital productivity in the non-agricultural sector had a negative performance, particularly after 1934. Capital imports were relatively small in size when World War I broke out and thus Portugal's rate of domestic investment was not directly affected by the disintegration of the international capital markets in its aftermath. There is evidence of some capital flight during the War and also for its return from the early 1920s onwards. The evidence regarding capital flows and domestic investment is very scanty, though.

The pattern that emerges from the observation of factor productivity growth is that the performance of the agricultural sector was better than that of the non-agricultural sector. That outcome helps explain why the Portuguese economy managed to obtain higher productivity gains by shifting to a higher participation of agriculture in economic growth, during the interwar period. In order to investigate the mechanisms that led to such an outcome, we need to look more deeply to the structure of the economy to find out how the new capital invested in the agricultural sector had higher levels of productivity than capital invested in the rest of the economy. The data for this in-depth level of analysis is scant but it is sufficient to reach some further results that confirm our overall analysis.

By decomposing the growth of labor productivity in the growth of land per agricultural worker and the growth of output per hectare, we have reached elsewhere the conclusion that labor productivity growth in agriculture was a consequence of an increase in land productivity.[21] In fact, before 1930, the land–labor ratio increased slightly or remained stable and output per hectare increased only slightly. After 1930, the land–labor ratio *declined* and yet output per hectare increased at an unprecedented pace. Yet this happened without major changes in yields of the main agricultural staples. Agrarian productivity growth was achieved by structural shifts within the agricultural sector toward production with higher land values and higher labor productivity levels.[22] Animal output's share in total agrarian output increased from 23.6 percent in 1900–1909 to 35.9 percent in 1954–1958, whereas fruits and vegetables increased from 6.5 to 12.7 percent in the same time period.[23] Together, these two sectors accounted for almost half of total agrarian output in the 1950s, up from 30 percent in the beginning of the century. Structural transformations in Portuguese agriculture can be explained in terms of the evolution of aggregate domestic demand which was enhanced by agricultural protectionism and state subventions, particularly to wheat and other cereals. Such change was a consequence of higher levels of contraction of imports, due to higher levels of tariff protection and state intervention. But agrarian structural change was also related to the expansion of demand as a consequence of overall output growth and that was particularly important for animal output. The role of demand in fostering agricultural output growth in Portugal is confirmed by showing that there was a positive correlation between long-run output and price trends.[24] The observed changes in the agricultural sector compare favorably with what happened in the rest of the economy and in particular in the industrial sector. In fact, the structure of the Portuguese industry remained relatively stable in the period from 1930 to 1950 for which we have information shown in Table 11. There were of course some changes, as the share of chemicals, non-metallic products, and basic metals expanded throughout the same period. Yet the fact that those sectors were relatively small, accounting for only 6.1 percent of total output in 1930 and 9.1 percent in 1950, implied that the overall impact was also small.

Table 11 also shows labor productivity levels across the Portuguese economy with the highest possible disaggregate level allowed by the available statistical data. Labor productivity in agriculture was clearly below that of manufacturing but it compared well to productivity in textiles and 'other' as well as in construction and services. We do not have disaggregated data on agrarian labor productivity, but the disparities across sectors were certainly large. In fact, data on land productivity by region for 1952–1956 show wide differences in the 270 departments (concelhos) ranging from 0.3 to

Table 11. Structure of Output and Labor Productivity in Portugal, 1930–1950.

	Output Shares (Percent)				Labor Productivity (Contos Per Head)			
	1930	1940	1950	1958	1930	1940	1950	1958
Agriculture, forestry, fishing	33.1	33.0	32.0	26.8	7.1	7.4	9.1	10.6
Mining and quarrying	0.4	0.7	0.6	0.6	9.3	11.1	11.2	12.3
Manufacturing	24.6	23.8	25.4	28.8	20.0	18.0	19.2	23.8
Food, beverage, tobacco	5.4	4.5	3.9	4.0	40.1	22.4	22.6	31.6
Textiles, clothes, footwear	6.8	6.2	6.7	7.0	11.4	10.3	12.5	15.8
Wood, cork, furniture	4.3	3.3	3.3	2.7	29.2	18.6	16.2	15.5
Paper, publishing, printing	0.9	1.0	1.0	1.6	25.1	25.8	24.6	33.3
Chemicals, rubber, petrol	1.4	1.7	2.2	2.9	131.1	63.7	95.4	52.8
Non-metallic mineral products	0.8	1.1	1.5	2.0	26.5	23.4	26.7	29.5
Basic metals, machinery	3.9	4.7	5.4	7.1	20.2	27.2	29.0	28.2
Other	1.2	1.1	1.2	1.4	13.7	25.5	12.3	36.7
Construction	1.8	2.6	3.6	4.7	4.0	6.8	10.3	11.8
Electricity, gas, water	0.6	0.8	1.1	2.3	27.3	45.1	51.3	90.5
Trade, finance, rents	16.3	17.0	17.0	17.5	30.7	29.4	29.8	32.3
Transport, communications	3.8	3.9	4.3	5.3	14.6	15.3	18.1	24.9
Services	19.4	18.3	16.0	14.0	9.8	13.2	14.9	16.6
GDP at factor cost	100.0	100.0	100.0	100.0	10.9	11.8	14.0	17.2

Source: Computed from Batista et al. (1997).

