

**Economic History Society Annual Conference,
University of York 5-7 April 2013**

**Bankers and Diplomats in International Trade of Strategic Materials,
1890-1914: From Southwestern Latin America to Germany¹**

By OSCAR GRANADOS²

The development of mining activities between local and migrant families in Chile, Peru and Bolivia, and its link with a network of bankers, diplomats and politicians who allowed the supply of strategic materials to Germany during the years before the outbreak of the First World War, where the network operation and the definition of a German diplomatic strategy, facilitated the supply of South American mining companies, merchant houses and private bankers as intermediaries and German industrialists whom transform of these strategic minerals that reinforced the German growth, innovation process, economic development and military industry.

The southwestern region of Latin America has a strong mining heritage that comes from pre-colonial times of Tiwanacota and Inca civilizations, and later with the arrival of the Spanish to the region strengthened its position as a mining center and base of colonial public power despite the subsequent ups and downs of the mining industry in times of the Habsburgs.³

After normalization of political independence and Napoleonic wars that influenced of mineral prices, the Congress of Vienna in 1815 began an industrial race, a growth in world trade that linked some raw materials of the region as the Peruvian sugar, Chilean wheat, and facilitated the silver boom and development of mining technology in other minerals. Likewise a transformation in the port structure, which enabled the strengthening and linking Valparaiso to international markets reducing of Callao's port tradition as a trading center in the region.

During the years before the War of the Pacific, Chilean progress on the region between Tarapaca and Antofagasta, gave the interest of businessmen and bankers of Valparaiso, like Edwards, Clarks, Puelma and Urmeneta, whom had raised their fortunes with the regional economic boom, mining, rescue houses, rail and maritime business, international trade⁴ and finance. It was a region wealthy in mineral resources such as nitrate in Antofagasta and silver deposits in Caracoles, mostly Chilean population and with merchant centers in Valparaiso,⁵ despite being considered a Chilean exaggeration by the Peruvians, who mentioned that the Chilean interests in Tarapaca represented a quarter of Peruvian

¹ This draft is part of Research Project: Bankers, Diplomats and South America Strategic Raw materials, 1885-1914". This project is founding by Hisbruck & Cie and Universidad Jorge Tadeo Lozano.

² Associate Professor at International Trade Department, Universidad Jorge Tadeo Lozano. Bogota, Colombia. oscar.m.granadose@utadeo.edu.co.

³ (Bulmer-Thomas, 1994, p. 41) (Cademartori, 1968, pp. 47-55) (Sánchez, 1997, p. 232)

⁴ (Cademartori, 1968, p. 59)

⁵ (Barros, 1970, pp. 326-8) (Joslin, 1963, p. 174) (Sutter & Sunkel, 1982, pp. 37-41)

interests.⁶ But Chileans expanded their business interests supported by their British partners, who did not have a close relationship with the Bolivians due to default of 1875⁷ and its political difficulties.⁸

This was strengthened by installing early of British entrepreneurs in the 1820s and 1830s, whose developed business with their relationship with government, international merchant houses and the mining elites. By 1849 were installed more than 50 British companies in the region, because of the importance it acquired copper for the British industrial transformation, and the port of Valparaiso became regional distribution center of goods that arrived in British and German ships with 64.6 percent and 26.4 percent of total imports respectively, connected to a rail network from 2,747 kilometers in 1890 to 8,069 in 1913 compared to 2,970 kilometers that Peru had in the same period.⁹

The War of the Pacific became a linkage of private rights, based on the commercial exploitation, foreign investment in nitrates¹⁰ and territorial interests, which were deepened by knowing the secret agreements between Peru and Bolivia, although Peruvian neutrality it showed in their statements, but clearly influenced the progress of Chilean expeditionary forces in the ports of Antofagasta, Mejillones and Caracoles.¹¹ With the Peruvian military defeat, Chilean intensified excesses "that they intended to kill politically and economically to Peru"¹² and go beyond the disputed regions. The cession of Tarapaca by Peru and Antofagasta by Bolivia became the great Chilean victory, which would have access to an area rich in minerals and strategic ports for shipment of Bolivian and southern Peru minerals: Arica and Antofagasta.

It was a territorial transformation, which allowed the region that continued like a mineral supplier, a border under a new scheme that benefited the mining elites and foreign investors. However, it was essential that each company had acceptable government relationships where they developed their operations, and not having them find ways to achieve them. It was the influence of elites more concerned about their wealth than the people welfare,¹³ that integrated the business strategy with public affairs to benefit their private wealth, which in turn transformed the geography, favored the consolidation of the Chilean territory and political developments framed in nationalism.

The territories lost by Bolivia were essential for the shipment of ore, that should arrived to smelting centers Germany and Britain quickly and timely, taking advantage of the

⁶ (Belaunde, 1919, p. 24)

⁷ The obligation acquired in 1872 with a consortium between the Lumb Family and Wanklyn & Cia., for a nominal value of 1,700,000 sterling pounds at rate of 6 percent that aim the development of new public works, was declared in default in January 1875. In 1880 the bondholders received 793,000 sterling pounds deposited in the Bank of England (Marichal, 1988, p. 124).

⁸ (Joslin, 1963, p. 9)

⁹ (Albion, 1951, p. 373) (Bulmer-Thomas, 1994, p. 105) (Sutter & Sunkel, 1982, p. 142)

¹⁰ (Blakemore, 1986, p. 160)

¹¹ (Ahumada, 1884, p. 101)

¹² (Belaunde, 1919, p. 35)

¹³ (Couturier, 1986, p. 41)

demand increase that occurred in the last phase of expansion of the first era of globalization. For this, the railway developments were linked and connected with mining centers in the districts of the Fabulosa, Caracoles, Oruro and Potosí, and the railways that connected with the port, additionally the negotiations with Chile was advanced. Don Felix Avelino Aramayo, mining entrepreneur, who was named for a reserved and extraordinary diplomatic mission,¹⁴ traveled from London to Santiago in 1902 to revitalize the peace treaty, finally signed in October 1904, which indicated Truce Treaty of April 1884, leading a final renunciation of the coast by Bolivia and Arica-La Paz railway construction like a consideration which became operational in 1913, and the guarantee of transit trade through Chile and the facilities at the ports of Arica and Antofagasta. Despite the good offices of Peru with Bolivia, however, which it was who helped to assure its transit facilities, exports and imports by the Peruvian railways and ports.¹⁵

Railroads became, then, on the engine to the region export economy, particularly in Bolivia, and any failure that was filed to the railway immediately affect export earnings and therefore imports. Thus, disruption of railway construction in Chile and reducing nitrate exports, led to a slower construction that directly affect the economy of tin, but not companies that enjoyed the financial capacity to build inventories, and sustain the exploitation processes. The railway between Uyini and Ollague that connect with the Antofagasta port was completed in 1889 and the railway between Oruro and Uyini was in service since 1892 as a legacy of the silver mining boom in the late nineteenth century, which was complemented by the railway expansion that connect ports with mining centers and major towns with a high financial cost,¹⁶ considering that this would link all parts of the country, stimulating domestic trade and the strengthening of national unity, which had been affected by territorial differences that generated the War of the Pacific.¹⁷

The first era of globalization, "a period when the national interest, the hegemonic race and the importance of the economic system became the cornerstone of decisions and diplomatic strategy",¹⁸ led to the central countries way to approach closer to the regions that could meet their demand for strategic materials, essential in its industrial progress. Although there is clearly an economic process linking, countries like Britain, Germany, the United States and to a lesser extent France, considered part of their foreign policy, a structure that favored its global competition and for this funding schemes, corporate

¹⁴ Aramayo Family was active in the Bolivian Foreign Service, both the first generation with silver expansion and after that with tin generation (Klein, 1969, p. 34).

¹⁵ (Barros, 1970, pp. 570-3) (Contreras, 2000, p. 206) (Couturier, 1986, p. 46) (Fifer, 1964, p. 510)

¹⁶ The Oruro-Cochabamba railway started in 1906 was vital to social and economic interconnection, although the Chimoré-Cochabamba railway was not part of mining expansion but was part of the new objectives of the mining companies in agriculture, livestock and timber industry (Contreras, 2000, p. 205) (Geddes, 1972, p. 152).

¹⁷ (Barclay, 1917, p. 244) (Whitehead, 1972, p. 54) (Gómez, 2006, p. 24)

¹⁸ (Granados, 2010, pp. 52-3)

finance, banking system and securities markets as proposed by Germany in times of *Kaiserreich*,¹⁹ were well placed.

Economic historiography of Southwestern Latin America, and mining issues is extensive, well made, and focuses on specific elements of trade, labor disputes, imperialism, corruption and public affairs but does not connect the network that was built to develop the relationship between all actors involved in the mining business, where bankers and diplomats played a key role in the consolidation of this business. The paper contribution is to review the network that developed in strategic materials trade between the region and Germany, where bankers, diplomats and entrepreneurs developed their business, influencing domestic and sometimes external political processes.

It also examines the changes in German diplomacy, which was routed to the imperial consolidation in regions outside Europe, something that Bismarck wanted stay away and focus on the rivalry between the European Powers. The paper develops temporarily, then, since the departure of Bismarck as a starting point the need to expand the supply of strategic materials to complement regions mineral wealthy of the Rhin valley and the Ruhr basin, given the changes in the industrial approaches of Wilhelm II. This raises the question: Southwestern Latin America could be incorporated into the strategic materials global trade as from the structuring of a global network, where were linked bankers, diplomats and local mining families and migrants? We answer this question by analyzing comparatively mining development in Bolivia, Chile and Peru, with tin, nitrates and copper respectively, where the business of grand mining was in head by local families, migrant families and partnerships with international entrepreneurs. For this, I used network theory as a theoretical reference, and built an analysis that linked with visit to public archives in England, Chile, Bolivia, Peru, and private archives in England. This facilitated the structuring of empirical evidence, that adding to use of secondary sources, allowed to develop a response to the research question.

