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Female entrepreneurship and participation rates in 19th century Chile* *Emprendimiento femenino y tasas de participación en Chile del siglo XIX*

BERNARDITA ESCOBAR ANDRAE**

Abstract

This article studies female participation rates as entrepreneurs during the 1877-1908 period using data from the Santiago business license registry, census data and the trademark registry. The evidence reveals that business women in Santiago increased from 3 to 14 percent of the female labor force in the corresponding sectors analyzed during the period. The evidence shows women increasingly as business people: half of the economic sectors analyzed had female entrepreneurs while firms run by women increased from 13 to 20 percent in Santiago, but reached only 5 percent of national firms within the elite.

Key words: Female entrepreneurship, economic history, economic development, Chile in late 19th century.

JEL Classification: N86, N96.

Resumen

Este artículo analiza la participación femenina como empresarias durante el período 1877-1909 usando datos del registro de Patentes Municipales de Santiago, los censos y el Registro de Marcas. La evidencia muestra que las mujeres emprendedoras en Santiago crecieron del 3 al 14 por ciento de la fuerza de trabajo femenina en los sectores analizados y que incrementaron su presencia

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abarcando la mitad de los sectores estudiados y pasando de representar el 13 al 20 por ciento del total de firmas en Santiago, aunque sólo representaban el 5 por ciento de las empresas de la elite a nivel nacional.

Palabras clave: *Emprendimiento femenino, historia económica, desarrollo económico, Chile en el siglo XIX.*

Clasificación JEL: *N86, N96.*

1. INTRODUCTION

The study of the involvement of women in economic activity, during and after the industrial revolution has given rise to a debate based largely on the evidence of developed countries, such as the US and Britain, and very little relying on the experience of developing economies, and Latin America in particular. Women were originally depicted as occasional economic actors that exiting the labor force during the early phases of industrialization. Most of such evidence focused on the labor side of female work rather than on the entrepreneurship angle of female participation in the work force. However, newer evidence has relied on alternative, non-census data sources that has shown women as non-occasional employees (see for example Humphries (2006), Humphries and Sarasúa (2012)) but also as active entrepreneurs (see for example Barker (2006)). Although these studies have been able to highlight the presence of women in economies of the developed countries during the 18th and 19th centuries as both entrepreneurs and employees, they have been not able to distinguish the relative significance of the labor and entrepreneurship components within their labor force, nor have they been able to inform whether these components followed similar or different trends. This article addresses these shortcomings by providing evidence of the involvement of women in business in late 19th century in a Latin American economy, Chile, and provides some estimates of the share of entrepreneurship within the labor force during such period by examining entrepreneurship in the capital city, Santiago.

The experience of women in business in developed countries cannot be taken for granted to portray meaningfully the experience of developing countries during 19th century, only based on the several similarities that can be found between their socio economic conditions, as many significant differences can be highlighted as well. Some of the converging institutions that framed the ability of women to run businesses between developed Common Law countries and developing Hispanic American countries by late 19th century were economic institutions. By the 1870s, countries like Chile had made several economic transformations that gave their markets a greater role in determining their national economic affairs. It was during the Chilean liberal era (1870s-1900s) that the economy experienced early industrialization and became far more open to international trade, which provided a better economic environment for businesses in general, and for women to seize any available opportunities to engage in business. In the legal domain, the different frameworks constraining married women's economic rights that characterized the Common Law and Hispanic American countries

become more similar after the reforms enacted in the Married Women's Property Acts in the US and the UK during the 1870s. Before such changes, Hispanic America provided stronger economic rights for married women compared to Common Law countries (see Deere and León (2003), Deere and Doss (2007)¹, which have been shown to matter in US patenting (Khan (1996)) and in the share of household property held by women in the UK (Combs (2007)). Another significant institutional difference affecting the ability of women to run businesses in late 19th century that became reduced between Hispanic and Common Law countries, was women's educational attainment, which was far lower in Latin American countries during 19th century (see Engerman and Sokoloff (2012)). However, as the case of Chile exemplifies during its liberal era, some Latin American countries placed greater emphasis in educating the peoples in general, and women in particular in late 19th century. Less evidence of institutional convergence between developed and developing Latin American countries during 19th century has been produced regarding the traditional Hispanic gender roles that proscribed women from engaging in the 'public spheres' of work and industry, which were deemed as male dominions. The evidence indicates that developing countries (and Latin American in particular) have a more "traditional" and patriarchal scheme of gender roles relative to developed societies, whereby women are traditionally devoted to household duties (the "private sphere"), while men are expected to engage in activities and duties outside the household (the "public sphere") (Jelin (1991), MacEwen Scott (1994), Cubit (2000)). In this sense, ubiquitous patriarchal values found in Hispanic America are expected to have been even stronger during the 19th century, and therefore women would be expected to have fewer chances to run businesses at such times.

This article studies the presence of women in business from the official records of the Santiago business license registry available for 1878 and 1893. This data set is related to the Santiago census data for the corresponding period. I strive to offer an estimate of female entrepreneurship as a proportion of the work force, by combining census and license registry data for Santiago, the capital city. In addition, this work also examines the national trademark registry from 1877 to 1908. The use of these alternative data sets allows for the identification of cross-sectional and trend differences in the gender composition of business people as well as to examine socio economic differences between the business populations represented in the data sets. I examine some factors that appear to have facilitated or inhibited the participation of women in entrepreneurial activities. In particular, I focus on i) quantifying the coverage of economic sectors more or less open to female entrepreneurship in both datasets and ii) the socioeconomic background of women entrepreneurs. Our findings are finally discussed.

¹ The rights of married women in Hispanic America that were enhanced through the "Bello Civil Codes" that were stronger relative to Common Law countries before the 1870s enactments, were the ability to write Wills regarding their own property, the right to obtain simple separation of community property through a court procedure and therefore become economically autonomous from their husbands and the ability to exercise a profession and make contracts within the realm of such profession without the need of the authorization of the husband.

