Income Inequality in the North-West of Argentina during the first globalization. Methodology and Preliminary Results*

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Abstract

In this paper we analyze income inequality in Tucumán (a province in the North-West of Argentina) in the period of the first wave of globalization. The main goals of this paper are to propose the methodologies, to check the availability and consistency of the historical sources and to present the first (and preliminary) set of results.

Our empirical strategy is similar to the ones based on "social-tables": the population is divided into groups and an income is assigned to each group. The incomes of each group come from official statistics (National Labour Ministry Bulletin, Statistical Yearbook of the Province of Tucumán among others) and other sources while the population groups are defined following the occupational categories of the National census of 1895.

Given that the sources used in this paper are available for other Argentine provinces and the applied methodology can be quite easily extrapolated to the whole country, we regard this paper as a first step in a larger project devoted to analyze the economic inequality in Argentina during the first globalization.

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1. Introduction

The origins of the present-day high levels of inequality in Latin America in general and in Argentina in particular are not well established. Some authors argue that inequality is a relatively recent phenomenon (Prados de la Escosura 2005, Williamson 2009) while others claim that it has its origins in colonial times (Engerman and Sokoloff 2002).

Direct estimations of inequality in Latin America are not so common. Some indirect approximations have been made by Williamson (1995, 1999, 2002) and Prados de la Escosura (2005, 2007) based on the ratio between land rentals (or GDP) and wages of unskilled workers. Williamson (2009) uses the predicted values of a regression of the Gini coefficient in GDP, squared GDP, urbanization, population density, colonial status and dummies for country-specific eccentricities to get estimations of inequality for Latin America since the 15th century.

Bértola and others are producing a new set of evidence of income inequality for the southern cone and calculate Gini coefficients for Argentina in 1870 and 1920 (Bértola et al. 2009). However, these values are based on regressions with information about the subsistence income and assuming that the inequality in Argentina have not changed between 1870 and 1920 (Bértola et al. 2009, p. 461)

Most of these approaches have focused on indirect estimations and extrapolations. Several strong assumptions are made in most of the cases and possible changes in different parts of the distribution are neglected in others. Hence, we think that it is necessary a more detailed empirical analysis taking advantage of the many sources available in Argentina and taking into consideration the regional variety prevailing in the country. Our paper presents the methodology, the associated sources and the preliminary results of the estimation of an income distribution for the province of Tucumán in 1895. This is –we hope- the first step of an agenda to make direct estimations of inequality for several regions of Argentina in the period of the first globalization. Many of the sources we are using are available for many provinces in Argentina and the methodology applied to Tucumán can be extrapolated to other regions provinces after making the proper adjustments.

At the same time, in the research about inequality in Latin America, Tucumán is interesting for its own sake. It was not only the province with one of the most important cities in Argentina at that time (San Miguel de Tucumán with 49.338 inhabitants) but its sugar cane industry was among the most relevant branches of industrial activity in the country. Its population density was the highest in Argentina (9.58 inhabitants per squared kilometer compared with 2.99 in Santa Fe or 2.99 in Buenos Aires[1]) and it had a relative abundance of small land-owners (compared with other Argentine provinces). All these peculiarities suggest that some characteristics of the economic structure usually associated with income inequality (level of industrialization, population density, factor endowments, land inequality) can be different in Tucumán than in other parts of the country. If this is the case, the analysis of income inequality in Tucumán can provide an interesting point of comparison with other regions in Argentina and even in Latin America.

The rest of the paper is organized as follows. The second section discuss some previous contributions on the topic of inequality in Argentina in the long run; the third section presents a brief description of the methodological approach of this paper. Sections 4th to 8th explain the

[1] Data on population comes from SCRA, Cuadro 1, p. 149. Data on area come from INDEC. We are using the area according with the present day provincial boundaries.

specific methodology used to estimate the incomes coming from labor, land used for agriculture, livestock and land used for livestock production, capital in the industrial sector, and capital in the commercial sector respectively. Section 9th presents the results, discusses some of their limitations and suggests lines for further research. Several appendices in the final part of the paper present ancillary data which supports some conclusions of the paper.

2. Previous research

As we have already mentioned there are many attempts to estimate levels and trends of inequality in Argentina before 1950 but many of them are based on indirect estimations or extrapolations. Williamson (2002) documents a dramatic reduction of the wage-land rental ratio in Argentina between 1880 and 1920 which could be associated to an increase in inequality given that labor was the factor of production more evenly distributed across income groups while land was more concentrated in the social groups at the top of the income distribution. The same author used the ratio between unskilled wage and GDP per capita (the return of all factors per person) to approximate "the changes in the economic distance of the working poor near the bottom of the distribution and the average citizen in the middle of the distribution" (Williamson 1995, p. 133). For Argentina this ratio shows a steep decline between 1870 and 1919.[2]

Prados de la Escosura (2005, 2007) also uses the ratio between the GDP and the wage of unskilled workers as a measure of inequality. Projecting backwards the available Gini coefficients (mainly from 1950 onward), Prados de la Escosura estimates a Pseudo-Gini coefficient for Argentina of 0.436 in 1890 and 0.420 in 1900 (the years more comparable with our study) but with an obvious upward trend between 1870 (0.391) and 1913 (0.618).[3]

For the 20th century, Alvaredo (2007, 2009) presents the evolution of top income distribution in Argentina between 1932 and 2004 using tax records and concludes that income concentration was higher during the 1930s and the first half of the 1940s than it is today.

Frankema (2008) studies the levels and trends of wage inequality in Latin America during the 20th century. He claims that Latin America wage inequality was rather modest before 1940 and only in the late 20th century it rose to extraordinary high levels. For Argentina he uses the "Estadística de Salarios de 1917 Capital Federal" elaborated by the Ministerio del Interior in 1919. This source reports "daily wages of 32.583 male and 7.638 female **industrial** employees of 16 years and older working in the province of Buenos Aires". Frankema claims that "the broad coverage of the types of workers (age, sex, sector, occupational status) reveals the entire structure of labor remunerations". He finds (i) a concentration of wages in the range of 2.00-5.25 pesos with an average daily wage (male and female) of 3.44 pesos, (ii) a very low inequality with Gini coefficient of 0.12.

[2] The real wages used in these calculations come from Williamson (1995) whose estimations are based for the period 1864-1883, on the simple average of wages of *porteros* and *peones* from official sources; for the period 1883-1903 the estimations are based on the wages of *peones de policía* in Buenos Aires extracted from Cortés Conde (1979) and for the period 1903-1914 they are based on wages of *peones albañiles* from the Employment Office Bulletin.

[3] Prados de la Escosura states that "the amplitude of the swings in the Pseudo-Ginis could be wrong but not the tendency" (Prados de la Escosura 2007, p. 296).

3. Methodological assumptions

The estimation of income inequality in this paper follows the methodology based on "social tables" used by several researchers to analyze inequality in the long-run (Milanovic, Lindert and Williamson 2007, Williamson 2009). In our case we do not have social classes but occupational categories whose size is estimated from the *Segundo Censo de la República Argentina* (1898) (hereafter SCRA) conducted in 1895. For each category the SCRA give the number of men and women working in that particular profession. There are 158 occupational categories and for each of them the SCRA gives the number of men and women included. The largest categories are *jornaleros* with 25732 individuals and *agricultores* with 19984 individuals. There are also 39.552 individuals that are classified as *sin profesión* (without occupation).

In the simplified structure of the economy of Tucumán that we have outlined in this paper, people got income basically from five sources: (i) Their own labor, (ii) Land, (iii) Livestock, (iv) Capital in industrial establishments, (v) Capital in commercial establishments.[4] Some people got income from more than one of these sources (for instance a small land-owner farmer got income from land and labor) but most of the people got income only from their own labor. The estimation of the labor income is mainly based on the information in the *Anuarios Estadísticos de la Provincia de Tucumán* (Statistical Yearbooks of the Province of Tucumán, hereafter AEPT) for 1895 and 1896 which provide detailed information on nominal wages for 75 and 102 occupational categories respectively.[5]

To estimate income from land we have used estimations of land rents and profits of the main cultivations in the province (sugar cane, maize, clover, tobacco) and assigned this income to the two occupational categories from the SCRA which are, presumably, owners of land: farmers –*agricultores*- and large land-owners –*estancieros*-.[6]

To estimate the income from livestock production we have used the total income of the livestock production approximated by the Correa and Lahitte Report (1898)[7] (henceforth referred to as CLR) to estimate profits from livestock production and we have distributed this total profits among the *hacendados* according with the distribution of land used for cattle-rising provided by the CLR.[8]

To estimate the income generated by capital in industrial production we have used information about the average capital per firm for 94 different categories of industrial establishments (*establecimientos industriales*), 46 sugar mills and 1 power plant available from the SCRA. The income generated by this capital is assumed to be the 8 % of the capital in each firm. The capital income in industrial production is assigned to the occupational categories *industriales diversos*, *fabricantes*, and other categories in which small entrepreneurs are included together with workers (carpenters, bakers, potters, etc.). [9]

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[4] There are other sources of income like urban property, timber exploitation, among others which are not included in this preliminary analysis because of the lack of information. Of course, further research is needed to outline a more complete picture.

[5] More detail about the methodology for estimating labor income is provided in section 4.

[6] More detail about the methodology is provided in section 5

[7] The Correa and Lahitte Report is the Annex G, devoted to Tucumán and Santiago del Estero, of a "Parliamentary Investigation on Agriculture, Livestock Production and Derivative Industries" ordered by the Argentine Parliament in 1896.

[8] More detail about the methodology is provided in section 6.

[9] More detail about the methodology is provided in section 7.

To estimate the income generated by production in the commercial sector we have used the information about the average capital per establishment in the 29 categories of establishments in the commercial sector available in the SCRA and we have assumed that the generated income is an 8 % of the capital of each establishment.[10] The income from capital in commercial activities is assigned to the categories *comerciantes* and *empresarios*.

4. Distribution of labor earnings

The SCRA provides information about the occupation of all the population older than 14 in Tucumán in 1895. Total population older than 14 was 131.792. From those, 39.552 (30 %) are without profession. There are also 506 students so the number of economically active population would be 91.734. [11] The complete list of occupation categories is in Appendix D.

Labor incomes come mainly from the *Anuario de Estadística de la Provincia de Tucumán* (1895) and the *Anuario de Estadística de la Provincia de Tucumán* (1896) (hereafter AEPT 1895 and AEPT 1896). For these years, the AEPT have information on wages for different classes of professions, trades or occupations. These data is in the form of monthly or daily earnings and sometimes and for some occupations the sources explicitly mention that workers receive board plus a monetary wage. [12] The AEPT for 1896 has a special section on Public Education which gives information of wages of workers in that sector. [13]

Other sources used for estimating labor incomes have been

- The *Boletines del Departamento Nacional del Trabajo* for 1904[14], 1908[15] and 1909[16]. (Bulletins of the National Labor Department, hereafter BDNT 1904, BDNT 1908 and BDNT 1909)
- The *Memoria Descriptiva de la Provincia de Salta 1888-1889*[17] (Descriptive Memory of the Province of Salta, hereafter MDPS)
- The *Memoria Descriptiva de la Provincia de Mendoza 1893*[18] (Descriptive Memory of the Province of Mendoza, hereafter MDPM).
- The Report by Bialet Massé (Bialet Massé 1904) [19] (hereafter BMR).