This paper aims to analyze comparatively the development of mining, relations between local and foreign families in Bolivia, Chile and Peru, and its link with a network of bankers, diplomats and politicians who allowed the business consolidation and influence in the public affairs. From a point of view that relates the evolution and transformation of business and merchant schemes using network theory. Thus, the established of mining network in Bolivia, Chile and Peru was allowed to families, businessmen and bankers achieve the influence in public and foreign affairs of mining industry as part of its corporate strategy. Wherein articulates a different scheme in the international business history, putting aside the traditional Latin American historical analysis as mentioned Barbero, linking imperialism, underdevelopment and dependence as an important part of the economic and social history,²⁰ marking a relevance influence in the development of the discipline in the region away from the international business discussion and focusing on

¹⁹ (Fohlin, 2007, pp. 21-8)

²⁰ (Barbero, 2003, pp. 319-320)

imperialism.²¹ Although the analysis is developed in an imperial period, focuses on international business and economic diplomacy, where Germany, nineteen years after its final construction in 1871, began to advance as an imperial power with the new political approach that deepened Wilhelm II with the resign of Bismarck. Period that was also characterized by the incorporation of banks to *Haute Finance*, that linked with governments, infrastructure projects, industry, innovation and technological progress, wherein were necessary the strategic materials.

This document is divided into five sections, the first one that reviews the progress of mining production in the region, their participation in world markets and international prices. A second, which analyzes public affairs and influence of mining and migrant families, foreign governments, banks and merchant houses, a third identifies the raw materials diplomacy by the German Chancellor, fourth examines the operation and structure of the global mining network between Southwestern Latin America and Germany, using network theory, and finally a conclusion section.

I

Minerals demand was an essential part of the industrial progress of the four powers that the nineteenth century was building,²² Germany, Great Britain, United States and France, participated in a rapidly industrial transformation, that inducing a demand for industrial minerals and reduced demand for coinage minerals, creating the silver export crisis for Bolivia and Peru. For 1913, the first export product of Bolivia was the tin with 72.3 percent followed by silver with 4.3 percent of total exports, in the case of Chile were the nitrates with 71.3 percent followed copper at 7 percent and Peru with 22 percent of their exports concentrated in copper.²³

Table 1. *Exports to the Central Countries, 1913*

Country	Exports (Millions USD)	United States (%)	Britain (%)	Germany (%)	France (%)	Total (%)
Bolivia	36,5	0,6	80,8	8,5	4,9	94,8
Chile	142,8	21,3	38,9	21,5	6,2	87,9
Peru	43,6	33,2	37,2	6,7	3,5	80,6

Source: Adapted of (Bulmer-Thomas, 1994, p. 74)

²¹ (Jones, 2003, p. 367)

²² (Lewis, Growth and Fluctations, 1870-1913, 1978, p. 127)

²³ (Mitchell, 1983, p. 157)

World economic growth during the *Belle Époque*, focused on two processes: the first to the central countries and its export economies, territorial rivalry and strengthening the internal market,²⁴ and second, the commodity export boom of the periphery. The real world economic growth rate reached 3.1 percent for the period 1899-1907 and 2.6 percent for the period 1907-1913, while imports grew 3.8 percent and 4.5 percent respectively.²⁵ In front of the central countries, United States showed an increase in imports of 7.9 percent and real economic growth of 3.8 percent, Britain 3.4 percent and 1.3 percent respectively, Germany 4.9 percent and 2.9 percent, and France 3.4 percent and 1.9 percent for the period 1892-1912.²⁶ This was associated with a long-term growth rate of industrial output, which from 1880-1910 was growing by an average of 3.65 percent and a supply of raw materials from the periphery markets of 37 percent for 1913.²⁷

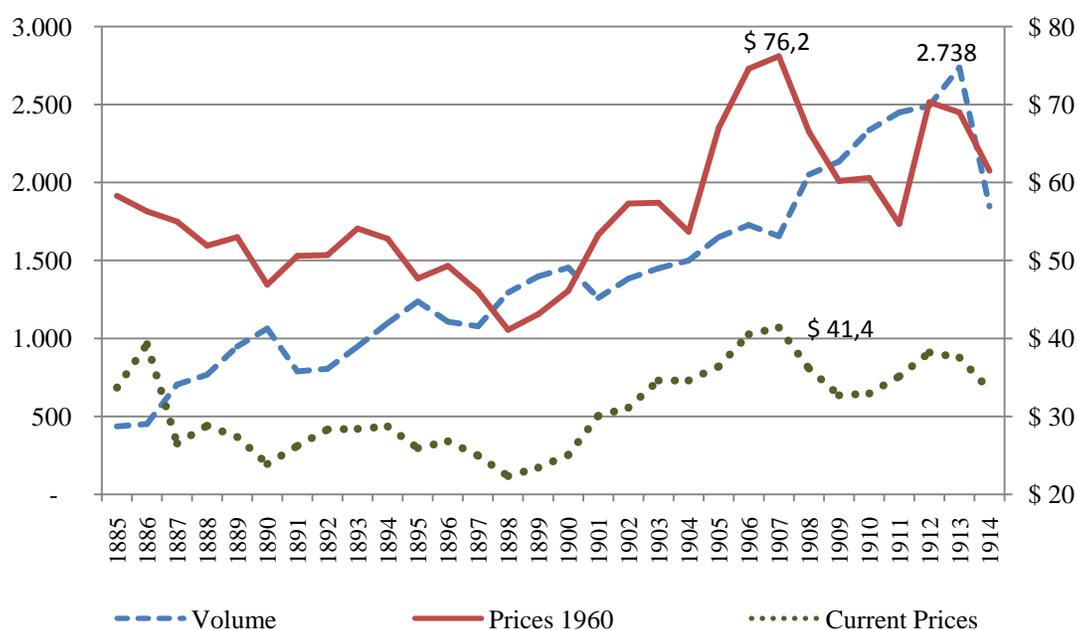


Figure 1. *Chilean Nitrate Expansion, 1885-1914*

Note: The volume is in thousands of tons. Prices are in dollars per ton. The current prices are nitrate to put in Chilean ports of Antofagasta and Iquique not aboard ships.

Source: With information of (O'Brien, 1989, p. 134) (Sutter & Sunkel, 1982, p. 126) (Stocking & Watkins, 1946, p. 123).

²⁴ (Granados, 2010, pp. 54-5)

²⁵ (Solomou, 1990, p. 58)

²⁶ (Staley, 1944, p. 127)

²⁷ (Fontana, 2006, p. 230) (Lewis, Growth and Fluctuations, 1870-1913, 1978, p. 167)

Bolivia sent 80.8 percent of its exports to Britain in 1913, by its connection to the refiners in Liverpool, followed by 8.5 percent for Germany and its relationship with the smelters in Hamburg (See Table 1). Chile had a more balanced distribution with 38.9 percent for Britain, 21.5 percent in Germany, 21.3 percent in the United States and 6.2 percent in France. Peru, and the structure of their trade was in head of United States companies and mineral refining was in head of the British, the distribution of exports was 37.2 percent for Britain, 33.2 percent for United States, a 6.7 percent for Germany and 3.5 percent for France.²⁸ British investment in Bolivia for 1914 did not exceed \$ 16.9 million, in Chile was of 300.1 million of dollars and 168.1 million dollars in Peru, a year earlier for these two countries was 366.8 and 143.2 million respectively.²⁹

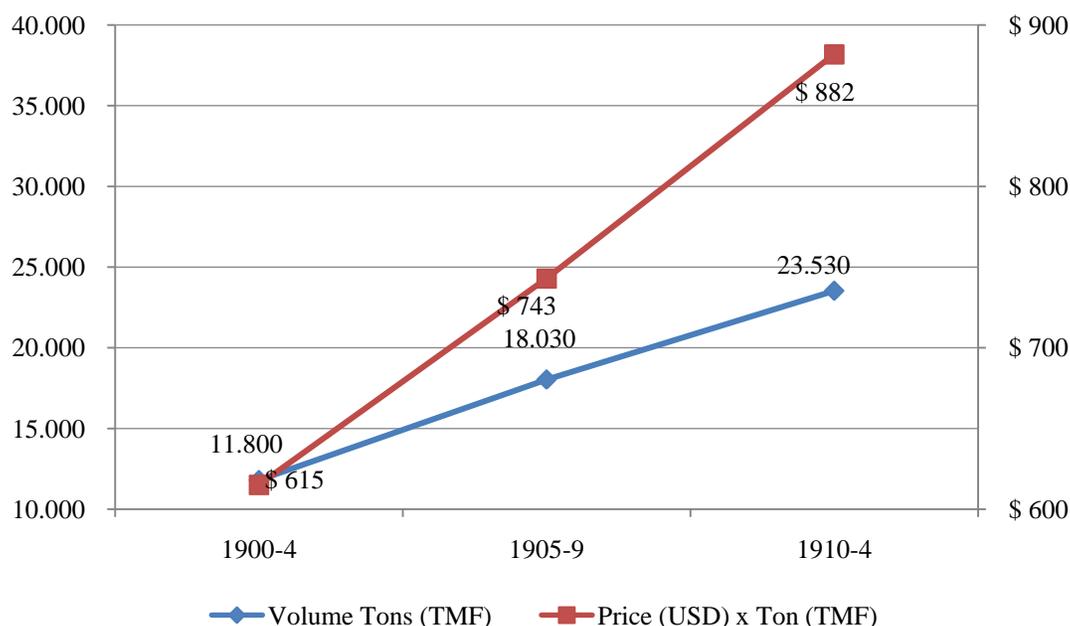


Figure 2. *Volume and price of tin exports from Bolivia, 1900-1914*

Note: Five years averages

Source: Powered by the Author with information of (Abadie-Aicardi, 1966, p. 24) (Ruiz, 1956, pp. 50-1)

