

# Database Brazil 1650: methodological paper

## Estimation of entire population in 1630 Brazil

### Territory:

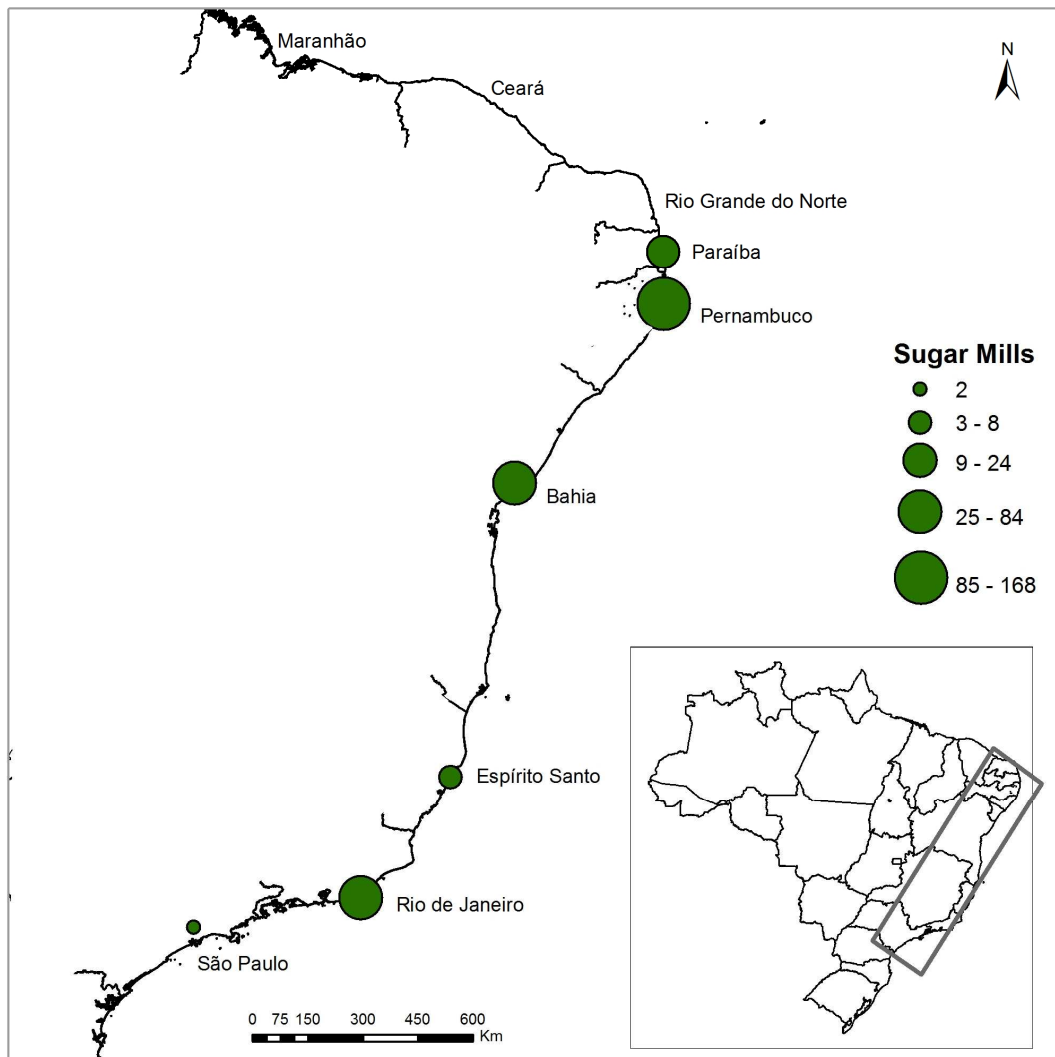
The territory to which data was gathered in the database is equivalent to that of the colonial State of Brazil. In 1621, Portuguese Crown established two independent administrative units in America: the State of Brazil, corresponding to the present day Brazilian states of Ceara, Rio Grande do Norte, Paraíba, Pernambuco, Alagoas, Sergipe, Bahia, Espírito Santo, Rio de Janeiro and Sao Paulo; and the State of Maranhão, corresponding to the present day Brazilian states of Piauí, Maranhão, Para, Amazonas. The South region, corresponding to the present day states of Parana, Santa Catarina and Rio Grande do Sul, was incorporated to the American Portuguese colony just in 1680; and the territory of the present day states of Minas Gerais, Goiás, Tocantins, Mato Grosso, Mato Grosso do Sul and Rondonia, was incorporated to the Portuguese colonization just after the gold rush in the end of 17<sup>th</sup> century and the first half of the 18<sup>th</sup> century. In the North region, the present day states of Amapa and Roraima was incorporated after the 18<sup>th</sup> century, and the present day state of Acre was conquered just in the beginning of the 20<sup>th</sup> century after a war against Bolivia (see Map 1).