For many occupational categories, the sources provide three quotations for each wage; these three values can be interpreted as approximations of the minimum, the average and the maximum wage in each category (we will call them "low", "medium" and "high" respectively). This information opens the possibility of assuming some intra-category distribution instead of assuming the same income for all the individuals within a category. In this paper we will use this intra-category variability only in the category *jornaleros* given that is the largest category in

[10] More detail about the methodology is provided in section 8
[11] SCRA, Tomo II, Capítulo XIII, Cuadro XXVI.
[12] For some categories like painters, tailors, carpenters or brick-makers, the earnings are detailed in a piece work basis. For instance brick-makers in 1895 are paid 6 pesos per thousand of bricks of 20 cms x 40 cms elaborated.
[13] AEPT 1896, p. 2-21.
[14] Boletín del Departamento Nacional del Trabajo (1911).
[15] Boletín del Departamento Nacional del Trabajo (1908).
[16] Boletín del Departamento Nacional del Trabajo (1909).
[17] Memoria Descriptiva de la Provincia de Salta (1889).
[18] Memoria Descriptiva y Estadística de la Provincia de Mendoza (1893)
[19] Bialet Massé (1904).

the data.[20] For all the other categories we will assign the medium category to all the individuals in the category.

From Nominal to Real Values

Most of the data sets involved in the aforementioned calculations come from the years 1895 and 1896. They are mainly the SCRA, the CLR written in 1897 but using information from 1895 and 1896 and the AEPT for 1895 and 1896. There are other sources of information from 1904, 1908 and 1909. All the values are expressed in pesos, the legal currency in Argentina and all the monetary variables are converted to real pesos from 1895 using the series of nominal wages and prices from Cortés Conde (1979).

Allowance for food

Some of the data concerning labor income is reported mentioning the wage and adding that the worker received food in the job place. We report, and use for our calculations, the monetary wage plus the monetary value of the food received by the worker. For some categories we have information about the wage perceived with and without food and we have used the difference between them to make an approximation of the value of the food in order to extrapolate that value to the cases in which we had only the quotation of the wage with food. There are fourteen such cases in the AEPT; three of them give information of wages of doorkeepers and the quantity of money for food is unusually large, probably because the working day in this particular category was very long, and even involving not only the days but also the nights. Among the other eleven cases, the range is between 5 and 50 pesos and the percentages are between 20 and 100 %.[21] So, and as a very preliminary approximation, we have assumed that the value of food is 33 % of the monetary wage with a minimum of 10 pesos and a maximum of 40 pesos per month.[22]

Days of work and unemployment

Some of the wages reported in the sources are monthly wages while others are daily wages. Some occupations (like day-laborers –*jornaleros*- or building workers –*albañiles*-) are probably more affected than others (like white collar-workers) by the reduction of the number of working-days per month. Given that so far we have not direct information on the working days per month, we will assume that there were 25 days per month in more "formal" occupations and 22 days per month in less "formal" occupations.

At this stage of the research, we are not taking into consideration the very important problem of unemployment, neither cyclical nor structural. Unemployment must have been a serious problem in the province, in particular seasonal unemployment because sugar production generates a strong seasonal peack on the labor demand from the beginning of winter until the beginning of spring; the rest of the year the number of employees both in the mills and in the sugar-cane fields decreases quite strongly (Campi and Lagos 1995). The category *jornaleros*, with 25732 individuals, is described in the SCRA as *personal de fatiga que no tiene trabajo fijo*, something like "hard-working employees who have not a stable job". The presumption that this group is particularly affected by seasonal unemployment is quite reasonable and the impact of this phenomenon in the income distribution is probably not negligible.

Different qualifications within an occupational category

[20] The details on the income assigned to the category *jornaleros*, are in the Appendix C.
[21] See the Table 3 in the Appendix A.
[22] The need for more research in this topic is fully acknowledged.

For some occupations we have information on different levels of skill or experience like master, worker, apprentice, etc. In our sources the typical categories are *aprendices, peones, oficiales, maestros* and *capataces*. We have made a series of assumption of the relative number of each category in order to take advantage of the information on different subgroups within each category. *Aprendices* were usually a small number in relations to *maestros* and they were usually learning the basic needed skills, so if we had information on a specific wage for *aprendices* we have assumed that they were the 10 % of the total workers in a category. Regarding the other categories, peones and oficiales were the laborers with lower qualification and capataces and maestros were the workers with higher qualification and/or the responsibility of organizing small teams of workers. So when we information of earnings in more than one of these sub-groups, we will assume that *peones* or *oficiales*, are the 70 % of the total and *maestros* and *capataces* are the remaining 30 %.[23]

Monthly and daily incomes

In some occupational categories like building workers and carpenters, there are quotations of both daily and monthly earnings. We have transformed all the daily earnings in monthly wages assuming a quantity of working-days per month. In some categories in which the instability of the labor relationship is presumably larger (like building workers) we have assumed 22 days of work per month for 50 % of the workers and 25 days per month to the other 50 %. In other categories, presumably with a more stable labor relationship (like tailors) we have assumed 25 working days.

Using wage quotations from other provinces.

For some occupational categories we do not have information on wages for Tucumán but, from several sources, we have wage quotations in other provinces and in other years.[24] These quotations can be affected by a cross-section bias (wages in other provinces can be larger or smaller than in Tucumán) and a bias because the change in the level of wages across time.

Under the assumption that the relative wages are stable across provinces and across time, it is possible to capitalize these wage quotations. For instance, for Tucumán in *t* there is no information of wages for the category *j* ($w^T_{j,t}$) but we have a quotation for the category *k* ($w^T_{k,t}$) and for Mendoza in the year *t+s* we have wage quotations for both categories ($w^M_{j,t+s}, w^M_{k,t+s}$), the wage of the category *j* in Tucumán in *t* can be calculated as $w^T_{j,t} = \frac{w^M_{j,t+s}}{w^M_{k,t+s}} \cdot w^T_{k,t}$.

The occupational categories chosen as a base for the comparisons (the categories *j* for which we have information in both locations) are, whenever possible, standard and homogenous categories like building workers or accountants.

Given that the focus of the paper is on the distribution of monthly income in Tucumán in 1895, we have given priority to incomes in Tucumán over income in other places; we have given priority incomes from 1895 to incomes from other years; we have given priority to monthly incomes over daily incomes.

[23] If we have the three sub-groups within a category, for instance *aprendices*, *peones* and *capataces*, we will assume that 10 % are *aprendices*, 63 % are *peones* and 27 % are *capataces*.

[24] These sources are the BDNT 1908, BDNT 1909, BDNT 1911, the MDPS and the MDPM.

Missing categories:

After all these procedures with different sources we still have 57 occupational categories with a total of 3314 individuals for which we have been unable to assign an income. For completing the data base we have used a quite rough and easy procedure: following common sense and indirect information, we classified those occupational categories according with the qualification required to perform the tasks involved in them. For instance, beggars and shoe-shiners were assumed to have low qualification, fishermen, weavers and basket-weavers were assumed to have medium-low qualification, telephonists and sericulturist were assumed to have medium qualification and engineers, architects and artists were assumed to have high qualification.

The wage of *jornaleros* was assigned to all the categories with low qualification, the wage of tinsmith to all the categories with medium-low qualification, the wage of clerks and copyists to all the categories with medium qualification and the wage of accountants to all the categories with high qualification.

SUMMARY

With the previously described methodologies we have been able to assign labor incomes to all the workers in Tucumán according to the occupational categories of the SCRA 1895. For 36 categories and 71895 workers we have direct data. For 11 categories and 8177 workers we used data from Tucumán for different years and transformed the values using data on inflation and growth rates of nominal wages in Buenos Aires (Cortés Conde 1979). For 46 categories and 3218 workers we have used wages from other provinces of Argentina. For 57 categories and 3314 workers we have imputed a wage following simple assumptions of required skills.

5. Income distribution in Agriculture

Tucumán has 22.524 square kilometers which is equivalent to 2.252.400 has. The CLR mentions that there are 105.444 has used for agriculture and 1.876.500 has used for livestock production.

The income generated in agricultural production can be divided in labor income, capital income, land income and profits.

We have information on the value of production and the costs of the main productions in the province. From that we have the income from land (land rents), other costs (mainly labor) and profits (value of production minus costs). We have assumed that all the profits accrued to the owners of the land and then we can divide the value of agricultural production in two: labor income (which is equal to total costs minus land rents) and the sum of land income and profits that goes to the owner of land.[25]

The distribution of labor income has already been analyzed in previous section. To get a income distribution of the owners of land we use the information from the CLR which establish that there are 105.444 hectares devoted to agriculture and from them 70.296 hectares correspond to holdings with less than 25 hectares and 35.148 correspond to holdings with more than 25 hectares (CLR, p. 10); in this last group the CLR specifies that "there are just few of them that are above 100 hectares". From the SCRA we know that there are 9973 properties

[25] In this simplified version, capital income is set equal to zero.

used for agriculture, 7090 of them cultivated by their owners, 2356 by *arrendatarios* and 527 by *medianeros*. There is no information about the size of these holdings. [26]

In Tucumán there were a particular category of land-owners: the sugar mills. According to the CLR (pages 280 and 281) the total area cultivated with sugar cane in the province was 55.469 hectares (CLR, p. 25) and from these, 12.670 were property of the sugar mills (CLR, p. 280)[27], 16.891 were cultivated by *colonos del ingenio* and 17.836 were cultivated by independent producers.[28]

So the total cultivated area would be 105.444. From them, 12.670 were owned by sugar mills and we will assume that the income generated by them accrued to the owners of the sugar mills that are studied in section 7. The income generated by the remaining 92.774 hectares has been assigned to the two occupational categories in the SCRA which are related with land-owning: *estancieros* and *agricultores*. The census reports 477 *estancieros* and 19984 *agricultores*. Within the category *agricultores* there are small land-owners farmers and landless workers in agriculture.. We will assume that the 7.090 properties cultivated by their owners are owned by *agricultores* and these properties account for approximately the 70.000 hectares occupied by holdings smaller than 25 hectares. The other 35.411 hectares are divided in 12.670 owned by sugar mills and 22.741 owned by *estancieros*.

Combining the information from the census and the information from the CLR we will assume the following distribution of holdings

Table 1: Distribution of land used for agriculture

	Individuals	Hectares	Average Size of the Holding
Estancieros	10	2500	250
	30	3600	120
	387	16641	43
Total	477	22741	
Farmers	1000	15223	15.223
	6090	54810	9
Total	7090	70033	
Land cultivated by Sugar Mills		12670	
TOTAL		105444	

[26] SCRA, Capítulo IX, Cuadro I, p. 105, "Agricultura 1895. Número de propiedades agrícolas censadas".

[27] In this page, the sum of the area cultivated by sugar mills in the CLR is badly calculated. The report says that there 11.870 hectares cultivated but the sum of the data for each sugar mill gives a total of 12.670.

[28] The difference between the sum of the three categories 12.670+16.891+17.836=47.397 and the total of 55.469, given by the same report comes mainly from the 8000 hectares "*cultivadas en varias pequeñas fábricas de sistema primitivo*" (CLR, footnote, page 280) which are included in the total but no included in the disaggregation.

Then, the occupational categories receiving income from agricultural land are: 477 estancieros (22.741 hectares), 7090 agricultores (70.033) and the owners of the 31 sugar mills (12.670 hectares). Total cultivated hectares are 22741+70033+12670=105.444

In order to establish the net income generated by these holdings we need to estimate the income and the costs of the different cultivations in the province. This is discussed in the next sub-section.

A. Value of production, costs and profits in agriculture

The main cultivations in Tucumán were sugar cane, maize, clover, tobacco and wheat. In what follows we present simple estimations of the profits per hectare in each of them.

Sugar Cane (55.469 cultivated hectares according to the CLR)

The CLR elaborates a quite detailed analysis of costs and profits of the cultivation of sugar cane under different scenarios of costs, yields and price of the final product. (CLR pp. 41-48). In the Appendix B there is the detail of these calculations. The resultant yearly profits per hectare are between 39 and 137 pesos. Even though a more detailed analysis can be made, we will assume that all the area cultivated with sugar cane gets a profit of 90 pesos per hectare.

