

Portuguese Colonial Land Grants in Brazil: Long-term Effects on Inequality and Economic Development

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Motivation

- ▶ Inequality, in both land and income, is high in Brazil.
 - ▶ **“Brazil has one of the highest levels of inequality of land distribution in the world.** Inadequate access to land by the poor and insecure land tenure are factors behind rural poverty violence, human rights abuses, and exploitation of rural workers in conditions of servitude” ([USAID, 2016](#))
 - ▶ **“An estimated 1% of the population owns 45% of all land in Brazil.** Nearly five million families are landless.” ([USAID, 2016](#))

Motivation

- However, land inequality is nothing new¹:

TABLE 1. Ratios of Occupied Land to Total Land (in percentages)

	Total Area in Farms						
	1920	1940	1950	1960	1970	1980	1985
Brazil	20.6	23.2	27.2	29.3	34.6	42.9	44.1
North	6.0	7.1	6.5	6.6	6.5	11.6	12.6
Northeast	23.2	27.6	37.6	40.6	47.9	57.0	59.3
Southeast	49.4	62.1	66.4	68.8	75.2	79.5	79.2
South	47.7	54.9	61.6	67.8	79.0	83.3	83.3
Center-West	23.6	21.4	28.5	31.9	43.4	60.3	61.9

Source: Fundação Instituto Brasileiro de Geographia e Estatístico (IBGE), Censo Agropecuário, 1920–85.

TABLE 2. Gini Coefficient of Landownership Distribution in Brazil

Region	1960	1970	1975	1980	1985
Brazil	0.842	0.844	0.850	0.853	0.854
North	0.944	0.839	0.865	0.830	0.795
Northeast	0.846	0.855	0.858	0.858	0.865
Southeast	0.771	0.761	0.754	0.763	0.766
South	0.727	0.727	0.725	0.735	0.744
Center-West	0.845	0.856	0.851	0.840	0.836

Source: Hoffman 1982 and C. C. Mueller 1987.

¹Table obtained from [Alston et al. \(2010\)](#)

Research Question

- ▶ How much of it can be traced to colonial institutions?
 - ▶ Goal of this research would analyze the effects of colonial Portuguese land grants (*sesmarias*) on long-term inequality in Brazil.
 - ▶ Exploit **plausibly exogenous** variation on where the *sesmarias* could be granted during early colonization because of a treaty between Portugal and Spain.
 - ▶ Exploit **variation of soil quality** for different types of production across colonial Brazil.
 - ▶ Still looking for more institutional details on other possible sources of exogenous variation that could help me get a better identification.

History/Background

Early Colonization

- ▶ Originally a medieval Portuguese Law established in 1375 used to grant and develop land after the Black Death ([Diégues Júnior, 1959](#), p. 16)
- ▶ First mention of it in Brazil was in 1530, and often favored the Portuguese aristocracy ([Diégues Júnior, 1959](#), p. 16; [Lobb, 1976](#))
- ▶ Goal was to establish Portuguese presence in Brazil at a low cost for the Crown.
- ▶ Technically, the only legal way to obtain lands in colonial Brazil.
 - ▶ Every land that was not donated as a *sesmaria* was theoretically part of the public domain
 - ▶ Since the King owned the land, he could choose to distribute it to whomever he chose.
- ▶ Once the request was granted, it came with requirements such as developing the land.
 - ▶ A good parallel to the U.S. would be the Homestead Act of 1862.

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Request Process

- ▶ Petitioner submits a letter for an unoccupied land detailing their qualifications (captain, governor, etc.)
- ▶ Governor reads it, and if accepted returns back a letter with the requirements for the petitioner to satisfy.
- ▶ Five years to develop the land
- ▶ If successful, upon an inspection, land was transferred to the *sesmeiro*.
- ▶ Able to sell, pass down as inheritance, etc.

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End and Continuity

- ▶ Officially stopped being granted in 1822 shortly before Brazil's independence (Silva et al., 2019).
 - ▶ In some places, however, they were still being granted 10 years later.
- ▶ Land reform in Brazil came under a new regime in 1850 with the *Lei das Terras* (Costa Porto, 1979, p. 148)
 - ▶ *Sesmeiros* who had owned land and had developed it would be able to retain their lands, however, if not taken care of they would be retaken by the government.
 - ▶ However, the land reform did not mean the end of the local political power of land owners (Motta, 1998).
- ▶ Early studies argued it led to the development of the “**economic aristocracy of the colonial society**” and the “**principal cause of the latifundio**” in Brazil (Lima, 2002, p. 36; Costa Porto, 1979, p. 48).
- ▶ “Today the system of ownership and use of land is a **continuation of the colonial system, with the sesmaria becoming latifundia property**” (Andrade, 1980, p. 18).