2. RELATED LITERATURE

Without necessarily distinguishing between labor and entrepreneurship -including self-employment- the early literature regarding women in the labor force proposed a positive relationship between economic progress and female participation rates in the labor market (Lebergott *et al.* (1960)). Later, Sinha (1967) proposed that the participation of women in the labor market decreases (perhaps while partially increasing their engagement in family enterprises) at early stages of economic development, to increasingly regain its place in such market once economic development advances. This portrayal has become suitable for many experiences (for Victorian Britain, see Richards (1974); for the US, see Goldin (1995)), and even endorsed more recently for international contemporary data (see Mammen and Paxson (2000)). But even so, the relationship between industrialization and economic development with female participation in the work force in early stages of economic development, has been very debated; some had an optimistic view for women's economic autonomy, while others (see Hudson (1995)) have proposed pessimist results for women in the labor force. The available Latin American evidence for 19th and early 20th centuries have sided with the *pessimistic* branch of the literature that argues that industrialization generated an overall negative impact on the degree of direct engagement of women in economic activity (see for example Gálvez and Bravo Barja (1992) for Chile, Recchini de Lattes and Wainerman (1979), Queirolo (2004) for Argentina and Weller (1968) for Puerto Rico). However, none of these studies have been able to clarify whether the trends described correspond to the experience of one or both of the components of the labor force: entrepreneurship and employees.

In fact, the literature on female entrepreneurship in western countries, at first saw it as a 20th century economic phenomenon (see for example Stevenson (1986), Hanson (2003), Langan-Fox (2005)), overlooking the possibility of women in business during 19th century. The modern portrayal for women in business was closely related to self-employment and small business (McManus (2001)), and often linked to strategies of poverty alleviation. Economic and business historians have now clarified that female entrepreneurs and investors were quite present during and after the industrial revolution. Evidence for Britain (see for instance Pinchbeck (1930); Barker 2006; Burnette (2008); Rutterford and Maltby (2007), Laurence (2009), Newton and Cottrell (2009))² and the US is abundant (see Ingalls

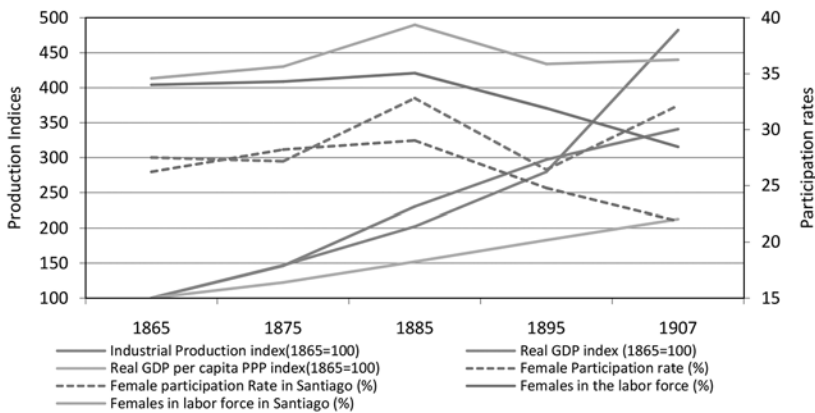
² Based on 18th and early 19th century newspapers ads, Pinchbeck (1930) stated that female business activity greatly diminished in the early 19th century. Barker (2006) studied the 1770-1830 period in northern industrial cities based on trade directories. Burnette (2008) stated that firms run by women represented 5 percent of businesses in late 18th century in some cities, and up to 12 percent in the mid-19th century, according to the commercial directories of several cities. Rutterford, *et al.* (2007) highlighted the authors that had researched the presence of women as investors in 18th, 19th and early 20th century and informed that women held between 1 to 27 percent of shares of several English companies and accounted between 8 to 67 percent of their shareholders between 1870s and 1900s. Laurence (2009) found that women accounted for up to 12 percent of Hoarse Bank investor customers and up to 52 percent of the most active ones in early 18th century. Female shareholders increased from 8 to 16 percent in Welsh and English banks between 1827-33 and 1847-64 (Newton *et al.* (2009)).

Lewis (2009); Merrit (1991); Khan (1996), (2000)). Some data for other European countries can also be found in Pepelasis Minoglou (2007)), Licini (2009)) and Baigent (1988), Ericsson (2001) for Greece, Italy and Sweden, respectively.

3. FEMALE ENTREPRENEURSHIP UNDER THE SOCIOECONOMIC CONTEXT OF 19TH CENTURY CHILE

The evidence suggests that by the 1870s Chile had a small but increasing level of industrialization. Early industrialization was dated by Butland (1956) before 1914, by Kirsch (1977) with the War of the Pacific (1879-83), by Romero (1978) with even earlier episodes starting since the 1850s. Evidence in Ortega Martínez (2005) suggests that more than half of the new firms in the 1860-70 period were manufacturing companies. Early industrialization in Santiago in the 1870s was reported contemporarily by Tornero (1872), and later by Edwards (1932), and the 1895 census reported that 60 percent of existing manufacturing companies functioned before the 1890s. In such incipient and expanding industrialization, female participation rates dropped from 28 to 22 percent and male participation rates remained steady in the 54 to 55 percent range between 1875 and 1907 (see Figure 1 and Table 1 of this article and Table 2 in Gálvez and Bravo Barja (1992)). The evolution of female participation rates in Santiago was less evident as they fluctuated between 27 and 33 percent in the 1875-1907 period. Female work became more abundant only in agriculture, commerce, domestic services and other professions, including teaching; women contracted even in some female industrial occupations (spinners, seamstress, weaver and dressmakers) between 1854-95.

FIGURE 1
GDP, INDUSTRIAL PRODUCTION AND FEMALE PARTICIPATION RATES.
CHILE 1865-1907



Source: Tables 1,1, 1.8, 7.1, 9,6 from Braun et al. (2000a) for GDP and industrial production. For participation rates, own elaboration based on 1865, 1875, 1895 and 1907 censuses summarized in Table 1.