2.4 contos/hectare. The range of labor productivity at the 18 district level (distrito) is 1–2. This implies that labor in the agrarian sector of the top six districts, which accounts for 31 percent of total agrarian output, has productivity levels above the national average for manufacturing.[25] If we take into account the fact that labor productivity in agriculture varied widely, as shown by this regional data, we may conclude that in some agrarian sectors productivity was above that of textiles, construction, and services. This conclusion is confirmed by the overall picture given by Caetano (1961), based on an interpretation of the first comprehensive industrial census for 1957–1959, which states that Portugal's industry was characterized by many units with what he terms an 'anti-economical dimension' and a very small coverage of the country.[26] The character of industrialization would change markedly in the following decade, as Portugal adhered to EFTA in 1959 and the country opened up.[27]

According to Aguiar and Martins' (2005) shift-share analysis, the agricultural sector contributed with 23.9 percent of total labor productivity growth during 1910–1950, whereas industry contributed with 35.5 percent and services with 40.6 percent. In no other period during the twentieth century analyzed by the authors did agriculture contribute to productivity growth in such a way. More importantly, 85 percent of overall labor productivity growth in 1910–1950 was a result of intrasectoral productivity growth and just the remaining 15 percent can be attributed to shifts of labor toward sectors with higher productivity or with productivity growing above the average. About one-third of intrasectoral growth is attributed again to changes within the agricultural sector. Labor productivity changes in the industrial sector occurred fundamentally in construction and energy (i.e. electricity), whereas the manufacturing proper sector lagged behind. Moreover, the observed productivity changes occurred mainly in the traditional sectors, namely, textiles and the food and wood industries. Building also increased its domestic output share. In contrast, the capital-intensive sectors had negative labor productivity growth rates.

The short-run effects of tariff and other state protection in the interwar period were positive in the sense that the Portuguese economy responded and higher growth was achieved. That response implied an increase in the contribution of agriculture to domestic output. There was clearly a shift in the specialization of agriculture toward products with higher levels of factor productivity. Labor productivity in manufacturing expanded at slower rates than in agriculture, despite the overall increase in the capital/labor ratio (see Table 10). The fact that such low-key forms of structural change led to a positive impact on Portugal's total factor productivity growth reflects the structure of the domestic economy. On the demand side, the fact was that there was still scope for growth of the consumption of comparatively more sophisticated agrarian products with higher levels of labor and capital productivity. On the supply side, it reflects the potential advantage point of investment in the agrarian sector, as factor productivity in agriculture could be higher than in some industrial branches. The mechanism which led to higher productivity levels in agriculture is peculiar to the Portuguese economy and presumably to the other peripheral European economies.

5. CONCLUSION

Portugal, as other poor countries of the European periphery, did not follow closely the growth of the core economies in the last quarter of the nineteenth century. The reasons for this lack of response are a matter of dispute in the literature. Some authors stress the negative impact of protectionist policies

followed by Portugal. Yet, the countries in the Balkan region also did not converge despite the fact that tariff protection there was introduced only later on, during the last decade of the century, and even then in a mild form (Lains, 2002). Government may also have been responsible for diverting productive investment to excess expenditure and debt, but that would have been the case only in Portugal, Spain, and Greece, as the Balkan countries kept balanced accounts throughout the period between about 1870 and 1914. Other structural factors, such as low literacy levels, were a common feature in these countries and that may have contributed to the poor performance of their economies.

That list of negative factors did not disappear after the War and in many cases they were aggravated. Tariff and other forms of protectionism in the periphery were intensified; the level of state intervention was increased everywhere; and budget deficits became the norm, with the expected consequences in domestic prices and in currencies.

The fact that after World War I a country such as Portugal attained higher growth rates of GDP per capita and that, for the first time in many decades, managed to catch up, albeit only partially, to the European core implies that other positive factors offset the negative consequences of protection, and financial and monetary distress provoked by the war and its aftermath. The economic history of Portugal in the interwar period shows that we need to look beyond the above factors in order to explain its performance.

This paper shows that interwar growth in Portugal was achieved through productivity gains *within* agriculture and industry, as well as by moving factors to construction and services. Productivity gains were obtained in sectors that we may classify as traditional. Yet Portugal was such an underdeveloped country in the European context that the relatively simple pattern of structural change that took place could and did have a significant impact on overall economic growth. Structural changes occurred in a context of increased tariff and other forms of protection from external competition and output growth was directed toward the domestic market. This was possible thanks to the existence of favorable conditions in the balance of payments that allowed higher levels of investment, which occurred despite the slowing down of the international economy. Our result shows that peripheral countries can achieve higher growth rates within an unfavorable context in the international economy.

The literature has paid a lot of attention to the financial and monetary distress of the interwar period and to the decline in the growth of international transactions in goods, services, capital, and people. Less attention has been paid to what happened to domestic output which in many cases expanded fast.

This paper does not imply that protection is good for growth in any case. In fact, we did not address the question of knowing what would have happened in the counterfactual situation where external markets would be buoyant and the Portuguese economy would be wide open to influences from abroad – the world of the interwar period was far too removed from such a scenario. Our conclusion refers only to the situation in which the international economy stagnated and Portuguese producers benefited from exploring further the possibilities provided by the growth of domestic demand and by state protection. Such an outcome was made possible by higher levels of domestic savings and investment. There is the possibility that the higher intensity of growth that occurred in Portugal during the interwar period was made possible by the fact that Portugal was backward but not too backward. That would mean that the Portuguese economy had achieved by 1914 some degree of development and industrialization. That would have made a difference and would help explain why the success on the closest periphery of Europe was possible.

