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Abstract

The objective of this paper is to explain, from a cliometric perspective, the determinants of the growth of Argentina's exports between 1880 and 1929. To do this, we have constructed a gravity model with the principal products exported each year by Argentina to its most important trading partners. In this way, we believe that this study constitutes a relevant and original contribution to the analysis of economic growth from a historical perspective and specifically in explaining the factors determining the export success of the settler countries during the first wave of globalisation. Our results show that Argentina's export-led growth must be explained from both the supply and demand sides. We also find that the reduction in transatlantic transport costs boosted exports.

JEL classification: F14, N56, N76, Q17

Keywords: Settler Economies, Economic History of Argentina, First Globalization, Trade Gravity Models, Latin America Economic History

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Introduction

The long nineteenth century constitutes a crucial period in the economic history of humanity as it represents the advent of a new era during which modern industry was not only consolidated in its British birthplace but was also extended to other countries such as those in north-west Europe, the United States and Japan.

However, the populations of some extra-European countries were also able to earn high incomes but with low levels of industrialisation. These countries had been recently colonised by Europe (Canada, Argentina, Uruguay, Australia and New Zealand), and their economic growth was based on the rapid expansion of their exports of primary products and on the linkage effects of these exports with other economic activities (Pomfret 1981; Fogarty, 1985; Alvarez et al, 2007; Miguez and Rayes, 2014). Almost all of these countries were ranked among the world's top ten economies in terms of per capita income in 1913 (Uruguay was the 14th) (Maddison project, 2013). The export-led models of these countries were based on the strong integration and complementarity of their economies with European countries that were at a more advanced stage in their industrialisation process, especially Great Britain. These settler countries, which had been recently colonised by Europe, exported primary products to the most developed European nations, drawing from their abundant natural resources (particularly land). In return, they imported scarce factors of production (labour and capital) and manufactured goods from these advanced European countries (Schedvin, 1990; Denoon, 1983).

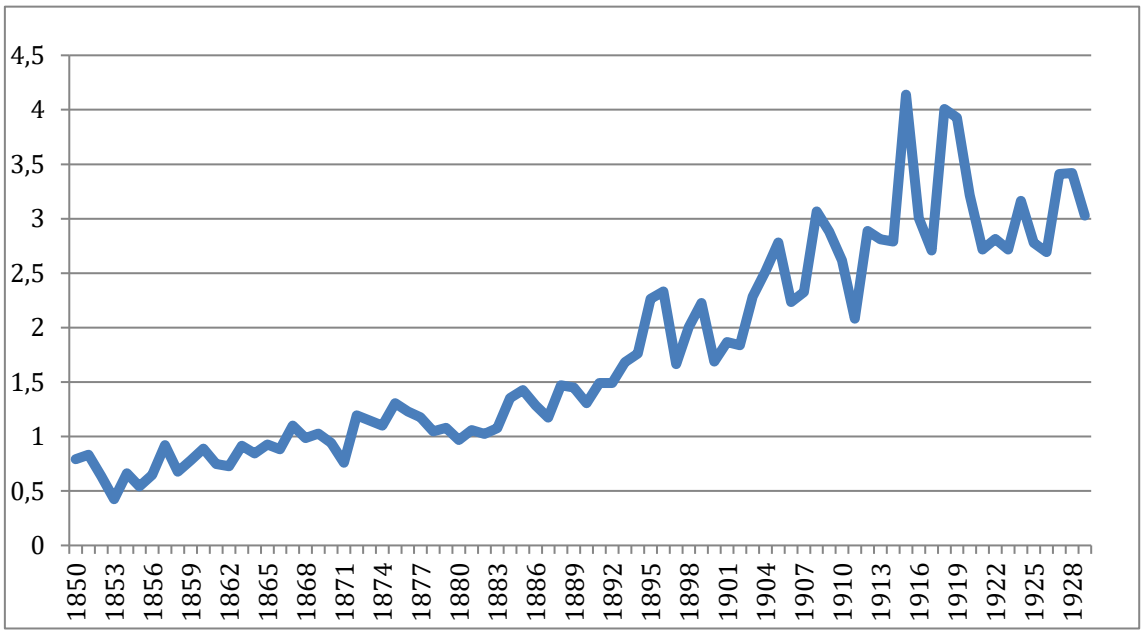
Other countries, mainly in tropical areas, including the majority of Latin American countries, also tried to stimulate growth through the expansion of their exports. However, the results were more modest than those of the settler countries, due to the much slower pace of their export growth and the weak linkages of their exports with the rest of the economy, two essential elements of the model (Cortes Conde and Hunt, 1985; Bulmer-Thomas, 1994).

The increasing international integration that took place from the first half of the nineteenth century, known as the First Globalisation, therefore constitutes the framework within which these export-led growth experiences were developed. It is well known that until the First World War, trade grew at a fast pace (3.9% between 1817 and 1865 and 3.1% between 1865 and 1913) and faster than production (Federico and Tena-Junguito, 2016). This growth in trade was driven by a series of factors such as the industrialisation

process itself which shifted the demand and supply curves to the right, due to the technical changes, the fall in transport costs or the trade liberalisation process experienced by the Atlantic economies (Jacks, 2006; Jacks et al., 2011). The trade of agricultural and food products also increased strongly until the outbreak of the First World War due to the same causes (Aparicio et al., 2009; Pinilla and Ayuda, 2010).

Within this context, the countries that specialised in the production and export of primary products, with a high demand from north-west Europe due both to the fast population growth arising from the demographic transition and to the increase in the per capita income of its population, were able to achieve rapid economic growth. This was the case of Argentina during these years.

Figure 1. Ratio of Argentine exports over world exports (% at current prices)



Source: Federico and Tena (2016)

According to the recent estimates of world trade published by Federico and Tena-Junguito (2016), Argentine exports, which represented around 0.8% of world trade during the early 1850s, reached levels of almost 4% in the 1920s (Figure 1). According to the data provided by these authors, of the countries that represented more than 1% of world trade between 1875 and 1929, only Canada and Japan increased their share at a faster rate than Argentina. According to Cardenas et al. (2003), in 1860, Argentine exports accounted for only 4.5% of the total value exported by Latin America. However, this

percentage increased to 29.3% in 1911-1913 and before the Great Depression it reached 32.7%. These trends coincide with the League of Nations (1942) and Bulmer Thomas (2010) data. Although there are no estimates with respect to the weight that Argentine exports had of the world trade of primary products, Pinilla and Aparicio (2015) calculate that between 1900 and 1938, the whole of South America represented between 10% and 15%. Argentina's participation could be estimated as being around half of the total for the region. Therefore, during the so-called First Globalisation, Argentine exports grew extremely fast, as did its GDP, and the economy became a paradigmatic case of export-led growth (both, exports and GDP, had growth rates of 5.2%, according to Bertola and Ocampo, 2013:125). Therefore, Argentina is a highly important case study due to its rapid export growth and it illustrates well what happened in other settler economies.

For many years, the export-led growth model of settler countries has attracted the interest of researchers. It could be said that the study of this model has given rise to one of the theoretical contributions made by economic history to economics: the staple theory (Watkins, 1963). Furthermore, considerable empirical research in economic history has focused on these growth experiences, both from a comparative perspective and through case studies. This has generated a rich body of literature that provides an insight into how the colonisation process was developed, how the new lands were exploited (after being taken from the native populations), how the production destined for export expanded, how the capital or labour from Europe arrived and how all of these factors affected economic development.