I decided to calculate the data in 1630 because it is the moment immediately before the Dutch conquest of Brazilian Northeastern sugar plantation area. In the following decades, the Dutch domination, the war against them and the end of the union between Portuguese and Spanish Crowns introduced some political problems in the colonization and make it difficult to calculate the colonial population.

Map 1. Brazilian States, present days



Map 2. Portuguese America, c. 1630



#### Sources:

The State of Maranhão was conquered just in the two first decades of 17<sup>th</sup> century, and this colonial population was extremely scarce and dispersed in an extended territory, contrasting with the much more populated State of Brazil. Reflecting such difference, we have much more abundant and diverse information about the State of Brazil than the State of Maranhão. Because of this I will first discuss the sources of the state of Brazil and, then, show what we I could find about the State of Maranhão.

#### *State of Brazil*

Until the 1580s, the colonial chroniclers offer estimates that, while cannot be considered as exact, allow a somehow effective evaluation of the number and distribution of Europeans in this part of the American continent. Based on the chronicles by Pero de Magalhães Gândavo, Fernão Cardim, José de Anchieta and Gabriel Soares de Souza, it is possible to estimate a white population of around 20 thousand people in 1570 and 30 thousand in 1585. This population, between these two dates, grew rapidly in the captaincies of Pernambuco and Bahia, while in Itamaracá, Ilhéus, Porto Seguro, Espírito Santo and São Vicente the population

shrank. In Rio de Janeiro, despite a relative fall, the population grew in absolute terms.<sup>1</sup>

From that moment on, the estimates are less precise, as they are mainly based on presuppositions. The expansion of the colonization and the growing complexity of the population composition make the task even harder, since it becomes unfeasible to produce records similar to those of the initial period for the coast of Portuguese America. More reliable estimates for the 17th century were produced by Contrera Rodrigues, in 1935.<sup>2</sup> Contrera Rodrigues mentions a population of over 100 thousand in 1600 to 184 thousand in 1660. Out of this total, there could be 30 thousand white people and 70 thousand mixed-race people, black and Indians in 1600, while in 1660, the white population and free Indians would add up to 74 thousand, and 110 thousand slaves. In 1690, the population would be over 242 thousand, but there is no information about the composition (quoted by Simonsen, 1977, p. 271).

To obtain the composition of population according with the Collab requirements, first I found a total population in 1630 in 142,000 inhabitants, an interpolation between the values estimated by Contrera Rodrigues in 1600 (100,000 inhabitants) and 1660 (184,000 inhabitants). Adjusting this total to the presuppositions assumed in the analysis of economically active population (described below), the total population was calculated in 157.6 thousands inhabitants. In the pursuit of this goal I used the microdata of the 1808 São Paulo lists of inhabitants, a database with more than 80 thousand individual records gathered with the support of Gerda Henkel Stiftung.<sup>3</sup> The findings about the population obtained with this database were reviewed using the bibliography about Brazil in the colonial period.