Maize (36.468 cultivated hectares according to the CLR)

The CRL report provides some information about the cultivation of maize (CLR, p. 36). According with that information, the average production is 2.600 kilograms per hectare, there are approximately 36.500 hectares cultivated in the province and the price of the final product is around 0.05 pesos per kilogram. Hence, the value of the production is 4.745.000 pesos and the production per hectares is 130 pesos. The costs are estimated between 40 pesos per hectare and 48 pesos per hectares without mentioning if the land rents are included. We will assume that the costs are 40 pesos plus 20 pesos per hectare as land rents[29] which implies a profit of 70 pesos per hectare.

Clover (5.295 cultivated hectares according to the CLR)

The CLR report mentions that there are approximately 5400 hectares cultivated producing each 10 tons of clover. The value of total production is 1.300.000 pesos implying a price of 24.1 pesos per ton and a value of production per hectare of 241 pesos per hectare. The cost of production is mentioned at 60 pesos per hectare "for cultivation and planting" which suggests that land rent is not included. The resultant profit would be 241-60-20 = 161. Given that the costs are not thoroughly described, that we tend to suspect that they are perhaps underestimated and that it is difficult to accept that profits from clover cultivation are so obviously higher than profits from sugar cane (the dominant plantation in the province), we will assume that the profits for clover cultivation are 140 pesos per year. Even though we are making a conservative assumption, these profits are higher than any other cultivation in the province. [30]

[29] We choose a land rent of 20 pesos following the land rent assumed for the case of land cultivated with sugar cane.

[30] The MDPS 1889 mentions that "el cultivo de alfalfa es el que más ganancia deja a los agricultores" because maintenance costs are comparatively low.

Tobacco (2.990 cultivated hectares according to the CLR)

According to the CLR report (CLR, p. 62) the area cultivated is around 3000 hectares. The report presents two quite different hypotheses about the profits of tobacco cultivation. The first, very simple –probably quite incomplete- hypothesis suggests a profit of 420 pesos per hectare. The same author of the report recognizes that that particular hypothesis is not very credible, in particular when the area cultivated with tobacco had been shrinking in the years previous to the census. The other hypothesis provided by the report mentions that the cost of production is 2.5 cents per cultivated plant, that there are 8.000 plants per hectare and that production per hectare is 640 kilograms. The report also mentions that the price is around 5 pesos per kilogram or lower. Using this data the profits will be [640x5 - 8000x0.025]= 120 or something less given that the prices is rather overestimated. So, we have assumed that profits are 112 pesos per hectare.

Wheat (1372 cultivated hectares according to the CLR)

The only information that the CLR mentions about wheat cultivation is that total production is around 1400 tons and the cultivated area is 1372 hectares. It implies yields of 1.02 tons per hectare. We will assume a level of profits slightly smaller than the profits of the maize. This makes a profit per hectare of 60 pesos.

The remaining 3850 hectares are used for several other cultivations for which we will assume an average profit of 90 pesos per hectare.[31]

To assign the income generate by land to the individuals in the relevant occupational categories (the 477 *estancieros* and 7090 land-owners *agricultores*) we need to establish which crops are cultivated by each group.

The CLR mentions that clover and sugar cane are the only plants cultivated in holdings larger than 100 hectares (CLR, p. 25). So, we will assume that the *estancieros* will specialize in sugar cane and clover and the *agricultores* will cultivate the other crops; the *estancieros*, with 22.741 hectares would have 17.446 hectares of sugar cane and 5295 hectares of clover while the *agricultores* would have 25353 hectares of sugar cane, 36468 hectares of maize, 2990 with tobacco, 1372 with wheat and 3850 with other cultivations. Each group receives a profit per hectare that is the weighted average of the profits of the cultivations of the group (the weights are given by the area cultivated). This methodology generates profits of 79,6 pesos per year per hectare for *agricultores* and 101,6 pesos per year per hectare for *estancieros*. The income of each person within each group is the income per hectare of the group multiplied by the area belonged for each person following Table 1. This implies, for instance, that the income from land got by an *agricultor* with a small holding (9 hectares) will be 79,6 pesos multiplied by 9 hectares which is 716,4 pesos per year, while in the other extreme point, the wealthiest *estanciero* would receive 101,6 pesos multiplied by 250 hectares which is 25400 pesos.

6. Income distribution in livestock production

Unfortunately the information for livestock production is considerably scarcer and less detailed than for agriculture. We have information about the total value of livestock production but we do not have information on costs of production. We have some information about the size

[31] Within these other cultivations perhaps the fruit trees deserve a more detailed analysis. Fruit trees cultivation is probably more labor and capital intensive than other agricultural activities in the province and profits per hectare could be considerably higher than in others agricultural activities.

distribution of the holdings used for cattle-rising but we do not have information about the number of animals in each holding. To approximate the distribution of income coming from livestock production we have made three strong assumptions. First, that the percentage of profits within total income in livestock production is similar to that percentage in agriculture (45 %). Second, that these profits are distributed according to the distribution of land devoted to livestock production. Third, that all the income generated by livestock production goes to the occupational category called *hacendados* according with that distribution of land.

The size distribution of holdings is provided by the CLR (CLR, p. 10). In the first two columns of the Table 2 we have the information provided by the CLR. In the third we have assumed an average area per category in order to get a total area equal to the total area informed by the CLR. In the fourth column we have distributed the number of *hacendados* in such a way to get the same proportion of *hacendados* in each size category than the number of holdings in each category. The eighth column gives the total income of the activity distributed per category and the last column gives the per capita income for each category.

Table 2: Distribution of land and income from livestock production

Size	Holdings	Average area	Total area	Hacendados	% area group	% area per capita	Income per group	Income per capita
Menos 625	2000	500	1000000	815	53.8	0.07	456290.3	559.8
625-1250	400	1100	440000	163	23.7	0.15	200767.7	1231.6
1250-2500	100	2200	220000	41	11.8	0.29	100383.9	2463.2
mas 2500	20	10000	200000	8	10.8	1.32	91258.1	11196.2
	2520		1860000	1027	100.0		848700.0	
Total income in livestock production			1886000					
Profits in livestock production			848700					

So, for instance, the poorest 815 *hacendados* will get 559,8 pesos per year while the wealthiest 8 *hacendados* with 10.000 hectares each devoted to livestock production will get 11.196,2 pesos per year.

7. Income distribution in secondary sector

The main assumptions we have made in order to estimate the distribution of income coming from industrial activities are (i) Income from capital and profits are the 8 % of the total capital of each establishment (ii) The income from each establishment goes to a particular individual (it means that there are neither establishments with more than one owner nor individuals owning more than one establishment),[32] (iii) Income from capital will be assigned to

[32] This assumption is probably non-trivial if we focus in the right part of the distribution where very large establishments are probably owned by many people and many people owned more than one establishment within a sector and even several establishments in different sectors of the economy. In the near future we hope to

individuals in the categories *industriales diversos*, *fabricantes* and other categories related in which the occupation of an individual is closely related with a particular category of a small establishment in the secondary sector (for instance carpenters and tailors).

The SCRA provides information on the number of industrial establishments in three main categories: there are 547 industrial establishments in general,[33] 31 sugar mills,[34] 22 distilleries,[35] and one power-plant.[36] Some of the sugar mills are also distilleries and between sugar mills and distilleries we have 46 establishments. So, the total number of industrial establishments is 547+46+1=594. The SCRA divides the 547 industrial establishments in 45 categories and reports the average capital of each category. So, assuming that most of the variability in capital stock among establishments is variability across categories we can assign the average capital of each category to each establishment. Furthermore, assuming that the return to capital plus the profit of each establishment is equal to the net return of capital in the financial system (around the 8 %)[37] we can get the income generated by each establishment. Assigning this income to individuals within some occupational category of the SCRA is the last step in the process.

There are two occupational categories of the SCRA which can be easily associated with owners of industrial establishments: 274 *industriales diversos* and 10 *fabricantes*. The two categories add up 284. So there are 310 more establishments than individuals presumably owners of an industrial establishment. However, the names of some categories of establishments strongly suggest a relationship between them and a particular occupation: for instance there are carpentry (*carpintería*) and carpenters (*carpinteros*), bakery (*panadería*) and bakers (*panaderos*), pottery-shop (*alfarería*) and potters (*alfareros*). So the matching is not only between establishments on one side and *industriales diversos* and *fabricantes* on the other but between establishments on one side and a long list of occupational categories related with industrial activities on the other side.

We have discounted from the total number of establishments the most obvious categories for which this apparent relationship exists up to the point that makes the number of establishments equal to 284 which fits exactly with the number of individuals within the occupational categories related with the ownership of an industrial establishment.[38]

In this way, the labor income of 310 workers will be augmented by the income generated by the capital of the average industrial establishment related with her/his profession. The remaining workers within each occupational category will receive only labor income. The

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undertake a more detailed research of the wealthiest families taking advantage of the abundant information we have about the economic activities of those families and social groups. Herrera (2007).

[33] SCRA, Tomo 3, p. 296-297.

[34] Actually there are 35 sugar mills in the list of the census but only 31 have information about capital stock. SCRA, p. 606..

[35] Actually there are 30 distilleries in the list of the census but only 22 have information about capital stock. SCRA 1895, Tomo 3, p.618.

[36] The electric power plant is Cassells and Company, with a capital of 54.000 pesos, founded in 1889, with two steam machines and 14 employees.

[37] See for instance Sánchez Román (2001, p.439-441) for the commercial interest rate prevailing in Tucumán in that period. The need for more research on the profits of the industrial and commercial sectors and/or the prevailing interest rate in Tucumán is fully acknowledged.

[38] The categories of industrial establishments that have been assigned to a particular occupational category are The categories included in the 310 artisans are: Alfareros (10), Carpinteros (48), Cigarreros (3), Confiteros (16), Herreros (33), Hojalateros (13), Joyeros (16), Panaderos (49), Queseros (7), Relojeros (10), Sastres (36), Talabarteros (20), Zapateros (49).

income from the other industrial establishments will be assigned to the two aforementioned occupational categories: *industriales diversos* and *fabricantes*.

SUMMARY

So, there are 594 persons receiving income from capital. 47 of them are the owners of sugar mills, distilleries or the power plant; 310 of them are the artisans owners of his workshop, and 237 of them are the owners of one the other industrial establishment mentioned in the SCRA.

8. Income distribution in commercial sector

The SCRA provides information on fixed capital, circulating capital, and employees of 29 different categories of commercial houses.[39] There are 1535 commercial houses with 4261 employees and 12.409.170 pesos in total capital.

There are two occupational categories whose members are presumably the owners of these establishments: 3179 *comerciantes* and 49 *empresarios*. The difference between these two categories of traders (3179+49=3228) and commercial houses (1535) is 1693. If we take the data of the census as true this discrepancy is probably due to the fact that there are many small merchants included in the categories *comerciantes* or *empresarios* who have very small establishments which are not included in the census of establishments. For 1535 merchants we will assume that each one receives an income equal the labor income of a worker with medium qualification plus the 8 % of the capital of her/his establishment and that the each establishment has a capital equal to the average capital of the category. The income of the other 1693 merchants will be assumed to be equal to the income of a worker with medium qualification (120 pesos per month).

Of course, more research on this topic is needed. The income of the *comerciantes* is rather low compared with the income of the *industriales* and it is also probably low compared with some professions of high qualification like an accountant.

The assumption of the merchants receiving an income equal to the 8 % of the capital should be tested, refined and replaced. For instance, we can take advantage of the fact that the SCRA provides information on circulating capital and buildings, and to assume different rates of return for each kind of capital and then to get a more refined picture of the income or merchants. Detailed research of particular cases of merchants business through private sources can provide extra information.