TABLE 1
PARTICIPATION RATES BY GENDER ACCORDING TO CENSUS DATA (1865-1907)

	Men					Women				
	1865	1875	1885	1895	1907	1865	1875	1885	1895	1907
	Chile (Thousands)									
Population with Professions ^a	465	571	682	717	896	240	306	373	340	361
Population	906	1034	1264	1333	1624	913	1042	1264	1355	1625
	Santiago (Thousands)									
Population with Professions ^a	46	55	69	87	124	24	29	44	48	71
Population	80	92	110	144	185	89	104	127	169	219
	Participation Rates									
Chile	51	54	53	53	55	26	28	29	25	22
Santiago	58	56	59	55	67	28	27	33	26	32

Source: Own elaboration based on 1865, 1875, 1895 and 1907 censuses.

a: Censuses disclose individuals with 'professions' (trades and professions). Depending on the year, 'professions' include students, rentiers and proprietors. The figures presented here exclude students from the 'professions', but population including children as there is no information on age for 'professions'.³

Even though 1818's independence triggered several institutional innovations during the 19th century, many Spanish colonial social institutions lingered after independence. Traditional patriarchic Hispanic gender roles was one example, where female 'virtue' was attained by living observant religious lives within the confines of their homes, the "private sphere", and males domains being the "public spheres" of work and business. In this view, female education was regarded necessary mostly for the religious dimension, and consequently female schooling was low (see Egaña Baraona *et al.* (2003)). During the second half of the 19th century these views began to change by social classes (Salazar and Pinto (2002)). The public spheres of social life became more accessible to women in the second half of the century through charity work (see Yaeger (1999)), hosting *tertulias* (García-Huidobro (2006))⁴ in the case of elite women, and commerce and trade for middle and working class women (Salazar, *et al.* 2002). In the last quarter of the 19th century, the government strived to improve the general level of education of young people and to ameliorate the gender education gap in primary, secondary and tertiary education. Yet, in spite of the achievements attained by government policies,⁵ schooling rates remained relatively low for both genders by the turn of the century (see Table 7.12 in Braun *et al.* (2000)) and Engerman *et al.* (2012)).⁶

³ Different series were built excluding students, rentiers and proprietors from the economically active population and the differences among them were negligible.

⁴ From the four *tertulias* mentioned, two were hosted by elite women.

⁵ By 1900, the gender gap was significantly reduced in primary education (see figures for graphs 1 and 2 in Egaña, *et al.* 2003).

⁶ Estimations of average years of schooling increased from 1 to 2 years between 1870 and 1900.

4. SOURCES

Businesses records are obtained from two public registries: the annual licensing system for Santiago and the national registry of trademarks. These two records complement each other in portraying the gender structure of Chilean entrepreneurship, as their coverage is different in scope and nature.

The trademark database originates in registrations sought voluntarily by resident firms. Therefore, the coverage is national.⁷ In contrast, the Santiago business license registry was a mandatory permit and taxation policy (established the 1830s and reformed thereafter) needed to formalize a business for many economic activities. The data used in this work was the outcomes of the law of 22 December of 1866, and originates from publications in the *Official Gazette*. It contains data for Santiago for 1878 and 1893.⁸ Licensed firms included a wide spectrum of businesses that needed to set up formal business activities.⁹ In addition to these sources, census data for Santiago (1865-1907) are used to establish benchmarks regarding work force participation rates and estimate entrepreneurship participation rates.

Table 2 presents a summary of all databases. It indicates that 3,972 trademarks were registered by Chilean residents during the period and they corresponded to 2005 individual firms. The Table indicate that 3,655 licenses were issued in 1878 and 6,927 in 1893. These licenses belonged to 3,368 and 6,357 firms, respectively Panel B of the table used licensing data and census data (1875 and 1895) to estimate aggregate participation rates of entrepreneurs within the economically active population of Santiago. The estimates suggest that entrepreneurship increased from 4 to nearly 5 percent of the economically active population in Santiago at times when the aggregate participation rates in the city remained stable.¹⁰

The gender of the business owner was identified through the disclosed given name in the source (trademark or business license registries).¹¹ Businesses

⁷ The database originates in photographs taken of the 10 available trademark registration books for the 1877-1908 period. Non-resident firms had the right to seek trademark registration, but those registries are not included in this work.

⁸ For 1878, data was published between June 12 and 15 and for 1893, between July 14 and 26.

⁹ Licenses were issued annually by local authorities to establishments rather than to individuals, and fees were determined by law. The 1866 law, stated that for most businesses, fees ranged from \$ 5 to \$ 1000 Chilean pesos. Only Banks and Corporations listed on the stock exchange paid a fee of 2 percent of their annual revenue in 1878.

¹⁰ The economic effects of the War of the Pacific and the 1891 Civil War are believed to have given rise to significant economic and political consequences in Chile, but seldom to have altered the gender structure of production. Loveman (1979) and Gil (1966) argue that the War of the Pacific generated an era of prosperity and industrialization that was not revoked with the increased political instability produced by the 1891 civil war.

¹¹ For the name analysis, the same criteria were used for both databases. Few exceptions were made based on the availability of additional information that enabled changing a criterion. All midwives were assumed to be female, regardless of the availability of the first name, as we found no records of male midwives at the time. The feminine gender was assigned to all widows, regardless of the availability of first names. In terms of the disclosed first names, exceptions in gendering them were made for names Jesús and

TABLE 2
CHARACTERISTICS OF BUSINESS DATA SETS- REGISTRIES AND FIRM TYPES AND ESTIMATES OF ENTREPRENEURSHIP PARTICIPATION RATES

Description	Observations		Proportions %			
	Business Licenses	Trademarks	Business Licenses	Trademarks		
	1878	1893	1878	1893		
Panel A: Business Data						
Total Registries	3,655	6,927	3,972	100	100	100
Total Firms	3,368	6,357	2,005	100	100	100
Panel B: Santiago's Census Data & Entrepreneurship Participation Rates						
	1875	1895		1875	1895	
Adult Population	195,792	312,467				
Econom. Active Population	84,310	135,142		43.1	43.3	
Entrepreneurs (1878-93)	3,368	6,357		4.0	4.7	

were classified according to the number of owners: sole owners and societies & corporations for the cases when several individuals were listed as owners of a firm (such as “xx & Sons”), or when the name clearly referred to a society or corporation (such as ‘xx Limited’, or ‘xx Co’). The license data set refer almost entirely to firms held by one individual (with 96-99 percent) but resident trademarks were registered evenly by individuals (52 percent) and societies & corporations (48 percent). Between 6-7 percent of the firms licensed in Santiago had owners not identifiable by gender (representing 220 licenses held by 206 firms in 1878 and 469 licenses held by 458 firms in 1893). A much larger share of the trademark registries were made by firms whose owners’ gender was not identifiable (44 percent of the trademark registries, equivalent to 1,750 registries). These registries were made by 569 businesses, representing 28 percent of resident firms, which means that these unidentified businesses were relatively bigger firms relative to those identified by gender, as they registered twice as many trademarks (3 on average) than the identified firms (1.5 on average).