However, there are very few studies that use a cliometric perspective in order to identify the determinants of such an accelerated growth in exports, which is a necessary condition for the export-led model to work. Obviously, the above-mentioned literature has quantified and studied the volumes of the exported goods, their destinations, the domestic conditions for expanding production, the contribution of factors of production from abroad or the external demand conditions. Nevertheless, from our point of view, a relevant contribution may be made from a cliometric perspective by integrating different relevant variables into a model so as to clarify and specify the principal causes of the export growth.

Within this context, the objective of this article is to provide a cliometric contribution to this field of study, constructing a gravity model to explain the determinants of the growth of Argentina's exports between 1880 and 1929. The period

studied, therefore, starts at the height of the first wave of globalisation and covers the complicated years of the First World War and the 1920s, finishing with the definitive collapse of the First Globalisation in 1929. It should be pointed out that we did not stop our study in 1913, as historiography has generally done, because although the international rules of trade started changing after the Great War, the export-led-growth model in Argentina continued until the Great Depression, when the exports were significantly affected, both in volume and value (Bulmer-Thomas, 1994).

To do this, we have constructed a gravity model with the principal products exported each year by Argentina to its most important trading partners. Over the last three decades, these models have become the most commonly-used methodology to analyse the determinants of international trade in the present day or in the period following the Second World War. However, their use is less frequent in the analysis of trade during the First Globalisation, although from a theoretical point of view these models are compatible with both the Heckser-Ohlin theory and the New Theory of International Trade.

The data that have been drawn from a meticulous review of the Argentine foreign trade statistics (Rayes, 2015a and unpusblished). In contrast with the vast majority of the quantitative analyses of this subject, we have studied the annual path of the principal export products; that is, the destinations of each individual product.

In this way, we believe that we have made a relevant and original contribution to the analysis of economic growth from a historical perspective and specifically in order to explain the factors determining the export success of certain countries during the first wave of globalisation.

Our results reveal that both the expansion of external demand and the development of the Argentine economy were key factors for the extremely rapid growth of exports. The fall in transport costs was also a contributing factor. However, during the period analysed, the increases or reductions in tariffs did not have a significant effect on the country's exports as a whole.

These overall results are better understood when analysed by types of product. This also constitutes an original contribution since the literature has generally not differentiated between different export goods. In this case, significant peculiarities may be observed. The development of the Argentine economy constituted an obstacle for the growth of its exports of livestock products (unprocessed), as agriculture competed for the

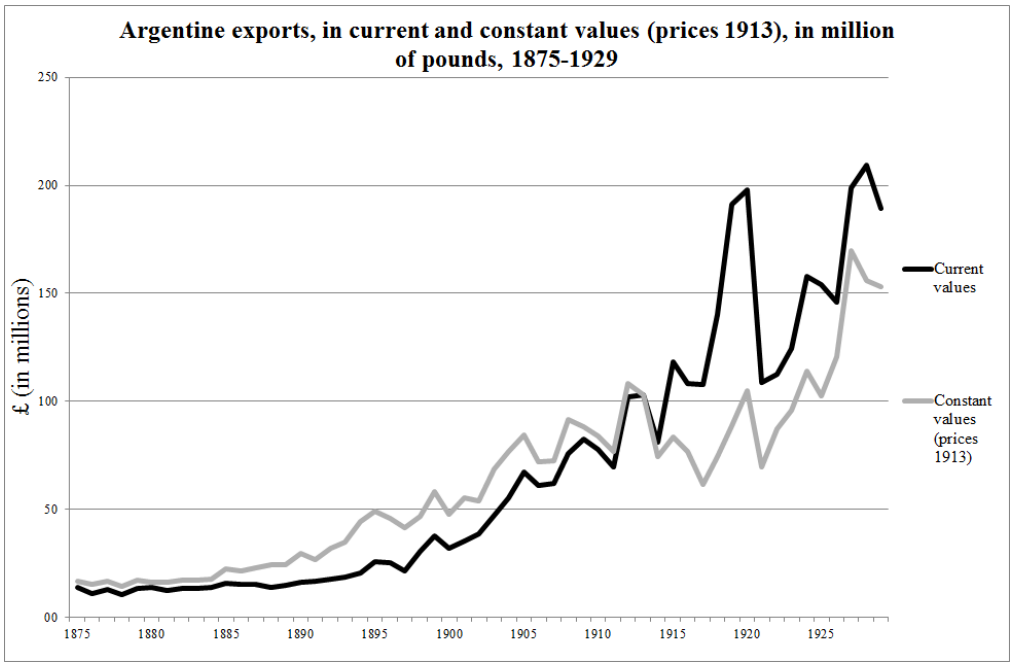
land on which this activity was developed. Furthermore, the emergence of a meat-processing industry gave rise to a preference for the export of frozen and chilled meats as opposed to live animals. The opposite was the case for raw and processed agricultural and livestock products that experienced an improvement in exports as a result of the country's economic growth. Tariff protection only had a significant effect on agricultural products, particularly wheat, which, from the end of the nineteenth century, faced increasing obstacles in some continental countries.

This article has been divided into five parts. It begins by analysing the trends of Argentina's export growth. It then goes on to present the theoretical framework and econometric model. The third section offers the results for Argentine exports as a whole. Subsequently the results of the econometric models for different types of products are analysed and the conclusions are drawn. Finally, the paper has an appendix which explains the sources on which the data are based.

The trends of Argentine export growth

It is well known that during the First Globalisation Argentine exports experienced long-term growth. But the details of this growth, both in terms of value and volume, have been studied with less precision. Perhaps this is because the literature has analysed the period as a seamless time block. In contrast, this study recognises the need to subdivide the period into different stages. It also suggests that to better understand a process spanning almost six decades, it is not enough to have data for specific years. Using more reliable statistics than the official ones, this paper will examine how and when growth took place. The following chart summarises Argentine exports in current and constant values (calculated with the prices of 1913) (Figure 2).

Figure 2. Argentine exports, in current and constant values (1913 prices), in millions of pounds, 1875-1929



Source: Own elaboration according to official Argentine statistics (1875-1929) and Cortes Conde et al. (1965).

As we can see, Argentina's integration into international markets was successful after the 1870s. But, according to Cortes Conde (1985: 342), it was not until the last decade of the nineteenth century that exports contributed to paying for debt services and to financing imports, which was necessary not only to transform the productive structure but also to cover the consumption needs of the domestic market. But, how did this come about?

Before looking at internal causes, it is important to point out that almost all the literature has focused on demand to explain the success of Argentina as an agricultural exporter. The country benefited from the existence of a multilateral system, liberal trade policies and the gold-standard. Furthermore, it was able to cover the European, and especially the British need for commodities and raw materials (Ferrer, 2008: 143-146, 195-211; Platt, 1972:251-273).

The chart above indicates that both volume and value increased together until the First World War. Nonetheless, this rise was stronger in volume than in value, even when commodity prices fell abruptly between the mid-1880s and mid-1890s. The literature has attributed this to several causes.

The historiography attributes the increased competitiveness of Argentine goods to an overall devaluation during the period studied (Williams, 1969; Cortes Conde in Cortes

Conde and Hunt, 1985: 343). Even when the different national governments attempted to link the Argentine economy to the gold standard, this only occurred between 1903 and 1914 and between 1927 and 1929. In all other years the peso was undervalued.

In general, it has been claimed that the export growth was partially due to falling costs in transatlantic and internal transportation – with respect to the latter, railroad expansion had a relevant role (Bertola and Ocampo, 2013: 103). Otherwise, low unit value products, such as grains, would not have been able to access the distant European markets and compete with North American and Eastern European harvests. The transportation revolution benefited those countries with "heavy" baskets, such as Argentina (Gerchunoff and Llach, 2008). So, a window of opportunity was opened for agricultural and food products, although – as we have already mentioned – they coexisted with traditional products (Cortes Conde et al., 1965: 41-43; Bulmer Thomas, 1994: 81-98; Rayes, 2014a).

