

# Argentine Trade Policies in the XX Century: 60 Years of Solitude\*

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June 2009

## Abstract

At the turn of the last century, the Argentine economy was on a path to prosperity that never fully developed. International trade and trade policies are often identified as a major culprit. In this paper, we review the history of Argentine trade policy to uncover its exceptional features and to explore its contribution to the Argentine debacle. Our analysis tells a story of bad trade policies, rooted in distributional conflict and shaped by changes in constraints, that favored industry over agriculture in a country with a fundamental comparative advantage in agriculture. While the anti-export bias impeded productivity growth in agriculture, the import substitution strategy was not successful in promoting an efficient industrialization. In the end, Argentine growth never took-off.

JEL CODES: F13, F14

Key Words: tariffs, export taxes to agriculture, La Rural Argentina

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\*We thank Rafael Di Tella and Edward Glaeser for encouraging us to write this chapter. We appreciate the superb work done by Natalia Porto in the coordination of all the data collection effort. Nicolas Botan, Laura Jaitman and Ivan Torre provided excellent research assistance. Comments from Alberto Porto and seminar participants at the “Argentine Exceptionalism” conference at Harvard University are greatly appreciated.

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# 1 Introduction

At the turn of the last century, the Argentine economy was on a promising path to prosperity, a prosperity which, in the end, never fully materialized. Argentina failed in many dimensions and various concurrent factors—addressed in different chapters of this book—help explain this debacle. Often, directly or indirectly, a major culprit is international trade. This is the focus of our paper. We have two broad objectives: to uncover the exceptional features of the history of Argentine trade policy; and to assess the contribution of these exceptional features to the economic performance of Argentina.

In our analysis, we follow a descriptive approach based on two major sources of data: a compilation of quantitative and qualitative accounts from 1890 to 1966 taken from the literature on Argentine history, and a comprehensive (i.e., disaggregated) trade policy dataset (on imports and exports) from 1966 to 2006 that we put together for this project. These data are used to document the high degree of anti-export bias of Argentine trade policy. We emphasize two manifestations of such bias: the burden imposed by economic policies on the agricultural export sector; and the benefits granted to manufacturing sectors that typically competed against imports from the rest of the world—the model of import substitution.<sup>1</sup>

The anti-export bias and the import-substitution policy need to be understood in the context of Argentine policy-making process. To this end, we provide an account of two major factors that help explain both the cross-section structure of protection as well as the overall trends in this structure of protection: distributional conflict and constraints. Broad differences in sectoral protection (industry versus agriculture or imports versus exports) are the result of distributional conflict between landowners, industrialists, and workers. The finer differences (at more disaggregated level of the import nomenclature, for instance) are also a consequence of distributional conflict (within the manufacturing sectors, for instance, or between unskilled and skilled labor) as well as of political economy considerations (lobbies or unions). The trends, in turn, can be understood with changes in the way different governments weighed the distributional conflict. These ideas are in fact consistent with the model in Galiani and Somaini (2009), in which we feed to understand our data and

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<sup>1</sup>Due to the Lerner symmetry theorem, in fact, these are manifestations of the same phenomenon.

which we feed to support their modeling strategy.

Constraints played a role as well. International commodity prices, international institutions (like the World Trade Organization), exchange rates, and fiscal budget considerations, affect the feasibility of the policies available to the government and thus shape trade policy.

The anti-export bias and the import substitution model are the manifestation of bad trade policies which had negative consequences for growth and economic performance. We document this by first looking at the evolution of agricultural productivity in the country (compared to the U.S.), and, second, by assessing the evolution of productivity in the Argentine industrial sector vis-à-vis other countries. In the end, we establish that the anti-agro bias impeded growth in agricultural productivity and the import substitution model failed at boosting productivity growth in industry. In the end, these are major factors that help explain why Argentina was unable to grow and achieve its once-tangible prosperity.

The remainder of the paper is organized as follows. In section 2, we establish the comparative advantage of Argentina in agriculture. In section 3, we document the Argentine anti-export bias by providing an account of trade policies from 1890 to 2006 and by describing, in detail, the trends in sectoral export taxes and import tariffs from 1966 to 2006. In section 4, we explore the main forces behind the pattern of protection in the country, and, in section 5, we assess some of the consequences of bad trade policies. Section 6 concludes.

## **2 Comparative Advantage, Factor Endowments, and Trade Patterns**

In this section, we analyze the comparative advantages of Argentina from the late 1800s to 2006. This description is important to understand the nature of the conflict between income distribution and trade liberalization that characterizes the Argentine society. This dichotomy is at the heart of our later discussion in section 4.

Argentine comparative advantage lies primarily on agricultural goods, broadly defined so

as to include both primary products as well as agro-manufactures. While this is well-known, we review here two pieces of evidence that support this claim. First, we look at factor endowments to establish a true comparative advantage in a Heckscher-Ohlin sense; second, we review the patterns of trade (exports and imports) to establish the revealed comparative advantage of the country. These two can differ due to trade policies. We split our description of relative factor endowments into separate analyses based on the available information. While detailed information on factor abundance is available for the last few decades, historic evidence going back to the late 1800s, is scarce and fragmented, especially for a developing country like Argentina. We nevertheless provide a characterization of relative factor endowments by assembling data from various sources.

## 2.1 Factor Endowments

Argentina has historically been considered as one of the “grain yards” of the world. This alludes to the early insertion of the country into world trade mainly as a producer of agricultural crops. In fact, Argentina used to be a country with relative abundance of land, in comparison to other countries. Irwin (2002) argues that, in a sample of twenty five developed and developing countries, Argentina had the highest ratio of productive land to population in 1890, followed by New Zealand, Australia, Canada and the United States. Table 1, based on data compiled by Lai (1998), confirms this claim. Between 1875 and 1889, Argentina had the highest ratio of productive land per capita, 216.44 acres per capita. By the mid-1940s, Argentina remained largely abundant in land, but showed much lower ratios compared to, for instance, Canada or Australia. The country also ranked high in the relative endowment of livestock. Based on data from the 1895 Argentine Census, we report in Table 2 that, compared to eight other countries including the U.S. and Australia, Argentina ranked first in horses, second in cattle and third in sheep.

Due to data limitations, we look at the literacy rate as a proxy for skills to assess the stock of human capital. Data gathered from Sokoloff and Engerman (2000) are reported in Table 3. In 1900, 52 percent of the Argentine population was literate. The literacy rate was much higher than in other countries in the region, like Brazil (25.6 percent), Chile (43 percent),

Costa Rica (33 percent) and Mexico (22.2 percent). However, it was lower than in developed countries like the U.S. (86.7 percent) and Canada (80 percent). In fact, the ratio of skilled to unskilled labor (computed as the rate of the literacy rate over its complement, the illiteracy rate) was actually 5.5 times higher higher in the U.S. than in Argentina (and it was 3 times higher in Canada). Clearly, while Argentina appeared as relatively well-endowed in skills in the early 1900 with respect to developing countries, skilled labor is relatively un-abundant compared to developed countries.

To complete our characterization of Argentina's factor abundance, we need measures of the ratio of capital to land. We build approximations to this ratio by using the calculations of Argentine's wealth reported in the National Census of 1914. For Argentina, we find that the ratio of industrial capital relative to the value of the agricultural resources (livestock plus land) was 0.10. This indicator was 0.39 for France (1909), 0.63 for the United States (1904) and 0.80 for Sweden (1908). This suggests a relatively scarcity of capital in the country.

These figures are consistent with the industrialization index reported by Bairoch (1982). In Table 4, we report levels of industrialization, per capita, in different regions for the period 1860-1980. Bairoch's index reveals relatively low levels of industrialization in the developing world (especially Latin America). Also, the gap with the industrialization index for developed countries only increased through time. Note that there are countries, such as Canada or Japan, which started with low industrialization levels in 1860 but ended up with higher capital/labor ratios than most of the countries of the sample. In Table 5, we report a different industrialization index for 1910 built by Gomez-Galvarriato and Williamson (2008). This index measures industrial performance using as a proxy net exports of cotton textile manufactures per capita (the index includes yarn, thread and cloth of all sorts). We see that Argentina (net imports of  $-5.47\$$  per capita) and Australia ( $-8.7\$$  per capita) recorded the highest dependence on imported cotton textile manufactures.

From all this pieces of data, we conclude that in the late 1800s and early 1900s Argentina was relatively abundant in land and unskilled labor. According to a Heckscher-Ohlin view of comparative advantage, Argentina specialized in goods mostly intensive in land and unskilled labor which were, to a large extent, agricultural goods. In fact, Argentina was one of the

major producers of agricultural products, accounting for around 5.5% of the world's wheat production and for 5.3% of the corn production, between 1906 and 1930 (Vazquez Presedo, 1971).

We now look at the more recent evidence on factor endowments. We use data from Cusolito and Lederman (2009), who collected information on the stock of factors (skilled and unskilled labor, capital and land) for a wide array of countries. The data span the 1980-2000 period. In the data, the ranking of countries according to relative factor endowments changes little across time. Thus, we focus on data for 2000. Relative endowments for a sample of the most relevant countries for our purposes are listed in Table 6.

Argentina is currently relatively abundant in land: the country ranks fifth in the land/labor ratio. The capital/labor ratio is relatively low (Argentina ranks 47th), while the skilled to unskilled ratio is also relatively low (Argentina ranks 41st). These observations reveal that the factor abundance of the country resides mostly in land and unskilled labor. It is noteworthy that the comparative advantages of Argentina, measured by its factor endowments, are still the same as in the late 1800s. Also, it is important to keep in mind that we are examining Argentine factor endowments relative to world factor endowments. The rankings may change if, for instance, we were to look at factor endowments relative to Latin American countries. This distinction is relevant if we want to study local cones of diversification (Davis, 1996). But here our objective is to present broad patterns of factor abundance relative to the world.

## **2.2 Trade Flows**

We now turn to the revealed comparative advantage by looking at the patterns of trade. Some data on Argentine trade patterns in the early 1900s was gathered by Vazquez Presedo (1971), who reports that agricultural primary products accounted for most of the Argentine's exports. In fact, at the end of the 18th century and at the beginning of the 19th century, Argentina was the third exporter of wheat in the world (after the United States and Russia). Furthermore, the Argentine share of wheat exports among the eight major exporters doubled from 9 percent to 18 percent during the period 1891-1910 (Vazquez Presedo, 1971).

Moreover, the combined exports of Agriculture (primary products) and Processed Food (agro-manufactures) accounted for more than 90 percent of total Argentine exports in the early 1900s. The high share of agriculture in exports remained very high until the 1970s.

Using more recent customs data, Figure 1 plots the trends in the share of exports of Agriculture (primary products), Processed Food (agro-manufactures) and Other Products from 1970 to 2006. Clearly, the share of agricultural exports declined in time. There were peaks of over 60 percent in 1971 and 1983 but the shares plummeted in the 1980s and 1990s, reaching a lowest value of less than 30 percent in 2006. The share of Processed Food was relatively stable throughout the period, with a slight increase starting in the mid-1980s. In consequence, the trend in the share of exports of Other Products is almost a mirror image of the trends in Agriculture, with a clear upward trend from around 25 percent in the early 1970s to nearly 50 percent in 2006.

In Table 7, we present the average share of exports and imports from 1970 to 2006 at the 1-digit level of the Harmonized System. Looking at export shares, we verify the downward trend in Agriculture and the slight increase in Processed Food. Furthermore, we observe that the shares of Mineral Products, Chemical Products, Plastics and Transport increase in time. In contrast, Textiles, Footwear, and Leather become less important. Looking at imports, the main categories are Chemical Products, Machinery and Transport Equipment.

The information of trade patterns reveals that Argentina exports mainly primary products and agro-manufactures, with an increasing participation in minerals and fuels, and imports instead capital goods and inputs.