The names of female business owners contain references to their marital status.¹² Widowhood is normally laid out explicitly in the sources, although

Tránsito. When the former appeared as the first name it was considered the name of a man, except when preceded by ‘María’, or in the case of a midwife. Tránsito was regarded as a female name, unless it involved an engineer (the first female engineer graduated in 1919, Sánchez Manríquez (2006)). Names and surnames were revised and corrected such that, to the extent possible, an individual would have the same identifiable name if he/she was present more than once in the data sets. Because genders of Castilian names differ by the ending vowel (for instance, Patricio v/s Patricia), potential typos in the source were checked. The analysis revealed 4 cases where genders may have been wrongly assigned in one year. Tadeo(a) Salvatierra, Jacinto(a) Reinoso, Inocencio(a) Pavez and Jacinto(a) Zúñiga; names were not altered in these cases.

¹² Under Chilean law, married women need not change their the surnames, but married women have done so traditionally by using the preposition ‘de’ before to their husband’s

sometimes widows may be mistaken for married women.¹³ I exploit this information, in spite of some possible measurement errors.

The gender structure of production is analyzed through the economic sectors assigned to businesses. For the trademark data set, economic sectors were identified through the goods or services that the trademark referred to. Accordingly, registries were classified in 17 economic sectors.¹⁴ The business license data set lists 110 economic activities of licensed businesses (100 in 1878 and 98 in 1893, the complete list is contained in the Appendix). These sectors were related to the 213 sectors identified in the different censuses (i.e. 1865, 1875, 1895 and 1907) with the aim to characterize the license data with respect to the economically active population depicted in censuses. The identified sectors were matched to the extent possible between these data sets, and a total of 66 economic activities and trades were matched between the Census and the license data, which are identified in the first column in Appendix 1.¹⁵ The entrepreneurs in the 66 matched sectors are part of the work force that can be characterized from the census data. Table 3 reveals that only a small part of the national male work force (12-17 percent) worked in those activities, but this was not the case in Santiago, where twice as much male's work force worked in the matched sectors (26-35 percent). In contrast, these 'professions' accrued a larger share of women's work force, both nationally (33-41 percent) and in Santiago's (29-42 percent). These estimates suggest that these activities were exercised in Santiago and in other regions of the country by men and women, as Santiago used between 20-30 percent of the corresponding male workforce and 10-20 percent of the corresponding female workforce.

first surname after their own surname. Traditionally, widows explicitly state their status by adding 'widow' to the husband's surname reference (*'viuda de'*). Unlike strictly voluntary compliance to these traditions at present, we conjecture that compliance had a more social mandatory nature in the past.

- ¹³ Two well-known wealthy widows registering trademarks did not openly state their widowhood and they were assigned as widows herein (Juana Ross de Edwards and Carmen Quiroga de Urmeneta).
- ¹⁴ They are alcoholic Beverages, Tobacco, the Food, Textile, Chemical industries, Metal mechanics, Pharmaceuticals, Printing, Industry –others-, Agriculture, and the Mining sector, the fisheries industry, Garments & Clothing, Retail & Shops, Banking, Wood & Metal Mills, Services. Most trademarks were assigned to one sector, but 53 were assigned to more than one sector (mostly to 2 sectors, 6 trademarks were assigned to 3 sectors and one to 4 sectors) and four trademarks that had no information as they were annulled at some point. The reason for this lies in the description of the good or service registered. An example would be machinery to be used in the mining process, which would be classified in mining and metal mechanics.
- ¹⁵ The 110 sectors from the business license data set were aggregated in 103 to match the 213 Census data sectors. Finding out the 66 sectors that overlapped, implied leaving sectors that were labor-intensive according to the census data set (such as 'washerwoman' or 'farmhand'), and sectors that were license-intensive (such as the 1893 licensing category 'alcoholic beverages'), unmatched. Besides, two sectors of the business license data set, 'Sails Factory' and 'Soap and Candle Factory', may be related, as they originate in a Castilian noun (*velas*) that is homonymous to 'sails' and 'candles'. The source lists them separately (as '*Fábrica de velas*' and '*Fábrica de jabones y velas*'), and therefore we treat them as different sectors.

The limitations of comparability of sectors of the different data sets make it recommendable to consider only aggregate categories of the matched sectors when estimating the entrepreneurship participation rates in work force, as opposed to estimating individual sector level rates. Given that each data set has its own economic sector definitions, and only those from the license data set are compared to census data, the analysis on sectors is carried out separately for each data set in the next sections.

The identification of the prevalent socioeconomic background of business owners was determined through the ethnic origin of their surnames. This approach is substantiated by the abundant evidence indicating that Chilean society has been historically characterized by a rigid class structure closely linked to ethnicity and ancestry in a context of very limited intergenerational social mobility (see Vicuña Mackenna (1903) and Thayer Ojeda (1917), (1919), Núñez and Gutiérrez (2004), Núñez and Miranda (2011), Clark (2014)). Three main categories of surnames were used: i) the 100 most common surnames in Chile in 2010, as a proxy of a broader, less elitist socioeconomic niche,¹⁶ ii) the surnames of the richest people in Chile in late 19th century,¹⁷ and iii) the surnames of Basque and European descendants that populated the Chilean elite from the 18th to the early 20th centuries.¹⁸ Surnames that overlapped in any of these categories were regarded separately.¹⁹ Table 4 shows that business owners of both data sets come from the socioeconomic elite in at least 35 percent of the observations. Nonetheless, the trademark data set appears to include statically significant more members of the socioeconomic elite of the country during the period of study, compared with the business license data set (as revealed by the corresponding proportions Z-tests). Table 4 shows that individuals with Basque and European surnames represented 48 percent of the trademark registrants, and individuals with surnames of the richest families in the country amounted to an additional 5 percent of registrants. In contrast, among the business license firms' population, individuals with Basque and European surnames represented 34-35 of the total, and individuals with surnames identical to those of the richest elite amounted

¹⁶ In January 2011 the Civil Registration Service published the top 100 most common surnames of the Chilean population that covered over 94 percent of the population registered in such public service. The list was reproduced in several websites that this work relied on. See <http://bohemia.superforo.net/t205-nombres-y-apellidos-mas-comunes-en-chile>, or <http://noticias.terra.cl/nacional/registro-civil-revela-los-apellidos-mas-comunes-de-los-chilenos.805f910995292310VgnVCM400009bf154d0RCRD.html>.