By 1884 the nitrate business was distributed as follows: Chileans had 36% of production, 20% British, 17% German and 14% British-Chilean associations. The year 1895 would bring a major change in the structure, and the British began to handle 60% of

²⁸ (Bulmer-Thomas, 1994, pp. 94-5) (Klaren, 1986, pp. 248-51)

²⁹ Figures in (Feis, 1930) are in sterling pounds and to apply the average exchange rate in 1914 of 4.92 dollars per pound, for the case of Chile and Peru. The case of Bolivia uses the figure of (Bulmer-Thomas, 1994). Confronted figures between the two sources have an important difference. (Stone, 1977, p. 695) (Bulmer-Thomas, 1994, p. 102) (Feis, 1930, p. 23)

the production, from the alliance between the British government and John North, *the Nitrate King*, integrating the supply monopoly that had Iquique water, an relationship with several migrants as Harvey and Dawson whom specialized in each part of the business, and the Peruvian ownership certificates issued in 1876 that the Chilean government endorsed and served as collateral to finance locally and in Britain. Added to this was an improvement in prices and production levels (See Figure 1), and the increase of British investment that for 1896 totaled \$ 60.2 million of dollars³⁰ while the German investment over 8 percent to 15 percent before the war started.³¹

The tin became the material par excellence for strengthening military and naval industry as anticorrosive properties were essential for the development of these industries. This allowed an export progress in Bolivia, favored by increased demand and price (See Figure 2), which had a production structure dominated by Patiño and Aramayo, such as miners and buyers of production, *rescatadores*, of small miners. Germany imported in the years before the outbreak of the First World War a higher volume of metals than food, for 1907, 58.7 percent was minerals versus 35.4 percent food and food commodities, and distribution remained about the same until 1913. Its industrial development allowed him to become an exporter of tin, from the value added of its refineries and for the same year exported 182,400 tons and by 1913, 460,800 tons.³²

While Peru's new Mining Code launched in 1901, allowed the United States advance, with the founded of the Cerro de Pasco Investment Holding Company based in New York and would have interest in Cerro de Pasco Mining Company, in the Cerro-Oroya Railway and the rights of other mines in central Peru. Among its partner network were Michael Grace, James Haggin, JP Morgan and George Hearst,³³ who activated a mine production that in the nineteenth century was closed. Competition in the production of the United States developed their skills for that mining companies were interested in Peru and later in Chile under vertical structures as Anaconda Copper, American Smelting & Refining, Phelps Dodge, US Smelting, Refining & Mining Co.,³⁴ given by a growing demand for the metal and the necessity to diversify their investments.

Real prices were activated with the high demand from the United States and Germany in the 1900s (See Figure 3), with the difference that United States had important local deposits, but both had developed internal infrastructure and refining smelters they allowed to accumulate sufficient financial capacity for go into the exploration processes and exploitation in the region in the coming years, which had a cheap labor supply.³⁵ Authors

³⁰ (Monteón, 2003, pp. 74-6) (O'Brien, 1982, pp. 67-9) (Rippy, 1948, pp. 458-60) (Sutter & Sunkel, 1982, pp. 127-36)

³¹ (Collier & Sater, 2004, p. 165)

³² (Molodowsky, 1927, pp. 669-72)

³³ (Waszkis, 1993, p. 87)

³⁴ These are some of the largest industrial enterprises in the nonferrous metals sector for 1909, according Chandler adaptation of Kaplan's work, see (Chandler Jr., 1962, pp. 5, 327)

³⁵ The Guggenheim took this opportunity that gave the Peruvian and Chilean market, although the latter was in the nitrates boom (O'Brien, 1989, pp. 129-32), but it would be the beginning of the cooper expansion by

like Felgran mentioned that there was manipulation by major United States mining companies on prices, but that did not really exist in such a deep crisis as prices usually manifests.³⁶

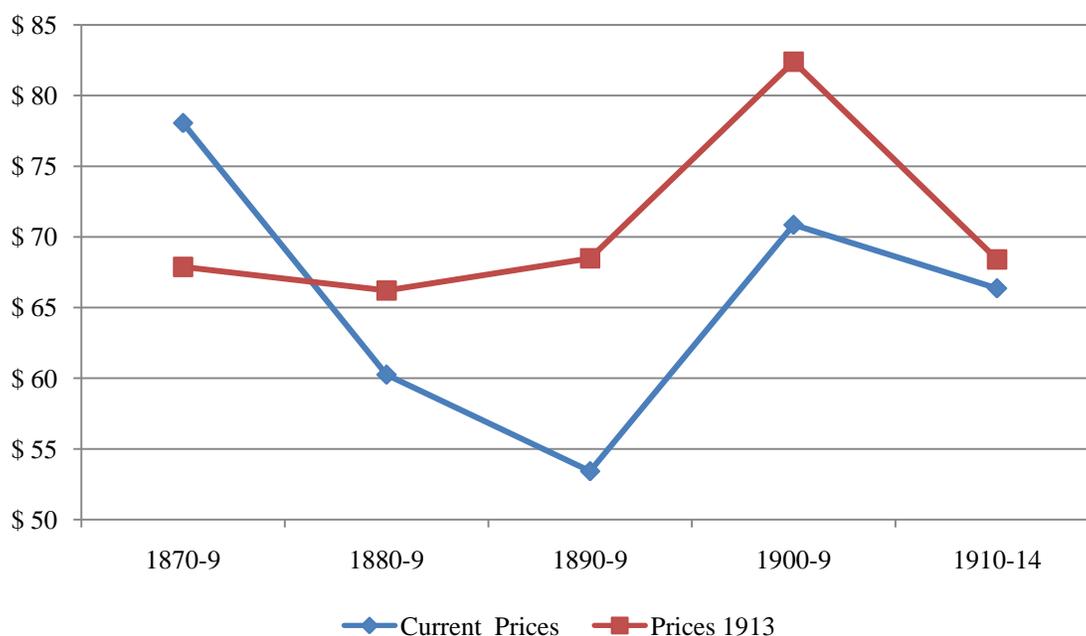


Figure 3. *London Metal Exchange Copper prices, 1870-1914*

Note: GBP x Metric Ton. Metric Ton current prices vs. prices 1913

Source: Powered by author with information of (Schmitz, 1986, p. 409)

The demand for industrial minerals facilitated the entry of the countries of the region to international markets, but it was the process of internal accumulation and foreign investment, which energized the copper industry in Peru and they would later in Chile, before the fall export of nitrates. However, Bolivian miners quickly integrated their capacity to accumulate and structured their ties abroad, leaving small place for foreign investment, although the change of its mining holdings domicile, would become foreign investment made by Bolivians.

falling nitrate exports by the expansion of synthetic nitrates, which Guggenheim also wanted to take advantage at the end of the First World War, because the German production of synthetic nitrates was reduced by the impacts of the war ended (Glaser-Schmidt, 1995, pp. 177-9).

³⁶ (Felgran, 1982, pp. 35-6)

II

At the end of the War of the Pacific, the Southwestern Latin America mining scenario, a triangle was wealthy in various minerals had a new frontiers (See Figure 4). Rapidly was structured a close relationship between mining companies and private bankers who develop an entire railway infrastructure, storage centers, shipping ports, utilities, financing structures and banks, critical to the timely delivery of these minerals to European industrial centers, which competed for these resources to facilitate their economic growth, technological progress, capital accumulation and the creation of financial capital.



Figure 4. *Transformation Border Region, 1879-1883*

Note: New Chilean territory:

Source: Powered by author with information of (Collier & Sater, 2004, pp. 115,130)

Few families were ahead of this economic transformation, a region that was characterized because families established a local label but was the next generation that assumed positions nationwide.³⁷ On several occasions the development of their business moved to public affairs and political processes, given their importance for export duties on fiscal revenue, creating situations that influenced social structures in exploitation regions, as in central governments. Businessmen like North, Grace, Patiño, Aramayo, Hochschild³⁸, Edwards³⁹, Concha Subercaseaux, Backus, Johnston, were important in mining but also in the development of related businesses, which is conjugated with a network of private bankers like Rothschild, Barings, Gibbs, merchant companies, correspondents, commercial banks in other financial and industrial centers, enabling them to strengthen and diversify their production, trading and financial activities.

Bolivian miners network connected with companies and commercial banks located in Chile and Peru, and in general with mining families in the region. A close relationship with firms like Balfour Williamson & Co. who was active in the America west coast, especially the United States, Chile and Peru, from the grain trade to board members at cement and mining companies; Duncan Fox & Co. who advised the acquisition by Patiño of the *Compañía Estannífera Llagua* in the Santiago Stock Exchange,⁴⁰ well as their transport lines, export and import between Chilean ports and Liverpool, and the insurance companies representation, Antony Gibbs & Co. that started with the textile trade to South America, continue with the monopoly of guano in Peru until nitrate plants, railways and lending in the region. Also it had with representations of United States and European companies of inputs and machinery for mining, infrastructure investment, warehouses and transportation from ports of Antofagasta, Mejillones and Iquique. And others like Graham Rowe & Co., W.J. Lockett & Co.⁴¹

It was a constant transformation that towards broader the business network that linked with the mining families and large merchant companies, and several times it was not necessary to install international banks in this mining region, where the regional economy structure was a source to attract these entities and not only the mining production. For this

³⁷ (Balmori, Voss, & Wortman, 1984, p. 13)

³⁸ Moritz Hochschild was the nephew of Zacharias Hochschild, cofounder of Metallgesellschaft and nephew of Hochschild owners of American Metal Company and second nephew of Siegfried Bendheim of Philipp Brothers (Waszkis, 1993, p. 127) (Waszkis, 2001, p. 45).