### **3 The Anti-Export Bias: An Account of Argentine Trade Policy (1890-2006)**

In this section, we provide an account of the history of Argentine trade policy. Our objective is to derive a list of stylized facts that constitute the salient and exceptional features of interventions to exports and imports in Argentina. We cover most of Argentine history, from 1890 to 2006. Due to differences in the quantity and quality of trade policy data, we

split the analysis in two. The first analysis covers the period 1890-1966 and is based on the abundant, but fragmented, data available in the literature. The second analysis covers the period 1966-2006 and it is instead based on a huge data collection effort on detailed export taxes and import tariffs, at a high level of disaggregation (8 digits). This effort generated a unique dataset of trade policy for thousands of product lines in Argentina for the last forty years of Argentine history.

### **3.1 1890 - 1966**

According to Williamson and O'Rourke (1999), the period from around 1810 to World War I was the first “global century,” an era characterized by a worldwide reduction of transport costs that helped integrate world commodity markets and engendered a boom in trade between the Core (Europe and their overseas settlements) and the periphery, including Argentina. The transport revolution enabled the periphery to supply the booming derived demand for industrial intermediates, like cotton, rubber and metals.

Argentine tariffs were relatively high during this period. In Table 8, we report measures of average tariff rates (calculated as the ratio of total revenue from import duties and the value of total imports) for various countries (Clemens and Williamson, 2002). The highest tariff rates can be found in Latin American countries. In Argentina, for instance, the average tariff from 1870 to 1899 was 26.1 percent. While this rate was high, it was still below the tariff rates set by Brazil, Colombia, Peru and Uruguay. Argentine tariffs remained high from 1900 to 1913 (23.4 percent) and only declined to around 18 percent, on average, in the post World War I period.

During the late 1800s and early 1900s, import tariffs were one of the main sources of revenues for the governments of recently organized, land abundant countries, that did not have access to capital markets and that were characterized by a scattered and scarce population. In those cases, internal taxes on expenditure and wealth were hard (or even impossible) to collect (Irwin, 2002).<sup>2</sup> Argentina was actually one of the land-abundant

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<sup>2</sup>Centeno (1997) finds that the average share of customs duties in total revenues across eleven Latin American republics was 57.8 percent between 1820 and 1890.



countries with the highest tariffs. We should emphasize that these tariffs were more oriented to raise revenues and to improve the trade balance than to protect the local production of imported goods. There were, however, cases of pure protectionism. Barbero and Rocchi (2003), for instance, argue that local uncompetitive industries like wine (in Mendoza) and sugar (in Tucumán) were pushed by raising tariffs promoted by lobbyist.

During this first phase of globalization, despite high tariffs, Argentina enjoyed very high growth rates in comparison not only to the rest of the periphery and but also to the Core. The main source of growth was agriculture. This growth was driven by at least three major factors: an increase of the harvested area following the expansion of the Argentine border (after the “*Campaña al Desierto*—” military campaigns against the indigenous local population); the penetration of the railways (mostly financed by British capitals) that facilitated crop transportation and exports; and booming international markets for exports (Cortés Conde, 1993). During this period, Canada is another example of a country with high tariffs and high growth driven by wheat production. Like Argentina, Canada also enjoyed substantial investment in railroads in the 1880s (Irwin, 2002).

After a few dark years during World War I, which witnessed the first episode of import substitution to replace vital inputs needed in the agricultural and services sectors, Argentina boomed in the 1920s. Imports and exports rapidly expanded in a growing world that was recovering from the war. In consequence, both the agricultural and industrial sectors grew. The domestic industry benefitted not only from increased world aggregate demand but also from high exchange rates and from changes in the structure of tariffs. On the one hand, import taxes were expressed in *aforos* and, in 1923, the value of the *aforos* was increased (Barbero and Rocchi, 2003). On the other hand, from 1909 to 1927 tariffs on manufactured products were increased while tariffs on raw materials were reduced, thus increasing effective protection (Díaz Alejandro, 1970). An interesting example of the implications of this types of policies is the the arrival of General Motors (1917) and Ford (1925) to establish assembly plants in the country. These firms imported most of their raw materials and semi-finished products, and finished the goods in Argentina. According to Garcia Heras (1983), tariffs on semi-finished cars were 20 percent lower than on finished vehicles.

The Great Depression of the 1930s changed the world economic outlook and had an uncontested victim, world trade. The large decline in economic activity around the world, the abandonment of the Gold Standard, and a move towards bilateralism (as opposed to multilateralism) halted trade. This had strong negative implications for Argentina, a country that had relied on world demand for growth. Further, the improvement of the terms of trade that boosted the growth in the periphery in the early globalization era, strongly reversed in the 1930s. According to Clemens and Williamson (2002), the decline in Latin America's terms of trade was of nearly 40 percent. This scenario pushed many developing countries into autarky in the 1940s, 1950s and 1960s, in a context of a highly interventionist industrialization strategy which is usually known as "import substitution industrialization" (ISI).

In Argentina, the 1930s Depression is indeed considered as the formal beginning of the import substitution process. In Figure 2, we see that Argentina reverted to protectionism. While tariffs had been increasing since the early 1920s (due to mostly a revenue motive), there was a sharp jump in 1930 when the average import tariff increased from 16.7 percent to 28.7 percent in 1933. Furthermore, Díaz Alejandro (1970) reports that Argentina actually raised tariffs by more than the U.S. and Canada. From 1925-1929 to 1930-1934, for instance, Argentina increased tariffs by 7.5 percentage points, compared to increases of 4.7 percentage points in the U.S. and 0.6 percentage points in Canada. After the peak of the Depression, tariffs were reduced slightly, but remained high (Figure 2).

In the 1930s, Argentina started manipulating the exchange rate to provide additional protection to the local industry. In 1933, the government created a dual exchange rate system, a so-called "controlled" market and a "free" market. Traditional agricultural exports and imports from the U.K. were traded at a low exchange rate in the "controlled" market, where the difference between the sale and buy rates worked as an implicit export tax or import tariff. Imports from the U.S. were instead traded in the "free" market at a higher exchange rate. The fact that U.K. and U.S. imports were not traded in the same exchange market was not casual. Since the U.S. had become Argentina's main import partner, the higher exchange rate in the "free" market lowered U.S. competitiveness and promoted the

development of a local industry to replace U.S. imports.

In the 1940s, Argentina deepened the promotion of the local industry, a policy driven in part by necessity—another World War had blocked Argentina’s imports—and in part by conviction. Shortly before Perón’s access to power in June 1946, the government created the IAPI—The Argentine Institute for the Promotion of Exchange. This institution held the monopoly over the country’s foreign trade and originally had an evident anti-agriculture bias. The IAPI withheld around 50 percent of world agricultural export prices to finance both imports and to support newly created public companies. In the meantime, import tariffs were raised, the multiple exchange rate system was maintained and a scheme of import permits was created. In this context, many local firms that would later become very important (such as Techint—mostly steel—or FATE—tires) were born. In addition, Argentina suffered from the nationalization of railways, telephones, electricity, public transport and other utilities and services between 1945 and 1950 (the early Peronist years).<sup>3</sup>

During the 1950s and 1960s, several concomitant external factors conspired against Argentine agricultural exports, thus encouraging further domestic protection. First, in the late 1940s, the restrictions faced in the international grain market as a result of the country’s exclusion from the Marshall Plan hit Argentina’s exports very hard. Second, while world trade recovered in the 1950s, the composition of trade shifted against Argentine comparative advantage: exports of manufactured goods grew consistently more than exports of primary products. This coincides with the emergence of intra-industry trade (mostly among Western Europe, the U.S. and Japan). Third, the agricultural protectionism that followed the end of World War II hindered Argentine exports. In Western Europe, the hindrance originated in the Common Agricultural Policy inside the European Economic Community (EEC) in 1962. In the United States, the hindrance originated in a system of subsidies and tariffs that

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<sup>3</sup>It is noteworthy that Argentine protectionism boosted while the General Agreement on Tariffs and Trade (GATT) emerged in 1947. The GATT contained two principles: a multilateral approach that was against trade discrimination (captured by the creation of the Most Favoured Nation clause) and an explicit rebuttal of quantitative restrictions in international trade. The initial Geneva Round of the GATT in 1947 achieved a reduction in import tariffs of up to 35% in the case of the United States and a lower but yet significant figure in the case of Western European countries. The following rounds of 1949 and 1951 did not achieve further reductions but prevented the erosion of previous gains that aimed at major trade liberalization, still very far away.

protected its agricultural sector in the early 1950s.

Argentina turned towards inner development. In 1952, the Peronist government launched its second five-year plan with the aim of developing the heavy and basic input industry as well as the oil sector (concession to start prospecting work were given to Standard Oil in April 1955). Frondizi, the next president, deepened policies for the development of heavy industry as well as the automotive industry. And in the 1960s, President Illia mostly shared the view to support and develop the heavy industry. Nevertheless, something new appeared in the economic policy agenda: the local market solution for the industry was growingly seen as inefficient (particularly in light of the experience of the automotive industry, which had grown strongly but kept consuming a large deal of foreign currency), and the idea of an exporting industry was gaining consensus among the country's authorities.

## **3.2 1966-2006**

For the period 1966-2006, we were able to compile very disaggregated data on export and import tariffs. The data collection effort built on previous work done by Galiani and Porto (2009), where the authors study the impacts of tariffs on wages. Their database contains detailed tariff data at ISIC 3-digits (International Standard Industrial Classification) from 1974 to 2001. In this paper, we expand the Galiani and Porto database in two fronts. First, our tariff data is more detailed, reaching up to 6 to 8 digits of disaggregation. Second, we extend the time coverage backwards (to 1966) and forward (to 2006). Furthermore, we add the whole series of 8-digit export taxes from 1966 to 2006.

The preparation of the data involved significant work. The data on tariffs come from two sources. WITS (World Integrated Trade Statistics) provides detailed data on tariffs based on the Harmonized System from 1991 to 2006. WITS data are electronically available (with paid subscription). Tariff data from 1966 to 1990 are available only on hard copies of the *Guía Práctica*, a publication of Argentine Customs detailing the tariff rates for thousands of product lines using the NADI nomenclature (Nomenclatura Arancelaria y Derechos de Importación). This information had to be manually typed and matched to the Harmonized System nomenclature.

Compiling data on export taxes was also hard. WITS does not carry information on export taxes and the whole series from 1966 to 2006, only available via the Guía Práctica, had to be manually typed. From 1966 to 1990, Argentina utilized the NADE nomenclature (Nomenclatura Arancelaria y Derechos de Exportación) and, from 1991 to 2006, the Harmonized System. Concordances between these two nomenclatures had to be manually built as well.

### **3.2.1 Export Taxes: The Evidence from 1966 - 2006**

Trends in export taxes are reported in Figure 3. The solid line shows averages across all sectors and the broken lines are the 5th and 95th percentile of the export tax rates. These are not intended to be confidence bands for the mean, but to give a sense of the extreme values applied in practice.

The first salient feature of our data is the presence of long episodes of active policies of export taxes in the recent past, an undeniable manifestation of the anti-export bias. The second salient feature is that the intensity of taxation varies and that export taxes do not follow a clear trend over time. As we will see, they depend, to a large extent, on the Presidency in office and on its attitude towards free trade, exports and the distributive conflict.

From a relatively low base in the early 1970s, export taxes reached a peak of nearly 15 percent in the mid-1970s. During this early period, many sectors enjoyed no taxes (the 5th percentile is zero, for instance, from 1970 to 2001), but others were hit very hard with tax rate peaks of over 40 percent in the mid-1970s. These are high rates by almost any standards.

Export taxes were reduced significantly at the end of the 1970 and early 1980s, when the Military was in power. Instead, they increased with the advent of Democracy in 1983. However, while the average export tax remained positive throughout all the 1980s, both these averages and the extreme values never reached the higher levels of the mid-1970s.

A striking change occurs in the 1990s. Consistent with the liberalization period of Menem and Cavallo, export taxes were completely eliminated during this period and the sector remained fully liberalized until the Presidency of Kirchner, when export taxes were actively

utilized again. They remain in heavy use today. Moreover, it is interesting to note that while historically there have been sectors with zero taxes (see 5th percentile), after 2002 all sectors faced positive export taxes.