### *State of Maranhão*

The State of Maranhão was really incorporated to the Portuguese colonial empire in the second decade of 17<sup>th</sup> century, after wars against French conquerors that had established a colony in the Island of São Luis. We will find the first estimative of population in 1637, one made by Parente e the other by Jacome.<sup>4</sup> Parente's relation is the most detailed one and will be adopted here to calculate the entire population. Parente's relation points out a total of 250 moradores and 50 soldiers in the Captaincy of Maranhão, and 80 moradores and less than 80 soldiers in the Captaincy of Pará. I am assuming that *moradores* is a reference to households. Using the mean size of 4.6 inhabitants by household found in São Paulo in the end of the 18<sup>th</sup> century (Marcilio, 2000), I estimated a mean size of 4.6 inhabitants by household and calculated the total free population in 1,300 inhabitants in Maranhão and 480 inhabitants in Pará. Adding the soldiers, we can find the total population of 2,110 inhabitants in the State of Maranhão in 1637. It is important to say that all the population was free as the first slaves arrived just after 1670.

## **Estimation of economically active population in 1630 Brazil**

### *State of Brazil*

To calculate the economically active population, it was necessary to know the regional balance of population and the variety of economic activities. The different kinds of settlements resulted in different compositions of population and,

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<sup>1</sup> For a better visualization of these estimates, see JOHNSON (1998). They also discuss the theme around the population in the first decades of the Portuguese America: NIZZA DA SILVA (1992) and MARCÍLIO (1984).

<sup>2</sup> These estimates were synthesized in PAIVA et alii (1990, p. 30).

<sup>3</sup> Original manuscripts in the Arquivo Publico do Estado de São Paulo (APESP, Public Archives of the State of São Paulo)

<sup>4</sup> CHAMBOULEYRON (2005, p. 65).

consequently, of economic active population.

Based in the initial figure found as the minimum colonial population in the State of Brazil in 1630 (142,000 inhabitants), the composition of population in different regions already occupied by Portuguese settlers was established according with the following steps.

**Regional distribution:** using regional distribution of sugar mills in 1629 (Mauro, 1997, p. 255) and in 1570 (Gandavo, 1980), I calculated the annual increase rate and then applied it to the proportional distribution of inhabitants by regions given by Gandavo (1980) in 1570. As sugar industry was the main economic activity in the colony, I assumed that the widespread of this activity oriented the expansion of the Portuguese colonization. The exception was São Vicente where the sugar activity decreased in the same way the regional economy became more specialized in the supply of food and Indian workers to other regions. So I attributed a positive increase rate to the total population of this region (Table 1).

Table 1. Calculated regional distribution of population in Brazil, 1630

	1570 sugar mills		1629 sugar mills		Annual increase	1630 population
	N	%	N	%		N
Pernambuco	1100	32,93	8469	48,82	3,52	69321
Bahia	1420	42,51	3817	22	1,69	31243
Espírito Santo	180	5,39	1386	7,99	3,52	11343
Rio de Janeiro	140	4,19	2605	15,02	5,08	21323
São Vicente/São Paulo	500	14,97	1071	6,18	1,3	8769
Total	3340	100	17348	100		142000

Bahia and Pernambuco were the most populated regions. The Captaincy of Pernambuco included some regions that today are the states of Paraíba, Rio Grande do Norte and Ceará, situated in the North of the present state of Pernambuco. I separated these regions from Pernambuco. Mello (1975, p. 166-165) estimates the population of these captaincies in the North of Pernambuco as 19.15% of the total population. Applying this percentage in the total population calculated to 1630, we find 13,274 inhabitants in these areas of Pernambuco. According with population distribution in 1774 (Menezes, 1924), I calculated the following distribution of the population between them: Paraíba do Norte: 40%; Rio Grande do Norte: 33,3%; Ceará: 26,7%. The present state of Alagoas remained included in the Pernambuco population of 1630.