³⁹ Agustín Edwards linked foreign markets and funding sources under a single structure of merchant banking, the bank A. Edwards & Co. of Valparaíso facilitated the advancement of Chilean mining, later to be acquired by The Anglo South American Bank in July 1920 when he bought 60 percent of the bank's shares (Joslin, 1963, p. 259) (Sutter & Sunkel, 1982, pp. 72, 122).

⁴⁰ (Waszkis, 1993, p. 126)

⁴¹ (Chapman, 1985, pp. 236-8) (Contreras, 2000, p. 201) (Coyoumdjian, 2000, pp. 43-5) (Estrada, 2006, p. 72) (Joslin, 1963, p. 85)

reason, Bolivia only had four domestic banks and two international banks branches, while Chile and Peru eleven and twenty-three with eight and twenty respectively.⁴²

Families mining became an influential social class facilitated the establishment of proposed of British businessmen and bankers, who also pressured their government to advance the establishment of a free market in Bolivia, Chile and Peru. Some with more success than others, because they themselves which influenced internal and external affairs. This is the case of Bolivian mining families, directly influences, were the owners of all the tin vertical structure and their accumulation allowed them influence also in international markets. Mining families had managed to develop their fortunes in foreign trade commodity, because there was no industrial capacity to absorb mineral production, and central economies were to route the productions to their markets, but also initiated the transfer of ownership of mineral production to British control, as was the case of nitrates in Chile with some internal funding processes⁴³ and not only through foreign investment.

Miners and landowners became intermediaries between British business and Chilean public affairs, as their benefit to be part of this network provided them with capital accumulation for integration with agricultural, merchant, mining and financial business. Although not in the proportion who achieved Bolivian entrepreneurs, which reduced the possibility that the British took control of tin industry, starting from complex business schemes, corporate strategies and early capital accumulation, which facilitated the transfer of capital to Britain, France, Switzerland and later to the United States.

British interests were diverse in regional mining, in Chile its influence in public affairs was vital to advance its industrial consolidation, where the association with local families he facilitated the development of its business, is the case of Melbourne Clark & Co where participating Edwards, Ossa and Puelma with William Gibbs & Co., and other British investors.⁴⁴ As in other partnership schemes, such as those achievement Grace before the default on Peru and its deteriorating fiscal situation at the end of the War of the Pacific, which led him to get the rail concession in exchange for Peruvian debt restructuring,⁴⁵ that

⁴²The Anglo-South American Bank indirectly settled in Chile in 1888, after the acquisition of Bank of Tarapaca and London, the bank that was initially funded by the Rothschild (The Rothschild Archive, XI/38/38), and by 1913 had sixteen offices: eleven in Chile, four in Argentina and one in Uruguay, after its merger processes in the region, with a important network correspondent, where Banco Mercantil de Oruro founded by Patiño was one of them with a short life, as it had the intention to have closer contact with its main customer, Simon Patiño. Although under the initial structure of the Bank of Bolivia and London in 1908 there was also a representative office. See (Briones & Villela, 2006, pp. 335-6) (Joslin, 1963, pp. 196, 213). The Deutsche Überseeische Bank who started their expansion in the region in 1886 (Feis, 1930, p. 66), settled in Chile in 1896, where by 1913, had nine offices in Chile, six in Argentina, four in Peru, three in Brazil, one in Uruguay and Bolivia, the last one continued until the withdrawal of Anglo American South Bank as the only foreign bank in Bolivia. However (Young, 1991, p. 81) sets that by 1912, the Anglo-South American Bank had 20 offices and Deutsche Überseeische Bank with 28.

⁴³ (Cademartori, 1968, pp. 63-4)

⁴⁴ (O'Brien, 1980, p. 7)

⁴⁵ (The Barings Archive, HC4.11.28)

achieved with its international banking network, led by Barings in London⁴⁶ and its close relationship in the nitrate business.⁴⁷

In Bolivia there was no such influence, which was exercised directly by local mining families and their ability to remove the major public office at the time that their interests were not protected. The events of 1891 in Chile, configured clearly set the difference between the direct manipulations of British in public affairs through the achievement of resources that supported the rebels. The influence, in some cases handling, mining families in Bolivia, like Patiño, that although it was years later, established a common factor and was the defense a mining interests of any political demonstration that affect. Even though the political influence of the Aramayo was different, his father took over the functions of Minister Plenipotentiary in London in 1897, after rejecting the offer of President Pando taking as Minister of Foreign Affairs,⁴⁸ who in the shade was elevated to that position, by his diplomatic actions in conflict with Brazil and Chile, and his son held various public and diplomatic positions.

The economy based on exporting raw materials and importing manufactured goods, was vulnerable to any change in international prices, that to be influenced by economic crises led to impacts on public finances, which determined its budget on taxes customs, wherein export duties which facilitated the financing of public spending, and went from 24.9 percent of total ordinary entries in 1885 to 39.1 percent in 1915, and the total customs duties 75.9 percent.⁴⁹ So the influence of merchant banks, getting no significant gains in minerals trading, they did so with the provision of loans to sort out fiscal imbalances, directly or indirectly through its correspondent network that came to the banking structure in major financial centers such as London, Paris, Berlin and New York later. Similarly, started an important investment process and business expansion with industrial interests, financial and mining in the region.

Demand for mineral resources of this region left a common factor: a high dependence on minerals, and being a capital-extensive industry despite the easy access of several mineral deposits, did not require a constant transformation and training of general workforce, but only a few workers, what greatly influenced the productivity of these, in the concentration of mining in GDP, in political influence and stiffness to achieve structural changes in the three countries.

III

As the demand for minerals was increased in the central economies and mining families began developing a thriving business, the proclamation of the German Empire in the Hall of Mirrors at the Palace of Versailles in 1871, was beginning a political and economic

⁴⁶ (Miller, 1976, p. 88) (Secada, 1985, p. 602)

⁴⁷ (The Barings Archive, HC4.3.21) (The Barings Archive, HC4.3.18.2)

⁴⁸ (Crespo, 1981, pp. 158-166)

⁴⁹ (Cademartori, 1968, p. 66) (Sutter & Sunkel, 1982, p. 140)

progress that required a various raw materials as part of its strengthening as a new Empire, where strategic materials were acquired in two ways: first, with local exploitation of mineral resources that could supply the industry demand, and second, with imports from Southwestern Latin America, as they were essential for the development of military industry, transportation and machinery.

In some cases they were monopolies global production, as was the case of Chilean nitrate, necessary for the production of explosives, which was integrated with the processing of metals and development of the shipping and military industry in head of Thyssen and Krupp respectively, and were complemented by the work of smelters Zinnwerke Wilhelmsburg GmbH and Norddeutsche Affinerie in Hamburg, Deutsche Gold- und Silber-Scheideanstalt (Degussa) of Frankfurt, the metals company, Metallgesellschaft AG, the Ruhn industrial companies as Gelsenkirchener Bergwerks AG, and merchant houses like Henry Sloman, under a structure, as mentioned Chandler of cooperative managerial capitalism.⁵⁰ With the involvement of local private banks Bleichröder, Mendelssohn, Speyer, Warburg, international private banks Rothschild and Barings, and new joint stock banks, Deutsche Bank, Dresdner Bank, Diskonto-Gesellschaft, Darmstädter Bank, Comerz Bank, Schaffhausen'schen Bankverein, Berliner Handelsgesellschaft, that evolved and strengthened through the merger of local credit intermediaries.⁵¹ That is, the economic development process in Germany focused on a great business model on large-scale modern enterprise that developed organizational mechanisms to coordinate transactions between firms (See Figure 6), unlike what happened in France.⁵²

German banks, in contrast to what happened in England and France, were true *banques d'affaires*, and that provided short and long term resources to industries,⁵³ and these were linked to merchant houses or directly with mining families in South America. This coupled with the excesses of Barings in Argentina that gave space for access to the region from other European banks, both private and joint stocks such as Société Générale, Crédit Mobilier, Comptoir National d'Escompte de Paris and Paribas of France, the British banks Lloyds and Barclays, and of course the previously mentioned German banks, neglecting what Bismarck claimed to private bankers to invest in the advancement and industrial progress of Germany, and not in the other countries.

However, the transformation of the German Empire, towards a more active and belligerent diplomacy occurs with the resignation of Bismarck in March 1890. An official decided to take Germany to a class on the world stage, with a bold and visionary diplomacy as Kissinger manifested in his book *Diplomacy*,⁵⁴ but different than Wilhelm II wanted to develop: a Germany that is equalized with the strategies that have made a great British Empire, the Austro-Hungarian Empire, the Russian Empire, France and the Ottoman

⁵⁰ (Chandler Jr., 1990, pp. 426-7)

⁵¹ (Feis, 1930, pp. 62-3)

⁵² (Kingham & Nye, 1996, p. 110)

⁵³ (Birnie, 1949, p. 120)

⁵⁴ (Kissinger, 1995, pp. 98-102)

Empire itself, with the difference that the German colonial empire was a result of nationalism and political vanity rather than by the need for economic expansion as German products were displacing the British and French in Western Europe, and its sales focused on developed economies.

But was Bismarck, whom had built the German Empire showing all the momentum of power and diplomatic relationship in the different fronts that did shake the European balance agreed upon in the Congress of Vienna in 1815, but always was based on secret alliances; and from the end of the Franco-Prussian war, and would be increased to the highest level diplomatic strategy of German Chancellor. Internally, the integration between technical schools and industrial processes facilitated the improvement in competitiveness and production factors optimization, versus difficulties that appeared in the British and French production that integrated to decreasing yields of industry and away from sustainability innovation processes since the crisis in 1873. The German advance would lead to the development of synthetic nitrates industry years afterwards, reducing dependence on natural nitrates and collapse of Chilean exports.