Growth before 1950 was necessary for the country to achieve the minimum social and economic capabilities in order to take full benefits of the international economic boom during the golden age (1950–1973), when the economy opened up and benefited from the exploration of external markets and capital imports.

NOTES

1. For growth rates in the periphery, see Maddison (1995), Good and Ma (1999), and Lains (2003a). Spain had an acceleration of growth after World War I, which was interrupted by the emergence of civil war in 1936. See Palafox (1991), Carreras (1995), Prados de la Escosura and Sanz (1996), and Prados de la Escosura (2003). The performance of the Italian economy during the interwar period was in the midway between industrialized and peripheral Europe. See Rossi and Toniolo (1992), Mattesini and Quintieri (1997), Perri and Quadrini (2002), and Madsen (2001a). In Greece and Yugoslavia, the period of higher growth following World War I was interrupted by instability in Central Europe, following the 1931 bank crises in Germany and Austria. See Kostelenos (1995) and Christodoulaki (2001). Bulgaria and Turkey also caught-up in the period from the early 1920s to the beginning of World War II, whereas Latin America diverged. See, respectively, Pamuk (2001) and Taylor (1998). See also Milanovic (2003).

2. The literature on the relationship between protection and growth has seen a boost in recent years. See Frankel and Romer (1999), Rodríguez and Rodrik (2000),

Madsen (2001b), Irwin (2002), Irwin and Terviö (2002), Vamvakidis (2002), Williamson (2002), Estevadeordal, Frantz, and Taylor (2003), and Clemens and Williamson (2004).

3. According to Blattman, Hwang, & Williamson (forthcoming), the increase in the volatility of the periphery's terms of trade after World War I was prejudicial to investment and thus to industrialization and growth.

4. A similar perspective is given on comparison of Mexico and Portugal by Lains (2006).

5. For relative income levels in the European periphery, see Maddison (1995) and Lains (2002). Portugal could be classified by mid-nineteenth century as an 'extremely backward' country, in the sense introduced by Gerschenkron (1962), referring to a level of development below the threshold of the group of converging countries. See also Abramovitz (1986).

6. For evidence on the Portuguese economy during the period, see, among other works, Justino (1988/1989), Pedreira (1990), Reis (1993), Lains (1995), and Lains and Silva (2005, Vols. 2–3).

7. There are no estimates for balance of payments for Portugal for the whole period covered in this paper. For partial data, see Mata (1993), Esteves (2003), and Lains (2003c, Chap. 2).

8. See Reis (1993).

9. See Reis (1995, 2002).

10. None of the European countries with levels of income per capita close to Portugal's in around 1870 caught up in the period to 1913. See Maddison (1995), Good and Ma (1999), and Lains (2002).

11. On the interwar period see among others Carvalho (2001).

12. See Lains (2003c, Chap. 7).

13. See Feinstein, Temin, and Toniolo (1997).

14. See Gomes and Tavares (1999) and Pinto (2003).

15. See for agricultural growth Justino (1988/1989) and Lains (2003b).

16. An ongoing research points to an expansion of the service sector output faster than population. Such revision however does not change our main results. In fact, in the extreme case that services expanded as fast as industry, the division of total output between agriculture, industry, and services would be (percent): in 1850: 59.7, 17.3, 23.1; and in 1890: 45.0, 23.5, 31.4. This would imply a faster decline in agricultural share and a slower rate of industrialization of the economy, before 1910. This alternative outcome does not however change our main conclusions.

17. See Valério (2001, Chap. 4).

18. See for the parish censuses, Reis (2005).

19. See Gomes, Barros, and Caldas (1944).

20. See Federico (2004).

21. See Lains (2003b).

22. See Pereira and Estácio (1968).

23. The increase in the cattle stock was made possible by the growing usage of stables in the western regions north of Lisbon, as opposed to the use of land intensive pasturage in the southern region of Alentejo.

24. See Reis (1993, Chaps. 2, 3).

25. Pereira and Estácio (1968, pp. 23–24, 51).

26. See Caetano (1961, p. 931). See also Pintado (2002).
27. After 1960, there was a clear change in the emphasis of economic policy favoring the industrial sector. See for example, Moura (1973).

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STATISTICAL APPENDIX

Table A1. Output and Population, 1848–1958 (1958 Prices).

	10^6 *escudos*				Population (000)	GDP Per Capita *escudos*
	Agriculture	Industry	Services	GDP		
1848	5,244	–	–	–	3,833	–
1849	4,352	–	–	–	3,822	–
1850	4,314	–	–	–	3,863	–
1851	4,966	1,219	[4,213]	10,397	3,873	2,685
1852	4,65[illegible]	–	–	–	3,881	–
1853	4,54[illegible]	–	–	–	3,865	–
1854	4,229	1,496	[4,235]	9,960	3,893	2,558
1855	5,616	1,525	[4,219]	11,359	3,878	2,929
1856	3,864	1,566	[4,259]	9,689	3,915	2,475
1857	4,418	–	–	–	3,943	–
1858	4,007	–	–	–	3,969	–
1859	3,756	–	–	–	4,012	–
1860	3,925	–	–	–	4,057	–
1861	3,944	1,777	[4,487]	10,208	4,125	2,475

Table A1. (*Continued*)