¹⁷ A list of people with the largest fortunes in the country prior to the War of the Pacific was published by Vicuña Mackenna (1882). Such list was complemented with a list of the major entrepreneurs of the second half of the 19th century contained in Nazer (2000). The combined list identified 107 very rich individuals (including a few companies, assuming that their surnames corresponded to their owners) who had 83 different surnames (first or second) not included in the other surname lists.

¹⁸ Lists of Basque and mainly northern European surnames were disclosed by Thayer Ojeda (1917,1919) and Vicuña Mackenna (1903).

¹⁹ Overlapping across categories was limited. From the 100 most common surnames in 2010, 3 were among the Basque or European elite surnames (leaving 1507 in the latter category) and 15 were also surnames of the richest people of the 19th century. From the original 100, 82 remained exclusively in the category and 83 surnames exclusively for the richest elite.

TABLE 3
CENSUSES' PROFESSIONS LISTED IN LICENSE DATA (SANTIAGO & CHILE)

Census Professions	No.	Men					Women				
		1865	1875	1885	1895	1907	1865	1875	1885	1895	1907
Chile (Thousands)											
All professions	213	461	571	682	717	896	240	306	373	340	361
Listed in License data	66	68	76	103	119	111	80	123	147	135	150
Listed/All (%)		15	13	15	17	12	33	40	39	40	41
Population		906	1,034	1,264	1,333	1,624	913	1,042	1,264	1,333	1,624
Santiago (Thousands)											
All professions	213	46	55	69	87	124	24	29	44	48	71
Listed in License data	66	16	15	22	30	32	8	9	13	13	30
Listed/All (%)		35	28	32	34	26	32	30	29	28	42
Population		80	92	110	144	185	89	104	127	169	219
Santiago/Chile (%)											
All professions	213	10	10	10	12	14	10	10	12	14	20
Listed in License data	66	24	20	22	25	29	10	07	09	10	20
Listed/All (%)		9	9	9	11	11	10	10	10	13	14

to an additional 2-3 percent of the total. Moreover, the proportion of business people with common contemporary surnames not included in either list of elite surnames represented merely 9 percent of the trademark registrations, but 23-24 percent of the licenses issued during the period. These differences indicate that the trademark registration portrays better the business activity carried out by the socioeconomic elite of the country, whereas the business license data set better represents business owners of less elitist segments of Chilean society in Santiago.

TABLE 4
SOCIO ECONOMIC ORIGIN OF SURNAMES OF BUSINESS PEOPLE

Surname Type	Observations			Proportions %			Z-Test	
	License		Trademarks	License		Trademarks		
	1878	1893		1878(a)	1893(b)	(TM)	(a)-TM	(b)-TM
Common in 2010	823	1,678	350	23	24	9	16.6	22.5
Richest in 1880s (1)	109	136	183	3	2	5	-3.7	-7.1
Basque & European Immigrants -BEI-(2)	1,225	2,235	1,913	34	32	48	-13.2	-16.4
Common 2010 & Richest	336	647	143	9	9	4	10.0	12.5
Common 2010 & BEI	43	91	42	1	1	1	0.5	1.2
Total Elite (1)+(2)	1,334	2,371	2,096	36	34	53	-14.5	-19.0
Total Registries	3,655	6,927	3,972	100	100	100		

5. ENTREPRENEURSHIP PARTICIPATION RATES. EVIDENCE FOR SANTIAGO

To identify the business owner population from the 1878 and 1893 Santiago business license registry with respect to the corresponding work force depicted in census data (using the censuses of 1875 and 1895, respectively), licenses were aggregated per name of the firm and for each of them, one sector was assigned (the one with the highest amount of fees paid each year). The business population included in the licensed registry is presented by gender and by sectors matched and not matched with census data in Table 5. It shows a different picture from the aggregate figures of a moderate increase of the entrepreneurship participation rates (from 4 to 5 percent) of Table 2. Both the levels of entrepreneurship participation rates and their trends differ when matched and unmatched sectors with census data are considered. On the aggregate, business people in the 66 matched sectors appear to have decreased from 12 to 9 percent during the period, a pattern that appears as explained mainly by the performance of male entrepreneurship participation rates. Male entrepreneurs contracted from 15 to 10 percent, and in contrast, female entrepreneurs not only increased in absolute numbers by more than tripled from 429 to 1334 individuals, but they also increased their participation rates from 1.5 to 3 percent of the overall economically active female population, and from 4 to 6 percent in the 66 matched sectors during the period of analysis (see panel C in Table 5). Within the matched sectors, those that were open to women to run businesses, amount to half of the sectors (33) and the number of women with licensed businesses more than doubled (from 380 to 818 women as shown in the last row of Panel A). These women represented a significant increase in female entrepreneurship participation rates in those sectors, going up from 3 to 14 percent of the corresponding female economically active population in the period.

In spite of the limited comparability enabled by the entrepreneurs' data sets, the available evidence suggests that even though participation rates of the work force may have been almost stagnant, entrepreneurship participation rates appear to have followed a rather different trend depending on the gender. Male entrepreneurs became fewer in relative terms and female entrepreneurs increased their relative position. If early industrialization and economic growth was demanding employment and a bigger work force, the gender differences in entrepreneurship levels and participation rates suggest that women appear to have been more able to engage in the work force through entrepreneurship and self-employment than through hired work.