I decided to divide Bahia region in three portions: the city of Salvador (the only urban nucleus with more than 5 thousand inhabitants in 1630, with an estimated population of 8,000 inhabitants); the Recôncavo region, the most important sugar region in Bahia and the second one in Portuguese America; and the Southern and Inland Bahia (comprising the former captaincies of Ilheus and Porto Seguro and the backlands of Bahia Captaincy), with a less dynamic sugar cane production, but an important region producing food and cattle to supply sugar economy.

As a result, we have an adapted regional distribution of population in Table 2.

Table 2. Regional distribution of population, Brazil, 1630

	Total	
	N	%
Pernambuco	56046	39,5
Paraíba	5310	3,7
Rio Grande do Norte	4421	3,1
Ceara	3544	2,5
Sul e interior da Bahia	4649	3,3
Recôncavo Baiano	18594	13,1
Cidade de Salvador	8000	5,6
Espírito Santo	11343	8,0
Rio de Janeiro	21323	15,0
São Paulo	8769	6,2
Total	141999	100,0

**Population by social condition (free and slaves):** using a Bahian census of 1724 (Schwartz, 1988, p. 87) combining with some contemporaneous perceptions, I established the proportion of slaves in three regions of Bahia:

- 1) the city of Salvador, with 45% of slaves;
- 2) the sugar cane region of Reconcavo, with 65% of slaves; and
- 3) Southern Bahia, with 53% of slaves.

Then I considered:

- 1) Pernambuco with a higher percentage than Reconcavo (68%);
- 2) Paraíba do Norte with the same percentage that Southern Bahia (53%);
- 3) Rio Grande do Norte with a lower percentage than Southern Bahia (45%);
- 4) Ceará with a lower percentage than Southern Bahia (35%);
- 5) Espírito Santo with the same percentage that Rio Grande do Norte (45%);
- 6) Rio de Janeiro with the same percentage that Reconcavo (65%);
- 7) São Paulo with the same percentage that Ceará (35%).

**Indians in the aldeamentos:** Mello (1975) says that 15.8% of the total population of Pernambuco were Indians living in hamlets controlled by religious orders. I assumed the same percentage in Bahia but higher in São Paulo (25%), Rio de Janeiro (18%), Espírito Santo (20%), Paraíba do Norte (18%), Rio Grande do Norte (18%) and Ceará (20%).

### **Sex and age structure of free population:**

The most difficult task was to calculate the age structure of free population. I used the percentage of children with 14 years old or less found in São Paulo population in the first half of the 19<sup>th</sup> century (Marcílio, 2000, p. 81, Table 4; APESP, *Maços de População de São Paulo*, 1808). Aggregated census data showed that 35% of the free people were up to 15 years old. To the 65 years old and more people I used the same source, calculating in 3% its portion in total population.

Once again I used the census of 1724 (Schwartz, 1988, p. 87) to calculate the sex ratio. First I assumed that sex ratio of children was 100 and that sex ratio of old people was 95. To the adult population in Bahia, I assumed that the urban population of Salvador had a sex ratio of 111, in the Reconcavo region the sex ratio was 103 and in Southern Bahia was 135. The logic that was orientating this procedure was the consideration that oldest populated regions had a more equal sex ratio then the more recently colonized portions of the territory. Extrapolating these values to the other Brazilian sugar cane regions, I supposed that:

- 1) Pernambuco had the same sex ratio than Reconcavo (103);
- 2) Paraíba do Norte had the same sex ratio than Reconcavo (103);

- 3) Rio Grande do Norte had the same sex ratio than Southern Bahia (135);
- 4) Ceará had the same sex ratio than Southern Bahia (135);
- 5) Espírito Santo had the same sex ratio than Southern Bahia (135);
- 6) Rio de Janeiro had the same sex ratio than Reconcavo (103);
- 7) São Paulo had the same sex ratio than Reconcavo (103).

**Sex and age structure of Indians in the aldeamentos:**

To the Indians, the main source was Monteiro (1988) that studied the Indian in colonial São Paulo. For all the Brazilian captaincies I considered a sex ratio of 90 (Monteiro, 1988, p. 84) and 35% of children with less than 14 years old (Monteiro, 1988, p. 67). As he didn't calculate the percentage of oldest people, I assumed the percentage of free people: 3%. Sex ratio of adults was calculated in 90 and to the old Indian people I assumed an index of 95.