Politically and economically the newly created Germany, won positions in the European concert, and became the hand of its economic strength and kindly Bismarck diplomacy, in hosting the Congress of Berlin in 1878, which sought to address the crisis in the Balkans and clashes between the powers, to the Berlin Conference of 1884-5, which saw Bismarck as the director of European concert, with a countless of secret agreements between the powers to show him diplomatic leadership as part of its foreign policy strategy. That subsequently launched the colonialist race and pressure from German Hanseatic circles, especially merchant elites of Hamburg, Bremen and Lübeck, which also influenced domestic politics. Although Bismarck was against colonial race, and I think several times that no one had the ability to divert to the colonial enterprise and leverage resources was better on the home front,⁵⁵ had to agree and let unsupported his words "It's very nice your map of Africa, but mine is in Europe, here is Russia, then France and we are in the middle".

The 1890s brought a change in the European concert, leave Bismarck as guarantor of diplomatic balance and financing of German industry, which was the way the German government working to develop its foreign influence, expand international sales, and build banking connections necessary that allowed the acquisition of new areas of influence.⁵⁶ Powers began to build colonial doctrines, the political vanity of Wilhelm II prevailed, who deepened the empire's patriotism, *Reichspublizistik*, and Germanness, *Deutschtum*, reactivated in 1897 with *Weltpolitik* by the internal pressure of the agrarian elites with the political consequences them was generating industrialization, and other nationalist groups like the Pan-Germanic League, *Alldeutscher Verband*, the Colonial Society, the Navy League, *Flottenverein*, whom considered sterile until then the impact of German expansion in Europe and the world, and tensions between political groups by the constitutional system and the same monopolistic structure of German capitalism, showing elements of weakness

⁵⁵ (Flenley, 1959, p. 293)

⁵⁶ (Feis, 1930, pp. 160-1)

in the internal politics of Bismarck.⁵⁷ In words of Arthur Lewis, was a reaction of the people affected by the accelerated growth that resisted the cycle of change,⁵⁸ but it was a process that in turn had the support of an elite group of scientists, economists, intellectuals and academics, under the scheme of state science, *Staatswissenschaften*, which strengthened the German imperial project.⁵⁹

Table 2. *Industrial Variables, 1880-1913*

Variable	Year	France	Germany	Britain
Manufacturing Production	1880	42,2	45,9	123,8
	1900	36,8	71,4	100,0
	1913	32,9	80,0	73,5
Production of Iron / Steel	1880	34,0	48,0	156,0
	1900	30,0	126,0	100,0
	1913	92,0	352,0	154,0
Energy consumption	1880	16,9	27,5	73,1
	1900	28,0	65,5	100,0
	1913	36,6	109,4	114,0
Industrial potential	1880	25,1	27,4	73,3
	1900	36,8	71,2	100,0
	1913	57,3	137,7	127,2

Note: Britain 1900=100

Sources: Indices constructed by the author with information of (Bairoch, 1982, pp. 297-302) (Kennedy, 1984, pp. 12-4) except industrial potential.

Although it is important to note that demand for strategic metals also increased by the situation that existed in Europe and in the periphery: from *Fashoda* crisis until the Franco-British *Entente*, despite that some French politicians sought ways to consolidate first an alliance with Germany to balance its position with Britain,⁶⁰ and the Russo-Japanese War, the North African crisis, the Spain-United States war, the possible support to the expansion of Austria in the Balkans, the Franco-Russian alliance, a possible British attack, the presence of a new power in the Mediterranean that concerned to France and Russia for Germany's approach to the Ottoman Empire and the weakness that had Germany in its

⁵⁷ (Clarck, 2007, pp. 580-2) (Kaiser, 1983, p. 443) (Manz, 2012, pp. 200-2) (Mommsen, 1969, p. 109) (Mommsen, 1973, p. 7)

⁵⁸ (Lewis, 1955, pp. 170-5)

⁵⁹ (Grimmer-Solem, 2007, p. 317)

⁶⁰ (Cockfield, 1983, pp. 265-6)

supply of fertile land that Russia still had them,⁶¹ although Russia had been receiving three-fifths of German investment during 1870-86.⁶² This motivated the Kaiser Wilhelm II to accelerate industrial purposes and combine them with the defense industry and the future of war diplomacy.

The German economic growth, which is supported on the industrial capacity progress was higher than in other European countries, and in turn is integrated with manufacturing development and the possibility of having the raw materials and energy resources to supply Industrial demand, which resulted in a growth rate of German industrial potential, during the period 1880-1913, 12.2 percent annually average, while France and Britain of 3.9 percent and 2.2 percent respectively (See Table 2). Using the methodology of Kuznets, German total output grew on average 35.6 percent per decade, while Britain and France grew 25.0 percent and 18.6 percent respectively.⁶³

This can be justified as well, with the tensions in Africa during the 1890s between British and French that strengthened migration to the colonies, but the same thing no happened to the German colonies, possibly because of the colonization process brutality and also by the opportunities that generated inside Germany, let alone give a migration strong process to the United States and South America. Despite colonial expansion, competition with the British was given by industrial factors, commercial and naval, the latter was vital to achieve its commercial expansion, which engage with the capital of the new banks, was the cornerstone for the German advance which maintained a constant interaction between capital and industry. While the rivalry with France was to eliminate the risk of a *Mitteleuropa* under German leadership,⁶⁴ which would cause difficulties in the sustainability of the French nation, and as stated Naumann when analyzing the German people as a demographic and industrial power, which should lead to an expansionist foreign policy, where Germany will be strengthen in Central Europe.⁶⁵

Wilhelm II's vision to drive the future to the seas, establishes the necessity to demand a significant amount of strategic materials. Tin, copper and nitrates were part of the structuring of an essential naval force to compete against British navy, that had been built gradually with the proclamation of the Navigation Act of 1651 and its proceedings supplementary to that Wilhelm II wanted to emulate the creation of naval laws, *Flottengesetze*, during the fourteen years since the first law of 1898, which increased capacity by more than 30 warships⁶⁶ and would be the sixth to the second naval fleet during

⁶¹ (Andrew, 1914, pp. 147-8) (Lerman, 1997, p. 221) (Rowe, 1999, pp. 201-4)

⁶² (Platt, 1984, pp. 65-7)

⁶³ Kuznets uses the intervals for decades in a long term, is also set the first interval like 1860-9 to 1904-13, see (Kuznets, 1959, pp. 42-3)

⁶⁴ (Rider, 1996, p. 43)

⁶⁵ (Naumann, 1916, pp. 269-75)

⁶⁶ (Zorgbibe, 1994, p. 101)

this period.⁶⁷ Thus, reduce the internal pressures that were affecting political stability what allowed reconcile the different forces of power.⁶⁸

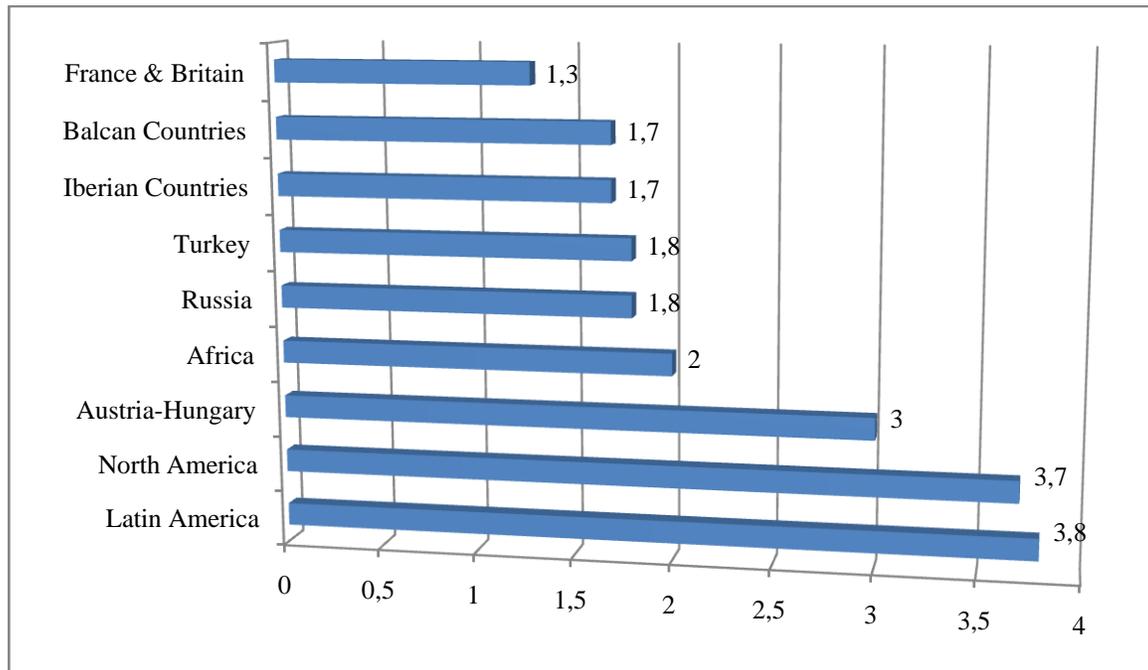


Figure 5. *German Long Term Foreign Investment, 1913*

Note: In Billions of Marks

Source: Powered by author with information of (Feis, 1930, p. 74)

Funding of German industry, sought meet the requirements of diplomatic strategy to developed as a power in the international system, and achievement drive the strengthening economic growth, technological progress and competitiveness, which added to the favorable institutional conditions for this industrialization like state policies to strengthen rail infrastructure.⁶⁹ This does not put aside the export of capital, especially where it could find materials that respond to industry demand. For this reason, German long-term investments in the world for 1914 amounted to 23.5 billion marks, where investment in Latin America and North America amounted to 16.2 percent and 15.7 percent respectively (See Figure 5).