During the last quarter of the nineteenth century, most of the exports were derived from cattle rearing. In fact, only two of the top ten exports were agricultural products. Continuing the trend of the previous few decades, the exports of raw wool and the different types of hides dominated the scene. This was due in part to the production structure of the Pampas, characterised by a relative abundance of land and a relative scarcity of capital and labour (Cortes Conde, 1974: 161).This started to change in the final decades of the nineteenth century, with the arrival of immigrants and foreign capital. Subsequently, the supply of labour available for farming and harvesting the fields increased. Capital was invested, for example, in public works, such as the construction and the improvement of ports, and the laying of rail lines (Ford, 1966: 146; Vazquez Presedo, 1979: 143-175).

Additionally, the Argentine state extended its control. Through conflicts with native inhabitants it redefined international borders with neighbouring countries, and as a result new lands were integrated into the export sector (Di Tella and Zymelman, 1967: 38-76; Miguez, 2008: 241-260; Vitelli, 2012:131-132). In fact, this case has been used to illustrate the competitive advantage theory of commerce. The exports based on land-intensive products coincided with the low opportunity cost of this factor of production (Diaz Alejandro, 2002: 24-32).

Land was considered as one of the main factors explaining export growth. In fact, some literature argues that in the pre-war years, growth slowed down because the the border could not be extended any further. However, recent research has found that the growth was not based solely on the aggregation of land but on the changes of land uses and the human and technical capital invested in it (Cortes Conde 2003: 361).

Once Argentina had successfully penetrated international markets, agriculture became an important export sector. In fact, although the number of livestock items was greater between the beginning of the twentieth century and the Great Depression, three agricultural goods (wheat, corn and linseed) accounted for almost half of the total export value as from the beginning of the twentieth century. But we must not forget the role of frozen and chilled beef, which strengthened their position in the export basket after the decline in live cattle shipments due to animal health issues at the end of the nineteenth century (Rayes, 2015a).

As shown in the chart above, the First World War constituted a turning point. The drop in the volume of imports and exports clearly demonstrates the Argentine dependency on foreign trade and the rules that governed it. The conflict did not affect growth in terms of prices. On the contrary, Argentina benefited from the adversaries' need for certain raw materials (such as wool and salted cattle hides) and food (such as frozen beef, wheat, corn and canned meat). However, the war paralysed export growth in terms of volume due to the shortage of ships and the consequent increase in transport costs (Fodor and O´Connell, 1973; Gravil, 1985; Albert, 1988; Rayes, 2014b: 39-40). Rather than a single trend, the post-war years were characterised by peaks and troughs. In fact, before the Great Depression, Argentine exports experienced a sharp contraction between 1920 and 1921.

According to our corrected data, the average annual amount increased more than six-fold in the period 1900-1929 in comparison with the previous stage (1875-1899). This growth is partially explained by the diversification of the export basket. To illustrate this, we have drawn up a table constructed with new empirical evidence. As we support the idea that the whole period could be separated into different stages, we propose the following subdivision: 1) the integration into international markets (1875-1889); 2) a decade of transition (1890-1899); 3) the great expansion (1900-1913); 4) the First World War (1914-1918) and 5) between growth and stagnation (1919-1929):

Table 1. Products exported by Argentina, market-share (%) and total value (in millions of pounds), 1875-1929

Years	Bovine animals	Frozen beef	Frozen mutton	Chilled beef	Salted meat	Raw sheep skins	Salted cattle hides	Dried cattle hides	Raw wool	Tallow
1875-1889	2.1	0.0	0.4	0.0	5.1	7.9	6.1	15.0	42.7	4.2
1890-1899	5.5	0.3	4.1	0.0	3.3	4.5	4.6	6.0	31.0	2.2
1900-1913	2.4	7.3	4.2	0.3	0.6	2.8	3.3	3.5	16.9	2.0
1914-1918	1.5	16.7	1.9	1.2	0.1	1.0	5.8	2.4	12.7	2.4
1919-1929	0.7	5.6	1.7	5.7	0.3	0.6	5.2	1.4	7.8	2.0

Years	Wheat	Corn	Linseed	Oats	Wheat flour	Quebracho extract	Quebracho logs	Other products	Total value (in millions of pounds)
1875-1889	2.4	3.1	0.5	0.0	0.3	0.0	0.0	10.2	13.6
1890-1899	16.2	6.2	3.5	0.0	1.2	0.0	1.0	10.6	23.05
1900-1913	22.0	13.2	9.5	1.5	1.4	0.8	1.2	7.2	64.9
1914-1918	16.2	11.5	6.4	2.5	1.8	2.4	0.4	13.0	111.1
1919-1929	23.2	16.1	12.2	1.7	1.4	1.8	0.3	12.3	162.7

Source: idem Figure 1.

During the early decades of the twentieth century, value-added exports achieved greater prominence. In Table 1, the statistical data show the diversification of the meat produced for cold-storage, the growth of wheat flour and quebracho extract exports. Together these products constituted a sizeable share as they represented more than a fifth of the total export value from the beginning of the twentieth century. This study highlights their participation because the previous literature has broadly described Argentina as an exporter of only primary goods, ignoring the role that individual items had in backward and forward linkages.

Another interesting finding from the data for the period 1900-1929 is the assortment of the traded goods which were purchased for different uses. For example,

meat, wheat and wheat flour served as food; corn, linseed and oats were used for fodder; linseed hides, wool and quebracho extract were sold as supplies for different segments of the textile industry (clothing, saddlery, leather dyeing, carpet manufacturing, among others). We believe that this situation probably prevented overall exports from suffering from crises occurring in any one particular sector.

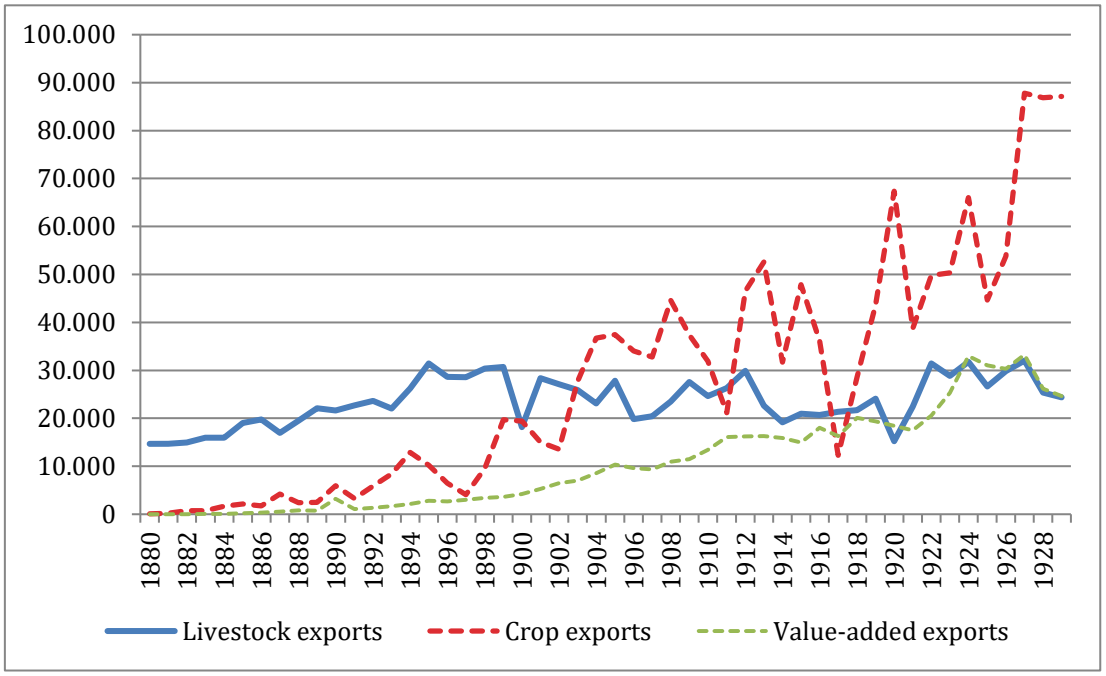
We have already emphasised the clear upward trend both in the value and volume of the traditional exports, such as raw wool, dried cattle hides and salted cattle hides, and in the value of raw sheep skins after the 1900s. This finding indicates that the previous literature has underestimated the role of these kinds of exports. Even though a few researchers have alluded to the coexistence of new exported goods with traditional ones, it has not been studied systematically. In contrast, the historiography has placed special emphasis on the goods that experienced export growth after the late nineteenth century. Of course, their performance was spectacular. During the early decades of the twentieth century, wheat, corn and linseed multiplied their volume by several times and this affected their contribution in terms of value. The same was the case for frozen beef and mutton but these grew to a lesser extent than in the previous period.