9. Results, caveats and further research

A. Results

The Gini coefficient for employed individuals in Tucumán in 1895 resulting from our exercise is 57.91. This is considerably large. The Pseudo-Ginis constructed by Prados de la Escousra for Argentina are 43.6 for 1890 and 42.0 for 1900. Of course our estimations are not directly comparable with the ones by Prados de la Escosura because our estimation is for Tucumán and Prados' estimations are constructed combining data from Argentina (GDP) and from Buenos Aires (wage of unskilled workers). However, we think that our results strongly suggest that the Prados's Pseudo Ginis are underestimating the levels of inequality of Argentina in the

[39] SCRA, Tomo 3, Cap. XII, Cuadro 1, page 654-655

1890s. Even assuming that Prados' Pseudo-Ginis are capturing correctly the levels of inequality in Buenos Aires, our results suggest that other areas of Argentina are less egalitarian than Buenos Aires and therefore the inequality in Argentina is larger than what can be deduced from the Pseudo-Ginis.

The Gini coefficient is even larger (70.6) if we include in the calculation the 39.552 individuals without income. Given that we are estimating the inequality of individual incomes (which is different from the inequality of household incomes), in principle, people without income (unemployed, inactive, etc.) should be included in the analysis.

The level of detail of the information at the base of our exercise allows us to calculate the inequality in some sub-groups in order to compare our results with other results in the literature. For instance, Frankema (2008) calculates wage inequality in Buenos Aires in 1917 using a survey of wages in the industrial sector. He obtains a Gini coefficient of 12.0 which is extremely (and surprisingly) low.

We have calculated three different Gini coefficients to compare with this result. The first Gini is calculated with the income of all the workers of the industrial sector[40] and it is 38.9. As we have already said, one very important occupational category is the *jornaleros* who are classified as *personal de fatiga que no tiene trabajo fijo*; many of them can actually be working in the secondary sector and they have not been included in the previous calculation. If we assume that 30 % of jornaleros are industrial workers the new Gini coefficient is 37.13 which is still considerably larger than the estimations by Frankema (2008). If the Gini coefficient is calculated including all the individuals receiving only income from labor the result is 45.1 which is considerably larger than the Gini when only the industrial workers are included.

Given that, in principle, we have calculated all the incomes from labor, land and capital in the economy, the sum of all the individual incomes should be equal to the value of the production of the economy. Of course, our exercise is an extremely rude approximation. However, it is interesting to highlight that if we add all the monthly incomes of the individuals in our data set and multiply that number by 12 to get a rough approximation of the total annual income of the province of Tucumán the result is 76.302.223 pesos and the per capita income is 353,67 pesos per year. The national per capita GDP of Argentina according with the estimations of Della Paolera, Taylor and Bózzoli (2003) is 404,93 pesos. So, the aggregate implications of our estimation are not implausible when they are put into perspective of estimations of the aggregate level of activity of the country.

B. Caveats and further research

There are many debatable assumptions in the process of the estimation of inequality presented in this paper. We are trying to make them as transparent as possible in order to make clear the limitations of the approach and the possible weak points and their potential remedies.

We think that the topics that can add more to the analysis of the inequality in Argentina and eventually to an adjustment of the methodology and an improvement of quality and reliability of the results are the following (in tentative order of importance):

[40] These individuals have been identified in the data set as all those receiving income only from their labor and included in an occupational category within the section "Industrial Production" by the SCRA.

- The income of the owners of industrial and commercial establishments requires a more careful research. Some contributions of business history and histories of the wealthiest families of the province (for instance Herrera 2007) can provide extra information to complement our simplified analysis about the top part of the distribution. In particular, it seems that the income of the commercial sector deserves closer look to understand the contradiction between some references about the large income of the merchants in Tucumán in this period and the apparently low income that our methodology generates for this group.
- The particularities of the market for unskilled workers in Tucumán like compulsory labor, seasonal unemployment, seasonal variation of earnings, internal migrations can affect our assumptions relating the incomes at the bottom of the distribution. There are many studies of the labor market in Tucumán (for instance Campi and Lagos 1995) that can be the basis for this further research.
- Some sources of income have been completely omitted and they for sure deserve some consideration: income from urban property, income from timber exploitation, etc.

10. References

Alvaredo, Facundo (2007). "The rich in Argentina over the 20th century: From the conservative Republic to the Peronist experience and beyond, 1932-2004". Working Paper, Paris School of Economics.

Anuario de Estadística de la Provincia de Tucumán (1895) publicado bajo la dirección de P. Rodríguez Marquina. 1895. Tomo II. Salarios. pp. 607-609.

Anuario de Estadística de la Provincia de Tucumán (1896) publicado bajo la dirección de P. Rodríguez Marquina. 1896. Tomo II. Varios. Salario y mano de obra en la provincia de Tucumán, durante el año de 1896. pp. 327-329.

Bertola, Luis, Cecilia Castelnovo, Javier Rodríguez and Henry Willebald (2009). Income Distribution in the Southern Cone during the First Globalization and Beyond. *International Journal of Comparative Sociology* 50, 5-6, 452-485.

Bialet Massé, Juan (1904). *Informe sobre el estado de la clase obrera*. Buenos Aires 1986.

Boletín del Departamento Nacional del Trabajo (1908). N° 4 a 7. Salarios Corrientes a fines de 1908. Santiago del Estero. pp. 631-632.

Boletín del Departamento Nacional del Trabajo (1909) N° 8 a 11. Salarios corrientes y costo de la vida. Concepción pp. 143-144, La Cocha pp. 149, Jujuy pp. 229-230.

Boletín del Departamento Nacional del Trabajo (1911) N° 16 a 19. pp. 398-400. Salarios en la Agricultura Argentina en 1904. Tucumán. Datos de "El Obrero en la República Argentina", por Juan A. Alsina.

Campi, Daniel and Marcelo Lagos (1995). "Auge azucarero y mercado de trabajo en el noroeste argentino, 1850-1930" in Silva Riquer, Jorge, Juan Carlos Grosso y Carmen Yuste (eds.): *Circuitos Mercantiles y Mercados en Latinoamérica, Siglos XVIII y XIX*, Instituto Mora, México.

Cortés Conde (1979): *El Progreso Argentino 1880-1914*. Editorial Sudamericana, Buenos Aires.

Della Paolera, Gerardo, Alan M. Taylor and Carlos G. Bózzoli (2003): "Historical Statistics" in Della Paolera, Gerardo and Alan M. Taylor (eds.): *A new economic history of Argentina*, Cambridge University Press.

Della Paolera, Gerardo and Alan Taylor (2003). *Tensando el ancla*. Fondo de Cultura Económica.

Frankema, Ewout (2008). The historical evolution of inequality in Latin America. Ph.D. dissertation, University of Groningen.

Herrera, Claudia (2007). Redes de parentesco, azúcar y poder: la élite azucarera en la segunda mitad del siglo XIX. *Revista Entrepasados* 31 p. 35-54.

Memoria Descriptiva de la Provincia de Salta 1888-1889 (1889) escrita por Manuel Solá. Buenos Aires. Tercera Parte. Capítulo II, Rentas y Crédito Público. pp. 325-334.

Memoria Descriptiva y Estadística de la Provincia de Mendoza (1893) confeccionada por el Centro Comercial, Agrícola é Industrial en conformidad a las Instrucciones del Exmo. Gobierno de la Provincia. Anexo D. Cuadro de Salarios. Salarios que se pagan a los obreros o artesanos de las distintas profesiones. pp. 97-101.

Milanovic, Branko, Peter Lindert and Jeffrey Williamson (2007): "Measuring Ancient Inequality". World Bank Policy Research Working Paper 4412.

Prados de la Escosura, Leandro (2005). "Growth, Inequality and Poverty in Latin America: Historical Evidence, Controlled Conjectures". Workng Paper- Economic History and Institutions Series 05-41-04.

Prados de la Escosura, Leandro (2007). "Inequality and Poverty in Latin America: A Long-Run Exploration" in Hatton, T., O´Rourke, K.H. and Taylor, A.M. (eds.): *The new comparative Economic History. Essays in honor of Jeffrey G. Williamson*, MIT Press.

Sánchez Román, José Antonio (2001). El Banco de Londres y del Río de la Plata y el negocio azucarero en Tucumán, Argentina (1909-1914). *Revista de Historia Económica* 19, 2, 415-447.

Segundo Censo de la República Argentina 1895 (1898), 3 volúmenes, Buenos Aires.

Williamson, Jeffrey (1995). "The Evolution of Global Labor Markets since 1830: Background Evidence and Hypotheses. *Explorations in Economic History* 32, 141-196

Williamson, Jeffrey (2002). "Land, Labor and Globalization in the Third World, 1870-1940". *Journal of Economic History* 62, 1, 55-85.

Williamson, Jeffrey (2009). "Five Centuries of Latin American Inequality". National Bureau of Economic Research Working Paper 15305.

11. Appendices

A. Appendix A:

The quotations of wages in which they are mentioned with food and without food in the same source and for the same category are

Table 3: Quotations of wages with food and witout food

Category	Wage with food	Wage without food	Increase %	Increase $	Source
Cocheros	30	45	50.0	15	AEPT 1895
Carreros (low wage)	25	30	20.0	5	AEPT 1895
Carreros (high wage)	30	40	33.3	10	AEPT 1895
Albañiles (low wage)	40	50	25.0	10	AEPT 1896
Albañiles (medium wage)	60	90	50.0	30	AEPT 1896
Albañiles (high wage)	80	120	50.0	40	AEPT 1896
Peones para todo trabajo (low wage)	20	40	100.0	20	AEPT 1896
Peones para todo trabajo (high wage)	30	45	50.0	15	AEPT 1896
Carreros (low wage)	20	25	25.0	5	AEPT 1896
Carreros (intermediate wage)	25	30	20.0	5	AEPT 1896
Carreros (high wage)	30	40	33.3	10	AEPT 1896

B. Appendix B

Table 4 presents the costs and income per hectare of cultivation of sugar cane. All the information comes from the CLR (CLR, p. 41-43). There are two scenarios for the costs of the first year and two scenarios for the following years. The first year refers to the first season in which the waste land is prepared for cultivation. Distinction is necessary because the costs of the first year include soil preparation and plantation which are not longer necessary in the following years.

In the second scenario of the following years the costs are estimated altogether for places better suited for cultivation (cost are reduced to 150 pesos per hectare and yields are increased to 55.000 kilograms per hectare per year.

The income of the first year is estimated for only one scenario with a yield of 30.000 kilograms per hectare per year.

Table 4: Costs and income of the cultivation of sugar cane				
Página 43				
Production costs	1st year		Following years	
	Scenario 1	Scenario 2	Scenario 1	Scenario 2
Land rents	20	10	20	10
Soil preparation	25	25		
Value of the seed plant	50	50	50	
Plantation	20	20		
Cultivation	50	50	50	
Harvest	60	60	60	
General costs				140
TOTAL	225	215	180	150
Income	1st year		Following years	
			Scenario 1	Scenario 2
Thousands of kilograms	30000		40000	55000
Price	0.006		0.006	0.006
TOTAL	180		240	330
Profits per hectare	Costs	Income	Yearly Profits	
Least favorable scenario	945	1140	39	
Most favorable scenario	815	1500	137	

C. Appendix C

In this appendix the details of the calculation of incomes for each occupational category are reported:

1. Agricultores (Farmers):

   This category includes agricultural workers and small farmers. The income of small farmers is the sum of the income from land and income from labor. The details of the calculations are in section 5

   For agricultural workers, we get information from the AEPT 1896 about earnings of *peones en las estancias* and *peones para todo trabajo*; the first group is composed by workers in agriculture while the second one is more general including laborers for any kind of work. The wage of *peones para todo trabajo* is slightly larger than the wage of *peones en las estancias*. We have assumed that 70 % are *peones en las estancias* (which is more specifically related with agriculture) and 30 % are *peones para todo trabajo*.

2. Horticultores (Horticulturists):

   Given that there is no direct information about *horticultores* earnings, we have assumed the same earnings of *peones en las estancias* provided by the AEPT 1896.