The trends in averages clearly mask lots of details. Export taxes in Argentina tend to be concentrated in a few sectors at very high levels. The agricultural sector has been traditionally the most taxed sector throughout time along with mineral products. We explore this in Figures 4 and 5. There are six panels in each Figure. Each panel compares the Agricultural sector (broken line) with other major sectors (solid line). In Figure 4, we see that the Agricultural sectors fared very badly relative to Chemicals, Plastics, Textiles, Footwear, Machinery and Transport, all sectors with very low levels of taxation. The comparison sectors in Figure 5 are instead sectors that face some level of export taxes. While the Agricultural sector is still more heavily taxed, all sectors show positive taxes and, in addition, show similar trends in time.

An additional piece of evidence that shows the hurdles faced by the agricultural sector is given in Table 9. We counted the numbers of years, from 1966 to 2006, in which each sector had positive export taxes. Interestingly, the Agricultural sector and Processed Food (together with Chemicals) faced positive export taxes for 33 out of 40 years. In contrast, Footwear, Machinery and Transport are among the least-often taxed sectors, with 7 and 13 years respectively.

While the overall anti-export bias is undeniable, there are interesting differences within agriculture. To see this, we plot the trends in average export tax for the four most important sectors in agriculture, Cereals and Oil Seeds, Dairy, and Meat in Figure 6. Clearly, export tax rates within the agricultural sector move in accordance with the general tendency described above. But Cereals and Oil Seeds were often taxed at a much higher rate than Dairy and Meat. In the peak of the mid-1970s, the *average* export tax on Cereals and Oil Seeds was close to 40 percent, while it was 10 percent for Dairy and 20 percent for Meat. In contrast, the most recent export tax intervention of the 2000s had heavily affected Dairy as well. It is important to notice that, within these high averages, there are individual products that faced extreme tax rates; a notorious case is soybeans (in the Oil Seeds group) with current

tax rate of 35 percent.<sup>4</sup>

### 3.2.2 Import Substitution: The Evidence from 1966 to 2006

In our account of import protection, we begin with time trends in average tariffs. In Figure 7, we report the swings in tariff reforms observed by Argentina from 1966 to 2006.<sup>5</sup> Overall, the trends in average tariffs portray a general process of trade liberalization staged in various different reform episodes.

Starting in the 1930s, Argentina adopted a strategy of strong import substitution that can still be seen in our data. In 1966, the earliest year of our data, the average tariff rate was close to 200 percent. The 95th percentile reached over 300 percent, and even the 5th percentile was close to 100 percent. This aggregate level of protection is staggering and reveals how deep the process of import substitution was.

The first liberalization episode took place after 1967 and up to around 1976. Large tariff cuts were implemented and, during the early 1970s, the average tariff was slightly below 100 percent. Tariffs were still high but relatively stable during this period. Part of this liberalization is explained by a “compensated devaluation,” whereby the devaluation of the exchange rate is accompanied by reductions in tariffs to reduce the impact on the relative prices of tradable goods.

The second episode of large tariff cuts took place between 1976 and 1979, during the Military dictatorship. During these years, the average tariff rate declined steeply, reaching around 30 percent in 1980. There was also a reduction in the extreme values and in the dispersion of tariff rates.

During the 1980s, the average tariff was kept relatively constant. Interestingly, notice that, in the early 1980s, while the high extreme values (the 95th percentile) declined slightly, the low extreme values (the 5th percentile) actually increased. One shortcoming of our data is the lack of information on non-tariff barriers. In Argentina, quantitative restrictions were intensively used in the early stages of the import substitution process (1950s). However, they were eliminated in the 1960s and never used again, except in the 1980s. In consequence, the

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<sup>4</sup>In 2006, when our data end, taxes on soybeans are “only” 22.5 percent.

<sup>5</sup>These swings were characterized in Galiani and Porto (2009).

1980s were actually a period of reversal to protection because the relatively flat trend in the average tariff came together with an increase in non-tariff barriers.

The last episode of liberalization took place with President Menem in the 1990s. These reforms came in two stages. From 1989 to 1991, the average tariff declined from 30 to 18 percent, the dispersion in tariff rates was also reduced, and all non-tariff barriers were pulled down. The second stage in the Menem reform was the adoption of Mercosur—a regional trade agreement among Argentina, Brazil, Paraguay and Uruguay—between 1994 and 1996. The intrazone tariff among members was in most cases reduced to zero. The common external tariff (extrazone) was negotiated between members and implied a further reduction in tariffs in some cases and a reversion to protection in others (as in the case of food products in Argentina, for example). In our data, we account for Mercosur by weighting the intrazone tariff by the share of imports coming from Mercosur (which underestimates the average tariff). There was a slight decline in tariffs after 1996, only fairly noticeable in the average trends. There was also a slight reversal to protection in the 2000s, after the crisis of 2001. But this reversal was short lived since tariff levels returned to previous levels in 2003-4.

We end the characterization of tariff changes by looking at the evolution of tariffs for different groups of products (at the 2-digit level). Table 10 lists the average tariff for the four broad stages of liberalization described above. Footwear has always been the most protected sector. Textiles and Leather have also received consistently higher levels of tariff protection. The case of Food Processing is interesting because the sector ranked third in 1966-1970 but subsequently lost protection relative to Textiles (starting in 1971) and Stones, Machinery, Metals, Plastics, and Transport Equipment up until the 1990s. From 1991 to 2005, however, the sector recovered protection and it ranked fourth.

There has also been some variation in the ranking of low-protected industries. Minerals were the least protected sectors during the first two periods but it was replaced by Agriculture after 1977. In addition, Minerals and Chemicals were at the bottom of the distribution throughout all the stages of liberalization. An interesting case is the Wood sector which moved between the middle and top of the distribution during the first three periods but



became the third least protected industry starting in 1991. There is a somewhat analogue story with Machinery, which as always in the middle of the ranking except during the 1980s (when it became the third most protected industry).

Figures 8 and 9 give a better sense of the relative structure of protection across time periods. We show the evolution in tariffs for each major product group (solid line) relative to Agriculture (broken line). In general terms, tariffs have been cut in all sectors, though clearly in different degrees. While the historical sectoral differences in protection levels persist today (the most protected industries in the 1960s are still the most protected in the 2000s, and likewise for the least protected), the liberalization process has caused sectoral tariffs to converge to a large extent.

Another feature revealed by Figures 8 and 9 is how agriculture was left unprotected, relative to other sectors in the economy. The sectors with significantly higher tariff levels than the agricultural sector were Textiles, Footwear, Processed Food and Leather (Figure 8). Instead, Transport, Machinery, Metals, Plastics, Minerals, Chemicals and Wood also show higher tariffs than Agriculture, but the differences are much less pronounced (Figure 9). The only exception is the Mineral sector which had less protection during certain periods (before 1976 and after 1991).

## 4 An Abridged Story

A major factor shapes Argentine trade policy: the distributional conflict. By distributional conflict, we mean the natural tension in the country between the sector with comparative advantage, Agriculture, and factor ownership. Agriculture is intensive in land, which mostly owned by richer landowners. Industry is the domain of workers. In this scenario, freer trade is likely to worsen the distribution of income in Argentina and this provides a distributional root for protection and anti-export bias. There are of course many other factors that complement the distributive concern in the determination of trade policy. These factors affect the economic environment and constraints that shape the context into which trade policy is dictated. In Argentina, key factors are the level of international commodity prices,

the evolution of international institutions, the exchange rates, and the fiscal resource needs of the government in office. In what follows, our objective is to account for both the overall trends in trade policy as well as the cross-sectional variation by exploring the changes in the way the distributional conflict evolves in time (for example, how it is assessed by different governments) and the changes in the trends in the constraints faced by those governments.

## 4.1 The Distributional Conflict

The overall anti-export bias can be explained by the distributional conflict inherent to the Argentine society. The story that we have in mind is developed in detail in Galiani and Somaini (2009), who study the political economy of the import substitution model. They model a three-sector economy (agriculture, manufacturing and nontradable services) that uses three factors, land, labor and capital. Factor owners (workers, landlords, capitalists) have different preferences over trade protection (i.e., tariffs or export taxes) and these differences help explain the dynamic of import substitution in Argentina. More concretely, the authors show that, for very high terms of trade, the economy could operate under specialization (i.e., produce only agriculture and service goods) while the preferences of all agents are aligned with free trade policy. However, a worsening of the terms of trade may lead to an incipient industrialization that might, in turn, change the political equilibrium and generate an import substitution strategy. This story is consistent with our account of the period 1930-1943 in Argentina.

As the process of industrialization deepens, and in particular as capital flows from the primary sector to the secondary sector, the support for protectionism increases making protectionism a viable political equilibrium. This is consistent with the post 1943 period in Argentina. As Galiani and Somaini show, however, protection has reinforcing effects because the additional flow of capital and labor to the secondary sector raises even more demands for protectionism. New waves of demand for protectionism might drive the economy near autarky which might be dubbed as an import substitution strategy, and that seems to be the situation of the Argentine economy towards the early 1970s. Interestingly enough, Galiani and Somaini also show that an import substitution strategy presents path dependence.

Even if the terms of trade recover to the point where the economy used to operate under specialization, the new political forces prevent the economy to return to the initial situation.

The end result of this distributional conflict is the anti-export, anti-agriculture bias in Argentine trade policy documented in section 3: export taxes liberally applied, especially on the agricultural sector, and significant protection granted to the manufacturing sector.

In Argentine history, there is an interesting manifestation of this anti-agriculture bias, the “El Campo Boo-meter.” The Argentine Rural Society, “La Rural,” organizes an annual meeting in Buenos Aires, where selected breeds of different animals (bulls, milk cows, horses, sheep) are displayed, prizes to the best specimens are awarded, and machinery and technology are introduced. As a part of this meeting, the Argentine President delivers a speech ordinarily centered on the main issues regarding the economic policies that affect the agricultural sector. Typically, the speech of the President is welcomed with cheers and applause, or instead rejected with boos, depending upon the economic environment (including public stimulus or hindrances) affecting the sector. Based on newspaper records from 1920 to 2007, we built a “boo-meter” of the rural sector that allows us to track the trends in the level of boos historically awarded to different Presidents.

The boo-meter is displayed in Figure 10. Each dot represents the scale from 1 (applause and good reception to the President) to 6 (boos and overall rejection of policies towards the agricultural sector). In the 1920s, the President was fairly well received in the Rural with relatively low levels of boos across the whole decade. There is a notorious episode of discontent in 1930 against President Yrigoyen, a discontent that was shared more broadly by the Argentine population. Overall, the boo-meter shows an upward trend during the 1930 and 1940s. This trend reverses in the 1950s and 1960s, when the President fair quite well. In the mid-1960s and early 1970s, the relationship between La Rural and the government started to deteriorate. This is a first episode of discontent which coincides with the first surge in export taxes on agriculture documented in Figure 3. The boo-meter improved markedly during the early years of the Military government at the end of the 1970s, but in 1980-1982, there is jump in the discontent of the “El Campo” with the boo-meter index taking a value of 5. The 1980s, with the advent of Democracy, the boo-meter jumped back

and forth ranging from 2 in 1984 to 5 in 1986 and 1988. In 1989, the “Rural” welcomed President Menem and rewarded his promises of agricultural export liberalization with an index of 2. As shown above, Menem complied with this promises and eliminated the export taxes (“retenciones.”) The boo-meter index stabilized around 1-2 during the first Presidency of Menem, from 1991 to 1995. In the late 1990s, the perception of Menem policies towards the rural sector changed and the President faced some tension and rejection at the “Rural.” While agricultural exports remained fully liberalized, the real exchange rate was too low, even historically. After that, the situation worsened, and increasingly so during the 2000s. In recent years, the conflict has reached extreme behaviors from both sides, with the President directly not showing up to deliver the speech and the “Campo” going on persistent strikes.

We interpret these trends in the boo-meter as a manifestation of the distributional conflict that we emphasize in the paper. In other words, the distributional conflict has traditionally existed and implies an anti-export bias which, in turn, lies behind the boo-meter. Clearly, the beneficiaries of these policies are the industrial sector and the workers, but, unfortunately, there is no obvious forum from which a similar boo-meter (or applause-meter in this case) could be built.

While the evolution of the distributional conflict is a key contributor to the evolution of export taxes and the boo-meter, the economic environment and the constraints also matter. The policies adopted by a given government depend not only on its objective function (which incorporates the distributional conflict) but also on the environment and constraints it faces. These include a variety of factors that define the feasible set of policy instruments available for the government.