	10^6 *escudos*				Population (000)	GDP Per Capita *escudos*
	Agriculture	Industry	Services	GDP		
1862	4,335	–	–	–	4,161	[illegible]
1863	3,548	–	–	–	4,194	–
1864	3,755	–	–	–	4,190	–
1865	4,769	1,686	[4,605]	11,059	4,233	2,613
1866	4,433	1,826	[4,643]	10,902	4,268	2,554
1867	4,459	1,921	[4,683]	11,063	4,305	2,570
1868	4,410	1,867	[4,703]	10,981	4,324	2,540
1869	4,352	1,938	[4,707]	10,997	4,327	2,541
1870	4,611	1,942	[4,758]	11,311	4,374	2,586
1871	4,306	1,673	[4,796]	10,775	4,409	2,444
1872	4,428	1,946	[4,819]	11,193	4,430	2,527
1873	4,270	2,322	[4,847]	11,438	4,455	2,567
1874	4,477	2,190	[4,861]	11,527	4,468	2,580
1875	4,557	2,181	[4,907]	11,646	4,511	2,582
1876	4,564	1,991	[4,940]	11,495	4,541	2,531
1877	4,490	2,305	[4,959]	11,754	4,558	2,579
1878	4,269	2,243	[4,977]	11,489	4,575	2,511
1879	4,403	2,190	[5,026]	11,618	4,620	2,515
1880	4,839	2,045	[5,102]	11,986	4,690	2,556
1881	5,034	2,210	[5,115]	12,359	4,702	2,628
1882	4,691	2,367	[5,165]	12,224	4,748	2,57[illegible]
1883	4,685	2,334	[5,230]	12,249	4,807	2,54[illegible]
1884	6,168	2,388	[5,278]	13,834	4,852	2,8[illegible]
1885	5,665	2,355	[5,308]	13,328	4,880	2,731
1886	5,738	2,809	[5,372]	13,920	4,938	2,819
1887	6,363	2,933	[5,413]	14,709	4,976	2,956
1888	6,181	2,958	[5,458]	14,597	5,017	2,909
1889	6,242	2,731	[5,510]	14,483	5,065	2,859
1890	6,054	3,177	[5,562]	14,792	5,113	2,893
1891	6,457	2,946	[5,594]	14,997	5,143	2,916
1892	6,699	2,900	[5,645]	15,245	5,190	2,938
1893	5,429	3,107	[5,691]	14,228	5,232	2,719
1894	5,807	2,962	[5,715]	14,484	5,253	2,757
1895	6,068	3,214	[5,747]	15,030	5,283	2,845
1896	6,296	3,152	[5,754]	15,203	5,290	2,874
1897	6,379	3,594	[5,790]	15,764	5,323	2,962
1898	7,591	3,694	[5,840]	17,124	5,368	3,190
1899	6,953	3,817	[5,876]	16,646	5,401	3,082
1900	6,712	4,131	[5,910]	16,754	5,433	3,084
1901	7,800	3,954	[5,997]	17,750	5,513	3,220
1902	8,002	4,082	[6,046]	18,129	5,558	3,262

Table A1. (*Continued*)

	10^6 *escudos*				Population (000)	GDP Per Capita *escudos*
	Agriculture	Industry	Services	GDP		
1903	7,097	4,330	[6,113]	17,540	5,620	3,121
1904	7,066	4,507	[6,178]	17,752	5,679	3,126
1905	6,987	4,123	[6,236]	17,346	5,732	3,026
1906	6,611	4,210	[6,265]	17,086	5,759	2,967
1907	6,208	4,594	[6,319]	17,121	5,809	2,948
1908	7,568	4,433	[6,348]	18,349	5,835	3,144
1909	7,240	4,483	[6,407]	18,129	5,890	3,078
1910	6,678	4,871	6,442	17,991	5,924	3,037
1911	6,701	5,108	6,797	18,606	6,020	3,091
1912	6,509	5,469	6,946	18,924	6,006	3,151
1913	6,38[illegible]	5,455	7,022	18,862	5,994	3,147
1914	6,7[illegible]	5,263	7,008	19,003	6,070	3,130
1915	6,22[illegible]	5,326	7,029	18,592	6,117	3,039
1916	6,283	5,242	7,183	18,708	6,142	3,046
1917	6,526	4,747	7,158	18,431	6,199	2,973
1918	6,143	4,325	6,061	16,529	6,078	2,719
1919	5,749	4,380	7,759	17,888	6,097	2,934
1920	5,691	4,830	8,221	18,742	6,078	3,084
1921	6,031	5,464	8,301	19,796	6,167	3,210
1922	7,340	6,257	8,583	22,180	6,211	3,571
1923	7,834	6,615	8,682	23,131	6,254	3,699
1924	7,127	6,403	8,760	22,290	6,339	3,516
1925	7,717	6,424	9,126	23,267	6,409	3,630
1926	6,692	6,977	9,449	23,118	6,527	3,542
1927	9,717	7,125	10,260	27,102	6,600	4,106
1928	7,140	7,261	10,125	24,526	6,655	3,685
1929	9,037	7,537	10,577	27,151	6,738	4,030
1930	8,448	7,499	10,874	26,821	6,815	3,936
1931	9,677	7,438	11,073	28,188	6,915	4,077
1932	9,758	7,736	11,243	28,737	7,000	4,105
1933	10,638	8,271	11,740	30,649	7,078	4,330
1934	11,35[illegible]	8,462	12,125	31,941	7,187	4,445
1935	9,64[illegible]	8,505	12,130	30,276	7,263	4,168
1936	7,86[illegible]	8,462	11,689	28,019	7,387	3,793
1937	11,041	9,175	12,449	32,665	7,466	4,375
1938	10,826	9,458	12,602	32,886	7,565	4,347
1939	11,339	9,253	12,736	33,328	7,683	4,338
1940	9,559	8,953	12,678	31,190	7,769	4,015
1941	11,614	9,239	13,203	34,056	7,785	4,374
1942	10,921	9,407	13,278	33,606	7,856	4,278
1943	12,395	9,585	13,836	35,816	7,947	4,507