3. Mayordomos (Butlers):

   The *mayordomos* were in charge of the organization of production in large holdings devoted to agriculture or livestock production. Their rank was usually higher than the one of *capataces* who were in charge of smaller groups of workers. Given that there is no direct information about the earnings of a *mayordomo*, we have assumed they earn the double of the earnings of a *capataz*, for which we have direct information from AEPT 1896.

4. Obrajeros (Foremen):

   Given that there is no direct information about *obrajeros* earnings, we have assumed the same earnings of *capataces en las estancias* provided by the AEPT 1896.

5. Picapedreros (Stonecutters):

   The SCRA defines *picapedreros* like "poceros, zanjeadores, empedradores, etc.". Hence, we have assigned the wages of *empedradores* for whom we have direct information on the AEPT 1895.

6. Albañiles (Building workers):

   From the AEPT 1895 we have information of monthly and daily wages of *albañiles*. We have assumed that 50 % of workers are more permanent and they earn the monthly wage (which is higher); the other 50 % are assumed to be eventual workers with 22 days of work per month and receiving the daily wage per day of work.

7. Carpinteros (Carpenters):

   From the AEPT 1895 we have information, like in the case of building workers, of monthly and daily wages of *carpinteros*. With the same assumptions made in the case of building workers we have divided this category in two: 50 % receiving a monthly wage (that is higher) and 50 % of casual workers receiving a (lower) daily wage.

8. Carniceros (Butchers):

   We have assumed that butchers receive the same income than the category *dependientes de tienda* for which we have direct information from the AEPT 1895.

9. Cigarreros (Cigar-makers):

   The SCRA informs that there are 62 male and 1871 female workers in this category and three tobacco establishments. We have assumed that 3 of the 63 male workers are the owners of these establishments (*cigarrerías*) and they receive the labor income of a skilled worker plus the capital income of the workshop.

   For the rest, the AEPT 1896 provides information on wages for men and women but it only gives data on the maximum and the minimum. We calculated the average between the maximum and the minimum and we have assigned the wages for men to the remaining 59 male workers and the wages for women to the 1871 female workers.

10. Costureras (Seamstresses):

    The SCRA includes the broad category *costureras* but the AEPT 1896 distinguishes three sub-categories: *costureras a domicilio* (seamstresses at home), *costureras en talleres ropa blanca* (seamstresses in linen workshops) and *costureras en talleres de moda* (seamstresses in fashion workshops).

    For the first group we have only one wage per month (no minimum and maximum values) and it is probably the smallest group. Given that probably the second group is larger we have divided the sample in one 67 % of the second group and one 33 % of the third group.

11. Herreros (Blacksmiths):

    There are 33 *herreros* that are assumed to be owners of the shop and to receive the income of the capital of the shop plus the monthly earnings of a worker of average qualification (carpenters with a monthly wage of 120 pesos)

    For the remaining 310 *herreros*, the AEPT 1895 gives information, like in the case of building workers, of monthly and daily wages of *herreros*. With the same assumptions than in the case of building workers, we have divided this category in two: 50 % receiving a monthly wage and 50 % of casual workers receiving a daily wage (that is lower than the one received by the more permanent workers).

12. Maquinistas (Machinists):

    In this case, we have used monthly wages of *maquinistas impresores* provided by the AEPT 1895.

13. Mecánicos (Mechanics):

    We have direct information from the AEPT 1895.

14. Panaderos (Bakers):

    There are 49 *panaderos* that are assumed to be owners of the shop and to receive the income of the capital of the shop plus the monthly earnings of a worker of average qualification (carpenters with a monthly wage of 120 pesos).

For the remaining 905 *panaderos* we have used information from the AEPT 1895 on monthly wages of *peones de panadería* and from the AEPT on monthly wages of *maestros de panadería*. We have assumed that 70 % were *peones de panadería* and 30 % were *maestros de panadería*.

15. Pintores (Painters):

    In the AEPT 1895 there is direct information on daily wages. We have multiplied the daily wages by 22 to get the monthly wages.

16. Peluqueros (Hairdressers):

    In the AEPT 1895 there is direct information on monthly wages.

17. Sastres (Tailors):

    There are 36 tailors that are assumed to be owners of the shop and to receive the income of the capital of the shop plus the monthly earnings of a worker of average qualification (carpenters with a monthly wage of 120 pesos).

    For the remaining 206 tailors indicated by the SCRA, in the SYPT 1895 there are quotations of the daily wages of *sastres* and in the SYPT 1896 there are quotations of monthly wages of *sastres cortadores* (that are higher). We have assumed that the 30% are *sastres cortadores* and the other 70 % are *sastres*. We have assumed 25 days of work per month for all these *sastres*.

18. Tipógrafos (Printers):

    The AEPT 1895 provides information of monthly wages for *tipógrafos* and for *tipógrafos aprendices*. We have assumed that 90 % are *tipógrafos* and 10 % are *tipógrafos aprendices*.

19. Zapateros (Shoemakers):

    There are 49 shoemakers that are assumed to be owners of the establishment and to receive the income of the capital of the shop plus the monthly earnings of a worker of average qualification (carpenters with a monthly wage of 120 pesos).

    In the AEPT 1895, there is direct information on daily wages for the remaining shoemakers in the SCRA. We have assumed 25 days of work per month for these workers.

20. Dependientes (Sales assistants):

    The AEPT 1895 provides information on *dependientes* and *dependientes de farmacia*. Probably the latter is a category with much more specific skills. So we have assumed that 10 % of the sales-assistants have higher qualification (included as *dependientes de farmacia*) and the remaining 90 % were unqualified (included as *dependientes*).

21. Empleados (Employees):

    In the AEPT 1895, there are quotations of monthly wages on two important categories: *dependientes,* probably with higher skills, and *cadetes,* with lower skills. We have assumed that 70 % are *dependientes* and 30 % are *cadetes*. The reasoning for this assumption of assuming more people with higher skills in this occupational category is based on the idea that sellers are relatively more abundant than cadets.

22. Repartidores (Delivery men):

In the AEPT 1895, there is information on monthly wages for *cadetes* and *repartidores de diarios*. We have assumed that 50% are *cadetes* and 50% are *repartidores de diarios*.

23. Tenedores de libros (Book holders):

    The AEPT 1895 provides direct information for this category.

24. Carreros (Cart makers):

    The AEPT 1895 provides direct information for this category.

25. Cocheros (Car makers):

    The AEPT 1895 provides direct information for this category.

26. Cocineras and cocineros (Cooks):

    In the AEPT 1895 there is information for women and in the AEPT 1896 there are quotations of monthly wages on men. According to the SCRA, there were 2077 women and 108 men.

27. Domésticos (House workers):

    The sources provide information on three different categories: *mucamos* (AEPT, 1896), *sirvientas* (AEPT, 1895) and *niñeras* (AEPT, 1895). Given that the SCRA points out that 14 % are men in this occupation, we have assumed that 14 % were *mucamos* and we have split the remaining 86 % between *sirvientas* (60 %) and *niñeras* (26 %).

28. Periodistas (Journalists):

    In the AEPT 1895 there is information on *noticieros* and *redactores de diarios*. We have assumed that 30 % were *redactors de diarios* and 70 % were *noticieros*.

29. Amasadores (Kneaders):

    The BMR 1904 provides only one monthly wage for the *amasadores de panadería*. So we will assume that this is a homogeneous wage occupation.

30. Jornaleros (Day laborers):

    The AEPT 1896 provides direct information for three different wages (high, medium and low) of *peones para todo trabajo*. We have used the three wages assuming that 25 % of the *jornaleros* receive the high wage, 50 % of the *jornaleros* receive the medium wage, and the remaining 25 % receive the low wage.

31. Caldereros (Boilermakers):

    The AEPT 1895 provides direct information for this occupation.

32. Hojalateros (Tinsmiths):

    There are 13 tinsmiths that are assumed to be owners of the shop and to receive the income of the capital of the shop plus the monthly earnings of a worker of average qualification (carpenters with a monthly wage of 120 pesos).

    For the remaining tinsmiths, the AEPT 1895 provides direct information.

33. Muebleros y tapiceros (Furniture makers and Upholsterer):

    The BMR 1904 provides only one daily wage for *aprendices en ebanistería y mueblería* and three daily wages (maximum, medium and minimum) for *operarios en ebanistería y mueblería*. We assume that 10% are *aprendices* that work 22 days at month and that the other 90% are *operarios* which work 25 days at month.

34. Talabarteros (Saddlers, Harness makers):

    There are 20 *talabarteros* that are assumed to be owners of the shop and to receive the income of the capital of the shop plus the monthly earnings of a worker of average qualification (carpenters with a monthly wage of 120 pesos).

    For the remaining *talabarteros*, the BMR 1904 reports information on wages for *aprendices* (daily), *capataces* (monthly) and *obreros* (daily). We assume that *capataces* and *obreros* work 25 days per month and *aprendices,* 22. We also assume that 10% are *aprendices*, 60% *obreros* and 30% *capataces*.

35. Torneros (Lathe operators):

    In the AEPT 1895, there is information on monthly wages for this category.

36. Yeseros (Plasterers):

    The BMR 1904 provides information on daily wages for *maestros*, *oficiales* and *peones yeseros*. We assume that all of them work 25 days at month and that 50% are peones, 30% are *oficiales* and 20% are *maestros*.

37. Empleados del ferrocarril (Railroad employees):

    The AEPT 1896 provides information on monthly wages for *capataces en los ferrocarriles* and for *peones en los ferrocarriles*. We assume that 30% are *capataces* and the other 70% are *peones*.

38. Lavanderas (Laundresses):

    The BMR 1904 provides information on monthly and daily wages for *lavanderas*. We have chosen monthly information.

39. Planchadoras (Ironing female workers):

    The BMR 1904 provides information on daily wages for *planchadoras aprendices* and for *planchadoras oficialas*). We assume that 10% are *aprendices* and the other 90% are *oficialas*.

40. Contadores (Accountants):

    The AEPT 1895 provides direct information on this category.

41. Maestros de escuela (School teachers):

    According to the AEPT 1896, the quantity of school teachers in Tucumán is very similar to that from the SCRA 1895 if principals and assistant-principals are included. Both categories are not mentioned in any other part of the SCRA 1895. So, we think they are included in school teachers in the census. Information provided by the AEPT 1896 basically refers to the quantity of personal (distinguished by if they are *directores*, *subdirectores* or *maestros*) and to the amount of money (pesos m/n) spent on wages. This information is provided in a four month period base.

We have chosen the second four month period because is the one that contains the quantity of school workers most similar to that from the SCRA 1895. So, of the 360 school workers in 1895, we assume that 45% are principals, 10% assistant-principals and the remaining 45%, teachers.

Although it would seem reasonable to assume there would be more teachers than principals and assistant-principals, the SYPT 1896, with a complete section devoted to Public Education, seems to confirm the opposite. Thus, we assume there are 163 principals, 36 assistant-principals and 164 teachers.

So, we needed to assume a distribution for the amount of money spent on wages; probably, the ranking of qualification and thus, the ranking of remunerations received (in decreasing order) is P>A-P>T. We assumed that P=1.1 A-P and A-P=1.375 T.

Given that in the second four month period the average monthly amount of money spent on wages was 18231 pesos m/n, and given the assumed proportions, we have that:

Teachers wage: 40

Assistant-principals wage: 55

Principals wage: 60

42. Abastecedores (Suppliers):

    In the BDNT 1909, there is information on daily wages for some occupational categories in many of Tucumán's departments. In La Cocha, there is a daily wage for *abastecedores*.

43. Fundidores (Smelters):

    In the BDNT 1909 there is a daily wage for *fundidores* of Concepción.