In the discussion of export trade policy-making in Argentina, we want to emphasize two factors that are likely to be relevant, the exchange rates and international commodity prices. The 1990s, with the liberal government of Menem and Cavallo, was a period when export taxes were completely eliminated. This policy was welcome in la “Rural.” The boo-meter took a value of 1 in the first years of the early 1990s. However, even though export taxes remained at zero during the decade, the boo-meter increased significantly in the mid-1990s and late-1900s. In part, this is explained by the trends in the exchange rates,

reported in Figure 11, and commodity prices, reported in Figure 12. The real exchange rates took historically low values in the 1990s, a result of the Convertibility Plan of 1991. In consequence, the boos observed in this period were more likely a manifestation against the Convertibility Plan than against export taxes. At some level, nevertheless, both factors are related because the lack of action in export taxes can be thought of as a way to compensate for the low exchange rates. The reverse is true in the 2000s, when high real exchange rates were coupled with high export taxes to produce high levels of boos that were more a manifestation against the export taxes (“retenciones”) than against the exchange rate. In this case, export taxes on agriculture can in part compensate for a high real exchange rate.

A similar phenomenon takes place with the trends in international commodity prices. From mid- to late 1990s, international prices were decreasing and this contributes to explain both the low rates of export taxes and the discontent of El Campo. In the 2000s, instead, commodity prices skyrocketed and this helps explain the increasing export taxes. The persistent discontent of El Campo is, in this latter case, a manifestation of the excessive export tax rates, the confrontational style of President Kirchner and his lack of interest in the sector.

We now turn to an assessment of import tariffs. As we have repeatedly emphasized in this paper, the major factor that explains the trends in tariff protection in Argentina is the import substitution model. The protection of industry (via import tariffs as well as via a myriad of direct subsidies) is based not only on distributional conflicts but also on the infant industry argument that advocates protection as a means of industrial development to gradually substitute imports for domestic production. The emergence and the strengthening of the IS model in Argentina strongly correlates with the overall level of protection after the 1930s and up to the late 1960s and 1970s.

The debacle of the import substitution model can be traced back to changes in the economic conditions and environment. There are at least two factors that made the model become increasingly unsustainable. First, there was an increasing pressure to eliminate inefficient policies that impeded GDP growth. As highlighted in Galiani and Somaini (2009), the abrupt change in the trends in tariff protection after the oil crisis points to

dynamic factors such as the increasing cost of technology adoption in the manufacturing sector as well as the fiscal constraints to finance subsidies to the manufacturing sector. The second major factor that explains the trends in tariff reforms in Argentina was the increasing need to participate in world fora and to comply with the Uruguay Round and the WTO accession. In particular, the insertion of Argentina into the world economy and the compliance with international agreements are the major elements that explain trade policy changes in Argentina since the early 1980s.

In the discussion of tariff protection, the role of the distributional conflict is twofold. As before, the distributional conflict between agriculture and industry (and labor) is clearly behind the overall structure of protection observed in the country. In addition, the distributional conflict, now between unskilled labor and capital and skilled labor, serves another purpose—the explanation of the cross-section pattern of protection. As we have shown above, the structure of protection in Argentina has favored industrial manufactures like textiles or footwear over agro-manufactures. This structure can be accounted for by two interrelated theories, lobbies (and political economy) and unions.

The political economy argument is based on the protectionists lobby literature developed by Grossman and Helpman (1994, 2001). In this theory, industries are organized in lobbies which make contributions to the government in exchange for protection. The government, in turn, receives these contributions and maximizes social welfare. The outcome is a set of equilibrium sectoral tariff rates that balances the power of the lobbies and the efficiency losses in different industries. There is little evidence of the role of industry lobbies in Argentina. Olarreaga and Soloaga (1998) show that active lobbying can explain the exceptions to both the intrazone and the common external tariff in Mercosur. However, Olarreaga, Soloaga and Winters (1999) show that terms of trade, as well as political economy factors, explain the formation of the common external tariff of Mercosur members.

Another powerful explanation of sectoral tariffs, especially in Argentina, is unions. This setting, explored in Galiani and Porto (2009), exploits the power of unions as a determinant of tariffs. In Galiani and Porto, unions have the power to appropriate part of the tariff rent, which is then distributed to unskilled labor. In the Argentine data, their results suggest that

the trends in the structure of protection, and the impacts on the trends in the structure of wages, can be explained by combining long-run forces, as in a Heckscher-Ohlin model, with short-run departures like unions.

## 5 Some of the Consequences

In this section, we briefly discuss some of the consequences of Argentine trade policies. Since these policies have numerous impacts on various outcomes it is impossible to provide a comprehensive assessment. Instead, we present evidence to support the broad claims of our analysis: i) the historical debacle of Argentina can in part be explained by bad trade policies; and ii) their manifestation is a marked anti-export bias and an inefficient import substitution model.<sup>6</sup> In Figure 13, we plot the trends in openness (the ratio of exports plus imports to GDP) from the 1900s to 2006. During the first globalization era, Argentina was highly opened to trade, showing ratios ranging from 30 to 40 percent for almost 30 years. Trade openness significantly declined during the 1930s and 1940s, then slightly recovered at the end of the 1940s, and continued to decline throughout the 1950s and 1960s. From the 1970s to the early 2000s, the ratio of exports and imports to GDP remained relatively stable (with fluctuations). Finally, trade as a share of GDP strongly increased in recent years, after the crisis of 2001.

### 5.1 Agriculture

To document the implications of trade policies on agricultural performance, we explore two outcomes, the share of Argentine agricultural production on world production, and yields in Argentine agriculture.

In Figure 14, we report the share of corn, wheat and soybean production of Argentina. We see that the shares of corn and wheat grew steadily from the early 1900s until around the 1930s. The shares abruptly collapsed in the late 1930s and early 1940s up until around

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<sup>6</sup>See the chapter by Lucas Llach (2009) in this volume for a detailed account of the relative performance of Argentina vis-à-vis other countries.

the 1950s. From the 1950s to the 2000s, the production shares of corn and wheat stagnated: they showed a slightly increasing trend from 1950 to the mid-1970s, a slightly declining trend from the 1970s to the 1990s, and a slightly increasing trend in the 1990s.

The trends in the production shares of soybeans is different. Soybean were only adopted in Argentina in the 1972-1973, almost 20 years later than in the U.S. The story, told by Reca (2007), gives an interesting portray of Argentine history. Whereas soybean production had been heavily encouraged in the U.S. since the 1930s, the Argentine agricultural sector always resisted its adoption and the Argentine government never took actions to promote it—it was considered an “exotic plant.” The scenario changed in 1972-1973, only by chance. Argentina used to import balanced animal feed from fish flour produced in Peru (from the “anchoveta peruana,” a type of anchovies). A change in sea currents in the Pacific Ocean caused a disruption in anchoveta production in 1972 and a scarcity of balanced feed in Argentina. As a result, soybeans were finally adopted in 1973-1974 after a joint initiative of the balanced feed industry and the Argentine Secretary of Agriculture. Soon after adoption, Argentina became a major producer, at an increasing rate. With the exception of a small dip at the end of the 1990s, the share of Argentine soybean production in world production has been increasing continuously, reaching over 15 percent in the 2000s.

To further illustrate the performance of the agricultural sector, we compare yields in Argentina vis-à-vis in the U.S. The results are in Figure 15. Wheat yields are reported in the upper-left plot. From 1900s to around 1920, yields in the U.S. were higher than in Argentina. The catch-up took place around 1922 and wheat yields remained comparable up until the mid-1950s. A sharp divergence is observed afterwards. The productivity gap increased between the mid-1950s and the late 1980s, and only narrowed in the 1990s. A similar pattern is observed in corn (upper-right plot). Corn yields are comparable from the early 1900s until 1940. U.S. yields sharply and steadily increased after that. While Argentine corn yields also increase, they do it at a much slower pace, especially between 1950 and 1990. In consequence, relative productivity between the U.S. and Argentine diverged. As with wheat, yields seem to slightly catch-up, during the 1990s. In the bottom plot of Figure 15, we report trends in soybean yields. Productivity in the U.S. has been ever increasing



at a steady pace. In Argentina, as we mentioned above, adoption took place much later than in the U.S. but yields quickly caught up by 1980s. The productivity gap widened slightly during the late 1980s and early 1990s, but quickly vanished again in the late 1990s. The notable catch-up in wheat, corn and soybean yields observed during the 1990s is the consequence of favorable incentives to introduce new technologies, adopt new hybrid seeds, encourage the mechanization of agriculture and utilize biocides and fertilizers (Bisang, 2007; Ekboir, 2003).

Agricultural trends (both in export shares and in yields) coincide broadly with the three phases in the anti-agriculture bias of Argentine trade policies that we identified in previous sections. An initial phase of rapid growth occurred when the economy was essentially open, and factors like the expansion of the border and railroad innovations facilitated agricultural production destined to growing international markets. This is also a period when the President fair well in the “Rural.” During most of the second phase, starting sometime in the 1930s and 1940s, Argentine policies had an explicit anti-agricultural bias rooted in the inward-development strategy and the import substitution industrialization. Agriculture lagged in comparison with the rest of the world and export markets were gradually lost. The Presidential speech at the “Rural” often faced rejections and boos. In the last phase, especially during the 1990s, the agricultural sector regained some of its initial momentum, production and exports increased (especially of soybeans) and productivity caught up. This success materialized amidst periods of pro-agro bias (as in the early 1990s) and anti-agro bias (as in the 2000s).<sup>7</sup>

## 5.2 Industry

To assess the ineffectiveness of the Import Substitution model in the country, we compare the evolution of industrial productivity in Argentina and in other countries. Data scarcity

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<sup>7</sup>Reca (2006) describes the sources of growth of agriculture during this period. Until 1930, 93 percent of agricultural growth is explained by the addition of new arable land, while improvements in yields account for the remaining 7 percent. Between 1931 and 1952, the decline in production is mostly due to a reduction in harvested area. From 1952 to 1987, yields and harvested area equally explain production growth. Finally, starting in 1988, the expansion of harvested area explains 60 percent of the growth rate, and yields the remaining 40 percent.

limits the comparisons that we are able to make here, especially when it comes to the history of developing countries that adopted a similar IS strategy. However, we were able to compile data for Brazil based on Colistete (2009) and Taylor (1998). The experience of Brazil serves our purpose well because Brazil followed a model of import substitution and actually protected its industry to a larger extent than Argentina did. Taylor (1998), for instance, reports that around 1960, the overall rate of protection in Brazil was 172 percent (compared to 138 percent in Argentina, and 134 in Chile). However, the Brazilian industry performed better than Argentine industry. In Brazil, industrial productivity (measured as gross output per industrial worker) grew at an annual rate of 5.2 percent between 1945 and 1979 (Colistete, 2009). In Argentina, instead, industrial productivity grew at 2.6 percent, on average, between 1946 and 1963 and afterwards actually declined at an annual rate of 0.5 percent between 1963 and 1974 (based on our own calculations using data from the Industrial Census).

Internationally, the Argentine industry was also an underachiever. In Table 4, we report the growth of the industrial output per worker for Argentina and several more developed countries. During the period 1948-1994, Argentina showed the lowest productivity growth in our sample. Furthermore, it is the only country where productivity actually shrank during some of the sub-periods (1948-1954) and (1963-1974). This is strong evidence that the IS model failed and that it never contributed to a fruitful industrialization. It is also worth mentioning that in the last sub-period (1974-1994), there has been a catch up in the output per worker in Argentina with the rest of the countries, and its growth rate was only surpassed by Taiwan. These may be actually attributable to the liberalization of trade.

## 6 Conclusions

There is a consensus that Argentina, once on a promising path to success, never managed to take off and achieve prosperity. The explanation of such a debacle is complex. It takes a detailed and careful assessment of various factors to account for the economic failure of a country with those promising initial conditions. In this chapter, we have reviewed the role

of trade policies.