Table A1. *(Continued)*

	10^6 *escudos*				Population (000)	GDP Per Capita *escudos*
	Agriculture	Industry	Services	GDP		
1944	13,924	10,169	14,373	38,466	8,009	4,[illegible]3
1945	11,263	10,794	14,335	36,392	8,107	4,[illegible]9
1946	11,807	12,248	15,148	39,203	8,172	4,797
1947	13,265	13,132	16,033	42,430	8,265	5,134
1948	12,277	13,759	16,269	42,305	8,348	5,068
1949	13,069	13,480	16,343	42,892	8,418	5,095
1950	14,166	13,370	16,564	44,100	8,502	5,187
1951	15,717	14,405	17,287	47,409	8,549	5,545
1952	13,214	15,643	17,544	46,401	8,557	5,422
1953	16,250	15,801	18,422	50,473	8,592	5,874
1954	15,836	16,270	18,853	50,959	8,609	5,919
1955	15,331	17,899	19,434	52,664	8,656	6,084
1956	15,443	19,037	19,983	54,463	8,686	6,270
1957	16,023	19,955	20,489	56,467	8,745	6,457
1958	15,279	20,720	21,004	57,003	8,778	6,494

Notes and Source: All values are at constant 1958 prices. For the period after 1910, data are from Batista, Martins, Pinheiro, and Reis (1997, pp. 5–8) which is expressed at 1958 prices and at factor cost (due to adjustments, totals in this table are slightly different from those of the source at the maximum of 1.6 percent). Data for the period from 1848 to 1910 are backward extrapolations using indices for agriculture from Lains and Sousa (1998) (see also Lains, 2003b), and for industry from Lains (1995, pp. 211–212, column IPI). Both indices are based on prices from around 1900. The growth of the service sector for the period before 1910 was proxied by the growth of total population. Population is from Neves (1994, pp. 221–223). For the period after 1910, agriculture includes fisheries; and industry includes mining, and electricity, water, and construction. No data are available for those sectors for the period before 1910. In 1911, the Portuguese currency changed name from *milreis* to *escudo*.

Table A2. Domestic Prices and Terms of Trade, 1850–1958 (1953 = 100).

	Agriculture (PA)	Industry (PI)	GDP (P)	Relative Prices (PI/PM)	Exports (PX)	Imports (PM)	Terms of Trade (PX/PM)
1850	1.08	0.52	0.78	48.5	–	–	–
1851	1.01	0.52	0.73	51.8	–	–	–
1852	0.97	0.54	0.71	55.8	–	–	–
1853	1.15	0.54	0.83	47.3	–	–	–

Table A2. *(Continued)*

	Agriculture (PA)	Industry (PI)	GDP (P)	Relative Prices (PI/PM)	Exports (PX)	Imports (PM)	Terms of Trade (PX/PM)
1854	1.44	0.56	1.03	38.9	–	–	–
1855	1.51	0.60	1.08	39.4	1.26	4.65	27.1
1856	1.78	0.63	1.26	35.7	1.44	5.15	27.9
1857	1.75	0.65	1.24	37.1	–	–	–
1858	1.49	0.69	1.07	46.4	–	–	–
1859	1.57	0.65	1.12	41.8	–	–	–
1860	1.55	0.65	1.11	41.9	–	–	–
1861	1.57	0.68	1.13	43.4	1.49	5.23	28.4
1862	1.61	0.81	1.16	50.4	–	–	–
1863	1.5[illegible]	0.99	1.15	63.6	–	–	–
1864	1.5[illegible]	1.01	1.16	64.2	–	–	–
1865	1.49	0.95	1.10	63.5	1.74	5.58	31.1
1866	1.54	1.02	1.14	66.0	1.74	5.72	30.4
1867	1.62	0.91	1.18	56.1	1.73	6.13	28.2
1868	1.60	0.85	1.15	53.6	1.73	6.37	27.2
1869	1.49	0.90	1.09	60.8	1.62	5.44	29.8
1870	1.45	0.87	1.06	59.8	1.61	5.40	29.8
1871	1.43	0.79	1.04	54.9	1.58	5.85	27.0
1872	1.46	0.88	1.07	60.5	1.59	5.34	29.7
1873	1.45	0.92	1.07	63.6	1.54	5.29	29.2
1874	1.50	0.93	1.11	62.1	1.48	5.04	29.4
1875	1.54	0.90	1.13	58.3	1.48	5.14	28.9
1876	1.57	0.88	1.14	56.3	1.43	4.71	30.4
1877	1.67	0.78	1.19	46.9	1.41	4.49	31.4
1878	1.78	0.75	1.26	42.4	1.31	4.08	32.2
1879	1.71	0.71	1.21	41.3	1.33	4.31	31.0
1880	1.62	0.77	1.15	47.7	1.35	4.72	28.6
1881	1.57	0.73	1.12	46.4	1.32	4.31	30.5
1882	1.63	0.73	1.16	44.5	1.31	4.29	30.6
1883	1.63	0.68	1.15	41.6	1.19	3.45	34.6
1884	1.5[illegible]	0.69	1.08	44.9	1.18	3.44	34.2
1885	1.[illegible]	0.69	1.04	47.6	1.11	3.48	32.0
1886	1.4[illegible]	0.67	1.04	45.8	1.09	3.35	32.7
1887	1.46	0.64	1.04	44.0	1.07	3.15	33.8
1888	1.43	0.65	1.02	45.3	1.09	3.32	33.0
1889	1.48	0.68	1.06	46.1	1.11	3.80	29.2
1890	1.67	0.71	1.18	42.2	1.14	3.89	29.3
1891	1.68	0.70	1.19	41.5	1.16	3.68	31.6
1892	1.68	0.65	1.18	38.7	1.15	3.39	33.9
1893	1.78	0.71	1.25	39.8	1.23	3.57	34.4
1894	1.84	0.72	1.29	39.0	1.19	3.48	34.2