So, this study does not deny the overwhelming export success of the new products; however, it warns that focusing exclusively on these products leads to wrong conclusions about the period. In fact, the results reveal that, beyond the fluctuations already indicated, the survival of the old exports contributed to averting major crises until the Great Depression. In other words, under normal circumstances, problems could arise in certain sectors or in certain countries, but not all at once. A historical example can help to explain this idea. In 1900, Argentine wool exports fell due to the crisis suffered by their main buyers. The volume sent to France declined to one third, while exports to Germany and Belgium halved. Since its peak, this was the first year that wool was not the number-one export product, representing 18.1% of total exported value, half of its share of the previous year. Nonetheless, the total amount of exports was higher than the average for the previous five-year period, when there was already a growth trend. This was because the trade partners, including those who had suffered the wool crisis, bought other products from Argentina.

To analyse export growth, we have separated the products into three groups: 1) traditional livestock exports, which include wool, salted and dried cattle hides, raw sheep skins, bovines, jerked meat and tallow; 2) crop exports, that consider wheat, corn and

linseed and 3) processed agrifood exports, which are composed of chilled and frozen beef, frozen mutton, wheat flour, quebracho logs and quebracho extract. As we can see first, although the first group also grew, if we ignore the fluctuations and focus on a long-term perspective, the second and the third groups grew more and at a faster pace.

Figure 3. Breakdown of Argentine exports at constant prices of 1913 (thousands of pounds)



Own elaboration. Source: Argentine official statistics.

Finally, to complete our research on Argentina's exports, it is fundamental to study their geographical distribution. The analysis of Argentine export performance has mostly focused on the composition of trade rather than its geographical distribution, with exceptions such as Tena and Willebald (2013). Indeed, the literature has not always combined both aspects in its analysis. This is probably due to the idea, which can be seen in research conducted from different theoretical perspectives, that the main trade partners of Argentina were European economies, particularly Great Britain.

However, it is not only necessary to identify the trade partners but also to determine how they participated in total trade. The existing literature recognises the critical role played by the concentration of markets. In the Argentine case, one of the main obstacles to studying this aspect is the lack of reliable long-term evidence. As already pointed out, the historiography has worked with official statistics that have not been reviewed. One of the most serious attempts to obtain a reliable series, performed by

Cortes Conde et al. (1965), did not consider export destinations. In contrast, as previously explained, the data on which this paper is based have been reconstructed. So, as shown in Table 2, this study presents the share of each of the principal destinations, which accounted for more than 90% of the total value of exports.

Table 2. Geographical distribution of Argentine exports, market-share (%) and total value (in millions of pounds), 1875-1929

Years	Germany	Belgium	Brazil	Chile	Spain	United States	France
1875-1889	7.2	22.1	3.5	2.6	2.2	7.5	26.5
1890-1899	13.7	12.4	8.9	1.7	1.5	5.2	20.8
1900-1913	16.9	10.7	4.4	0.5	0.6	4.9	11.9
1914-1918	1.9	1.3	5.2	0.6	1.9	20.8	11.7
1919-1929	10.1	9.6	5	0.5	1.2	11.7	8.2

(cont.) Table 2. Geographical distribution of Argentine exports, market-share (%) and total value (in millions of pounds), 1875-1929

Years	Italy	Netherlands	United Kingdom	Uruguay	Other destinations	Total value (in millions of pounds)
1875-1889	3.5	0.1	12.2	3.5	9.1	13.6
1890-1899	3.2	1.0	22.1	3.5	6	23.05
1900-1913	2.6	4.3	34.1	1.4	7.7	64.9
1914-1918	6	2.7	37.6	1.6	8.7	111.1
1919-1929	5.5	7.1	30	0.8	10.3	162.7

Source: Idem Chart 1.

In the period 1875-1899, the main trade partner was France, followed by Belgium. These two countries had been the major destinations since Argentina began its rise in the international market from the second half of the nineteenth century. Together, they accounted for a little over 40% of total exports. This changed in the next period (1900-1929), when their share fell to just below 20% of total exports. However, a distinction

should be made between relative and absolute performance. During the early decades of the twentieth century, France and Belgium almost trebled their annual amount. This calls us to reflect on the other partners.

The United Kingdom ranked third until the 1890s, after which it became Argentina's main destination. While accounting for a similar share to France in the last decade of the nineteenth-century, from the beginning of the twentieth century, the British market was greater than any other destination in the period studied. In fact, it concentrated a third of the total value of Argentina's exports, a trend that increased slightly during critical years such as the First World War. But it is important to note that the United Kingdom made a difference from the early years of the twentieth century and not before. Several studies that highlight the "special relations" between Argentina and United Kingdom have not explained the changes over the whole period. Moreover, the study of this connection has overshadowed the analysis of other relationships. But what about the remaining two thirds of total exports?

It was not only the United Kingdom that improved its position as an export destination in the early decades of the twentieth century with respect to its development in the final years of the previous century. Germany became the second destination. Although the percentage was almost the same, its monetary contribution grew by seven times. Its growth as a trade partner partially justifies Argentina's neutrality during the Great War.

The United States progressed both in relative and absolute terms. It increased its purchase value by more than nine times, and became particularly prominent during war and post-war years. Its performance should be highlighted because this trade partner has traditionally been perceived as a competitor.

Another successful case was the Netherlands, which began to be listed in official statistics from the end of the 1880s although it accounted for no more than 1%. Its share increased sharply during the twentieth century, particularly in the post-war period. Other minor partners were located both in Europe and in South America. Spain and Italy were destinations of some exports, but the latter was more important. This market grew markedly after the First World War. In contrast, the Spanish market hardly absorbed 2% of the total value.

In Latin America, only Argentina's neighbours played a relatively significant role in the geographical distribution of its exports. The shares of Chile and Uruguay which were established during colonial times progressively lost importance. On the contrary, Brazil significantly increased its participation as a trade partner, not only with other countries of the region but also with European countries. According to our data, intra-regional trade – which included, of course, more countries than the three presented in Table 2 – fluctuated, depending on the years considered. It represented no less than 10% and peaked at 20% of total exported value. These results seem to be consistent with other studies that focus on South American intra-regional trade during the First Globalisation to compensate for the attention being exclusively aimed at the economic relations with Europe and the United States (for example, Carreras et al, 2013).