Argentine trade policies swang from episodes of open trade, especially at the end of the 1800s and during the early 1900s, to episodes of a strong anti-export bias and import substitution, especially after 1930 and until the 1990s. Our analysis tells a story of bad trade policies, rooted in distributional conflict and shaped by changes in constraints, that favored industry over agriculture in a country with a fundamental comparative advantage in agriculture. While the anti-export bias impeded productivity growth in agriculture, the import substitution strategy was not successful in promoting industrialization. In the end, Argentine growth never took-off.

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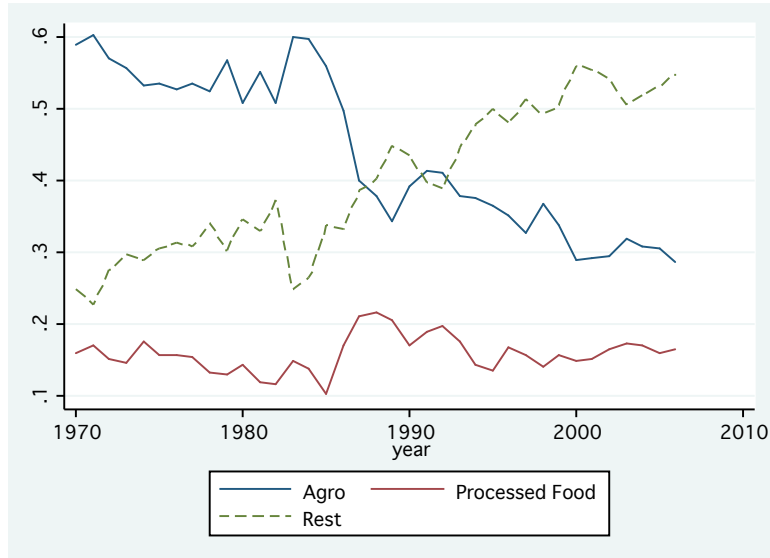
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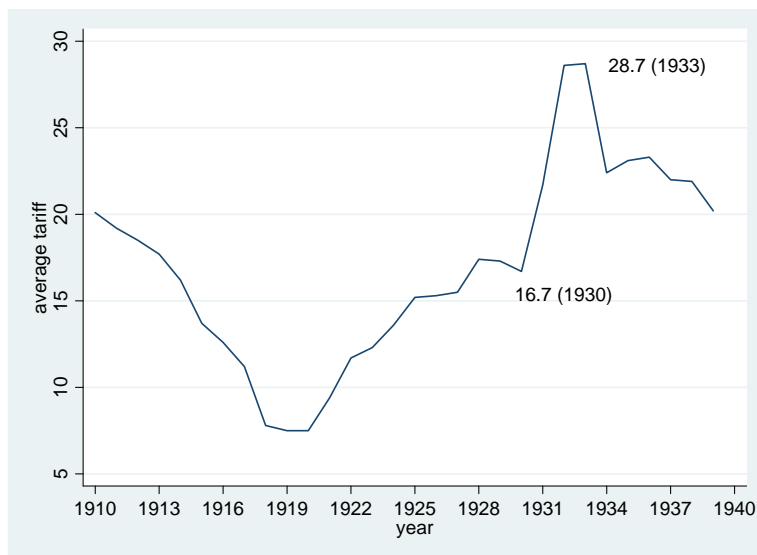
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Figure 1  
The Composition of Argentine Exports  
(shares of total Argentine exports)



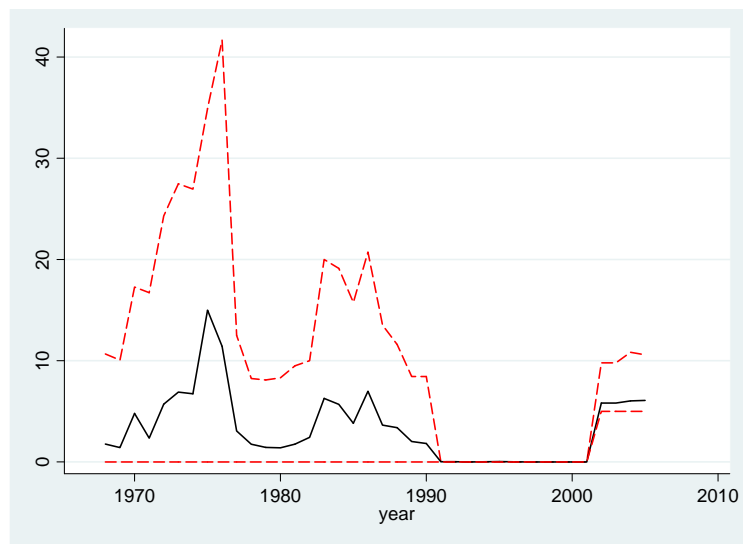
Source: Argentine trade policy data collected by the authors. See text.

Figure 2  
Average Import Tariffs  
1910-1940



Source: Díaz Alejandro (1970). Import tariffs are calculated as the ratio of revenues from import taxes and the value of imports.

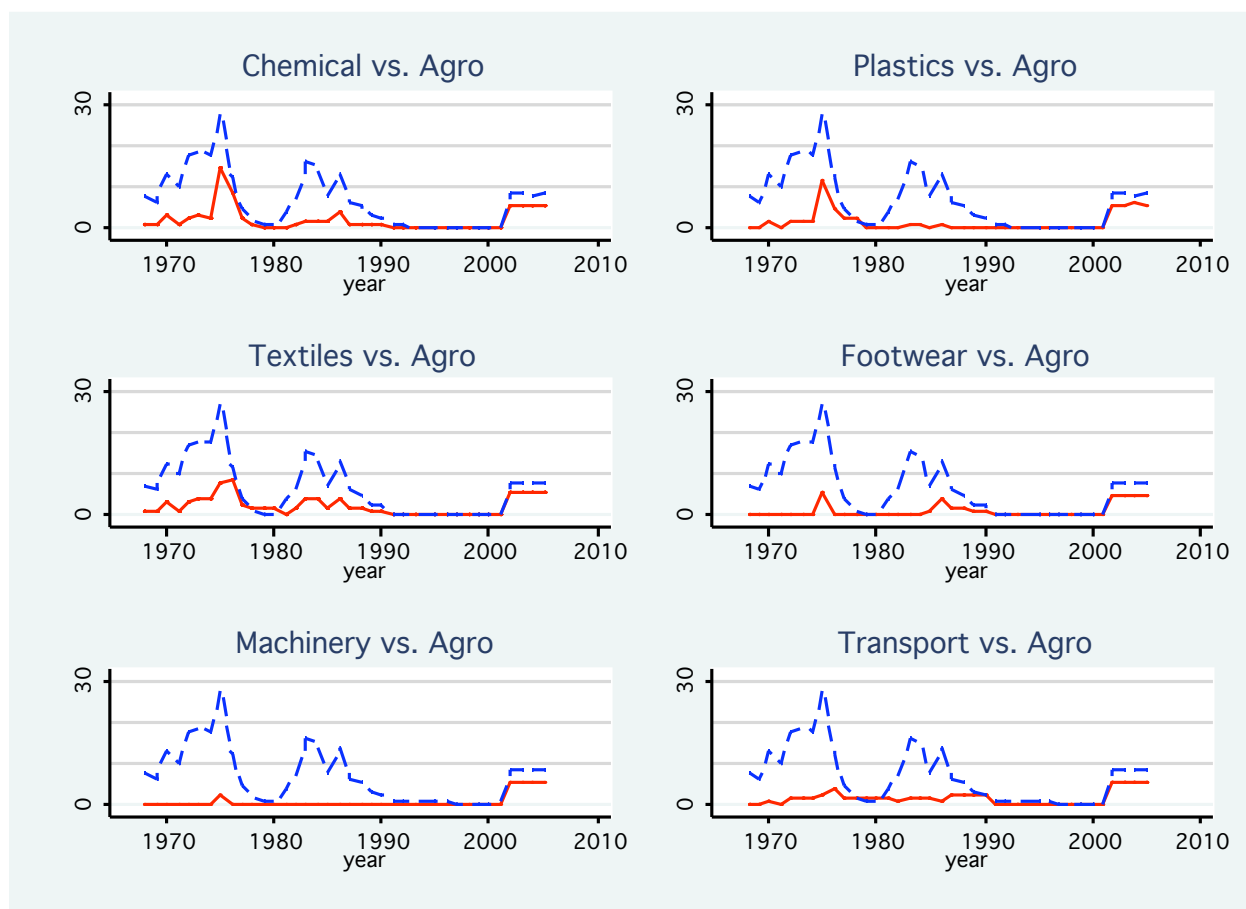
Figure 3  
Average Export Taxes



Source: Argentine trade policy data collected by the authors. See text.

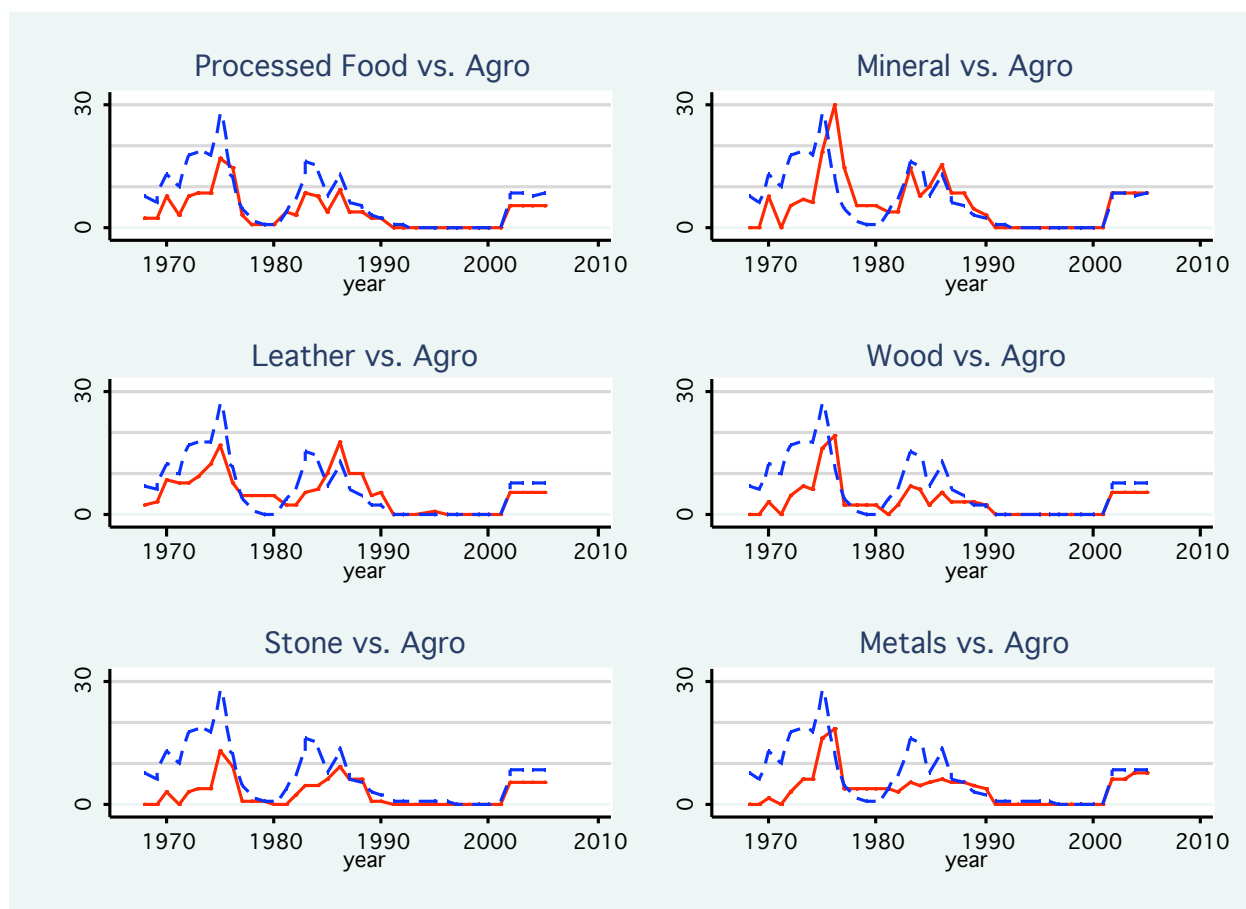


Figure 4  
Average Export Taxes at 2-digit Groups



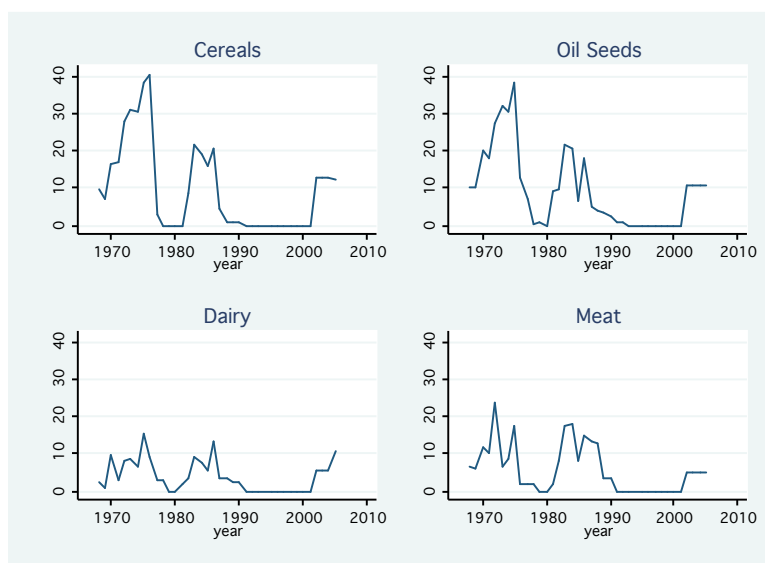
Source: Argentine trade policy data collected by the authors. See text.