Table A2. (*Continued*)

	Agriculture (PA)	Industry (PI)	GDP (P)	Relative Prices (PI/PM)	Exports (PX)	Imports (PM)	Terms of Trade (PX/PM)
1895	1.75	0.70	1.23	40.3	1.18	3.59	32.8
1896	1.71	0.69	1.20	40.6	1.16	3.38	34.2
1897	1.84	0.74	1.29	40.4	1.21	3.81	31.7
1898	1.94	0.79	1.37	40.8	1.43	4.74	30.1
1899	1.94	0.82	1.37	42.2	1.39	4.46	31.2
1900	1.91	0.88	1.36	46.0	1.56	5.08	30.7
1901	1.84	0.84	1.32	45.6	1.54	4.78	32.3
1902	1.83	0.79	1.31	42.9	1.48	4.80	30.9
1903	1.99	0.79	1.41	39.7	1.45	4.99	29.0
1904	1.87	0.78	1.33	41.5	1.46	5.01	29.2
1905	1.73	0.70	1.23	40.6	1.35	4.59	29.5
1906	1.69	0.70	1.20	41.4	1.35	4.43	30.5
1907	1.77	0.73	1.26	41.0	1.39	4.70	29.6
1908	1.85	0.72	1.31	38.9	1.48	5.02	29.5
1909	1.81	0.81	1.29	44.6	1.46	5.08	28.8
1910	1.86	0.76	1.32	40.6	1.48	5.30	27.9
1911	1.97	0.88	1.42	45.0	1.47	5.51	26.7
1912	2.04	0.90	1.47	44.0	1.46	5.17	28.3
1913	[2.04]	[0.90]	[1.47]	[44.0]	1.46	5.13	28.6
1914	[2.04]	[0.90]	[1.47]	[44.0]	1.43	5.30	27.0
1915	2.20	1.53	1.90	69.7	1.52	7.48	20.3
1916	3.00	3.9	3.57	130.2	1.88	9.17	20.5
1917	4.06	7.38	5.97	181.7	2.46	12.5	19.7
1918	6.26	11.66	9.35	186.2	3.70	19.2	19.3
1919	8.08	7.14	7.78	88.4	4.26	18.3	23.3
1920	13.5	20.7	17.8	152.5	9.63	37.5	25.7
1921	18.3	22.6	21.1	123.5	10.6	50.7	21.0
1922	24.3	22.9	24.2	94.4	12.2	57.9	21.1
1923	37.7	34.0	36.6	90.1	22.5	93.3	24.1
1924	52.7	40.3	46.9	76.3	31.1	135.4	22.9
1925	45.8	28.7	37.7	62.7	28.9	93.3	30.9
1926	44.3	29.3	37.2	66.2	27.7	81.3	34.1
1927	47.9	27.6	38.1	57.7	28.4	80.8	35.2
1928	48.9	30.1	39.6	61.7	34.6	80.7	42.9
1929	46.9	31.8	39.6	67.7	37.5	75.5	49.7
1930	43.6	31.0	37.3	71.0	38.8	64.6	60.0
1931	39.3	27.9	33.9	71.1	33.2	57.6	57.6
1932	40.7	26.8	34.3	65.9	31.2	60.7	51.4
1933	39.8	26.0	33.1	65.4	30.6	52.5	58.3
1934	43.6	27.6	35.8	63.4	31.8	52.2	60.9
1935	37.8	27.4	32.7	72.3	31.9	50.6	63.1

Table A2. (*Continued*)