In contrast with the composition of trade, the geographical distribution became more concentrated in 1900-1929 since the largest partner, the United Kingdom, represented a third of the total value in comparison with France, which accounted for a quarter during the period 1875-1899. Nevertheless, the second and the third largest partners had lower shares in the early decades of the twentieth century than before.

Going beyond the different shares, almost all of the partners improved in absolute terms. This obviously benefited Argentina's performance. The same was the case for most of the products, almost all of which improved in absolute terms. However, how could this be so? This study will explore the determinants of Argentina's export growth by applying an econometric model. But before we do this, we must explain the empirical evidence, the sources and the methodologies that we have used.

Theoretical framework, econometric model and data

In order to explain the growth of Argentine exports within the context of the First Globalisation, we should take into account the changes occurring with respect to Argentina's supply of exportable products, the international demand for these products and the commodity market integration. In other words, we should consider which Argentine exports grew as a consequence of the rightward shift of the country's export supply curve, the demand curve of its trading partners and those of the factors that stimulated the First Globalisation. These factors include primarily the reduction in transaction costs, particularly transport (inland and transatlantic) and the liberalisation of

trade which, since the mid-nineteenth century, reduced the previously high tariffs that prevailed. In general, in the different studies that analyse the evolution of Argentina's export sector, it is assumed that all of these variables could have been relevant, although there is no empirical study that measures the effect of each of them and their significance. On the whole, greater emphasis is placed on the existence of a strong external demand, mainly from Great Britain, to which the Argentine economy responded by placing the corresponding products on the market.

Our objective is, therefore, to propose a model that is able to verify the importance of each of the afore-mentioned variables when explaining the determinants of Argentina's export growth. Furthermore, as explained in the previous section, breaking away from the mainstream explanation for this success, we will focus our analysis in two directions: first we will consider that the export success was based on the capacity of the country to vary its export basket, from livestock products with a very low level of processing to agricultural products and finally agro-industrial products. All of this required the Argentine economy to play an active role which means that we must focus on supply more than is usually the case. Second, we seek to highlight that Argentina's export destinations were less concentrated on the British market than is commonly believed, and included a much wider number of countries. Therefore, it is important that we do not focus solely on this market but analyse all of the others that were relevant for Argentine exports.

In order to achieve these objectives, we believe that a gravity model with panel data is able to provide more robust results. This methodology has been widely employed to investigate the principal determinants of trade. Its main advantages are its explanatory power with regard to bilateral trade flows and the stability of the results obtained. As we are working with bilateral flows, we are able to take into account the characteristics of the principal trading partners of Argentina with annual data and over a very broad period of time between 1880 and 1929. Furthermore, and given that different types of products were successively incorporated into the export basket, we believe that in addition to considering a general model for all of the country's exports it is important to also consider a model for each of the three groups of goods into which we can divide the country's exports: livestock products, agricultural products and processed agro-industrial products. In this way, we will be able to determine whether or not the determinants of the growth in trade were the same for the three types of products.

We will now describe the specification of the gravity equation used. The empirical approach is based on the research conducted by Feenstra et al. (1998), Bergstrand (1985, 1989) and Anderson and van Wincoop (2003). The success of this methodological approach in explaining international trade patterns has led to the formal development of its theoretical foundations. The empirical validations of the gravity equation, such as those performed by Helpman (1987), Hummels and Levinsohn (1995), and Evenett and Keller (2002), conclude that the equation can be derived from different theoretical models. This is an eclectic vision of the determinants of trade which includes, complementarily, the Hecksher–Ohlin models with specialisation (Anderson 1979; Deardorff 1984; Anderson and van Wincoop 2003) and the models of the New International Trade Theory with increasing returns and monopolistic competition (Helpman and Krugman 1985). The functional specification of the models used here largely follows the work of Anderson, Bergstrand and Anderson, and van Wincoop, and the 'multilateral resistance' phenomenon is also taken into account.

We have used a standard constant elasticity of substitution model:

$$X_{ijt} = \beta_1 Y_{it}^{\beta_2} Y_{jt}^{\beta_3} FR_{jt}^{\beta_4} T_{jt}^{\beta_5} \quad (1)$$

Applying logarithms to model (1), this becomes:

$$lnX_{ijt} = \beta_1^* + \beta_2 Y_{it} + \beta_3 Y_{jt} + \beta_4 FR_{jt} + \beta_5 T_{jt} + \delta_j + \epsilon_t \quad (2)$$

Where $\beta_1^* = \ln \beta_1$ and the additive error term, ε_t, is assumed to be identically and independently distributed.

The base of the gravity equation is initially represented by X_{ij}, which denotes the volume of the trade flow between a pair of countries, in our case exports from Argentina to its trade partners. We have constructed this series based on Argentina's foreign trade statistics (see Appendix). For the period 1880-1929, a total of 550 observations have been made in all of the models except in the model for agricultural products in which there are 400. In the case of the exports of processed agrifood products, the model only contemplates the annual data up to 1913. The reason for this is that these products, particularly frozen beef, displayed completely anomalous behaviour as they were in high

demand during the First World War because they were used for the troops' rations (Rayes, 2014b). Therefore, the inclusion of the years between 1914 and 1929 in the model would generate results that are difficult to explain.

The model includes the 16 most important Argentine export products during the period.[1] These products represented between 85% and 90% of the value of Argentine exports. The model includes the eleven principle trade partners of Argentina for the products with which we are working[2]. These eleven countries represented between 85% and 97% of the value of the exports of these products from Argentina during the period under study. Therefore, we are satisfied with our database as, taking the products and countries included into account, its coverage varies between 72% and 87%. As a result, the conclusions obtained from our model are sufficiently representative of Argentine exports as a whole.

Y_i represents the size of the Argentine market, estimated in terms of GDP. Y_j represents the size of the trade partners' markets, also approximated by their GDP (Maddison project, 2013). The separate interpretation of these variables enables us to observe Argentina's capacity to offer (export) products depending on its size measured by GDP, while potential foreign demand for the products will depend on the size of the importing country's market (GDP). This model assumes that bilateral trade flows depend positively on the economic size of countries and negatively on the trade costs between them. In gravity models, the distance between two countries is usually used to approximate the transport costs between them, which are very difficult to measure for each pair of countries. In our case, we have included the variable FR_{ijt} which is an estimate of the evolution of the real transport costs between Argentina and its trade partners. To do this, we have drawn the annual transport costs series per tonne/mile of wheat between the port of Buenos Aires and Liverpool from Federico and Tena (2016). We have

[1] The products included in the model are: wool, salted and dried cattle hides, raw sheep skins, bovines, jerked meat, tallow, wheat, corn, linseed, chilled and frozen beef, frozen mutton, wheat flour, quebracho logs and quebracho extract.

[2] The trade partners of Argentina included in the model are: Germany, Belgium, Brazil, Chile, Spain, United States, France, Italy, The Netherlands, United Kingdom and Uruguay.

multiplied this cost by the distance between Argentina and its different trade partners[3]. This implies the assumption that transport costs per tonne/mile were similar for all products and destinations.

In order to observe the effect of the variation in the level of tariff protection of each partner we have introduced the variable T_{jt}. As there are no series available with respect to how the tariffs of Argentina's trade partners varied for the different goods that it exported, we have used the estimate proposed by Clemens and Williamson (2004) for the degree of tariff protection after 1870 for a large number of countries. For those countries for which this author does not provide data, we have used the estimates of Rubio (2011) and have estimated the remaining gaps. We realise that the tariff protection structure of a country is not necessarily representative of the products exported by Argentina, of which non-agricultural manufactured goods formed an insignificant part. Therefore, we assume the imperfection of this variable to examine the trade liberalisation of the products exported by Argentina.