44. Carboneros (Coal miners):

    In the BDNT 1908, there is no wage information for Tucumán but there are wages for many occupational categories in different Argentinean provinces. In Santiago del Estero, there is a daily wage for *carboneros*. The process of "relativization" is applied in this case using the *zapateros* wage as a numeraire.

45. Confiteros (Confectioners):

    In the BDNT 1909, there is a daily wage for *confiteros* of La Cocha.

46. Plomeros (Plumbers):

    In the BDNT, there is no wage information for *plomeros* on the Tucumán's departments but this information does exist for another northwestern province, Jujuy, and it is presented in a daily base. We assumed the same relative wage between plumbers and jornaleros in Jujuy than in Tucumán to calculate wage for plumbers.

47. Pastores (Shepherds):

    The MDPM 1893 provides information on monthly and daily wages for many occupational categories. We assumed that the relative wage between *pastores* and *albañiles* is the same in Mendoza and in Tucumán to calculate the wage for pastores in Tucumán.

48. Vinicultores (Winegrowers):

    The MDPM 1893 provides information on monthly wages for *vinicultores*. We assumed that the relative wage between *vinicultures* and *albañiles* is the same in Mendoza and in Tucumán to calculate the wage for *vinicultores* in Tucumán.

49. Alfareros (Potters):

    There are 10 *alfareros* that are assumed to be owners of the shop and to receive the income of the capital of the shop plus the monthly earnings of a worker of average qualification (carpenters with a monthly wage of 120 pesos).

    For the remaining, the MDPM 1893 provides information on daily wages for *alfareros*. We assumed that the relative wage between *alfareros* and *albañiles* is the same in Mendoza and in Tucumán to calculate the wage for *alfareros* in Tucumán.

50. Armeros (Gunsmiths):

    The MDPM 1893 provides information on daily wages for *armeros*. We assumed that the relative wage between *armeros* and *albañiles* is the same in Mendoza and in Tucumán to calculate the wage for *armeros* in Tucumán.

51. Aserradores (Saw-smiths):

    The MDPM 1893 provides information on daily wages for *aserradores*. We assumed that the relative wage between *aserradores* and *albañiles* is the same in Mendoza and in Tucumán to calculate the wage for *aserradores* in Tucumán.

52. Bordadoras (Embroiderers):

    The MDPM 1893 provides information on daily wages for *bordadores*. We assumed that the relative wage between *bordadoras* and *albañiles* is the same in Mendoza and in Tucumán to calculate the wage for *bordadoras* in Tucumán.

53. Curtidores (Whittawers):

    The MDPM 1893 provides information on daily wages for *curtidores*. We assumed that the relative wage between *curtidores* and *albañiles* is the same in Mendoza and in Tucumán to calculate the wage for *curtidores* in Tucumán..

54. Encuadernadores (Bookbinders):

    The MDPM 1893 provides information on daily wages for *encuadernadores*. We assumed that the relative wage between *encuadernadores* and *albañiles* is the same in Mendoza and in Tucumán to calculate the wage for *encuadernadores* in Tucumán..

55. Floristas (Florists):

    The MDPM 1893 provides information on daily wages for *floristas*. We assumed that the relative wage between *floristas* and *albañiles* is the same in Mendoza and in Tucumán to calculate the wage for *floristas* in Tucumán.

56. Gasistas (Gas fitters):

    The MDPM 1893 provides information on daily wages for *gasistas*. We assumed that the relative wage between *gasistas* and *albañiles* is the same in Mendoza and in Tucumán to calculate the wage for *gasistas* in Tucumán.

57. Grabadores (Engravers):

    The MDPM 1893 provides information on daily wages for *grabadores en madera, en cristal* and *en metal*. We assumed that the relative wage between *grabadores* and *albañiles* is the same in Mendoza and in Tucumán to calculate the wage for *grabadores* in Tucumán.. We have assumed that one of the two *grabadores* is a *grabador en madera* (with a lower income) and that the other one is a *grabador en cristal o metal* (with a higher income).

58. Jaboneros (Soap-makers):

    The MDPM 1893 provides information on monthly wages for *jaboneros*. We assumed that the relative wage between *jaboneros* and *albañiles* is the same in Mendoza and in Tucumán to calculate the wage for *jaboneros* in Tucumán.

59. Joyeros (Jewelers):

    There are 16 *joyeros* that are assumed to be owners of the shop and to receive the income of the capital of the shop plus the monthly earnings of a worker of average qualification (carpenters with a monthly wage of 120 pesos).

    For the remaining, the MDPM 1893 provides information on daily wages for *joyeros*. We assumed that the relative wage between *joyeros* and *albañiles* is the same in Mendoza and in Tucumán to calculate the wage for *joyeros* in Tucumán..

60. Licoreros (Liqueur makers):

    The MDPM 1893 provides information on monthly wages for *licoreros*. We assumed that the relative wage between *licoreros* and *albañiles* is the same in Mendoza and in Tucumán to calculate the wage for *licoreros* in Tucumán.

61. Litógrafos (Litographers):

    The MDPM 1893 provides information on daily wages for *litógrafos*. We assumed that the relative wage between *litógrafos* and *albañiles* is the same in Mendoza and in Tucumán to calculate the wage for *litógrfos* in Tucumán.

62. Marmoleros (Marble workers):

    The MDPM 1893 provides information on daily wages for *marmoleros*. We assumed that the relative wage between *marmoleros* and *albañiles* is the same in Mendoza and in Tucumán to calculate the wage for *marmoleros* in Tucumán..

63. Mineros (Miners):

    The MDPM 1893 provides information on daily wages for *mineros*. We assumed that the relative wage between *mineros* and *albañiles* is the same in Mendoza and in Tucumán to calculate the wage for *mineros* in Tucumán.

64. Modistas (Dressmakers):

    The MDPM 1893 provides information on daily wages for *modistas*. We assumed that the relative wage between *modistas* and *albañiles* is the same in Mendoza and in Tucumán to calculate the wage for *modistas* in Tucumán.

65. Molineros (Millers):

The MDPM 1893 provides information on monthly wages for *molineros*. We assumed that the relative wage between *molineros* and *albañiles* is the same in Mendoza and in Tucumán to calculate the wage for *molineros* in Tucumán..

66. Pirotécnicos (Pyrotechnicians):

    The MDPM 1893 provides information on daily wages for *pirotécnicos*. We assumed that the relative wage between *pirotécnicos* and *albañiles* is the same in Mendoza and in Tucumán to calculate the wage for *pirotécnicos* in Tucumán.

67. Queseros (Cheese makers):

    There are 7 *queseros* that are assumed to be owners of the shop and to receive the income of the capital of the shop plus the monthly earnings of a worker of average qualification (carpenters with a monthly wage of 120 pesos).

    For the remaining, the MDPM 1893 provides information on monthly wages for *queseros*. We assumed that the relative wage between *queseros* and *albañiles* is the same in Mendoza and in Tucumán to calculate the wage for *queseros* in Tucumán.

68. Relojeros (Watchmakers):

    There are 10 *relojeros* that are assumed to be owners of the shop and to receive the income of the capital of the shop plus the monthly earnings of a worker of average qualification (carpenters with a monthly wage of 120 pesos).

    For the remaining, the MDPM 1893 provides information on daily wages for *relojeros*. We assumed that the relative wage between *relojeros* and *albañiles* is the same in Mendoza and in Tucumán to calculate the wage for *relojeros* in Tucumán.

69. Sombrereros (Hatters):

    The MDPM 1893 provides information on daily wages for *sombrereros*. We assumed that the relative wage between *sombrereros* and *albañiles* is the same in Mendoza and in Tucumán to calculate the wage for *sombrereros* in Tucumán.

70. Tintoreros (Dyers):

    The MDPM 1893 provides information on daily wages for *tintoreros*. We assumed that the relative wage between *tintoreros* and *albañiles* is the same in Mendoza and in Tucumán to calculate the wage for *tintoreros* in Tucumán.

71. Toneleros (Barrel-makers):

    The MDPM 1893 provides information on daily wages for *toneleros*. We assumed that the relative wage between *toneleros* and *albañiles* is the same in Mendoza and in Tucumán to calculate the wage for *toneleros* in Tucumán.

72. Veleros (Candle workers):

    The MDPM 1893 provides information on daily wages for *veleros*. We assumed that the relative wage between *toneleros* and *albañiles* is the same in Mendoza and in Tucumán to calculate the wage for *toneleros* in Tucumán.

73. Vidrieros (Glaziers):

The MDPM 1893 provides information on daily wages for *vidrieros*. We assumed that the relative wage between *vidrieros* and *albañiles* is the same in Mendoza and in Tucumán to calculate the wage for *vidrieros* in Tucumán..

74. Plateros (Silversmiths):

    The MDPM 1893 provides information on daily wages for *plateros*. We assumed that the relative wage between *plateros* and *albañiles* is the same in Mendoza and in Tucumán to calculate the wage for *plateros* in Tucumán.

75. Telegrafistas (Telegraphists):

    The MDPM 1893 provides information on monthly wages for *telegrafistas*. We assumed that the relative wage between *armeros* and *albañiles* is the same in Mendoza and in Tucumán to calculate the wage for *armeros* in Tucumán.

76. Caballerizos (Stable workers):

    The MDPM 1893 provides information on monthly wages for *caballerizos*. We assumed that the relative wage between *caballerizos* and *albañiles* is the same in Mendoza and in Tucumán to calculate the wage for *caballerizos* in Tucumán..

77. Dentistas (Dentists):

    The MDPM 1893 provides information on monthly wages for *dentists* We assumed that the relative wage between *dentists* and *albañiles* is the same in Mendoza and in Tucumán to calculate the wage for *dentists* in Tucumán.

78. Enfermeros (Nurses):

    The MDPM 1893 provides information on monthly wages for *nurses* We assumed that the relative wage between *enfermeros* and *albañiles* is the same in Mendoza and in Tucumán to calculate the wage for *enfermeros* in Tucumán.

79. Farmacéuticos (Pharmacists):

    The MDPM 1893 provides information on monthly wages for *farmcéuticos*. We assumed that the relative wage between *farmacéuticos* and *albañiles* is the same in Mendoza and in Tucumán to calculate the wage for *farmacéuticos* in Tucumán.

80. Veterinarios (Veterinarians):

    The MDPM 1893 provides information on monthly wages for *veterinarios*. We assumed that the relative wage between *veterinarios* and *albañiles* is the same in Mendoza and in Tucumán to calculate the wage for *veterinarios* in Tucumán..

81. Fotógrafos (Photographers):

    The MDPM 1893 provides information on monthly wages for *photographers*. We assumed that the relative wage between *fotógrafos* and *albañiles* is the same in Mendoza and in Tucumán to calculate the wage for *fotógrafos* in Tucumán..

82. Escultores (Sculptors):

    The MDPM 1893 provides information on monthly wages for *escultores*. We assumed that the relative wage between *escultores* and *albañiles* is the same in Mendoza and in Tucumán to calculate the wage for *escultores* in Tucumán.

83. Bronceros (Bronze workers):

The MDPM 1893 provides information on daily wages for *bronceros*. We assumed that the relative wage between *bronceros* and *albañiles* is the same in Mendoza and in Tucumán to calculate the wage for *bronceros* in Tucumán.

84. Doradores (Gold workers):

The MDPM 1893 provides information on daily wages for *doradores*. We assumed that the relative wage between *doradores* and *albañiles* is the same in Mendoza and in Tucumán to calculate the wage for *doradores* in Tucumán.

85. Cerveceros (Brewers):

The MDPM 1893 provides information on monthly wages for *cerveceros* We assumed that the relative wage between *cerveceros* and *albañiles* is the same in Mendoza and in Tucumán to calculate the wage for *cerveceros* in Tucumán.