	Agriculture (PA)	Industry (PI)	GDP (P)	Relative Prices (PI/PM)	Exports (PX)	Imports (PM)	Terms of Trade (PX/PM)
1936	40.2	27.9	34.3	69.4	30.9	49.1	62.9
1937	44.5	35.7	40.4	80.1	32.8	48.2	68.1
1938	42.6	35.4	39.2	83.0	33.7	46.8	72.1
1939	41.7	36.8	39.2	88.2	34.1	43.2	78.9
1940	46.9	52.8	49.9	112.5	44.1	58.9	74.9
1941	55.1	61.1	58.2	110.9	69.5	66.2	105.0
1942	61.8	73.3	67.4	118.6	111.1	80.7	137.7
1943	69.9	98.7	84.1	141.1	97.7	90.6	107.8
1944	86.7	102.3	94.4	118.0	97.8	94.3	103.7
1945	90.5	93.2	91.7	102.9	97.7	94.7	103.2
1946	99.1	79.6	89.8	80.3	98.2	92.5	106.1
1947	97.2	90.9	94.4	93.5	102.7	100.3	102.4
1948	101.5	86.1	93.3	84.8	100.9	105.1	96.0
1949	107.3	89.6	97.8	83.5	101.3	96.7	104.8
1950	98.0	91.7	95.5	93.6	94.7	90.0	105.2
1951	102.4	98.9	100.0	96.6	104.8	108.3	96.8
1952	106.7	100.7	102.2	94.3	109.1	110.9	98.3
1953	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1954	100.4	95.4	97.8	95.0	96.5	96.3	100.2
1955	99.6	95.6	100.0	96.0	96.3	97.9	98.3
1956	110.0	98.8	103.4	89.8	98.9	101.1	97.8
1957	108.7	100.0	103.4	92.0	98.0	105.6	92.7
1958	106.5	100.6	103.9	94.5	89.4	97.1	92.1

Notes and Source: Price indices for agriculture, industry, and GDP are from Justino (1990, p. 24) for 1850–1912; Valério (1984, p. 103) for 1914–1927 and 1927–1947; and Neves (1994, pp. 180–200) for 1947–1958. Base year for the four series are, respectively, 1863–1886, 1914, 1927, and 1977. For lack of data, constant prices were assumed for 1912–1914. Prices for exports and imports and terms of trade are from Lains (1995, pp. 237–238, columns PXC and PMC) for 1855–1910; and from Batista et al. (1997, pp. 104–105) for 1910–1958.

Table A3. Trade, Tariffs, and Trade Shares, 1855–1958 (1958 Prices and Percent).

	10^6 *escudos*					Percent			Tariffs (% of Current Imports)
						Trade Ratios (1958 Prices)			
	Exports (Current Values)	Imports (Current Values)	Exports (1958 Prices)	Imports (1958 Prices)	Tariffs (Current Values)	M/GDP	X/GDP	(M+X)/ GDP	
1855					3.6	3.4	4.8	8.2	19.4
1856					3.9	4.1	6.3	10.4	18.5
1857	–	–	–	–	–	–	–	–	–
1858	–	–	–	–	–	–	–	–	–
1859	–	–	–	–	–	–	–	–	–
1860	–	–	–	–	–	–	–	–	–
1861	7.3	29.2	548	543	5.1	5.3	5.4	10.7	17.4
1862	–	–	–	–	–	–	–	–	–
1863	–	–	–	–	–	–	–	–	–
1864	–	–	–	–	–	–	–	–	–
1865	7.8	26.6	664	462	7.5	4.2	6.0	10.2	28.4
1866	8.3	28.0	669	476	6.6	4.4	6.1	10.5	23.7
1867	8.1	30.8	642	488	6.7	4.4	5.8	10.2	21.9
1868	7.4	29.0	643	442	6.8	4.0	5.9	9.9	23.3
1869	8.8	26.4	745	471	6.4	4.3	6.8	11.1	24.2
1870	10.1	24.8	876	446	6.6	3.9	7.7	11.7	26.6
1871	11.5	26.6	[illegible]	442	6.5	4.1	7.8	11.9	24.3
1872	12.8	29.5	915	538	7.6	4.8	8.2	13.0	25.7
1873	12.7	32.2	935	591	8.3	5.2	8.2	13.3	25.9
1874	14.0	28.3	1,021	544	8.5	4.7	8.9	13.6	30.1
1875	14.8	35.3	984	666	9.7	5.7	8.4	14.2	27.5
1876	12.5	30.3	953	625	9.4	5.4	8.3	13.7	30.9
1877	15.8	31.6	950	683	10.2	5.8	8.1	13.9	32.3
1878	11.4	28.2	786	672	9.9	5.8	6.8	12.7	35.0
1879	10.4	33.5	796	756	11.8	6.5	6.9	13.4	35.2
1880	15.4	34.4	1,097	708	9.0	5.9	9.2	15.1	26.3
1881	13.1	32.9	975	742	10.2	6.0	7.9	13.9	30.8
1882	11.7	32.7	1,111	739	11.0	6.0	9.1	15.1	33.5
1883	11.4	27.1	1,113	763	10.8	6.2	9.1	15.3	39.9
1884	10.5	28.3	1,085	800	11.7	5.8	7.8	13.6	41.2
1885	15.9	30.1	1,170	842	12.2	6.3	8.8	15.1	40.6
1886	17.4	34.8	1,481	1,009	13.2	7.2	10.6	17.9	37.9
1887	15.4	33.2	1,181	1,024	15.1	7.0	8.0	15.0	45.5
1888	17.0	35.2	1,372	1,030	14.2	7.1	9.4	16.5	40.3
1889	17.2	43.5	1,288	1,112	13.9	7.7	8.9	16.6	32.0
1890	15.5	45.2	1,112	1,128	14.8	7.6	7.5	15.1	32.7
1891	16.1	37.6	1,084	993	13.3	6.6	7.2	13.8	35.4
1892	23.5	27.2	1,254	778	10.5	5.1	8.2	13.3	38.4
1893	21.0	34.6	1,125	941	13.9	6.6	7.9	14.5	40.1
1894	19.4	30.0	1,122	837	13.5	5.8	7.7	13.5	45.1
1895	22.0	35.0	1,279	947	16.1	6.3	8.5	14.8	45.8
1896	24.8	33.6	1,397	966	15.3	6.4	9.2	15.5	45.6
1897	28.4	36.8	1,561	939	12.9	6.0	9.9	15.9	35.0
1898	37.5	45.9	1,796	941	11.8	5.5	10.5	16.0	25.7
1899	29.1	45.8	1,619	996	14.8	6.0	9.7	15.7	32.4
1900	31.3	55.0	1,749	1,051	15.5	6.3	10.4	16.7	28.2

Table A3 (*Continued*).