Figure 5  
Average Export Taxes at 2-digit Groups



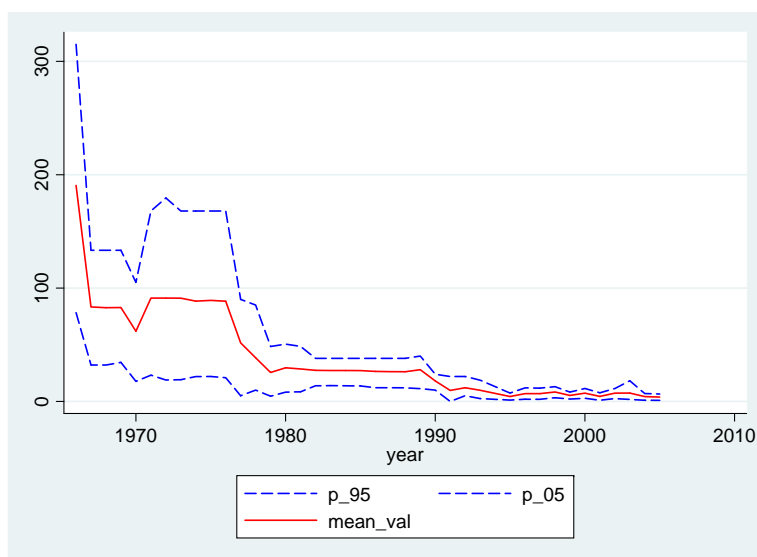
Source: Argentine trade policy data collected by the authors. See text.

Figure 6  
Agricultural Groups



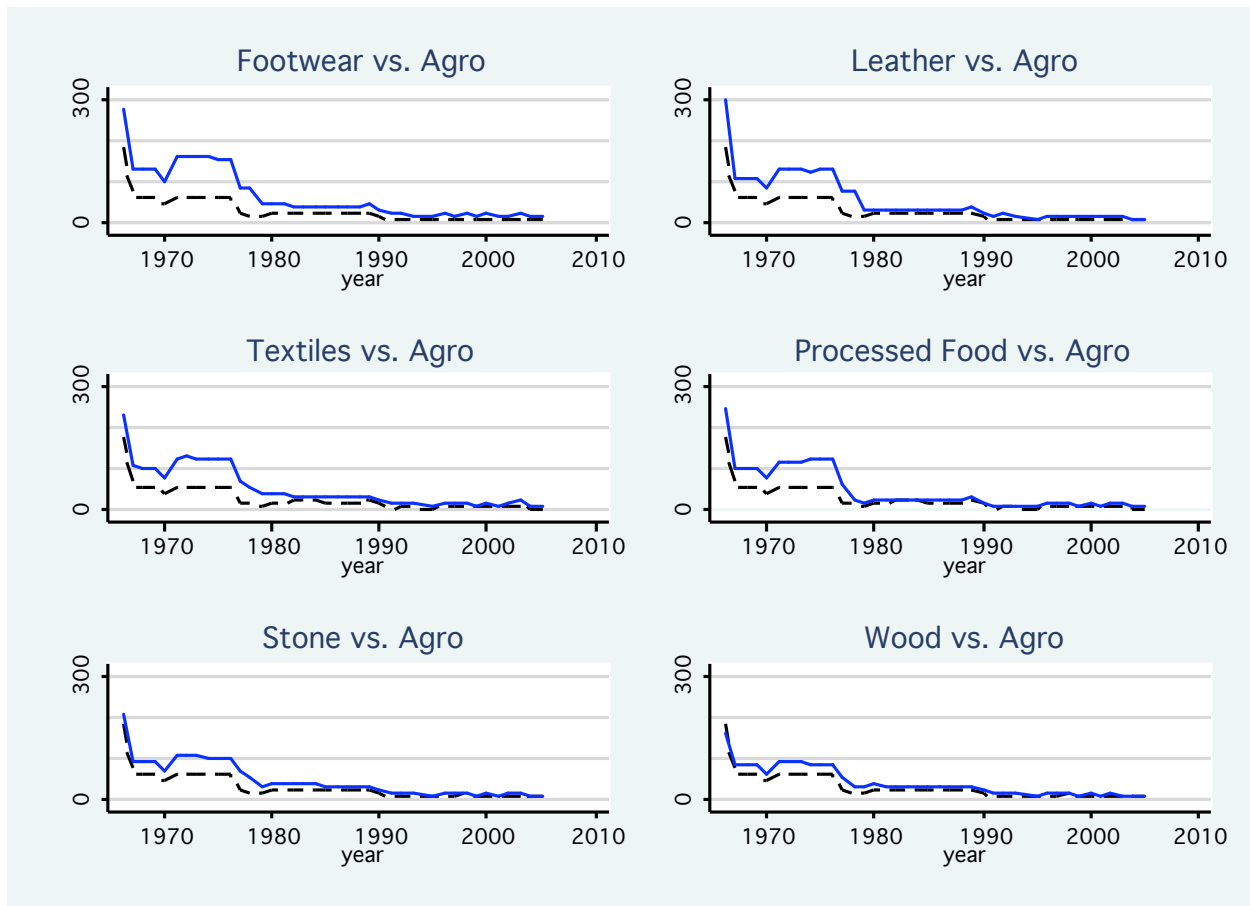
Source: Argentine trade policy data collected by the authors. See text.

Figure 7  
Trends in Average Tariffs  
1966 - 2006



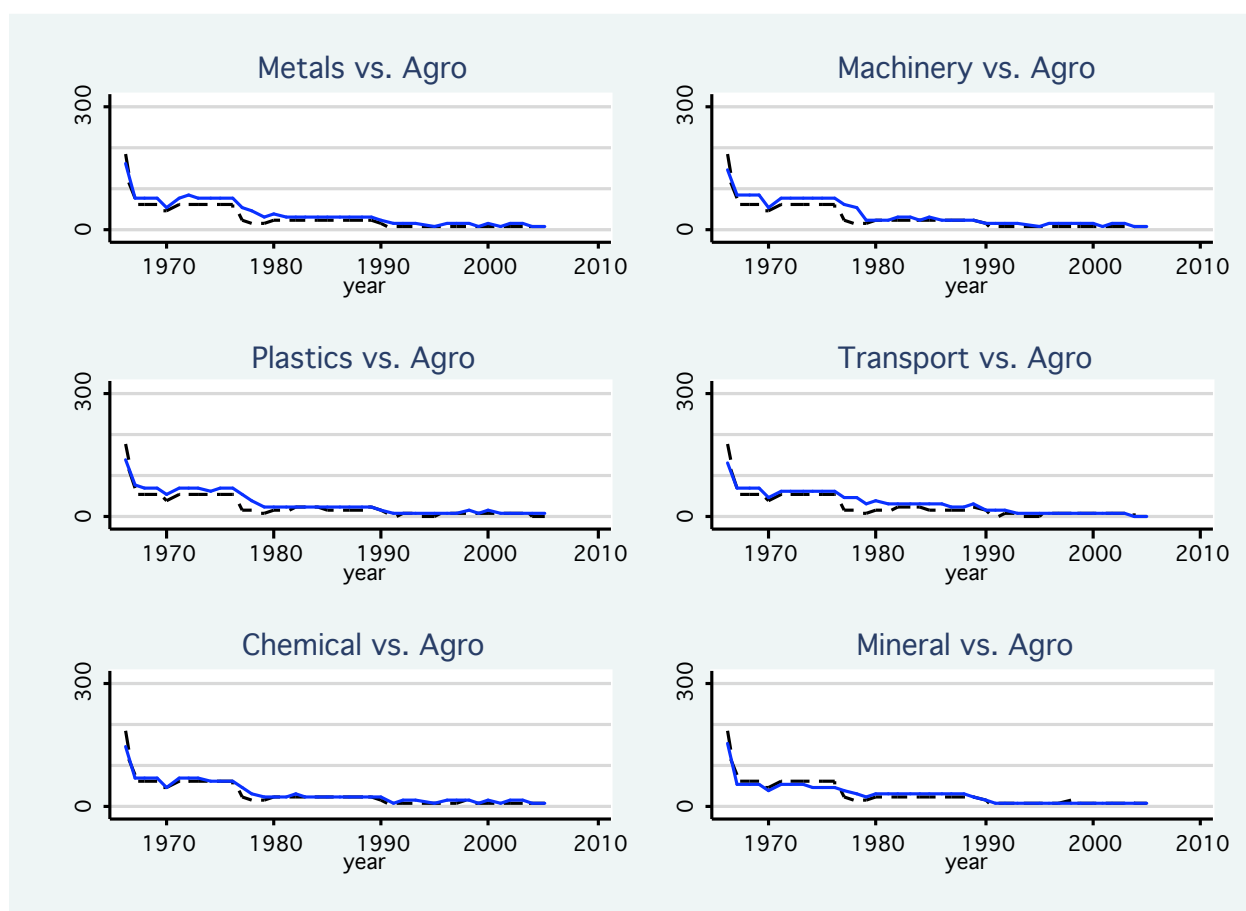
Source: Argentine trade policy data collected by the authors. See text.

Figure 8  
Relative Sectoral Protection Against Agriculture



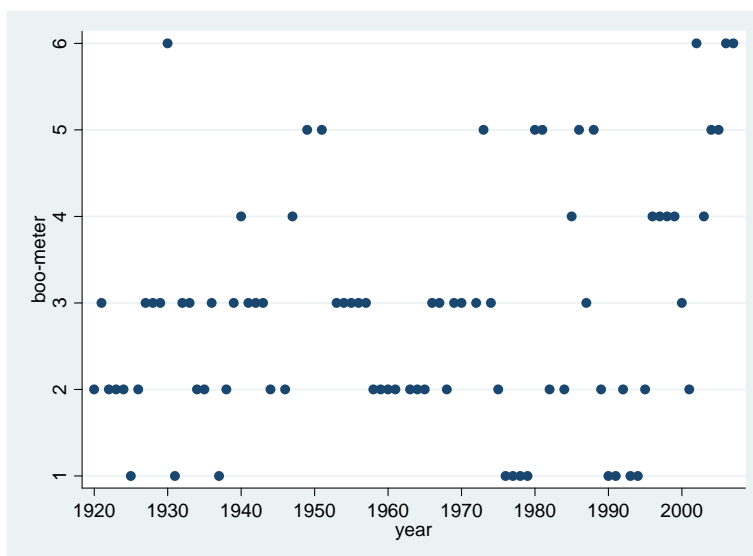
Source: Argentine trade policy data collected by the authors. See text.