**Sex and age structure of slave population:**

To calculate the age structure of slave population I used information about 17<sup>th</sup> and 18<sup>th</sup> century, combined with 19<sup>th</sup> century population structure. I considered the percentage of children with less than 15 years old using the information about slave work force in sugar mills during 17<sup>th</sup> century, calculated by Schwartz (1988, p. 286). I assumed that 20% of the slaves were 14 years old or less. To the population 65 years old and more I used the percentage calculated to São Paulo in 1808, 1818 and 1828: 2% of the total population (Marcílio, 2000, p. 81, Table 5; APESP, *Maços de População de São Paulo*, 1808).

I assumed sex ratio of 100 to children and 95 to old slaves. To the adult slave population, sex ratios were calculated by Schwartz (1988, p. 286, Table 34) in 17<sup>th</sup> century between 121 and 233 in five sugar mills and between 336 and 143 in two sugar cane farms. Using data from 1710 to 1827, he calculated a sex ratio of 199 in the sugar mills and 126 in the cane farms (1988, p. 287, Table 36). I assumed a sex ratio of 210 in sugar mills and 140 in sugar cane farms during the 17<sup>th</sup> century. Adapting these values to the other Brazilian sugar cane regions, we can suppose that:

- 1) Pernambuco had the same sex ratio than Bahia (210 and 140);
- 2) Paraíba do Norte had a lower sex ratio than Bahia (200 and 135);
- 3) Rio Grande do Norte had a lower sex ratio than Paraíba do Norte (190 and 130);
- 4) Ceará had the lowest one, without any differentiation between sugar mills and farmers (125);
- 5) Espírito Santo had the same sex ratio than Rio Grande do Norte (190 and 130);
- 6) Rio de Janeiro had the same sex ratio than Rio Grande do Norte (190 and 130);
- 7) São Paulo had the same sex ratio than Ceará (125).

Age and sex structure were used to calculate the active and inactive portions of population. I assumed that all the adult population worked and 50% of the population 65 years old and more didn't work, including Indians and slaves. The only empirical evidence of child labour in Brazil slavery period was collected in Minas Gerais in 1831-32, in some nominative lists of inhabitants that indicated the occupation of everybody in the population (Botelho, 2003). According with this source, 90% of free children with less than 14 years old didn't work. This is probably underestimated but I assumed these values, including Indians. To the slaves, I considered a percentage of 75% of children 14 years old or less not working.

*State of Maranhão*

**Sex and age structure of free population:**

To calculate the age structure of free population, I used the percentage of children with 14 years old or less found in São Paulo population in the first half of the 19<sup>th</sup> century (Marcílio, 2000, p. 81, Table 4; APESP, *Maços de População de São Paulo*,

1808). Aggregated census data showed that 35% of the free people were up to 15 years old. To the 65 years old and more people I used the same source, calculating in 3% its portion in total population.  
Once again I used the census of 1724 (Schwartz, 1988, p. 87) to calculate the sex ratio. I assumed that sex ratio was 100 to children, 103 to adults and 95 to old people.

## **Estimating the labour relations in 1630 Brazil**

Using the (gu)estimations I discussed above, it is possible to calculate figures to labour relations in Brazil. Here I will present some general considerations I assumed to do so. Of course I considered the regional share of population characteristics when applying these general assumptions. The final results are presented in Table 3.