	10^6 *escudos*					Percent			Tariffs (% of Current Imports)
						Trade Ratios (1958 Prices)			
	Exports (Current Values)	Imports (Current Values)	Exports (1958 Prices)	Imports (1958 Prices)	Tariffs (Current Values)	M/GDP	X/GDP	(M+X)/GDP	
1901	28.4	51.6	1,644	1,048	14.7	5.9	9.3	15.2	28.5
1902	26.5	52.0	1,634	1,053	13.8	5.8	9.0	14.8	26.4
1903	26.7	57.5	1,794	1,118	15.7	6.4	10.2	16.6	27.4
1904	24.6	60.3	1,807	1,168	16.7	6.6	10.2	16.8	27.7
1905	19.7	58.4	1,729	1,235	17.4	7.1	10.0	17.1	29.7
1906	21.9	55.8	1,830	1,222	17.3	7.2	10.7	17.9	31.1
1907	22.3	58.1	1,814	1,200	16.1	7.0	10.6	17.6	27.7
1908	23.6	64.0	1,734	1,239	17.2	6.8	9.5	16.2	26.9
1909	27.2	62.8	1,879	1,201	15.8	6.6	10.4	17.0	25.2
1910	35.7	69.5	2,165	1,273	16.0	7.1	12.0	19.1	23.0
1911	34.1	68.1	2,077	1,202	16.0	6.5	11.2	17.6	23.5
1912	34.2	74.6	2,099	1,403	17.0	7.4	11.1	18.5	22.8
1913	35.3	89.0	2,152	1,685	20.0	8.9	11.4	20.3	22.5
1914	27.2	69.3	1,697	1,272	17.0	6.7	8.9	15.6	24.5
1915	33.6	76.4	1,978	991	12.0	5.3	10.6	16.0	15.7
1916	56.0	129.3	2,655	1,368	12.0	7.3	14.2	21.5	9.3
1917	55.2	137.4	2,007	1,071	11.0	5.8	10.9	16.7	8.0
1918	83.4	178.4	2,020	902	10.0	5.5	12.2	17.7	5.6
1919	107.0	229.4	2,247	1,218	14.0	6.8	12.6	19.4	6.1
1920	222.2	691.0	2,063	1,788	26.0	9.5	11.0	20.5	3.8
1921	224.5	932.6	1,885	1,788	40.0	9.0	9.5	18.6	4.3
1922	443.7	1,252	3,248	2,100	69.0	9.5	14.6	24.1	5.5
1923	684.3	2,299	2,725	2,392	147	10.3	[illegible]	22.1	6.4
1924	946.1	2,957	2,725	2,120	198	9.5	12.2	21.7	6.7
1925	854.3	2,484	2,648	2,584	213	11.1	11.4	22.5	8.6
1926	730.4	2,342	2,354	2,798	271	12.1	10.2	22.3	11.6
1927	712.7	2,662	2,241	3,200	342	11.8	8.3	20.1	12.8
1928	1,027.0	2,679	2,657	3,223	455	13.1	10.8	24.0	17.0
1929	1,071.0	2,529	2,552	3,253	554	12.0	9.4	21.4	21.9
1930	944.6	2,406	2,179	3,613	565	13.5	8.1	21.6	23.5
1931	810.9	1,674	2,186	2,821	552	10.0	7.8	17.8	33.0
1932	790.8	1,706	2,269	2,728	539	9.5	7.9	17.4	31.6
1933	801.2	1,901	2,344	3,518	555	11.5	7.6	19.1	29.2
1934	909.0	1,966	2,557	3,656	595	11.4	8.0	19.5	30.3
1935	923.6	2,295	2,586	4,401	612	14.5	8.5	23.1	26.7
1936	1,026	1,994	2,967	3,940	599	14.1	10.6	24.7	30.0
1937	1,202	2,352	3,276	4,740	578	14.5	10.0	24.5	24.6
1938	1,140	2,300	3,023	4,770	619	14.5	9.2	23.7	26.9
1939	1,327	2,074	3,483	4,662	543	14.0	10.5	24.4	26.2
1940	1,613	2,416	3,270	3,984	483	12.8	10.5	23.3	20.0
1941	2,960	2,459	3,811	3,609	528	10.6	11.2	21.8	21.5
1942	3,934	2,471	3,168	2,974	421	8.8	9.4	18.3	17.0
1943	4,035	3,318	3,695	3,556	437	9.9	10.3	20.2	13.2
1944	3,166	3,899	2,895	4,015	479	10.4	7.5	18.0	12.3
1945	3,237	4,050	2,965	4,154	510	11.4	8.1	19.6	12.6