Table 5 disaggregates by gender the number of firms detailed in Table 2, and Table 6 disaggregates by gender the number of licenses summarized in Table 2. Both tables show that female-run firms represented 13 percent of the licenses of gendered businesses in 1878 and 22 percent in 1893. In terms of firms, they represented 14 percent of the gendered firms in 1878 and 23 percent in 1893. The available evidence suggests that female entrepreneurship expanded both in absolute and relative terms during late 19th century.

The identification of the socioeconomic origin through the surnames and the gender of business people reveals that there was a statistically and significant change in the socioeconomic composition of Santiago's female business owners in 1893. Table 6 shows that the proportion of elite surnames (immigrants

TABLE 5
ENTREPRENEURS IN THE LABOR FORCE BY GENDER – SANTIAGO 1878 & 1893

Sectors	No.	1878				1893			
		Total	Men	Women	Not known	Total	Men	Women	Not known
Panel A: Santiago License Data- Entrepreneurs									
All License data sectors	103	3,368	2,733	429	206	6,357	4,554	1,334	469
Matched Census & License sectors	66	2,811	2,299	380	132	4,011	2,874	820	317
Unmatched-with-Census Sectors	37	557	434	49	74	2,346	1,680	514	152
License Sectors with women Matched with Census	33	2,525	2,043	380	102	3,607	2,543	818	244
Panel B. Santiago Census Data - Labor force									
		1875 (Thousands)				1895 (Thousands)			
All Census Professions	213	84.4	54.9	29.5		135.1	86.7	48.4	
Matched Census & License sectors	66	24.3	15.3	9.0		43.0	29.6	13.4	
License Sectors with women Matched with Census	33	13.1	11.5	1.6		27.4	23.7	3.6	
Panel C. Entrepreneurs in Santiago with respect to Labor Force (%)									
All Census Professions	213	4.0	5.0	1.5		4.7	5.3	2.8	
Matched Census & License sectors	66	11.6	15.0	4.2		9.3	9.7	6.1	
License Sectors with women & Matched with Census	33	4.2	3.8	3.1		8.6	7.1	14.1	

and richest surnames -1+2-) contracted and non-elite backgrounds (common surnames) increased in 1893. Male-run firms maintained their socioeconomic structure unaltered during the period. This evidence suggests that the population of female entrepreneurs expanded by incorporating women from the middle and working classes rapidly by 1893.

Finally, Table 7 shows that women running businesses in Santiago appear to include significantly fewer widows, and fewer married women than the census benchmarks. This finding is intriguing, because the presence of even few married women is not coherent with their lack of legal economic autonomy, and for the same reason, we would have expected to find more widows than the national average, among business women. The increasing numbers of women with common surnames may be telling that the greater number of middle and working class women entering into the exercise of entrepreneurship were in fact enjoying greater levels of freedom to run businesses, regardless of their marital status. This evidence suggests that marriage was less of an impediment and widowhood less of a facilitating factor to run businesses for middle and working class women.

TABLE 6
LICENSED BUSINESSES IN SANTIAGO AND THEIR SOCIOECONOMIC STRUCTURE
BY SURNAME CATEGORIES

	1878				Z-Test		1893				Z-Test	
	Total	Female	Male	Not Known	Male-Fem.	Total	Female	Male	Not Known	Male-Fem.		
Licenses	3,530	436	2,882	212		6,697	1,386	4,835	476			
% Licenses	100	12	82	6		100	21	72	7			
% Gendered Licenses	100	13	87			100	22	78				
Firms	3,368	429	2,733	206		6,357	1,334	4,554	469			
% Firms	100	13	81	6		100	21	72	7			
% Gendered Firms	100	14	86			100	23	77				
Common Surnames	823	101	702	20		1,687	434	1,181	72			
Elite (1)+(2)	1,334	147	1,080	107		2,391	422	1,796	173			
% Common	24	24	26	10	0.97	27	33	26	16	-2.82***		
% Elite (1)+(2)	40	34	40	52	2.12***	38	32	39	38	3.11***		
Z-Test for equality of % ('93='78)												
Common surnames							3.77***					
Elite Surnames (1)+(2)							-0.96					

***: Statistically significant at 1 percent.

TABLE 7
MARITAL STATUS OF WOMEN RUNNING BUSINESSES IN SANTIAGO

Sectors	N. Sectors	1878 Marital Status of Women				1893 Marital Status of Women			
		Total	Widow + Married	Widow	Married	Total	Widow + Married	Widow	Married
Sectors with Female-run firms entering or remaining in business									
Subtotal	39	397	2	0	2	1,386	67	19	48
%		100	0.5	0	0.5		4.8	1.4	3.5
Sectors with Female-run firms exiting from business									
Subtotal	11	39	7	0	7	0	0	0	0
%		100	18	0	18				
Total	110	436	9	0	9	1,386	67	19	48
%		100	2	0	2		4.8	1.4	3.5
Stgo. Census data 1875;95 (thousands) ¹		70.1	39.1	10.9	28.2	114.3	63.1	14.2	49.0
%		100	56	16	40	100	55	12	43
Z-test for Proportions' equality									
% License=Census			75.9***	113.7***	56.1***		84.7***	33.7***	76.9***
% 1878=1893			-3.47***	-4.38***					
					-2.01**				

1. Excludes children under 15.

*** Significance level at 1 percent.

** Significance level at 5 percent.

6. ALTERNATIVE EVIDENCE ON FEMALE ENTREPRENEURSHIP FROM TRADEMARK RECORDS

The identification of ancestry and ethnicity by gender registrants through surnames is summarized in Table 8, using the main categories of surnames contained in Table 4 (common in 2010 and elite surnames that did not overlapped with other categories -elite (1)+(2)-). In this data set, the firms of unknown gender have a statistically larger proportion of elite surnames (48 v/s 35-40 percent) in terms of firms and a smaller proportion of common surnames than gendered firms (9 v/s 15-22 percent). This different social structure seems coherent with the notion that large firms were controlled by the elite.