### *State of Brazil*

#### **Non-working:**

1. *Cannot work or cannot be expected to work:*  
50% of total population (including free people, Indians and slaves) 65 years old and more didn't work.  
90% of free and Indian children 14 years old or less didn't work.  
75% of slave children 14 years old or less didn't work.
2. *Affluent:*  
200 in Brazil, regionally distributed according with the weight of each region in the global colonial economic.
3. *Unemployed:*  
Not applied

#### **Working:**

##### **Reciprocal labour**

##### **Within the household:**

4. *Leading household producers:*  
700 in Brazil, regionally distributed according with the weight of each region in the global colonial economic.
5. *Household kin producers:*  
A calculated portion of free active population, balanced with the composition of LabRel 2, 4, 12, 13, 14 and 18.
6. *Household servants:*  
Not applied

##### **Within the community:**

7. *Community-based redistribution agents:*  
All the Indians, except children and elder that didn't work.

##### **Tributary labour**

8. *Forced labourers:*  
Not applied
9. *Indentured tributary labourers:*

Not applied

10. *Tributary serfs:*

Not applied

11. *Tributary slaves:*

Not applied

**Commodified labour:**

**For the market, private employment:**

12. *Self-employed:*

Three by sugar mill; 5% of Salvador adult free population

13. *Employers:*

Masters of sugar mills, sugar cane farmers (Pernambuco and Paraíba: 10 by sugar mill; Recôncavo Baiano and Rio de Janeiro: 8 by sugar mill; Southern and Inland Bahia, Espírito Santo, Rio Grande do Norte and São Paulo: 4 by sugar mill), other farmers (Pernambuco, Paraíba, Rio Grande do Norte, Bahia, Espírito Santo and Rio de Janeiro: 4 by sugar mills; Ceará and São Paulo: 10 by sugar mill), 5% of Salvador adult free population

14. *Market wage earners:* wage earners who produce commodities or services for the market in exchange mainly for monetary remuneration.

Free employees of sugar mill (20 per sugar mills; Schwartz, 1988); 5% of Salvador adult free population

15. *Indentured labourers for the market:*

Not applied

16. *Serfs working for the market:*

Not applied

17. *Chattel slaves who produce for the market:*

17.1 Sharecropping chattel slaves working for their proprietor:

95% of all the slaves that could work; 70% of the slaves in the city of Salvador that could work.

17.2 Slaves for hire:

5% of all the slaves that could work; 30% of the slaves in the city of Salvador that could work.

**For non-market institutions that may produce for the market**

18. *Wage earners employed by non-market institutions:*

18.1 Sharecropping wage earners:

Not applied

18.2 Piece-rate wage earners:

Not applied

18.3 Time-rate wage earners:

Bureaucrats and priests remunerated by Portuguese Crown

*State of Maranhão*

**Non-working:**

1. *Cannot work or cannot be expected to work:*



50% of total free population 65 years old and more didn't work.  
90% of free children 14 years old or less didn't work.

2. *Affluent:*  
Not applied
3. *Unemployed:*  
Not applied

**Working:**

**Reciprocal labour**

**Within the household:**

4. *Leading household producers:*  
35% of all households.
5. *Household kin producers:*  
A calculated portion of free active population, balanced with the composition of LabRel 4, 12, 13 and 18.
6. *Household servants:*  
Not applied

**Within the community:**

7. *Community-based redistribution agents:*  
Not applied

**Tributary labour**

8. *Forced labourers:*  
Not applied
9. *Indentured tributary labourers:*  
Not applied
10. *Tributary serfs:*  
Not applied
11. *Tributary slaves:*  
Not applied

**Commodified labour:**

**For the market, private employment:**

12. *Self-employed:*  
25% of all households.
13. *Employers:*  
40% of all households.
14. *Market wage earners:* wage earners who produce commodities or services for the market in exchange mainly for monetary remuneration.  
Not applied
15. *Indentured labourers for the market:*  
Not applied
16. *Serfs working for the market:*  
Not applied