Figure 9  
Relative Sectoral Protection Against Agriculture



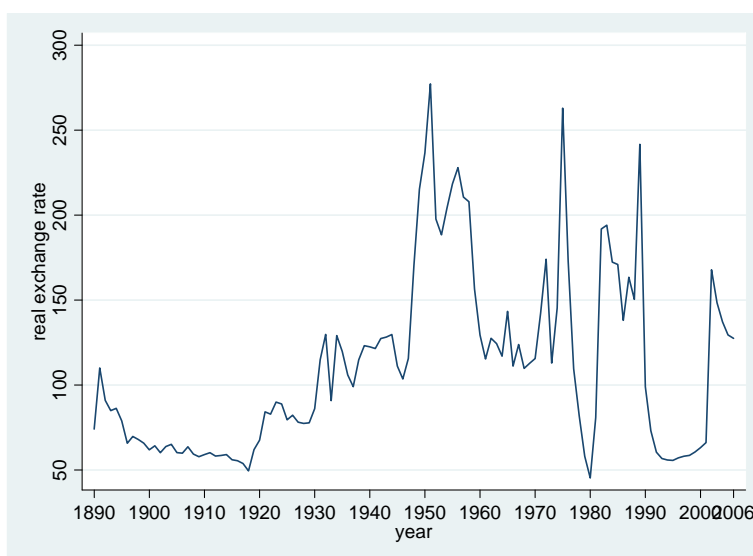
Source: Argentine trade policy data collected by the authors. See text.

Figure 10  
El Campo Boo-meter: 1920 - 2006



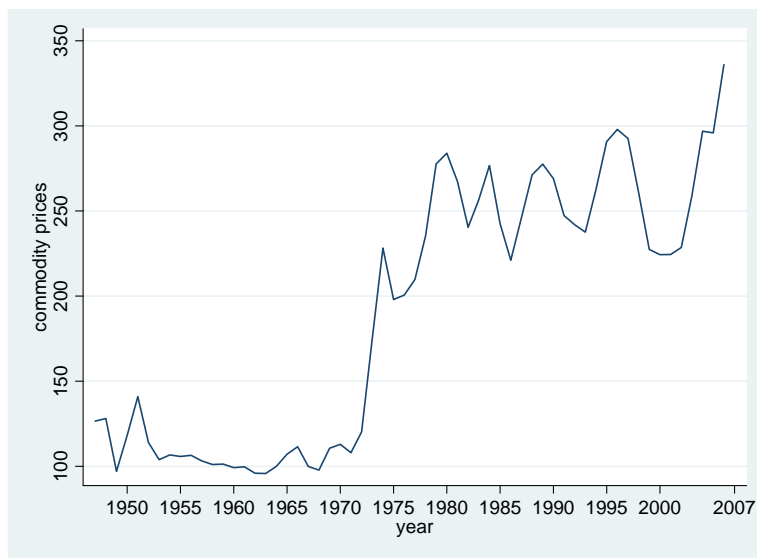
Source: prepared by the authors based on newspaper accounts (La Nación and Clarín).

Figure 11  
Real Exchange Rate: 1890 -2006



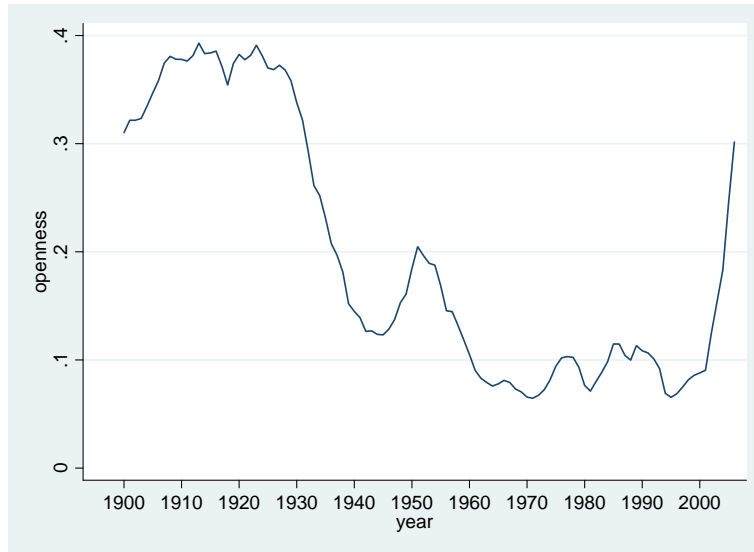
Source: RER-Bilateral (US)-CPI Adjusted. Base: Avg 1860-2006=100.

Figure 12  
Commodity Prices: 1947 - 2007



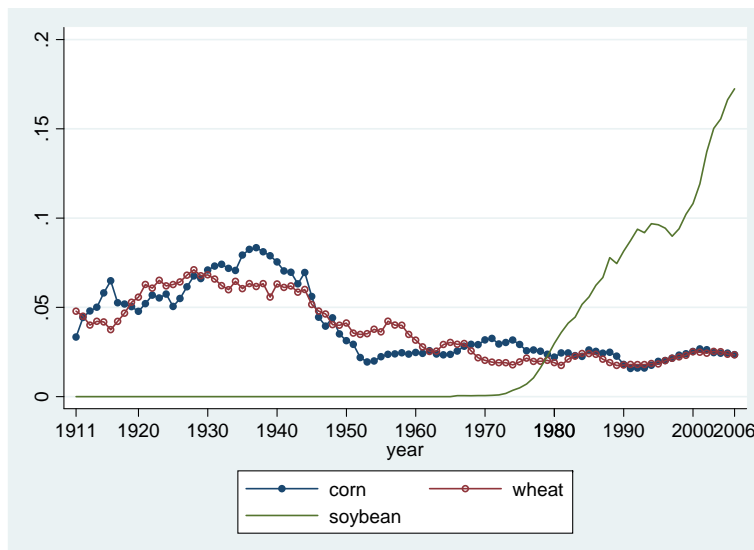
Source: CRB (Commodity Research Bureau).

Figure 13  
Trade Openness  
Exports + Imports as a Share of GDP



Source: : Own calculations with data from ECLAC, INDEC and Ferreres(2005).

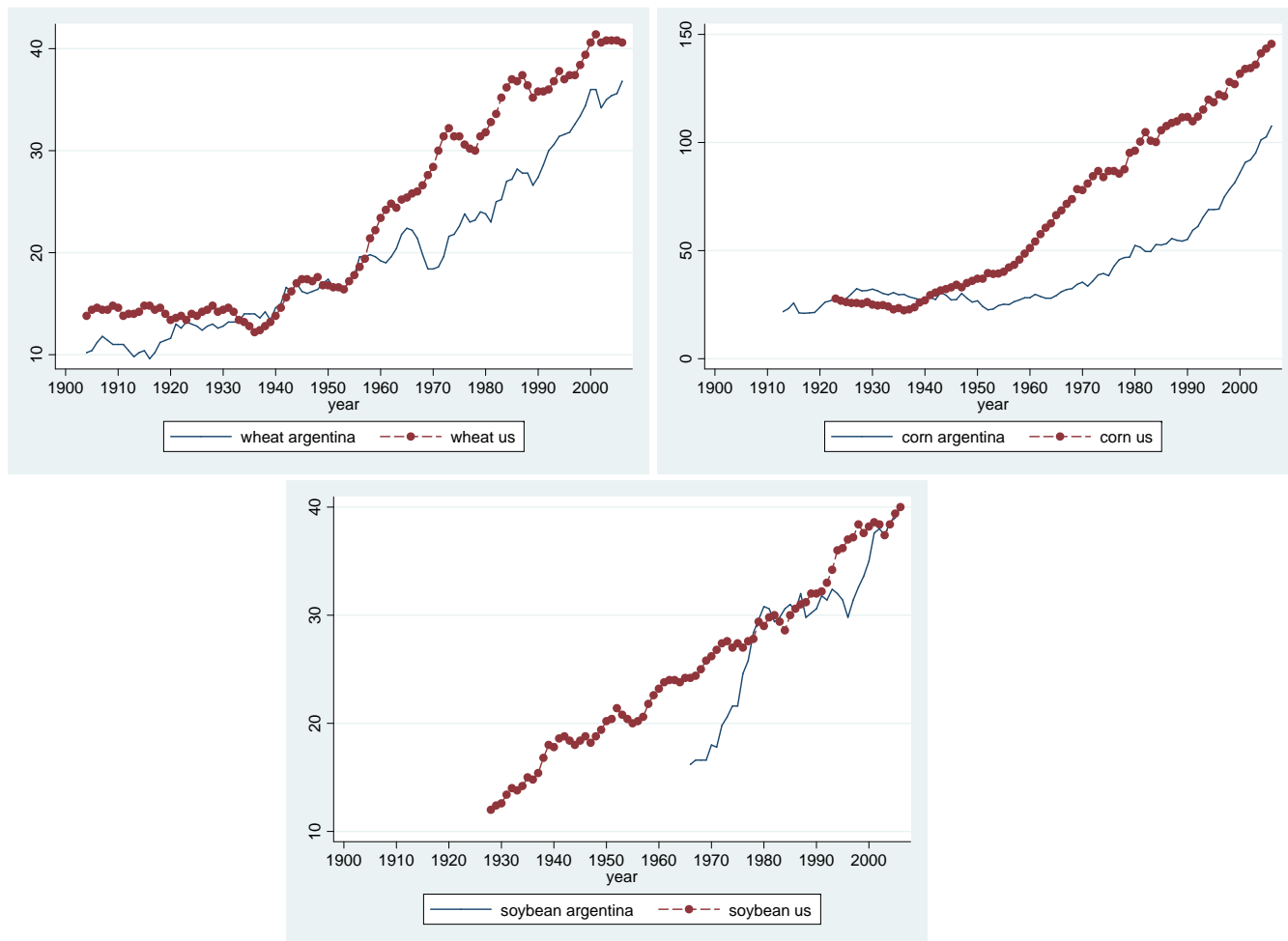
Figure 14  
Argentine Share of Agricultural Production  
Wheat, Corn, and Soybean



Source: Own calculations based on Ferreres (2005) until 1960, and FAOSTAT from 1961 to 2006.



Figure 15  
Yields in Agriculture: Wheat, Corn and Soybeans  
Argentina and the United States



Source: Own calculations based on the United States Department of Agriculture, Secretaría de Agricultura, Ganadería, Pesca y Alimentos de Argentina, and Junta de Granos (1975).

Table 1  
Productive Land per Capita (in acres)

1875-89					
Abundant in Labor		Moderately Abundant in Land		Abundant in Land	
United Kingdom	1.42	Trinidad (Caribbean)	5.66	Chile	25.43
Japan	1.76	Malaya	7.31	United States	34.91
Switzerland	2.33	Russia	7.48	Mexico	43.79
China	2.38	Siam/Thailand	8.65	Costa Rica	62.49
France	2.7	Malaysia	6.21	Canada	101.81
Spain	4.44			Brazil	102.27
				South Africa	124.75
				Australia	174.4
				<b>Argentina</b>	<b>216.44</b>
1946-1949					
Abundant in Labor		Moderately Abundant in Land		Abundant in Land	
Singapore	0.08	Thailand	5.2	Ethiopia	22.24
Japan	0.95	Malaysia	6.21	<b>Argentina</b>	<b>29.4</b>
Taiwan	0.98	United States	11.77	Brazil	29.96
United Kingdom	1.06	Chile	11.99	Canada	102.27
China	1.97	Costa Rica	16.18	Australia	130.36
Trinidad	1.98	South Africa	18.52		
France	2.64	Russia	19.54		
Indonesia	4.27	Mexico	19.96		
Spain	4.29				

Source: Lai (1998).

Table 2  
Livestock per Capita  
1895

	Cattle		Horses		Sheep	
	Cattle/Pop.	Rank	Horses/Pop.	Rank	Sheep/Pop.	Rank
Australia	357	3	49	2	2995	1
New Zealand	132	4	34	4	2912	2
Argentina	542	2	111	1	1859	3
Uruguay	650	1	47	3	1602	4
United Kingdom	28	9	5	9	77	5
United States	76	5	24	5	68	6
France	34	7	7	8	54	7
Russia	29	8	23	6	52	8
Germany	35	6	8	7	27	9

Source: Argentine Census (1895).