86. Colchoneros (Mattress-makers):

The MDPM 1893 provides information on monthly wages for *colchoneros*. We assumed that the relative wage between *colchoneros* and *albañiles* is the same in Mendoza and in Tucumán to calculate the wage for *colchoneros* in Tucumán.

87. Abogados (Lawyers):

The MDPS 1889 provides information on monthly wages for *abogados*. We assumed that the relative wage between *abogados* and *accountants* is the same in Salta and in Tucumán to calculate the wage for *abogados* in Tucumán.

88. Escribanos (Notaries):

The MDPS 1889 provides information on monthly wages for *escribanos*. We assumed that the relative wage between *escribanos* and *accountants* is the same in Salta and in Tucumán to calculate the wage for *escribanos* in Tucumán.

89. Médicos (Doctors):

The MDPS 1889 provides information on monthly wages for *médicos* We assumed that the relative wage between *médicos* and *accountants* is the same in Salta and in Tucumán to calculate the wage for *médicos* in Tucumán.

90. Empleados del gobierno o adm. (Government employees):

According to the MDPS 1889, monthly wages for *empleados del gobierno* take values from 20 for an *ordenanza* to 350 for the *governor*. We assumed that the relative wage between *empleados de gobierno* and *accountants* is the same in Salta and in Tucumán to calculate the wage for *emleados de gobierno* in Tucumán.

91. Músicos (Musicians):

The MDPS 1889 provides information on monthly wages for *músicos*. We assumed that the relative wage between *músicos* and *accountants* is the same in Salta and in Tucumán to calculate the wage for *músicos* in Tucumán.

92. Militares (Military men):

The MDPS 1889 provides monthly wages paid in the police station. We assumed that the relative wage between *policías* and *accountants* is the same in Salta and in Tucumán and we assign the wage of policeman to military men.

D. Appendix D

Below is the list of each occupational category, the number of individuals in each of them, the subgroups in which they are divided, the income, the year for which we have information of their income, the economic sector to which they belong and the their income.

Ocupación	Personas	Subgrupos detalles	Subgrupos cantidad	Año	Sector	Ingreso
Abastecedores	421		421	1909	trabajo	100.0
Abogados	41		41	1889	trabajo	781.3
Acrobatas	12		12	1895	trabajo	60.0
Afiladores	4		4	1895	trabajo	60.0
Afinadores	1		1	1895	trabajo	200.0
Agentes	8		8	1895	trabajo	200.0
Agricultores	19984	peones en las estancias	9026	1896	trabajo	25.0
Agricultores	.	With 15.2 hectares	1000	1895	agricultura	138.0
Agricultores	.	With 9 hectares	6090	1895	agricultura	96.0
Agricultores	.	peones para todo trabajo	3868	1896	trabajo	35.0
Agrimensores	5		5	1895	trabajo	200.0
Aguadores	2		2	1895	trabajo	60.0
Alambradores	2		2	1895	trabajo	60.0
Albaniiles	1393	permanent	696	1895	trabajo	80.0
Albaniiles	.	eventual	697	1895	trabajo	55.0
Alfareros	48		38	1893	trabajo	80.0
Alfareros	.	Propietarios	10	1895	industria	149.0
Almaceneros	8		8	1895	trabajo	200.0
Amasadores	119		119	1904	trabajo	126.3
Armeros	5		5	1893	trabajo	86.6
Arquitectos	7		7	1895	trabajo	400.0
Arrieros, troperos, etc.	90		90	1895	trabajo	60.0
Artistas	13		13	1895	trabajo	400.0
Aserradores	9		9	1893	trabajo	66.7
Barraqueros	1		1	1895	trabajo	200.0
Bordadores	33		33	1893	trabajo	86.6
Bronceros	1		1	1895	trabajo	86.6
Caballerizos	2		2	1893	trabajo	24.0
Caldereros	9		9	1895	trabajo	190.0
Canasteros	2		2	1895	trabajo	60.0
Carboneros	11		11	1908	trabajo	75.0
Carniceros	82		82	1895	trabajo	100.0
Carpinteros	1461	permanent	706	1895	trabajo	120.0
Carpinteros	.	Propietarios	48	1895	industria	144.5
Carpinteros	.	eventual	707	1895	trabajo	77.0
Carreros	329	inconsistencia	329	1895	trabajo	30.0

Cerveceros	5		5	1893	trabajo	26.7
Chancheros	15		15	1895	trabajo	60.0
Cigarreros	1933	mujeres	1871	1896	trabajo	35.0
Cigarreros	.	Propietarios	3	1895	industria	225.0
Cigarreros	.	hombres	59	1896	trabajo	100.0
Clerigos (no catolicos)	2		2	1895	trabajo	200.0
Cobradores	14		14	1895	trabajo	200.0
Cocheros	268		268	1895	trabajo	40.0
Cocineros	2185	hombres	108	1896	trabajo	133.3
Cocineros	.	mujeres	2077	1895	trabajo	30.0
Colchoneros	12		12	1893	trabajo	32.0
Comerciantes	3179	Promedio	1535	1895	comercio	120.0
Comerciantes	.	1 Almacenes de comestibles y bebidas por menor y mayor	800	1895	comercio	163.1
Comerciantes	.	1 Bazares	6	1895	comercio	293.2
Comerciantes	.	1 Baños, hidroterapia	1	1895	comercio	320.0
Comerciantes	.	1 Carbonerías, leñerías etc.	2	1895	comercio	150.2
Comerciantes	.	1 Librerías, papelerías	6	1895	comercio	210.4
Comerciantes	.	11 Vinos, licores, alcoholes, depósitos de	12	1895	comercio	189.4
Comerciantes	.	2 Barberias, peluqueías, perfumerías	40	1895	comercio	144.3
Comerciantes	.	2 Bebidas, despachos de, bares, cantinas	22	1895	comercio	143.8
Comerciantes	.	2 Cal, carbón, maderas, hierro, ventas de	6	1895	comercio	162.2
Comerciantes	.	2 Clubs sociales, etc.	1	1895	comercio	353.3
Comerciantes	.	2 Exportación, casas de	1	1895	comercio	160.0
Comerciantes	.	3 Agencias de lotería	1	1895	comercio	142.7
Comerciantes	.	3 Boticas, farmacias.	19	1895	comercio	206.9
Comerciantes	.	3 Cafés, billares	31	1895	comercio	163.6
Comerciantes	.	3 Diversiones, tiros, gabinetes ópticos, calecitas, bochas	2	1895	comercio	124.0
Comerciantes	.	3 Ferreterías pinturerías, cajas de hierro	7	1895	comercio	487.5
Comerciantes	.	3 Importación, introducción etc., casa de	5	1895	comercio	413.0
Comerciantes	.	4 Carnicerías	163	1895	comercio	126.6
Comerciantes	.	4 Cocherías	6	1895	comercio	132.6
Comerciantes	.	5 Cereales, harina, forrajes	41	1895	comercio	129.7
Comerciantes	.	5 Roperías, registros	5	1895	comercio	382.4
Comerciantes	.	5 Varias	8	1895	comercio	204.2
Comerciantes	.	6 Consignaciones, casa de	13	1895	comercio	242.2
Comerciantes	.	6 Hoteles, fondas, restaurantes	47	1895	comercio	153.8
Comerciantes	.	6 Tiendas, mercerías etc.	257	1895	comercio	231.0
Comerciantes	.	7 Casas de préstamo	1	1895	comercio	133.8
Comerciantes	.	8 Lecherías, tambos	27	1895	comercio	128.0
Comerciantes	.	8 Remates, casas de	4	1895	comercio	208.3

Comerciantes	.	9 Mercados	1	1895	comercio	121.3
Comisionistas	4		4	1895	trabajo	200.0
Confiteros	64	confiteros	48	1909	trabajo	100.0
Confiteros	.	Propietarios	16	1895	industria	159.9
Contadores	118		118	1895	trabajo	400.0
Cordeleros, cabulleros, etc.	4		4	1895	trabajo	60.0
Corredores	27		27	1895	trabajo	200.0
Correos, postillones, etc.	4		4	1895	trabajo	30.0
Costureras	8559	talleres de moda	2824	1896	trabajo	30.0
Costureras	.	talleres ropa blanca	5735	1896	trabajo	20.0
Curanderos	6		6	1895	trabajo	200.0
Curtidores	61		61	1893	trabajo	73.3
Dentistas	1		1	1893	trabajo	213.3
Dependientes	290	dependientes de farmacia	29	1895	trabajo	240.0
Dependientes	.	dependientes	261	1895	trabajo	100.0
Dibujantes	5		5	1895	trabajo	200.0
Domadores	9		9	1895	trabajo	60.0
Domesticos	4336	mucamos	595	1896	trabajo	30.0
Domesticos	.	ninieras	1139	1895	trabajo	18.0
Domesticos	.	sirvientas	2602	1895	trabajo	20.0
Doradores	2		2	1895	trabajo	160.0
Empleados	1462	dependientes	1023	1895	trabajo	100.0
Empleados	.	cadetes	439	1895	trabajo	60.0
Empleados de Gobierno o Adm.	527		527	1889	trabajo	737.5
Empleados de ferrocarril	339		102	1896	trabajo	70.0
Empleados de ferrocarril	.		237	1896	trabajo	56.7
Empresarios	49		49	1895	comercio	163.0
Encuadernadores	3		3	1893	trabajo	93.3
Enfermeros	28		28	1893	trabajo	32.0
Escribanos	19		19	1889	trabajo	186.9
Escribientes, copistas	11		11	1895	trabajo	200.0
Escultores	6		6	1893	trabajo	186.6
Estancieros	477	With 250 hectares	10	1895	agricultura	2154.0
Estancieros	.	With 120 hectares	40	1895	agricultura	884.0
Estancieros	.	With 43 hectares	427	1895	agricultura	359.0
Fabricantes	10	2-Cigarros, tabaco, etc.	10	1895	industria	159.9
Farmaceuticos	30		30	1893	trabajo	64.0
Fideleros	10		10	1895	trabajo	60.0
Floristas	2		2	1893	trabajo	60.0

Fondistas	7		7	1895	trabajo	200.0
Fotografos	7		7	1893	trabajo	24.0
Fundidores	29	fundidores	29	1909	trabajo	150.0
Gasistas	8		8	1893	trabajo	106.6
Grabadores	2	en madera	1	1893	trabajo	160.0
Grabadores	.	en metal o cristal	1	1893	trabajo	239.9
Hacendados	1027	With 10000 hectares	8	1895	ganaderia	11196.0
Hacendados	.	With 1100 hectares	163	1895	ganaderia	1232.0
Hacendados	.	With 2200 hectares	41	1895	ganaderia	2463.0
Hacendados	.	With 500 hectares	815	1895	ganaderia	560.0
Herreros	343	permanent	155	1895	trabajo	120.0
Herreros	.	Propietarios	33	1895	industria	160.4
Herreros	.	eventual	155	1895	trabajo	66.0
Hojalateros	43		30	1895	trabajo	60.0
Hojalateros	.	Propietarios	13	1895	industria	140.6
Horneros	64		64	1895	trabajo	60.0
Horticultores	59	peones en las estancias	59	1896	trabajo	25.0
Industriales diversos	274	5-Chancherias, elabor. de cerdos	9	1895	industria	157.0
Industriales diversos	.	1-Escultura, casas de	1	1895	industria	126.0
Industriales diversos	.	1-Jabon, velas, grasas	3	1895	industria	294.4
Industriales diversos	.	10-Licores, fabricas de	9	1895	industria	233.6
Industriales diversos	.	10-Musica, instrumentos, fabricas de	2	1895	industria	143.5
Industriales diversos	.	11-Talleres de composturas, mecanicos, etc.	7	1895	industria	213.3
Industriales diversos	.	2-Camisas, corbatas, guantes, fabricas de	1	1895	industria	140.0
Industriales diversos	.	2-Cigarros, tabacos, etc.	1	1895	industria	225.0
Industriales diversos	.	3-Canastos, fabricas de	2	1895	industria	414.0
Industriales diversos	.	3-Curtiembres, peleterias	26	1895	industria	329.0
Industriales diversos	.	4-Cal, tierra romana, fabricas de	20	1895	industria	130.1
Industriales diversos	.	4-Carruajes, carros, fabricas de	29	1895	industria	172.8
Industriales diversos	.	5-Fundiciones, fabricas de maquinas, establec. mecanicos	3	1895	industria	172.2
Industriales diversos	.	7-Ladrillos, hornos, fabr. De	43	1895	industria	142.6
Industriales diversos	.	7-Sombrererias. Bastones, paraguas	3	1895	industria	160.0
Industriales diversos	.	8-Escoberias, cepillerias, plumerias, etc.	1	1895	industria	126.7
Industriales diversos	.	8-Galletitas, masitas, etc. fabrica de	1	1895	industria	160.0
Industriales diversos	.	9-Hielo, fabr. de	1	1895	industria	253.3
Industriales diversos	.	9-Tejas, baldosas, ceramica, mosaicos, fabricas de	4	1895	industria	142.3
Industriales diversos	.	1-Barracas de frutos del pais	2	1895	industria	1509.0
Industriales diversos	.	10-Yeserias	2	1895	industria	175.0
Industriales diversos	.	13-Tonelerias	6	1895	industria	161.0
Industriales diversos	.	2-Armerias	4	1895	industria	141.9