In addition to the basic variables, the gravity model incorporates other variables that affect the trade barriers between countries: this is called the "expanded gravity model". In our case, the additional variables that we have included are whether Argentina and its trade partners participated in the gold standard and the situation of these partners during the First World War. We have constructed two dummy variables for the latter. The first takes the value of 1 for the European countries during the years of the First World War and the second also takes the value of 1 during the same years but for the countries of the American continent. The objective is to attempt to capture the disruptions caused to trade with Europe due to the conflict and the possible incentives, given this exceptional situation, for trade with Latin American countries (Badia-Miró and Carreras, 2012; Carreras et al., 2013)

Finally, we have included a dummy variable for each trade partner in order to take the multilateral trade resistance into account. Anderson and van Wincoop (2003) observed a bias generated by omitting relevant variables such as the terms measuring the so-called "multilateral resistance", which assume that trade decisions are made by

[3] Alternatively, instead of the cost of transport we have used distance to approximate transport costs (CEPII). Logically, in this case, this variable does not change from year to year. The results obtained are very similar to those produced from our estimate of the real transport cost. They are available on request.

contemplating relative and not absolute prices. Similarly, when working with panel data, "unobservable bilateral heterogeneity" must be controlled for. In this way, in our specific case, the inclusion of a variable with a different value for each pair which is constant over time would control for both "multilateral resistance" and "unobservable heterogeneity".

Finally, Santos Silva and Tenreyro (2006, 2010) explained the existence of serious econometric problems, such as heteroscedasticity and a very high number of zero values in the dependent variable. In our case particularly, the existence of these values is common when in certain years there is no trade of some products with some of the partners, especially in the models that take into account each group of products. If an OLS estimate were conducted, it may be biased. Consequently, we have used a non-linear Poisson estimator to estimate the gravity equation which takes into account the presence of the zeros. This is known as the Poisson pseudo maximum-likelihood (PPML) estimator.

General results

Our first model is a basic gravity equation which, in addition to the GDPs of Argentina and its trade partners, contemplates the transport costs and the tariff protection of the partners. The results reveal how both the GDP of the exporter (Argentina) and that of the importers are significant with a positive sign to explain the strong growth of Argentine exports.

Table 3. Results of the Gravity Equation for Argentine Exports, 1880-1929

	(1) Total X	(2) Total X
l_GDPi	0.587***	0.497***
	(0.0909)	(0.0935)
l_GDPj	0.759***	0.958***
	(0.217)	(0.233)
l_Freight	-0.0637*	0.00653
	(0.0377)	(0.0465)
Tariffs	0.00264	0.0118
	(0.00761)	(0.00763)
EurWWI		-0.359**
		(0.148)
AmerWWI		0.532***
		(0.152)
GoldStandard		0.0689
		(0.0491)
Multilateral Trade Resistence Terms	Yes	Yes
Constant	-5.396**	-7.474***
	(2.168)	(2.352)
Observations	550	550
R-squared	0.857	0.871

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

In the first case, we can say that the increase in Argentina's GDP was important to explain the export growth. Therefore, we support the idea that supply is a relevant variable to explain this growth. The increase in goods, in terms of both variety and volume, was due to changes in the production structure, as pointed out in the first section. On the one hand, new lands were successfully incorporated into the productive system. In fact, even when some authors indicated that the expansion of the frontier had reached its peak in around 1908 (for example, Bunge, 1928 or Di Tella and Zymelman, 1967), others (such as Cortes Conde, 1997) explained that the uses of the lands changed, increasing their productivity.

On the other hand, labour and capital, traditionally scarce factors, were supplied from abroad. The influx of immigrants contributed to the development of activities that required more labour than cattle farming, such as agriculture. There was an immigration

which became permanent and altered the rates of population growth; but there was also seasonal immigration (Cortes Conde, 1979: 192-194).

The entrance of foreign capital, basically from European countries, facilitated the construction or modernisation of infrastructures and the improvement of the productive structure. The capital was mostly invested in railroads, ports, financial system, urban services and cold storages plants (Regalsky, 1986: 8 and 51).

As the productive structure changed, the agriculture surpassed cattle activities in terms of exports. In fact, according to our calculations, during the whole period (1875-1929) the former accounted for 49% of the total export value while the latter represented 45.5%. The coexistence of them both strengthened the volume exported because the goods offered in international markets were varied. Indeed, the annual growth rate of the quantum was 4.6% between 1880 and 1929.

The changes in the production structure not only encouraged exports but also played an important role in expanding the domestic market since the internal offer was more diversified than before and the internal demand increased as a consequence of the population growth. In fact, the GDP rose several times between 1875 and 1929 (Cortes Conde and Harriague, 1994: 17).

However, obviously without a solvent demand for the type of goods in which the country successively specialised, the export business would not have developed sufficiently. Therefore, the demand for food and raw materials, particularly from the most developed European countries, was essential. The European population grew at a very fast pace during the First Globalisation as a result of the demographic transition that was taking place. Furthermore, the increase in per capita income due to the industrialisation process and the growing specialisation in manufacturing in these countries boosted their demand for these types of primary goods and food (O´Rourke and Williamson, 2000).

The reduction in overseas shipping costs was also important to explain the increase in Argentine exports, as, thanks to these lower costs, the European countries that were the main importers of food and agricultural products were able to obtain them at competitive prices (Estevadeordal et al., 2003, Jacks et al., 2008)

Finally, it seems that the tariff liberalisation process did not affect the development of Argentina's exports. There are several reasons to explain this result. One of them would be that some of the principal products exported by Argentina did not face

serious trade obstacles during the period analysed.[4] Another reason is that the markets for these products were already open at the start of the period analysed, so, logically the model does not register a positive effect due to the liberalisation of trade as this had already taken place and, in fact, facilitated the boom in Argentine exports. The British case would be a good example, as at the beginning of the 1880s its protection with respect to agricultural and food imports was practically non-existent (Platt, 1972). Finally, we should not rule out that variable tariffs are not a good estimate of the real protection faced by the products exported by Argentina.

Model 2 is an extended gravity model, in which we have added two dummy variables to measure the effect of the First World War on the exports sold to Europe and the American continent, and another to analyse the consequences of Argentina and the importing countries participating in the gold standard.

The variables that measure the effects of the war are significant and have the expected signs: negative for Europe and positive for the Americas. In other words, the military activity in Europe, submarine warfare and the blockade of the allies against the German and Austro-Hungarian empires seriously affected the Argentine exports sent to this continent. This result is highly consistent with previous studies that have addressed this subject (Albert, 1981: 56-61; Offer, 1989; Aparicio et al., 2009: 69-70; Pinilla and Aparicio, 2015: 233-234). One of the reasons justifying this effect is the strong increase in freight charges as a consequence of the war, which significantly increased transport costs. On the other hand, the war favoured the increase in exports to the American continent, particularly to the United States, which acted as an intermediary between the Allies. We believe that the main explanation for this is the increase in regional trade between the Latin American countries (Badia-Miro et al, 2014). In our case, by introducing these variables, the freight variable is no longer significant.

Results by types of products

We believe that a more in-depth understanding of the determinants of Argentina's export success may be gained if we disaggregate the country's total foreign sales by type

[4] In diplomatic correspondence we have found that the agents eventually complained about protectionist measures in the countries which they served, especially in Germany or France. However, it was not a great obstacle for export growth (Rayes, 2013a).

of product. This is one of our main contributions since the existing literature tends to study overall exports or to observe the trajectory of the main products individually. On the contrary, we have tried to group them by taking in account when they started to be exported and their nature (whether they were derived from agriculture, livestock activities or if they were processed).