TABLE 8
REGISTRIES AND REGISTRANTS ORIGINATING IN THE ELITE

Surname Type	All Businesses (%)			Z-Tests For Proportion Differences		
	Male	Female	Not known	Male-Female	Male-Unknown	Female-Unknown
Total Registrants (2005)						
Elite	40	35	48	0,84	-3,17**	-2,14**
Common in 2010	15	22	9	-1,41	4,05**	2,64**
Total	100	100	100			

** . Statistically significant at 95 percent.

The distribution of trademark registrations by the gender of the firm owner and type of firm (individuals v/s societies & corporations) during the period, is contained Table 9. It shows that from 3,972 resident trademarks registered in Chile, 2,222 firms were identified by gender (2,126 male and 96 female firms), of which 1,873 (amounting to 86 percent of the identified firms) were registered by individuals, and the rest by societies & corporations. During the 1877-1908 period, 4.3 percent of identified trademarks were registered by female registrants, suggesting a small yet non-negligible presence of women among resident businesses. Considering that the social class structure of business people registering trademarks, as measured by their surnames, was not statistically different between genders with respect to the depiction contained in Table 4, the above evidence suggest that female-run firms registering trademarks were mostly run by elite women.

The table also details that from the 2,005 resident firms identified, the 96 trademarks were registered 74 resident female-run firms. This evidence suggests that elite female entrepreneurship was quite negligible relative to female entrepreneurship from the middle and working classes represented by the licensing data set from Santiago. A significant expansion in female entrepreneurship was registered by 1893 in Santiago, including a broad range of firms and social backgrounds of their firm owners, but trademark registration was not experiencing a similar dynamics during the period.

TABLE 9
TRADEMARK REGISTRATION BY GENDER & ORIGIN OF REGISTRANTS

Period	All Businesses				Individual's Businesses				Societies & Corporations				
	Gendered(G)		Not known		Gendered(G)		Not known		Gendered(G)		Not known		
	Male	Female (F)	% (F/G)	%	Male	Female (F)	% (F/G)		Male	Female (F)	% (F/G)		
Trademarks by Residents													
1877-1908	2,126	96	4.3	1,750	44	1,780	93	5.0	199	346	3	0.9	1,558
Resident Registrants													
1877-1908	1,362	74	5.2	569	28	1,233	72	5.5	134	129	2	1.5	435

The 2,222 registries detailed in Table 9 were assigned non exclusively into the 17 sectors,²⁰ producing 2,297 sector allocations for the trademarks registries. Most of the trademarks registered by resident were made for the production or commercialization of alcoholic beverages (41 percent), food industry (11 percent), retail (7 percent) and pharmaceuticals (6 percent), as shown by Table 10. However, there were some significant gender differences in the distribution of economic sectors of trademark activity. Female-run firms registered trademarks mainly for the production and commercialization of alcoholic beverages (72 percent). Still, they registered trademarks in about half (9 out of the 17) of the identified sectors. It is interesting to note that, in spite of the socio economic differences identified between the trademark and business licensing records, female-run firms were registered to run business in half of the identified economic sectors, among which alcoholic beverages and commerce corresponded to the economic activities in which female-run firms were mostly focused.

Female-run firms registering trademarks included significantly more widows than national benchmarks (amounting for 41 percent of female registries made by 28 percent of business women), as shown by Table 11. This pattern is coherent with the notion that spinsters and widows were more economically autonomous than married women. Moreover, the evidence shows that widows registered more trademarks than firms run by spinsters. The evidence shows that widowhood among business women at a country level was only overrepresented among elite business women (trademark registrants) and not among middle and working class women (licensed businesses).

²⁰ Only registrations made by male-run firms had more than one sector assigned to them. See endnote 16.

TABLE 10
ECONOMIC SECTORS OF RESIDENT FEMALE TRADEMARKS REGISTRANTS (%)

Trademark (TM)	All Businesses			Individual's Businesses			Societies & Corporations		
	Male +Female	Male	Female	Male +Female	Male	Female	Male +Female	Male	Female
Alcoholic Beverages	41	40	72	46	44	73	18	18	33
Tobacco	8	8	5	8	8	3	9	9	67
Food Industry	11	12	3	11	11	3	15	15	0
Banking	1	1	1	1	1	1	1	1	0
Pharmaceuticals	6	6	6	6	6	6	6	6	0
Printing	3	3	1	3	3	1	3	3	0
Garment & Clothing	4	4	3	4	4	3	3	3	0
Retail & Shops	7	7	7	7	7	8	9	9	0
Services	3	4	1	3	4	1	4	4	0
Other sectors	16	15	0	11	4	0	32	32	0
Total %	100	100	100	100	100	100	100	100	100
Sum of TM registries	2,297	2,201	96	1,918	1,825	93	379	376	3

TABLE 11
REGISTRIES, REGISTRANTS AND WIDOWS RESIDING IN SANTIAGO & CHILE

Place of Residence	Number Resident Registries				Number of Registrants			1895 Census	Z-test	
	Male		Female	Widows (w_r)	Women	Widows(a)		Widows(b)	a-b	
	M	F	% F/(M+F)	% (w_r/F)	W	w	% (w/W)	%		
Country	2.126	96	4.3	39	41	74	21	28	13	2.986***

*** Significance level at 1 percent.
Census figures exclude children under 15 years from the denominators.

7. CONCLUSIONS

Female entrepreneurship in Chile during the 1877-1908 period is examined using two unexploited official business records, and this article estimates participation rates of entrepreneurship in the work force during the period. These data sets are characterized by representing different socioeconomic business segments, as suggested by the nature of each registry and the different composition of social classes reflected by surnames and ancestry of their business owners. The first database covers the 1877-1908 period, and corresponds to the trademark registry. It contains a larger proportion of elite firms and a smaller proportion of entrepreneurs with ordinary surnames, with respect to the second data set, the Santiago business license registry, available for 1878 and 1893. The Santiago licensed business database is characterized by including fewer firm owners originating in the elite and more business people from the middle and working classes.