⁶⁷ According to figures from Kennedy, the German fleet on the eve of the war consisted of thirteen battleships, sixteen warships and five cruisers, that had greater capacity and performance than their British rivals (Kennedy, 1976, pp. 208-29).

⁶⁸ (Mommson, 1973, p. 447)

⁶⁹ (Chandler Jr., 1990, p. 413) (Fohlin, 2007, p. 21)

The connection between the pressure of the external and internal affairs, is given with fiscal policy, which as mentioned Ferguson, becomes the reason for the outbreak of the war, and more importantly, showed the failure of Germany to generate public resources needed to continue the expansion of defense and military industry that led to the dissolution of the Reichstag on three occasions, for control of the budget.⁷⁰ This resulted in a sudden increase in public spending to strengthen its ground forces from 203 to 442 million dollars from 1910 to 1914, representing 4.6 percent of national income.⁷¹

IV

Mining activities created complex organizations with internal and external relationships⁷² that supported on an expansion objective and the ease with which the efficiency of financial markets indicted the resources necessary for this expansion, namely, the financial structure to determinate the resources amount and quality, out through bank intermediation and securities markets, to channel them into business development. Although some of these capital accumulation processes were into companies, and it was these which expanded their corporate objectives and sometimes transformed it into financial capital.

The durability of the organizations not achieved only with the cumulative process, but also the innovative process, and innovative company that becomes a fundamental organization into change processes that resulted in the development of German companies, British and to a lesser in the French. But when referring to a business organization, this is related to a network of firms involved in the process of transformation of the institutional, organizational and industrial innovation conditions as it should be analyzed from the perspective of organizational integration, bonding of a large number of agents and firms to achieve the result set of innovation, resource optimization and its combination with the elements of organizational capabilities that allow companies to be more than the sum of its parts.⁷³

The Bolivian tin led by a group of companies, may not influence the economic development of Bolivia, but if in the tin mining activity, from a business perspective and not social, but sometimes with serious limitations of innovation. Something similar with foreign influence in Chile and Peru mining industries where families connected their economic interests with the international investor objectives, that kept the innovation process.

These organizations have a social responsibility but also an objective of profit maximization, the case of Bolivian entrepreneurs focused on the development of an activity requiring an integration of people and companies with specialized knowledge, that interact

⁷⁰ (Clarck, 2007, p. 603) (Ferguson, 1994, pp. 143-53)

⁷¹ (Kennedy, 1987, p. 342)

⁷² See the scheme of relational complexity posed by (Amatori & Colli, 2011, p. 13)

⁷³ (Chandler Jr., 1992, pp. 83-6) (Lazonick, 2003, pp. 33-5, 43)

with productive resources, organizational integration and financial capital accumulation, developed a tin network that went beyond a simple economic enclave, which formed a control strategic structure skills of labor division in the related companies and changed market conditions.⁷⁴ Add with the economic needs that were developed from the economic interests of European countries, which were connected with a foreign policy strategy.

Although mining companies of the early years of twentieth century did not have the technological advances of the actual industry,⁷⁵ were also capital intensive, with the ability to exploit the potential of economies of scale, which was achieved thanks to the effectiveness of new technologies production, capital and its global network. This allowed them often sustain the economies of scale from strategies as linking in government affairs and international integration forward and backward in the distribution of raw materials, vertical integration, creation of cartels, alliances, lobbying and political struggles seeking control of the market, as mentioned Zeitlin were strategies that were part of the historical construction of markets, but not necessarily the success of companies,⁷⁶ which was not determined by the companies size.

The network mining families had as a local scheme structure integrated into a global network, away from research and science, defined on sectoral patterns of capital accumulation, not only of knowledge, which subcontracted with local actors to relate later with the global network, who was that developed the innovation processes. Had there been a deep interaction between capital and knowledge, the mining industry would have generated added value and become a local cluster connected to a global network. The miners were able to articulate knowledge from importing engineers and specialists in the Bolivian case, or officials in international companies in Chile and Peru, which optimized raw material, linked with capital and management of bankers allowing to generated economic value in the industries in Germany and Britain.

The rise of the mining knowledge economy could be related to the clusters based on the interaction of science, innovation, creativity and economic growth politically desirable, articulated by organizational proximity.⁷⁷ However, the Bolivian tin dimensioned all local parameters, political, economic, fiscal, cultural, and social and employment, forming a network that would allow determining all relationship variables of mining activity. It was a network that was secured, not only, from knowledge exploration but of the explosion itself, creating channels that from organizational proximity allowed to transfer geographically, the knowledge, and thus be articulated a scheme that brought together the largest tin producers from an accumulation process that enjoyed the kindness of the local and international authorities, and not entrepreneurial knowledge, innovation and accumulation. This network based its success on specialization and moved away to diversification. The search to

⁷⁴ (Lazonick, 2003, p. 60) concludes that the innovative company is linked to organizational learning which facilitates technological change and market conditions.

⁷⁵ (Chandler Jr., 1992, p. 81)

⁷⁶ (Zeitlin, 2003, pp. 68, 71)

⁷⁷ (Cooke, De Laurentis, Tödtling, & Tripl, 2007, pp. 90-1)

consolidate the tin business, enabled him to go to other geographical dimensions that strengthened the business, this meant moving to the domination of international knowledge networks as a fundamental element above the effective and efficient management of resources and diversify in the same area of specialization.⁷⁸

That is, we used mining and its accumulation as the cornerstone of the strategy, leaving out other activities that may deteriorate capital accumulation and its subsequent transformation into financial capital. Set above the global flows of knowledge of the mining business before seeking diversification might have been one of the ways to generate economic development in the region. Non-diversification of productive portfolio of tin miners distanced the mining from other productive activities and undermined the possibility of industrial progress in Bolivia, despite the incursion of Patiño in agribusiness and dairy products. The case of Chile and Peru expanded their horizons in the financial sector and other local industries, as it did not have the accumulation capacity that had Bolivian entrepreneurs.

Thus, a network that allowed to dominate the tin business, and articulated in a global activity beyond the simplicity of an economic enclave. Links with public affairs through the capital influence to achieve the centralization of tin business over the different spheres, that supported by financial institutions could better control of the global network, based on cohesion mechanisms existing⁷⁹ and sizing of corporate power from the strategic control of companies through stock ownership, and control over capital flows exercised by financial institutions.⁸⁰

The network efficiency was determined on the maximization of the total utility of society, however, the network of tin entrepreneurs achieved its objectives but generating some negative externalities for the Bolivian state.⁸¹ Thus like the network stability would be achieved from spreading its objective, the proximity that set from the spheres of influence and potential areas of action, managing relationships with those agents that might influence in accumulation that was obtained within the local network. From there, to set the external relations with other international mining companies, diplomats of governments interested in obtaining strategic materials and financial institutions directly or indirectly (See Figure 6).

Meanwhile, the Chilean and Peruvian mining network was supported on the influence of foreign investment, diplomats and merchant banks that were linked to the development of the entire Southwestern Latin America mining region that presented above.

⁷⁸ (Penrose, 1959, p. 97)

⁷⁹ For an expansion of the network mechanisms and corporate connections, see (Bond & Harrigan, 2011, pp. 201-5)

⁸⁰ (Carroll & Sapinski, 2011, p. 192)

⁸¹ For a deeper analysis of efficiency, inefficiency and network externalities, see (Jackson, 2008, pp. 157-63)

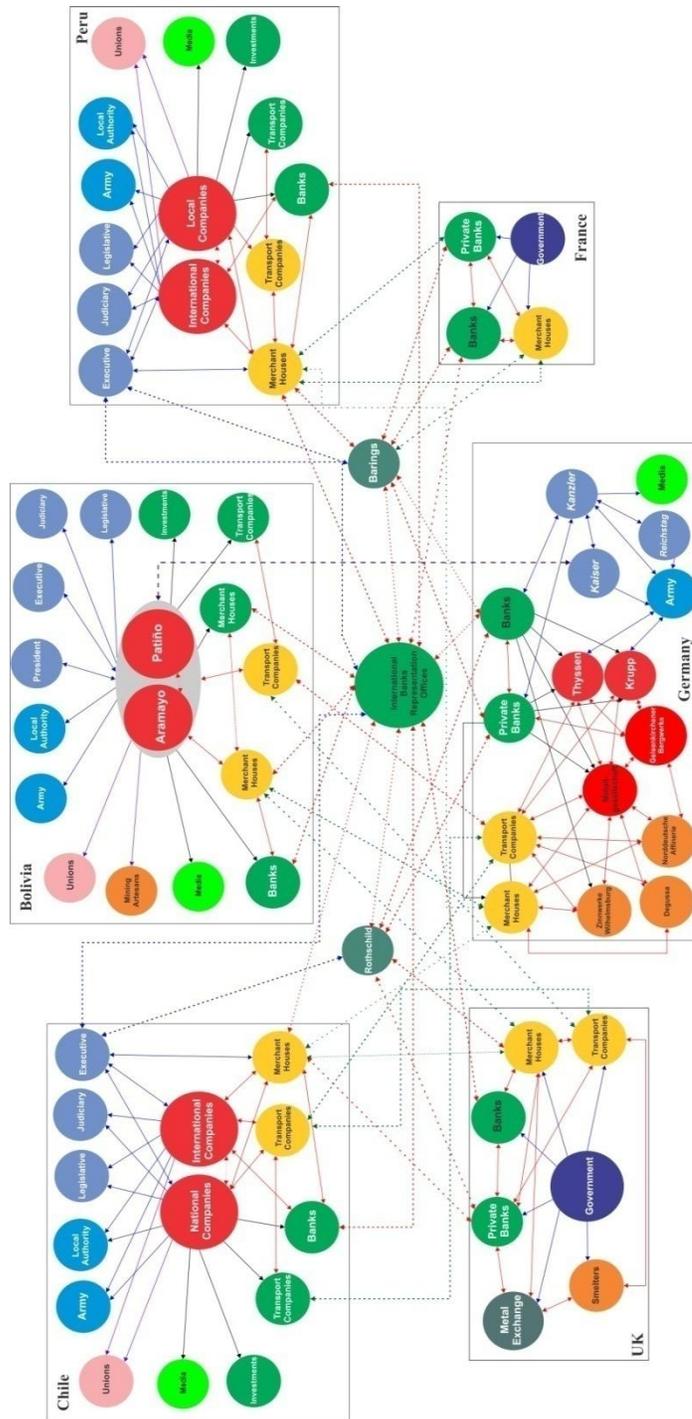


Figure 6. *Global Network of Southwestern Latin America Mining*

Note: See conventions in Appendix 1

Source: Powered by author⁸²

⁸²To learn about structures and building networks, see (Krempel, 2011) (Jackson, 2008, pp. 20-51)

Despite having important local families who developed the mining business, but the ability of capital accumulation and its transformation into financial capital, was not strong enough for families as Concha y Toro, Edwards, and Puelma Ossa, pass to the next copper expansion during the twentieth century, and stay on top of international bankers and miners. However, this network established an interaction between the local elites and foreign investors who provided financial and industrial progress of Chile.