To do this we have classified them into three groups: livestock products, crop products and processed agricultural and livestock products. As previously mentioned, the share of each of these products total exports changed over time. From the independence of the Río de La Plata region until the 1880s, exports were almost exclusively composed of livestock products.

These constituted the best option when Spain's Empire in America came to an end and the trade networks were split. With the Independence process, Buenos Aires lost the silver that used to come from Alto Peru to send it to Europe. The Pampean provinces specialised in cattle goods (Salvatore and Newland in Della Paolera and Taylor, 2003). Of those products, wool particularly stood out. The low cost of initial investments, the immigration of farmers with knowledge about sheep breeding (for example, Irish people), the import of pedigree animals and the international demand by the textile industries in European countries and the United States were some of the reasons why Argentina turned into one of the major competitors in the wool market (Sabato, 1989:33-35).

Other products that complemented wool exports between 1820 and 1880 were tallow (used, for instance, to make candles), bovine and ovine hides (used mainly in the saddlery and footwear industry) and jerked meat (sent especially as food for slaves) (Amaral, 1998; Rosal and Schmit, 1999; Brown, 2002). As it can be observed, the Rio de la Plata region offered basically raw materials which were increasingly demanded by those countries that were immersed in an industrialisation process. The goods offered in international markets depended naturally on the productive possibilities of the region (Platt, 1980).

From the last decade of the nineteenth century, the importance of crop products grew significantly. As we have already indicated, these goods accounted for more than half of the total export value since the beginning of the twentieth century. Of the products in the export basket, wheat, corn and linseed particularly stood out. The area sown with these three grains grew by more than 55 times between 1872 and 1916 (Barsky and

Gelman, 2001: 161). This was possible thanks to the internal migration and immigration, the improvements in trading systems and the technical advances in production and transport.

Finally, processed products appeared with growing intensity from the beginning of the twentieth century. Of these goods, the most significant were frozen and chilled beef, frozen mutton, wheat flour and quebracho extract. They all are cases of forward linkages since they appeared in the export basket as a consequence of the development of primary activities (Geller in Gimenez Zapiola, 1975). They have also been considered as proof of a certain level of industrialisation in Argentina (Villanueva, 1972; Gallo, 1998) since they can be regarded as cases of light industry.

Model 3, corresponding to the basic gravity model for livestock products, reveals that the growth of external demand (GDP of trade partners) was decisive for export growth. Therefore, as the expansion of the industrialisation process in some European countries or in the United States increased, the demand for raw materials oriented to industries such as textile, footwear, furniture, and saddlery also increased. So, Argentine took advantage of the international needs.

In the same way, the fall in transport costs also favoured the growth of exports. Of course, the international and internal improvement in transports influenced the expansion of supply. For example, the sheep hides produced in the Patagonian region since the end of the nineteenth century were able to penetrate international markets due to the changes in transport (Bandieri, 2011).

Table 4. Results of the Gravity Equation for Argentine Exports, 1880-1929 (groups of products)

	(1) Livestock X	(2) Livestock X	(3) Crop X	(4) Crop X	(5) Processed X	(6) Processed X
l_GDPi	-0.383***	-0.344***	0.942***	0.850***	1.968***	2.460***
	(0.0994)	(0.0988)	(0.135)	(0.127)	(0.224)	(0.262)
l_GDPj	1.252***	1.340***	1.161***	1.165***	0.190	-0.196
	(0.219)	(0.219)	(0.326)	(0.317)	(0.688)	(0.594)
l_Freight	-0.109*	-0.0915	-0.152***	-0.0135	-0.0286	-0.0941
	(0.0596)	(0.0647)	(0.0565)	(0.0653)	(0.0777)	(0.0824)
Tariffs	-0.0139	0.00172	-0.0396***	-0.0399***	0.000526	0.00495
	(0.0100)	(0.00880)	(0.0114)	(0.0115)	(0.0134)	(0.0130)
EurWWI		-0.722***		-0.235		
		(0.186)		(0.182)		
AmerWWI		0.652***		0.359		
		(0.171)		(0.224)		
Gold Standard		-0.123**		0.324***		-0.446***
		(0.0601)		(0.0706)		(0.145)
Multilateral Trade Resistence Terms	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.232	-1.684	-9.075***	-8.552***	-15.13**	-14.71**
	(2.128)	(2.145)	(2.134)	(2.150)	(6.812)	(5.803)
Observations	550	550	400	400	306	306
R-squared	0.696	0.772	0.751	0.791	0.988	0.986

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

A highly interesting result is the negative sign and statistically significant effect of Argentina's GDP. This means that the increase in this country's GDP negatively affected the export of these types of products. This result is coherent with our previous knowledge regarding Argentina's economic development. As we have already pointed out, initially, it was based on the use of the prairies of the Pampa region for livestock grazing and exported the products derived from it, such as wool, hides, tallow or live animals. This type of activity required a large amount of land, which was the country's most abundant factor of production. There was a shortage of labour and the capital investments were very low, primarily concentrated in forming the initial herds as no significant land transformations were necessary. However, the subsequent expansion of the Argentine economy gave rise to a shift towards more intensive activities such as agricultural crops, principally wheat, corn or linseed. Logically, the growth of these

activities represented competition for the land and other factors of production used for the livestock sector. From a long-term perspective, cattle activities grew less than agricultural activities (Cortes Conde and Harriague, 1994:18).

If we consider Model 4, the other variables included in the extended model, namely the war and the gold standard. The two war variables behave in the same way as in the general model 2. That is, the war hindered exports to Europe but favoured exports to the American continent. In the same way as the general model, transport costs are not significant in this case. With respect to the gold standard, it is significant and the sign is negative. We believe that this is because during the years when Argentina participated in the gold standard, the peso maintained a constant exchange rate, without devaluating.

Model 5 shows the results for the crop products, which have some highly interesting characteristics. In this case, in addition to external demand (GDP of trade partners) the growth of Argentina's economy (GDP of Argentina) is also significant to explain the increase in the exports of agricultural products. The colonisation of the new lands, the arrival of capital, the immigrants from abroad, the domestic population flows or the construction of infrastructures such as railways, were key factors to enable the growth of these types of exports. . If the railroads had not been developed, connecting the main ports (Buenos Aires, Rosario or Bahia Blanca) with the hinterland, the "heavy" products would not have been able to compete efficiently with the prices of Eastern Europe (Cortes Conde, 1974).

In the same way as in the other cases, the fall in transport costs favoured export growth, which is shown by the significance of the variable and its negative sign. In fact, the agricultural products could reach distant markets because of the changes in transport costs.

The new feature in this case is that tariffs were significant with a negative sign. This means that the reduction in tariffs favoured export growth. More importantly, the protectionist turnaround at the end of the nineteenth century as a result of the agricultural depression caused by the competition of overseas grains with those from Europe, negatively affected the possibilities for the growth of Argentine agricultural exports (O'Rourke, 1997). We know that this protectionist turnaround particularly affected wheat tariffs, diminishing Argentina's possibilities to export to the countries that implemented this increase in tariffs such as Germany, France, Italy or Spain. However, those markets

that were still open, such as Denmark or Great Britain, enabled the export of Argentine grains to continue growing. The prohibition by countries such as Great Britain of the import of live animals boosted the export of Argentine corn to feed the domestic herds and contributed to stimulating the meatpacking industry.

In the extended gravity model 6, we can observe how the coefficients for either Argentina's agricultural exports sold to Europe or the Americas during the war, were not significant. This can be explained by the strategic nature of grain exports to some of the European countries involved in the conflict, such as France or Great Britain, for whom a proportion of the available ships were reserved. With respect to the American continent, particularly the United States, there was no increase in exports because they were competing countries.