Table 3  
Literacy Rate and Skilled Labor

	Year	Literacy Rate	Skilled/Unskilled
Argentina	1900	52	1.1
Brazil	1900	25.6	0.3
Chile	1900	43	0.8
Costa Rica	1900	33	0.5
Mexico	1900	22.2	0.3
Uruguay	1900	54	1.2
Canada	1870	80	4.0
United States	1890	86.7	6.5

Source: Sokoloff and Engerman (2000).

Table 4  
Bairoch Industrialization Index  
(U.K. 1900=100)

	1860	1913	1928	1953	1980
<b>Developing Countries</b>	<b>4</b>	<b>2</b>	<b>3</b>	<b>5</b>	<b>17</b>
China	4	3	4	5	24
India	3	2	3	5	16
Brazil	4	7	10	13	55
Mexico	5	7	9	12	41
<b>Developed Countries</b>	<b>16</b>	<b>55</b>	<b>71</b>	<b>135</b>	<b>344</b>
United States	21	126	182	354	629
Europe	17	45	52	90	267
United Kingdom	64	115	122	210	325
Belgium	28	88	116	117	316
France	20	59	78	90	265
Germany	15	85	101	138	393
Italy	10	26	39	61	231
Russia	8	20	20	73	252
Switzerland	26	87	90	167	354
Canada	7	46	82	185	379
Japan	7	20	30	40	353

Source: Bairoch (1982).

Table 5  
Industrialization Index  
Net Exports of Cotton Manufactures (per capita)  
1910

	Index	Relative to UK=100
U.K.	11.25	100
English-Speaking Periphery	-3.99	-35
United States	-0.36	-3
Canada	-2.94	-26
Australia	-8.7	-77
Latin America	-2.43	-22
Mexico	-0.24	-2
Brazil	-1.04	-9
Venezuela	-1.78	-16
Chile	-3.62	-32
Argentina	-5.47	-49
Asia and Middle East	-0.72	-6
European Periphery	-0.65	-6

Source: Gomez-Galvarriato and Williamson (2008).

Table 6  
Relative Factor Endowments

Country	Capital/ Labor	Rank	Land/ Capital	Rank	Land/ Labor	Rank	Skilled/ Unskilled	Rank
Argentina	55.5	28	3.5	25	1944.4	5	0.81	33
Australia	148.1	10	3.7	23	5495.5	1	2.76	6
Austria	165.2	6	0.2	63	379.7	42	2.35	11
Benin	3.0	65	35.4	7	1073.1	13	0.11	66
Bolivia	9.4	57	10.4	15	974.4	15	0.41	46
Brazil	35.1	33	2.3	31	801.2	23	0.28	57
Cameroon	4.3	62	29.0	10	1243.7	11	0.15	63
Canada	140.4	14	2.2	32	3069.7	3	3.92	4
Chile	57.8	26	0.6	55	343.7	46	1.07	24
China	14.5	51	1.4	36	204.1	58	0.62	37
Colombia	18.4	47	0.9	44	160.2	62	0.46	43
Costa Rica	19.9	44	0.8	46	160.1	63	0.43	44
Denmark	144.4	12	0.6	56	855.7	21	2.13	12
Dominican Rp	20.6	43	1.3	38	275.6	52	0.38	48
Ecuador	26.3	39	1.3	41	335.3	47	0.59	38
Egypt	11.1	55	1.4	37	154.7	64	0.56	40
El Salvador	11.9	54	2.5	29	293.7	51	0.24	58
Finland	144.5	11	0.6	54	886.6	19	2.38	10
France	152.2	9	0.5	59	712.5	30	1.25	20
Greece	85.7	23	0.7	49	584.6	34	0.90	29
Iceland	125.7	17	0.0	72	48.0	72	1.21	21
India	7.6	58	6.1	18	463.8	39	0.29	56
Indonesia	16.1	49	1.5	35	237.5	54	0.37	50
Ireland	104.4	21	0.6	52	663.9	31	1.78	15
Israel	138.7	15	0.1	67	150.6	65	1.61	16
Italy	153.1	8	0.2	62	369.9	43	0.88	31
Jamaica	24.5	40	0.7	50	165.0	61	0.73	35
Japan	184.8	5	0.0	71	72.8	71	2.56	8
Kenya	4.2	63	10.9	14	454.8	40	0.18	60
Korea Rep.	241.5	1	0.1	69	180.9	60	3.05	5
Malawi	1.6	69	30.7	9	495.4	37	0.05	69
Malaysia	57.6	27	0.4	61	209.6	57	1.02	25
Mexico	44.8	29	1.6	33	729.3	28	0.68	36
Mozambique	1.2	71	46.1	5	558.5	35	0.03	72
Nepal	7.0	59	4.3	22	300.4	50	0.18	61
Netherlands	142.8	13	0.1	68	121.3	68	2.07	14
New Zealand	111.8	19	0.8	48	866.1	20	2.11	13
Nicaragua	15.4	50	8.8	16	1349.3	8	0.34	53
Norway	185.3	4	0.2	65	402.4	41	6.87	2
Pakistan	10.3	56	5.1	20	527.8	36	0.20	59
Panama	36.3	32	1.3	40	471.3	38	0.93	28
Paraguay	18.8	46	7.9	17	1488.3	7	0.36	51
Peru	23.6	41	1.5	34	360.7	44	1.02	26
Philippines	16.1	48	1.3	39	209.6	56	1.16	23
Portugal	88.0	22	0.4	60	344.8	45	0.38	49
Romania	29.5	37	3.2	26	938.1	17	2.69	7
Senegal	2.9	66	24.8	11	721.1	29	0.09	68
Singapore	202.9	3	0.0	73	0.5	73	1.44	17
South Africa	19.8	45	4.3	21	854.0	22	1.38	19
Spain	113.4	18	0.7	51	751.7	26	0.88	30
Sri Lanka	12.3	53	1.0	43	117.1	69	0.81	32
Sweden	132.1	16	0.5	58	632.1	33	4.08	3
Switzerland	203.2	2	0.1	70	112.7	70	2.45	9
Togo	3.2	64	46.7	4	1506.6	6	0.16	62
Trinidad	62.8	24	0.2	64	140.0	66	0.95	27
Tunisia	33.9	35	2.9	27	981.3	14	0.30	54
Turkey	31.1	36	3.7	24	1150.5	12	0.29	55
Uganda	0.9	73	72.7	2	650.8	32	0.12	65
UK	111.0	20	0.2	66	219.3	55	1.39	18
Uruguay	39.9	30	2.4	30	961.0	16	0.81	34
USA	159.5	7	0.8	45	1309.6	9	8.71	1
Venezuela	35.0	34	0.8	47	274.2	53	0.38	47

Source: Cusolito and Lederman (2009).

Table 7  
Mean Share of Exports (Imports) during 1970-2005

Sector	1970-1979		1980-1989		1990-1999		2000-2006	
	Export	Import	Export	Import	Export	Import	Export	Import
Agriculture	0.555	0.049	0.495	0.039	0.372	0.033	0.302	0.026
Processed Food	0.154	0.013	0.158	0.014	0.164	0.024	0.165	0.018
Mineral Products	0.007	0.139	0.046	0.133	0.105	0.052	0.189	0.061
Chemical Products	0.033	0.141	0.045	0.180	0.049	0.146	0.057	0.193
Plastics	0.005	0.039	0.013	0.053	0.019	0.060	0.032	0.074
Leather	0.046	0.000	0.046	0.001	0.044	0.003	0.027	0.004
Wood	0.012	0.074	0.010	0.039	0.019	0.044	0.020	0.040
Textiles	0.066	0.020	0.050	0.027	0.039	0.041	0.015	0.037
Footwear	0.003	0.000	0.001	0.001	0.002	0.006	0.000	0.006
Stone	0.003	0.013	0.004	0.013	0.008	0.012	0.004	0.011
Metals	0.032	0.178	0.067	0.093	0.050	0.059	0.043	0.057
Machinery	0.052	0.251	0.044	0.295	0.054	0.319	0.045	0.277
Transport	0.026	0.046	0.014	0.060	0.059	0.131	0.072	0.132

Source: Argentine trade policy data collected by the authors. See text.

Table 8  
Average Import Tariffs  
1870 - 1938

	1870-1899	1900-1913	1919-1938
Argentina	26.1	23.4	18
Brazil	34.5	40	23.4
Chile	19.4	18.3	22.1
Colombia	33.5	47.4	29.3
Cuba	22.5	25.6	26.2
Mexico	16.6	21.9	21.2
Peru	32.4	23.2	16.3
Uruguay	29.7	33.3	19.6
China	3.2	3.3	11.3
Indonesia	4.9	5.2	10
Japan	6.2	7.7	5.9
Philippines	10.3	21.2	8.1
Siam/Thailand	3.6	7.4	15.1
Burma/Myanmar	4	11.3	22.5
Ceylon	6.2	7.3	13.3
Egypt	11	14.2	26.3
India	3.4	4.7	17.3
Turkey	7.4	9.5	30.7

Source: Clemens and Williamson (2002).



Table 9  
Number of Years with Positive Export Taxes  
1966- 2006

Sector	Years
Agro	33
Processed Food	33
Chemical	33
Leather	30
Wood	28
Textiles	28
Mineral	26
Metals	26
Transport	26
Stone	24
Plastics	17
Footwear	13
Machinery	7

Source: Argentine trade policy data collected by the authors. See text.

Table 10  
Tariff Statistics for periods of 1966 to 2005

Sector	1966-1970		1971-1976		1977-1979		1980-1990		1991-2005	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Footwear	151	69	158	2.152	69	21	38	6	15	4
Leather	139	89	130	3.623	58	28	28	3	11	3
Processed Food	127	67	121	3.201	35	23	25	4	10	3
Textiles	126	63	126	1.894	53	15	34	5	13	4
Stone	109	56	102	2.236	48	16	31	4	10	3
Wood	91	40	84	2.918	35	15	28	3	8	2
Machinery	89	32	73	2.411	43	20	20	4	11	2
Metals	87	41	76	2.517	42	11	28	3	10	2
Plastics	83	32	67	1.441	40	12	25	2	10	2
Agro	79	57	56	0.227	13	3	19	2	5	2
Transport	77	32	63	2.641	40	11	29	4	10	4
Chemical	76	37	61	1.759	30	11	22	2	8	2
Mineral	69	48	46	2.411	26	7	24	4	2	1

Source: Argentine trade policy data collected by the authors. See text.

Table 11  
Evolution of Industrial Productivity  
1948 - 1994

	1913- 1935	1935- 1943	1948- 1954	1954- 1963	1963- 1974	1974- 1994	1948- 1994
Argentina	0.6%	-7.5%	-2.0%	3.1%	-0.5%	4.6%	2.2%
Canada			2.5%	4.7%	3.4%	2.8%	3.3%
Australia			n.a.	n.a.	n.a.	3.3%	3.3%
Japan			13.1%	9.0%	8.4%	3.4%	6.6%
France			3.8%	4.7%	5.0%	3.3%	4.1%
Italy			7.3%	5.5%	5.7%	3.9%	5.0%
Holland			5.0%	4.5%	6.6%	3.1%	4.4%
Norway			3.7%	3.2%	3.9%	1.3%	2.6%
Sweden			1.9%	4.1%	5.0%	3.2%	3.7%
United Kingdom			1.3%	2.2%	3.6%	3.3%	2.9%
Taiwan			n.a.	n.a.	n.a.	5.0%	n.a.
Belgium			n.a.	n.a.	6.2%	4.1%	n.a.
United States			1.7%	3.0%	2.4%	3.2%	2.8%

Sources. Argentina: own calculations based on IV Censo General de la Nación, Censo Industrial de 1946, Dirección General de Servicio Estadístico Nacional, Censo Nacional Económico (1964, 1974, 1985, 1994), Anuario Estadístico de la República Argentina (Tomo III), Estadística Industrial, 1949-50, Censo Industrial 1954. Rest of the countries: own calculations based on U.S. Department of Labor, Bureau of Labor Statistics, March 2009. Note: for all countries except Argentina, the available data covers the period 1950-1994.