Industriales diversos	.	2-Aserraderos	16	1895	industria	243.1
Industriales diversos	.	2-Fotografias	2	1895	industria	153.3
Industriales diversos	.	3-Broncerias	1	1895	industria	353.3
Industriales diversos	.	3-Imprentas	3	1895	industria	375.6
Industriales diversos	.	3-Tintorerias	1	1895	industria	126.7
Industriales diversos	.	4-Varias y sin especificacion	6	1895	industria	309.9
Industriales diversos	.	5-Colchonerias	3	1895	industria	128.8
Industriales diversos	.	5-Modas casas de	5	1895	industria	128.7
Industriales diversos	.	7-Ebanisterias	1	1895	industria	153.3
Industriales diversos	.	8-Marmolerias	3	1895	industria	140.0
Industriales diversos	.	9-Mueblerias	6	1895	industria	159.4
Industriales diversos	.	Amalia	1	1895	industria	9437.0
Industriales diversos	.	Antonio Machi	1	1895	industria	127.0
Industriales diversos	.	Azucarera Argentina	1	1895	industria	4970.0
Industriales diversos	.	Bella Vista	1	1895	industria	8620.0
Industriales diversos	.	Caspinchango	1	1895	industria	3887.0
Industriales diversos	.	Cassells and company	1	1895	industria	480.0
Industriales diversos	.	Claral Freres	1	1895	industria	1403.0
Industriales diversos	.	Cordoba de Tucuman	1	1895	industria	7537.0
Industriales diversos	.	Cruz Alta	1	1895	industria	14037.0
Industriales diversos	.	El Colmenar	1	1895	industria	4120.0
Industriales diversos	.	El Paraiso	1	1895	industria	19308.0
Industriales diversos	.	Etcheto	1	1895	industria	520.0
Industriales diversos	.	Felipe Bernard	1	1895	industria	253.0
Industriales diversos	.	Fidel Garcia	1	1895	industria	453.0
Industriales diversos	.	Hileret y Rodriguez	1	1895	industria	1120.0
Industriales diversos	.	Industria Argentina	1	1895	industria	5953.0
Industriales diversos	.	Ingenio W. Posse	1	1895	industria	2120.0
Industriales diversos	.	Invernada	1	1895	industria	1007.0
Industriales diversos	.	J. F. Moreno	1	1895	industria	187.0
Industriales diversos	.	J. Salvatierra y Cª	1	1895	industria	788.0
Industriales diversos	.	La Concepcion	1	1895	industria	21037.0
Industriales diversos	.	La Esperanza	1	1895	industria	14306.0
Industriales diversos	.	La Florida	1	1895	industria	15323.0
Industriales diversos	.	La Providencia	1	1895	industria	14870.0
Industriales diversos	.	La Trinidad	1	1895	industria	36767.0
Industriales diversos	.	Lastenia	1	1895	industria	15336.0
Industriales diversos	.	Leon Ronzes y Cª	1	1895	industria	3133.0
Industriales diversos	.	Los Garcias	1	1895	industria	520.0
Industriales diversos	.	Los Ralos	1	1895	industria	8203.0
Industriales diversos	.	Lujan	1	1895	industria	10787.0

Industriales diversos	.	Lules	1	1895	industria	9053.0
Industriales diversos	.	Mercedes	1	1895	industria	48112.0
Industriales diversos	.	Reduccion	1	1895	industria	11290.0
Industriales diversos	.	S. M. Fernandez	1	1895	industria	687.0
Industriales diversos	.	San Andres	1	1895	industria	7953.0
Industriales diversos	.	San Felipe	1	1895	industria	8670.0
Industriales diversos	.	San Felipe	1	1895	industria	2828.0
Industriales diversos	.	San Jose	1	1895	industria	6537.0
Industriales diversos	.	San Juan	1	1895	industria	6187.0
Industriales diversos	.	San Miguel	1	1895	industria	9587.0
Industriales diversos	.	San Pablo	1	1895	industria	24703.0
Industriales diversos	.	San Vicente	1	1895	industria	15620.0
Industriales diversos	.	Santa Ana	1	1895	industria	24120.0
Industriales diversos	.	Santa Barbara	1	1895	industria	4630.0
Industriales diversos	.	Santa Lucia	1	1895	industria	9204.0
Industriales diversos	.	Santa Rosa	1	1895	industria	11870.0
Industriales diversos	.	Union	1	1895	industria	5111.0
Ingenieros	70		70	1895	trabajo	400.0
Isleros	5		5	1895	trabajo	200.0
Jaboneros	6		6	1893	trabajo	32.0
Jornaleros	25732	25% el max	6433	1896	trabajo	30.0
Jornaleros	.	25% el min	6433	1896	trabajo	20.0
Jornaleros	.	50%el medio	12866	1896	trabajo	25.0
Joyeros	25		9	1893	trabajo	186.6
Joyeros	.	Propietarios	16	1895	industria	192.7
Lavanderas	5782		5782	1904	trabajo	16.4
Lecheros	97		97	1895	trabajo	60.0
Leniadores	20		20	1895	trabajo	60.0
Licoreros	41		41	1893	trabajo	101.3
Litografos	9		9	1893	trabajo	160.0
Lustradores de calzado	2		2	1895	trabajo	30.0
Maestros de escuela	360	directores	163	1896	trabajo	60.0
Maestros de escuela	.	maestros	164	1896	trabajo	40.0
Maestros de escuela	.	subdirectores	36	1896	trabajo	55.0
Maquinistas	141		141	1895	trabajo	75.0
Marinos	1		1	1895	trabajo	200.0
Marmoleros	17		17	1893	trabajo	93.3
Mayordomos	433		433	1896	trabajo	106.6
Mecanicos	359		359	1895	trabajo	300.0
Medicos	33		33	1889	trabajo	387.5
Mendigos	54		54	1895	trabajo	30.0

Mensajeros	1		1	1895	trabajo	30.0
Mercachifles	3		3	1895	trabajo	60.0
Militares	457		457	1889	trabajo	357.5
Mineros	4		4	1893	trabajo	120.0
Modistas	65		65	1893	trabajo	93.3
Molineros	12		12	1893	trabajo	74.6
Mozos de cordel (changadores)	73		73	1895	trabajo	60.0
Muebleros y tapiceros	19	aprendices	2	1904	trabajo	13.9
Muebleros y tapiceros	.	operarios	17	1904	trabajo	78.9
Musicos	98		98	1889	trabajo	188.1
Obrajeros	3		3	1896	trabajo	53.2
Panaderos	954	peones	633	1895	trabajo	30.0
Panaderos	.	Propietarios	49	1895	industria	161.7
Panaderos	.	maestros	272	1896	trabajo	90.0
Parteras	37		37	1895	trabajo	200.0
Pasteros	11		11	1895	trabajo	60.0
Pastores, Vaqueros	1327		1327	1893	trabajo	24.0
Peluqueros	99		99	1895	trabajo	70.0
Periodistas	14	noticieros	10	1895	trabajo	70.0
Periodistas	.	redactores	4	1895	trabajo	200.0
Pescadores	4		4	1895	trabajo	60.0
Picapedreros	16		16	1895	trabajo	45.0
Pintores	196		196	1895	trabajo	44.0
Pirotecnicos	5		5	1893	trabajo	73.3
Planchadoras	1469	aprendices	147	1904	trabajo	20.4
Planchadoras	.	oficialas	1322	1904	trabajo	42.1
Plateros	59		59	1893	trabajo	106.6
Plomeros	3		3	1909	trabajo	47.0
Procuradores	29		29	1895	trabajo	200.0
Prostitutas	80		80	1895	trabajo	30.0
Queseros	17		10	1893	trabajo	26.7
Queseros	.	Propietarios	7	1895	industria	195.3
Quimicos	8		8	1895	trabajo	400.0
Religiosas catolicas	98		98	1895	trabajo	200.0
Relojeros	20		10	1893	trabajo	146.6
Relojeros	.	Propietarios	10	1895	industria	192.7
Rematadores	7		7	1895	trabajo	200.0
Rentistas	227		227	1895	trabajo	400.0
Repartidores	16	cadetes	8	1895	trabajo	60.0
Repartidores	.	repartidores de diarios	8	1895	trabajo	15.0
Rufianes	1		1	1895	trabajo	30.0

Sacerdotes y frailes	56		56	1895	trabajo	200.0
Sacristanes, campaneros, legos	9		9	1895	trabajo	200.0
Sastres	242	normales	150	1895	trabajo	75.0
Sastres	.	Propietarios	36	1895	industria	149.4
Sastres	.	cortadores	56	1896	trabajo	150.0
Sericultores	6		6	1895	trabajo	200.0
Sin profesion	39552	.	39552	1895	.	0.0
Sombrereros	24		24	1893	trabajo	106.6
Talabarteros	246		25	1904	trabajo	13.9
Talabarteros	.		127	1904	trabajo	164.2
Talabarteros	.		74	1904	trabajo	102.6
Talabarteros	.	Propietarios	20	1895	industria	161.1
Taquigrafos	2		2	1895	trabajo	200.0
Techadores	1		1	1895	trabajo	60.0
Tejedores	1944		1944	1895	trabajo	60.0
Telefonistas	2		2	1895	trabajo	200.0
Telegrafistas	80		80	1893	trabajo	69.3
Tenderos	2		2	1895	trabajo	200.0
Tenedores de libros	7		7	1895	trabajo	200.0
Tintoreros	4		4	1893	trabajo	106.6
Tipografos	71	tipografos	64	1895	trabajo	60.0
Tipografos	.	tipografos aprendices	7	1895	trabajo	30.0
Toneleros	39		39	1893	trabajo	93.3
Torneros	11		11	1895	trabajo	133.3
Trabajos domesticos	5		5	1895	trabajo	30.0
Vaqueanos	1		1	1895	trabajo	200.0
Veleros	2		2	1893	trabajo	64.0
Vendedores diversos	132		132	1895	trabajo	60.0
Veterinarios	1		1	1893	trabajo	69.3
Vidrieros	2		2	1893	trabajo	80.0
Vinicultores	8		8	1893	trabajo	117.2
Yeseros	10	maestros	2	1904	trabajo	142.1
Yeseros	.	oficiales	3	1904	trabajo	110.5
Yeseros	.	peones	5	1904	trabajo	50.5
Zapateros	526		477	1895	trabajo	75.0
Zapateros	.	Propietarios	49	1895	industria	151.5