In the case of processed agricultural products, we should point out that the most important were frozen beef and mutton or chilled beef, although goods such as wheat flour or quebracho products were also significant. In this group, the decisive role of Argentina's economic growth constitutes a principal factor to explain the increase in exports, as shown by Argentina's GDP which is significant and has a positive sign. In the case of meat, the technological change explains the export growth. New technology used for chilling or freezing meat enabled a very rapid growth in the exports of these types of products. It required more capital – some meat-packing plants were established with foreign capital and other with local funding– and the improvement of the animals slaughtered, which was achieved thanks to the crossbreeding with British species. The process started with sheep because their bodies were easier to freeze and continued with cows (Sesto, 2005). The ovine industry was moved from the Buenos Aires province to the Patagonian region where the process of capital accumulation depended on bovine farming which was complementary to agriculture production (Sabato, 1989).

Two other industries which were more modest than the meat-packing process but which also depended on the expansion of the production structure, were wheat milling and the extraction of quebracho (useful for dying leather and hides) (Rayes, 2013b and Martiren and Rayes, 2016).

Although the transport costs have a negative coefficient, they are not significant, which can be explained principally by the fact that when these products entered the export basket after 1890, (the shipments of these kinds of products started during the previous

decade but only on a trial basis), the reductions of these costs were barely significant. Furthermore, the high unit value of these products meant that the transport costs represented a considerably lower fraction of the final price of the product than in the case of other products. Argentina's participation in the gold standard reveals, as expected, a negative sign and is significant. In other words, the exchange rate discipline did not favour the increase in exports as these products could not take advantage of currency devaluation when Argentina was in the gold standard.

Concluding remarks

As the Argentine case has been widely studied we must define the main contributions that we wish to make. First, new empirical evidence is presented and analysed. Second, an econometric model to analyse Argentine exports between 1880 and 1929 is tested, which, as far as we know, has never been tested for this topic. Third, we have not only drawn conclusions about the export experience in general but we have also done so for the different groups of products. In fact, the paper confirms our main hypothesis. We defend that Argentina's export-led-growth must be explained from both the supply and demand sides. We also support the idea that Argentina had a successful agro-export sector because it offered a diverse basket of products to the different European and American countries that consumed them. In other words, grains and meat, which became stronger after the final decade of the nineteenth century, joined the livestock products that Argentina traditionally exported. Therefore, Argentina did not depend on one market or on one product. This paper suggests that only an observation from both the demand and supply side and from a dynamic perspective can explain the sustained export growth between the 1880s and the Great Depression. We have also found that for exports as a whole and for almost all of the groups, the reduction in transport costs (or their increase during the First World War) boosted exports (or diminished them during the war). Tariffs only had a significant effect on the exports of agricultural products. According to our model, the First World War greatly inhibited exports to Europe but intensified those sold to the American continent. To sum up, we can conclude that Argentina took advantage of a multilateral and open economic system. Within this context, the country generally found a demand for its supply which constitutes the key to explaining the magnitude and speed of Argentina's export growth.

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Appendix: Sources of Argentine export data

Research in Argentine exports has a long history. Nevertheless, there are relatively few historical studies that examine the accuracy of the sources. As it is well-known, exports are studied mainly with statistical data. And although the literature has emphasised the importance of obtaining reliable data, this aspect has been surprisingly neglected (with some exceptions in Latin America, for example, Baptista and Bertola, 1999; Kuntz, 2010; Tena and Willebald, 2013; Rayes, 2015; Bonino-Gayoso et al., 2015). In fact, many studies have based their conclusions on the official statistics without any kind of corroboration of these data.

Both Francisco Latzina and Alejandro Bunge, consecutive directors of the national statistics office, had warned about certain problems in the documented information, especially those related to the geographical allocation and the valuation of the items. Under the management of Latzina, Pillado carried out a study in order to determine the final destinations of the so-called "*comercio a órdenes*" (exports shipped without their final destination being known at the time of dispatch) between 1901 and 1905.[5] And when Bunge (1918) began his leadership, he tried to recalculate exports correcting product prices with market values for the period 1910-1916.

After these efforts, undertaken by the public sector, the first serious re-examination of export statistics emerged during the 1960s with the unpublished inquiry

[5] ADGEN 1907. "*Comercio a órdenes*" refers to exports sent to colonial islands, located in the Atlantic Ocean and close to European markets. From there, exports were redirected to their final destination without being registered in the official statistics. This technical problem affected only goods of low unit value (such as wheat, corn, linseed and quebracho logs).

conducted by Cortes Conde et al (1965). The authors adjusted the prices of goods between 1864 and 1916. The study exhibited the annual composition of export trade (in convertible currencies) with a high level of detail over the long term as the data corresponded to the period 1864-1963. It is important to note that although the research was considered to be an outstanding contribution by specialists, it was not used widely enough. The historiography continued working with the official data, with some exceptions (for example, Dieguez, 1972).

Almost fifty years later, two new studies simultaneously appeared with the main objective of correcting Argentina´s export statistics. Their methodological differences have been established in previous articles (Tena and Willebald, 2013; Rayes, 2013c; 2015). So in this paper they will not be described in detail. First, while Rayes worked with Argentine export prices – continuing the path traced by Cortes Conde et al (1965) - , Antonio Tena and Henry Willebald preferred to adopt London prices, for which they had to deduct the import costs (freight, insurance). Second, Rayes on the one hand allocated "*comercio a órdenes"* type of exports, following the results of Pillado´s research and, on the other, calculated the probable destination exclusively from exports of goods delivered through this procedure. In contrast, Tena and Willebald assigned these kinds of exports to destinations according to direct shipment behaviour, without acknowledging that only a few goods were sent to European markets as "*comercio a órdenes".* Finally, Rayes reviewed the statistics until early 1929, whereas Tena and Willebald finished their study in 1913.

This paper is based on Rayes' statistical revision. It has similarities with Cortes Conde et al. (1965) in the trade composition and in the aggregate amounts of exports. However, Rayes has improved the information regarding geographical distribution, which was not studied by Cortes Conde et al. Besides, previous studies have not dealt with the specific performance of each exported item. In this regard, Rayes has calculated the annual geographical allocation of each of the main products with each of their major markets. Taking into account that this constitutes a noteworthy contribution to the historiography, this study will focus primarily on this new empirical evidence.

Argentina's performance as an exporter of raw materials and food is well-known. But, as already mentioned, the literature has underlined the role of grains and meat as main exports during the First Globalisation. The research has not considered the different types of meat, hides or agricultural items, nor has it examined the function of the goods

traditionally exported by Argentina. This is because previous studies have not treated the composition of trade in much detail. This study seeks to revise the evolution of the basket of exports over the long term.

To do this, first, the empirical evidence on which this paper is based, which covers between 85% and 90% of total exported value, is assessed and each item is given its corresponding place. As they behave differently in terms of value and volume, distinctions have been made between the different meats prepared for cold storage (frozen and chilled beef and frozen lamb) and the various types of hide (bovine, dry or salted, ovine). Second, to present almost all of the exported value, this study has contemplated not only goods such as wheat, corn or linseed, but also those products overlooked by historiography because their participation was proportionally lower - such as wheat flour, tallow, salted meat, bovine animals and quebracho lumber and extract.

We have applied the price of 1913 for each product to the exported annual volume per destination country between 1880 and 1929[6] in order to generate a homogenous database, free from value fluctuations. These results have been used to apply the econometric model to different groups of products and this latter analysis provides a more complex perspective of Argentine exports.

[6] There are some cases that start later in our database because they were registered by the official statistics later than 1880, such as frozen beef and frozen lamb (since 1885), chilled beef (since 1908), quebracho lumber (since 1888) and quebracho extract (1895).

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