By 1885 there were six banks had a capital of over one million Chilean pesos equivalent to slightly more than 500,000 US dollars on the date, and in 1905 was more than 17 banks with a capital of over one million Chilean pesos, but had managed to create large banks like Bank of Chile with a capital of 64.9 million, *Nacional* with 11.9 million, *Mobiliario* with 8.2 million, *De la República* with 7.7 million and A. Edwards with 7.2 million.⁸³ This facilitated the advancement and expansion Chilean mining of copper, with entrepreneurship funded locally, with foreign investment and public debt in international markets, representing a British funding equivalent to 66.8 million by 1895 and 172.2 million dollars in 1913,⁸⁴ in head of the House of Rothschild that would supply resources with credit operations, 1886, 1887, 1892, 1896,⁸⁵ to an economy that had raw materials needed for industrial development in the Central countries.

While the case of Peru, was integrated into the global network on two fronts, namely: first Grace integrating public affairs and fiscal, backed by its banking network with Barings, and the arrival of United States mining companies, who interacted with German investment and refiners of Hamburg and Frankfurt. But they did not have a very high export concentration, and where landed elites remained relevant to public affairs. The foreign families and international entrepreneurs were would lead the mining activity the following years.

This network scheme, was built as an organization that socialized their control strategies and established a framework for developing international business and direct investment scheme that suited their business interests, allowing progress to overall network point of becoming a multinational structure that was not strictly linked to their origin place, but with the objectives that would allow sizing its corporate strategy.⁸⁶ That is, its source was its corporate structure and not its geographic origin.

V

This paper used the networks theory, which identified the characteristics of the export of minerals Southwestern Latin America before the start of the First World War. Clearly there are differences in the intensity, dynamics and complexity of global networks for each of the

⁸³ We used exchange rate of this date to convert the original figures of (Sutter & Sunkel, 1982, p. 122) to U.S. dollars.

⁸⁴ (Stone, 1977, p. 706)

⁸⁵ (The Rothschild Archive, 000/401E/14)

⁸⁶ For a discussion of these corporate schemes, see (Jones, 2005, p. 292) y (Wilkins, 1988, p. 261)

strategic materials and the influence of the mining industry in public affairs, but was able to determine common parameters that allowed establishing the importance of these raw materials for industrial strategy and the imperial project of Germany. The arguments of business history linking with new parameters of comparative analysis of economic history, political economy, entrepreneurship, with the theory of social networks that facilitated the identification of relationships process between agents that operate in global markets of strategic materials.

The Bolivian tin achieving intensively advance in the national and international stages, set aside the industrial diversification and population of the mining advance, as well as focusing on the almost total expatriation of the funds obtained by tin mining activity. The copper and nitrates show to two structures, national and international companies, who managed to influence public affairs, but not in the size of Patiño and Aramayo in Bolivia. The Peruvian and Chilean mining industry was in head of international companies and to a lesser extent in the local companies, but were they who were interested in diversifying its mining operations in other financial and industrial investments into Chile and Peru, and facilitated industrial advancement, leaving in head of international companies the large-scale mining development.

Economic competition and political vanity that appeared in Europe, led as Germany properly develop an industrial planning process articulated with its diplomatic strategy. Where the demand for copper, tin and nitrates, went hand in hand with the industrial process. Thus, the trade of these materials is transformed, but also was the political confrontation that led to the exploration and exploitation in different parts of the world of these commodities.

Finally, it is important to say that the global network strengthened strategic materials trade, but where cracks were also, as some central countries did not develop in a sustainable innovation and moved away of economic progress that had Germany and United States as new axis of world trade by 1914.

Footnote references

- Abadie-Aicardi, R. (1966). *Economía y Sociedad de Bolivia en el Siglo XX. El Antiguo Régimen*. Montevideo: Ediciones del Rio de la Plata.
- Ahumada, P. (1884). *Guerra del Pacífico* (1982 ed., Vols. I-II). Santiago: Editorial Andres Bello.
- Albion, R. (1951). Capital Movement and Transportation: British Shipping and Latin America, 1806-1914. *The Journal of Economic History*, 11(4), 361-374.
- Amatori, F., & Colli, A. (2011). *Business History. Complexities and comparisons*. New York: Routledge.
- Andrew, C. (1914). German World Policy and the Reshaping of the Dual Alliance. *Journal of Contemporary History*, 1(3), 137-151.
- Bairoch, P. (1982). International Industrialization Levels from 1750 to 1980. *Journal of European Economic History*, 11(2), 269-333.

- Balmori, D., Voss, S., & Wortman, M. (1984). *Notable Family Networks in Latin America*. Chicago: University of Chicago Press.
- Barbero, M. I. (2003). Business History in Latin America: Issues and Debates. In F. Amatori, & G. Jones (Eds.), *Business History around the World* (pp. 317-335). New York: Cambridge University Press.
- Barclay, W. S. (1917). The Geography of South American Railways. *The Geographical Journal*, 49(4), 241-277.
- Barros, M. (1970). *Historia Diplomática de Chile, 1541-1938*. Barcelona: Ediciones Ariel.
- Belaunde, V. (1919). *Nuestra Cuestión con Chile*. Lima: Biblioteca del Mercurio Peruano.
- Birnie, A. (1949). *European Economic History*. London: Methuen & Co. Ltd.
- Blakemore, H. (1986). Chile, desde la Guerra del Pacífico hasta la depresión mundial, 1880-1930. In L. Bethell (Ed.), *Historia de América Latina* (J. Beltrán, & M. Escudero, Trans., 1992 en español ed., Vols. 10. América del Sur, c. 1870-1930, pp. 157-203). Barcelona: Editorial Crítica.
- Bond, M., & Harrigan, N. (2011). Political Dimensions of Corporate Connections. In J. Scott, & P. Carrington (Eds.), *The SAGE Handbook of Social Network Analysis* (pp. 196-209). London: SAGE Publications.
- Briones, I., & Villela, A. (2006). European bank penetration during the first wave of globalisation: Lessons from Brazil and Chile, 1878–1913. *European Review of Economic History*, 10(3), 329–359.
- Bulmer-Thomas, V. (1994). *The Economic History of Latin America since Independence*. Cambridge: Cambridge University Press.
- Cademartori, J. (1968). *La Economía Chilena. Un Enfoque Marxista*. Santiago: Editorial Universitaria.
- Carroll, W., & Sapinski, J. (2011). Corporate Elites and Intercorporate Networks. In J. Scott, & P. Carrington (Eds.), *The SAGE Handbook of Social Network Analysis* (pp. 180-195). London: SAGE Publications.
- Chandler Jr., A. (1962). *Strategy and Structure. Chapters in the History of the Industrial Enterprise*. Cambridge, MA: The MIT Press.
- Chandler Jr., A. (1990). *Scale and Scope: The Dynamics of Industrial Capitalism*. Cambridge, MA: Harvard University Press.
- Chandler Jr., A. (1992). Organizational Capabilities and the Economic History of the Industrial Enterprise. *The Journal of Economic Perspectives*, 6(3), 79-100.
- Chapman, S. D. (1985). British-Based Investment Groups before 1914. *The Economic History Review*, 38(2), 230-251.
- Clark, C. (2007). *Iron Kingdom. The Rise and down fall of Prussia 1600-1947*. London: Penguin Books.
- Cockfield, J. (1983). Germany and the Fashoda Crisis, 1898-99. *Central European History*, 16(3), 256-275.
- Collier, S., & Sater, W. (2004). *A History of Chile, 1808-2002*. Cambridge: Cambridge University Press.