In the context of a national contraction of female participation rates and relative stagnant participation rates in Santiago during late 19th century according to census data, this work estimates entrepreneurship participation rates of Santiago's labor force, by relating data from the business license registry to the census data. The evidence revealed significant differences between aggregate and sector level estimates of entrepreneurship participation rates, as well as significant differences of these participation rates between genders. On the aggregate, entrepreneurship increased from 4 to near 5 percent of the economically active population in the capital city between 1878 and 1893. But there were important gender differences. Aggregate entrepreneurship participation rate was 5 percent for male work force, and for women it increased from 2 to 3 percent. But sector level estimations indicate that the entrepreneurship participation rates for the licensed sectors were much higher and the gender differences more acute than aggregate estimates. On total, entrepreneurship participation rates contracted from 12 to 9 percent of the licensed sectors work force, but the contraction in these sectors for male entrepreneurship was from 15 to 10 percent, while female entrepreneurship expanded from 4 to 6 percent of the corresponding work force. Within the sectors open to female entrepreneurship, the expansion on female entrepreneurship participation rates was from 3 to 14 percent. In sum, the evidence analyzed in this article on entrepreneurship participation rates suggest that during a period which was characterized by women retreating in relative terms from the work force at the national level, and remaining relatively stagnant in the capital city's work force, the opportunities faced by women to participate directly in the economy through hired work were less vibrant than the opportunities available to participate through entrepreneurship and self-employment, both in absolute and relative numbers.

The different socioeconomic structure of both data sets reveals that female entrepreneurship was consistently higher in the less-elitist business segments (registered by the Santiago license registry) than in the elitist segment (registered by the trademarks registry). This finding suggests that the opportunities for women to engage in business activities seemed higher for the ordinary female population than for the elite segments of women.

In spite of the above differences evidenced between the data sets, they coincide in enlightening several things regarding female entrepreneurship during late 19th century Chile. First, both data sets report an expansion in female entrepreneurship during the period. In the elite niches, female-run firms reached 5 percent of enterprises by 1900s, and in businesses from a wider socioeconomic background they increased from 13 percent in 1878, to 22 percent of all licensed businesses by 1893. Second, they both register female presence in near half of the economic sectors covered in each data set. Third, Female business activity concentrated more significantly in commerce and particularly in the trades related to alcoholic beverages.

The evidence of this paper is coherent with the historical studies that argue that there were class differences in the process of liberalization experienced by women in late 19th century (Salazar, et al 2002). In particular, that commerce and trade were exercised mainly by women from the middle and working classes and less so by women from the elite.

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APPENDIX
SECTORS IN LICENSE REGISTRY 1878 AND 1893

Sectors	Sectors Matched with Census	Sectors New in '93	Sectors vanished in '93	Sectors listed in '78 & '93	Sectors with Women ('78 or '93)
Alcoholic beverages		1			1
Borrowing houses	1	1			1
China Shops		1			1
Engraving Store		1			
Images store		1			
Importing houses		1			
Paints store		1			
Tombstone store		1			
Wholesale emporium		1			
Wholesale and Retail grocery store		1			
Amalgamation machinery			1		
Banks and Corporations			1		
Brandy distillery factory	1		1		
Charcoal warehouse	1		1		
Glass shop	1		1		
Ironmongery	1		1		
Leather salting			1		
Music store			1		
Piano Teacher			1		1
Sacks factory			1		
Silversmith's	1		1		
Singing Teacher	1		1		1
Barber and phlebotomists	1			1	1
Blacksmith	1			1	1
Carriages factory	1			1	1
Chemist and drugstores	1			1	1
Coffin shops				1	1
Hotels	1			1	1
Lawyer	1			1	1
Physician	1			1	1
Public storage	1			1	1
Sail Factory	1			1	1
Soap and candle factory	1			1	1
Tin	1			1	1
Already made Cloths shop				1	
Artists. sculptors workshops	1			1	
Assorted Retail shop	1			1	1
Attorney	1			1	
Auction houses	1			1	
Bakeries	1			1	1
Barrels	1			1	
Beer Factories	1			1	1
Binders	1			1	
Blankets	1			1	1

Sectors	Sectors Matched with Census	Sectors New in '93	Sectors vanished in '93	Sectors listed in '78 & '93	Sectors with Women ('78 or '93)
Book shop				1	1
Butcher	1			1	1
Cargo agents	1			1	
Carpentry	1			1	1
Carriages	1			1	
Carts factory				1	
Chocolate factory				1	
Cigars	1			1	1
Clubs with restaurants				1	
Coffee shops				1	1
Confectioneries	1			1	1
Constructors and builders	1			1	
Dance teacher	1			1	
Dentists	1			1	1
Dressmakers	1			1	1
Emporium				1	
Florists				1	1
Foundry				1	
Furniture				1	1
Furniture workshop				1	
Gilder and galvanizing	1			1	
Grain shops				1	1
Haberdashery				1	1
Hairdressing	1			1	
Hat Shops	1			1	1
Horse houses	1			1	1
Inns				1	1
Insurance ministration				1	
Itinerant agents	1			1	
Jewelry and Watches	1			1	1
Lamp shop	1			1	
Laundry and Dyeing	1			1	1
Lemonade factory				1	
Lithographic printing	1			1	
Locksmiths				1	
Mattresses	1			1	1
Midwives	1			1	1
Mills (wheat)	1			1	1
Monumental masonry	1			1	
Noodle factory	1			1	
Notaries and court clerks	1			1	
Nurseries and plant shop				1	
Offices				1	
Oil factory	1			1	
Painted paper shop	1			1	
Pastry				1	1
Photography	1			1	
Piano store				1	
Plasterers	1			1	

Sectors	Sectors Matched with Census	Sectors New in '93	Sectors vanished in '93	Sectors listed in '78 & '93	Sectors with Women ('78 or '93)
Pledge houses				1	1
Saddlery	1			1	
Shoemakers	1			1	1
Small Retail shop				1	1
Starch Factory	1			1	1
Steam sawmill				1	
Stock and commerce brokers				1	
Surveyor and Engineer	1			1	
Tailor	1			1	
Tanneries	1			1	1
Tiles and brick Factory	1			1	1
Trade house ministration	1			1	
Turnery	1			1	
Typographic printing	1			1	
Warehouse for Wines and Alcoholic beverages				1	1
Wood and iron warehouse				1	
Wood shops				1	1
Total 110	66	10	12	88	50