17. *Chattel slaves who produce for the market:*

17.1 Sharecropping chattel slaves working for their proprietor:

Not applied

17.2 Slaves for hire:

Not applied

**For non-market institutions that may produce for the market**

18. *Wage earners employed by non-market institutions:*

18.1 Sharecropping wage earners:

Not applied

18.2 Piece-rate wage earners:

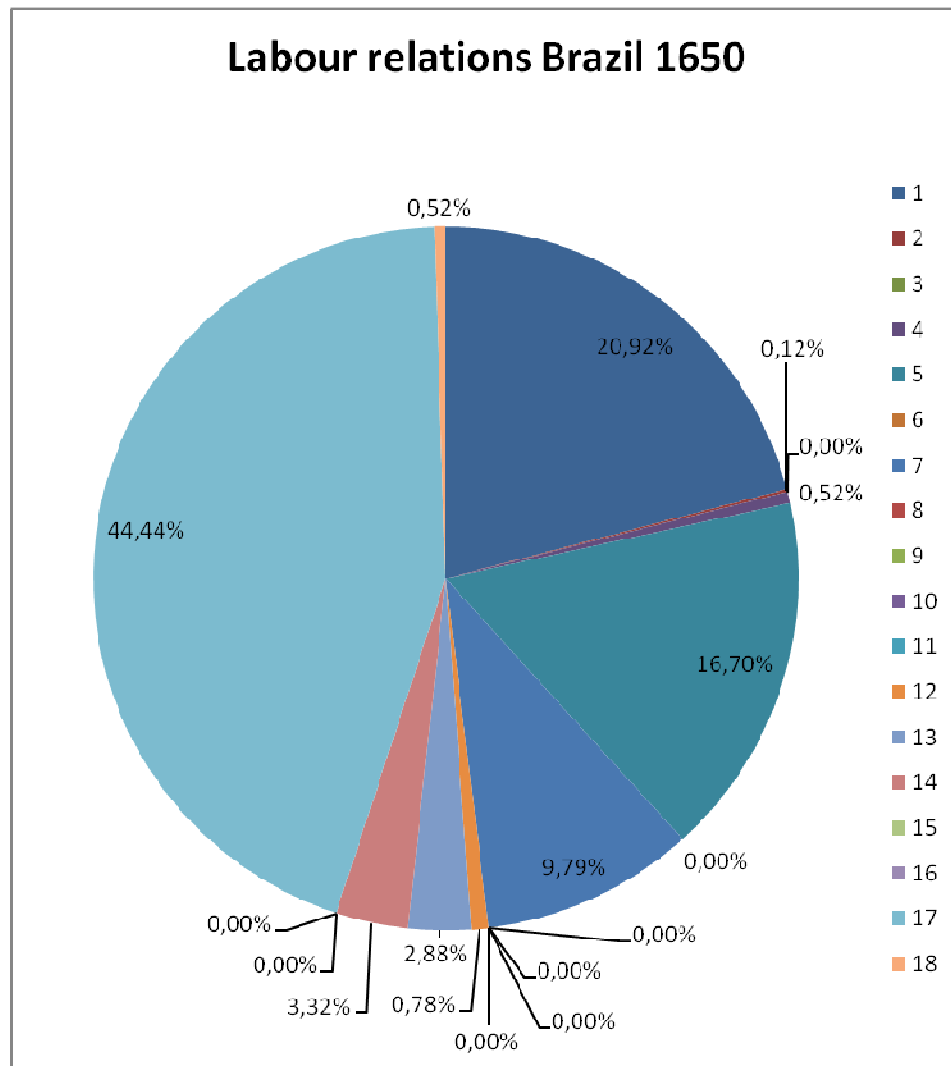
Not applied

18.3 Time-rate wage earners:

Soldiers remunerated by Portuguese Crown

Table 3. Labour relations Brazil 1650 (in thousands)

Labour relation	Total	Percentage (of total labour relations)
1	33,345	20,92
2	0,199	0,12
3	0	0,00
4	0,826	0,52
5	26,626	16,70
6	0	0,00
7	15,606	9,79
8	0	0,00
9	0	0,00
10	0	0,00
11	0	0,00
12	1,249	0,78
13	4,598	2,88
14	5,293	3,32
15	0	0,00
16	0	0,00
17	70,842	44,44
18	0,825	0,52
Total	159,409	100,00



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