- Contreras, M. (2000). Bolivia, 1900-1939: Mining, Railways and Education. In E. Cardenas, J. A. Ocampo, & R. Thorp (Eds.), *An Economic History of Twentieth-Century Latin America* (Vol. 1, pp. 188-216). New York: Palgrave-St. Antony's College Oxford.
- Cooke, P., De Laurentis, C., Tödting, F., & Tripp, M. (2007). *Regional Knowledge Economies. Markets, Clusters and Innovation*. Cheltenham, UK: Edward Elgar.
- Couturier, H. (1986). Relaciones del Perú con Chile y Bolivia. In E. Ferrero (Ed.), *Relaciones Internacionales del Perú* (pp. 39-59). Lima: Centro Peruano de Estudios Internacionales.
- Couyoumdjian, J. R. (2000). El Alto Comercio de Valparaíso y las Grandes Casas Extranjeras, 1880-1930. Una Aproximación. *Historia. Pontificia Universidad de Chile*, 33(1), 63-99.
- Crespo, A. (1981). *Los Aramayo de Chichas*. Barcelona: Editorial Blume.
- Estrada, B. (2006). La Colectividad Británica en Valparaíso durante la Primera Mitad del Siglo XX. *Historia. Pontificia Universidad Católica de Chile*, 39(1), 65-91.
- Feis, E. (1930). *Europe: The world's Banker, 1870-1914*. New Haven: Yale University Press.
- Felgran, S. (1982). *Producer prices versus market prices in the world copper industry*. New Haven: unpublished Ph.D. thesis, Yale University.
- Ferguson, N. (1994). Public Finance and National Security: The Domestic Origins of the First World War Revisited. *Past and Present*(142), 141-168.
- Fifer, J. V. (1964). Arica: A Desert Frontier in Transition. *The Geographical Journal*, 130(4), 507-518.
- Flenley, R. (1959). *Modern German History*. London: J.M. Dent & Sons Ltd.
- Fohlin, C. (2007). *Finance Capitalism and Germany's Rise to industrial power*. Cambridge: Cambridge University Press.
- Fontana, G. (2006). The economic development of Europe in the nineteenth century. International exchanges and monetary systems. In A. D. Vittorio (Ed.), *An Economic History of Europe* (pp. 222-238). London: Routledge.
- Geddes, C. (1972). *Patiño: The Tin King*. London: Robert Hale Ltd.
- Glaser-Schmidt, E. (1995). The Guggenheims and the coming of the great depression in Chile. *Business and Economic History Review*, 24(1), 176-185.
- Gómez, L. R. (2006). *Políticas de Transporte Ferroviario en Bolivia 1860 - 1940*. La Paz: Bolset.
- Granados, O. (2010). Imperios y colonialismo, 1870-1914 ¿Una era de globalización, geopolítica o nacionalismo económico? *Revista de Relaciones Internacionales, Estrategia y Seguridad*, 5(1), 51-82.
- Grimmer-Solem, E. (2007). The Professors' Africa: Economists, the Elections of 1907, and the Legitimation of German Imperialism. *German History*, 25(3), 313-347.
- Jackson, M. (2008). *Social and Economic Networks*. Princeton: Princeton University Press.
- Jones, G. (2003). Multinationals. In F. Amatori, & G. Jones (Eds.), *Business History around the World* (pp. 353-371). New York: Cambridge University Press.
- Jones, G. (2005). *Multinationals and Global Capitalism. From the Nineteenth to the Twenty-first Century*. Oxford: Oxford University Press.
- Joslin, D. (1963). *A Century of Banking in Latin America*. London: Oxford University Press.

- Kaiser, D. (1983). Germany and the Origins of the First World War. *The Journal of Modern History*, 55(3), 442-474.
- Kennedy, P. (1976). *The Rise And Fall of British Naval Mastery*. London: A. Lane.
- Kennedy, P. (1984). The First World War and the International Power System. *International Security*, 9(1), 7-40.
- Kennedy, P. (1987). *The Rise and Fall of the great powers*. New York: Vintage Books.
- Kinghorn, J., & Nye, J. (1996). The Scale of Production in Western Economic Development: A Comparison of Official Industry Statistics in the United States, Britain, France, and Germany, 1905-1913. *The Journal of Economic History*, 56(1), 90-112.
- Kissinger, H. (1995). *La Diplomacia* (2000 ed.). (M. Utrilla, Trans.) Mexico: Fondo de Cultura Económica.
- Klaren, P. (1986). Los orígenes del Perú Moderno, 1880-1930. In L. Bethell (Ed.), *Historia de América Latina. América del Sur, 1870-1930* (J. Beltran, & M. Escudero, Trans., pp. 233-279). Barcelona: Editorial Crítica.
- Klein, H. (1969). *Parties and Political Change in Bolivia, 1880-1952*. Cambridge: Cambridge University Press.
- Krempel, L. (2011). Network Visualization. In J. Scott, & P. Carrington (Eds.), *The SAGE Handbook of Social Network Analysis* (pp. 558-577). London: SAGE Publications.
- Kuznets, S. (1959). *Aspectos Cuantitativos del Desarrollo Económico*. México: Centros de Estudios Monetarios Latinoamericanos.
- Lazonick, W. (2003). Understanding Innovative Enterprise. Toward the Integration of Economic Theory and Business History. In F. Amatori, & G. Jones (Eds.), *Business History around the World* (pp. 31-61). New York: Cambridge University Press.
- Lerman, K. (1997). Wilhelmine Germany. In M. Fulbrook (Ed.), *German History since 1800* (pp. 199-226). London: Arnold Publishers.
- Lewis, W. A. (1955). *The Theory of Economic Growth*. London: George Allen & Unwin.
- Lewis, W. A. (1978). *Growth and Fluctuations, 1870-1913*. London: George Allen & Unwin Ltd.
- Manz, S. (2012). Nationalism Gone Global: The Hauptverband Deutscher Flottenvereine im Auslande 1898–1918. *German History*, 30(2), 199–221.
- Marichal, C. (1988). *Historia de la Deuda Externa de América Latina*. Madrid: Alianza Editorial.
- Miller, R. (1976). The Making of the Grace Contract: British Bondholders and the Peruvian Government, 1885-1890. *Journal of Latin American Studies*, 8(1), 73-100.
- Mitchell, B. (1983). *International Historical Statistics: Australasia and Americas*. London: Macmillan.
- Molodowsky, N. (1927). Germany's Foreign Trade Terms in 1899-1913. *The Quarterly Journal of Economics*, 41(4), 664-683.
- Mommsen, W. (1969). *Das Zeitalter des Imperialismus*. Frankfurt am Main: Fischer Bücherei.
- Mommsen, W. (1973). Domestic Factors in German Foreign Policy before 1914. *Central European History*, 6(1), 3-43.
- Monteón, M. (2003). John T. North, the Nitrate King, and Chile's Lost Future. *Latin American Perspectives*, 30(6), 69-90.

- Naumann, F. (1916). *Mitteleuropa*. Berlin: Drud u Verlag von George Reimer.
- O'Brien, T. F. (1980). The Antofagasta Company: A Case Study of Peripheral Capitalism. *The Hispanic American Historical Review*, 60(1), 1-31.
- O'Brien, T. F. (1982). *The Nitrate Industry and Chile's Crucial Transition: 1870-1891*. New York: New York University Press.
- O'Brien, T. F. (1989). Rich beyond the Dreams of Avarice": The Guggenheims in Chile. *The Business History Review*, 63(1), 122-159.
- Penrose, E. (1959). *The Theory of The Growth of the Firm* (Fourth Edition 2009 ed.). Oxford: Oxford University Press.
- Platt, D. (1984). *Foreign Finance in Continental Europe & the United States, 1815-1870: Quantities, Origins, Functions And Distribution*. London: Unwin Hyman.
- Rider, J. L. (1996). *Mitteleuropa*. Paris: Presses Universitaires de France.
- Rippy, J. F. (1948). Economic Enterprises of the "Nitrate King" and His Associates in Chile. *Pacific Historical Review*, 17(4), 457-465.
- Rowe, D. (1999). World Economic Expansion and National Security in Pre-World War I Europe. *International Organization*, 53(2), 195-231.
- Ruiz, R. (1956). *La Economía Boliviana y el Comercio Exterior*. Oruro: Universidad Técnica de Oruro.
- Sánchez, J. (1997). La Técnica en la producción de metales monedables en España y América, 1500-1650. In J. Sánchez, G. Mira, & R. Dobado, *La Savia del Imperio. Tres Estudios de Economía Colonial* (pp. 19-264). Salamanca: Universidad de Salamanca.
- Schmitz, C. (1986). The Rise of Big Business in the World Copper Industry 1870-1930. *The Economic History Review*, 39(3), 392-410.
- Secada, C. A. (1985). Arms, Guano, and Shipping: The W. R. Grace Interests in Peru, 1865-1885. *The Business History Review*, 59(4), 597-621.
- Solomou, S. (1990). *Phases of Economic Growth, 1850-1973: Kondratieff Waves and Kuznets Swings*. Cambridge: Cambridge University Press.
- Staley, E. (1944). *World economic development: effects on advanced industrial countries*. Montreal: International Labour Office.
- Stocking, G., & Watkins, M. (1946). *Cartels in Action: Case Studies in International Business Diplomacy*. New York: William S. Hein & Co.
- Stone, I. (1977). British direct and portfolio investment in Latin America before 1914. *The Journal of Economic History*, 37(3), 690-722.
- Sutter, C., & Sunkel, O. (1982). *Un Siglo de Historia Económica de Chile, 1830-1930*. Madrid: Ediciones Cultura Hispanica del Instituto de Cooperación Iberoamericana.
- Waszkis, H. (1993). *Mining in the Americas*. Cambridge: Woodhead Publishing.
- Waszkis, H. (2001). *Dr. Moritz (Don Mauricio) Hochschild. 1881-1965. the Man and His companies*. Frankfurt am Main: Verwert Verlag.
- Whitehead, L. (1972). El impacto de la Gran Depresión en Bolivia. *Desarrollo Económico*, 12(45), 49-80.

- Wilkins, M. (1988). The Free-Standing Company, 1870-1914: An Important Type of British Foreign Direct Investment. *The Economic History Review*, 41(2), 259-282.
- Young, G. (1991). British Overseas Banking in Latin America and the Encroachment of German Competition, 1887-1914. *Albion: A Quarterly Journal Concerned with British Studies*, 23(1), 75-99.
- Zeitlin, J. (2003). Productive Alternatives: Flexibility, Governance, and Strategic Choice in Industrial History. In F. Amatori, & G. Jones (Eds.), *Business History around the World* (pp. 62-82). New York: Cambridge University Press.
- Zorgbibe, C. (1994). *Histoire des relations internationales 1871-1918*. Paris: Hachette Livre.