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Possible Channels

- ▶ What are the long-term economic effects of the *sesmarias* land grants in Brazil?
 - ▶ Land inequality \Rightarrow only those with sufficient financial conditions were granted *sesmarias*, and were often granted vast plots of land.
 - ▶ Income inequality \Rightarrow land was associated with wealth, fewer people with land lead to wealth accumulation by the few.
 - ▶ Demographic Differences \Rightarrow *Sesmarias* often required African slaves, which could skew the demographics of a location.
 - ▶ Political dominance \Rightarrow Dominance by aristocrats often hampered efforts for local reform and investment.¹

¹ "If the land was concentrated by a few owners, the *latifundio* is created and it limits the number of settlers and the possibility of them entering the social class of *senhores de engenho* or farmers (Bandeccchi, 1963, p. 40)

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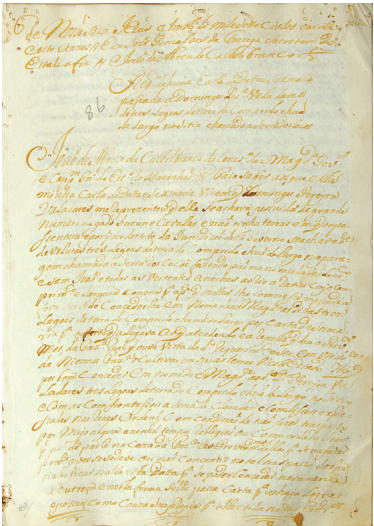
Literature Review

- ▶ Role of colonization and land tenure in present outcomes:
 - ▶ Institutional Origins: [Acemoglu et al., 2001](#) (AER), [Sokoloff et al., 2000](#) (JEP).
 - ▶ Brazil: [Naritomi et al., 2012](#) (JEH), [Musacchio et al., 2014](#) (JEH), [Wigton-Jones, 2020](#) (JEG), [Laudares et al., 2022](#) (WP).
 - ▶ India: [Banerjee et al., 2005](#) (AER).
 - ▶ Africa: [Lowes et al., 2020](#) (WP).

Data

- ▶ Information of *sesmarias* from the [Sesmarias of the Luso-Brazilian Empire Database](#) (Currently in progress).
- ▶ Brazilian Censuses (1872-2010)
 - ▶ Possibility of exploring other demographic data from other sources (eg. [Counting Colonial Populations](#))
- ▶ Brazilian Agricultural Censuses (First one in 1920).
- ▶ LandSat data to measure the current land usage (begins in 1985).
- ▶ Brazilian election results from 1889-1937 [History of Political Institutions](#) (To be released).
- ▶ FAO GAEZ dataset for crop suitability.

Example of Document



PA 0001
Carta de concessão a Domingos Pereira Valadares - 19/06/1738

Registro de uma carta de data e sesmaria passada a Domingos Pereira Valadares de 3 léguas de terra de comprimento e uma de largura, no sítio chamado a Serra dos Cocos.

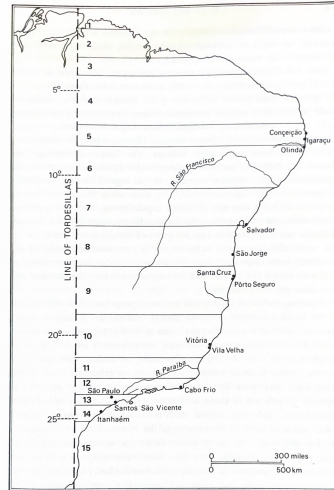
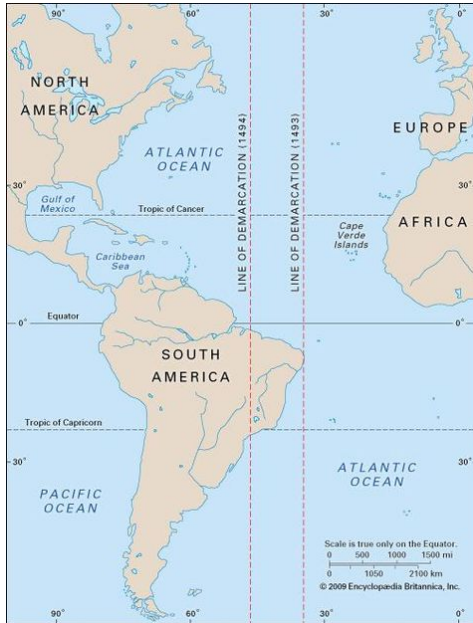
João de Abreu Castelo Branco, do Conselho de Sua Majestade, governador e capitão-general do estado do Maranhão, etc. Faço saber, aos que esta minha carta de data e sesmaria virem, que Domingos Pereira Valadares me representou que ele se achava possuidor de grande número de gado vacum e cavalari, e não tinha terras em que apascentasse, e porque no distrito da jurisdição deste governo se achavam devolutas 3 léguas de terra de comprimento e uma de largura, na paragem chamada a Serra dos Cocos, fazendo pólo na nomeada São Lourenço e São João, e todas as vertentes anexas ao Rio Araticú, cujo comprimento e largura correria para a parte que melhor lhe conviesse, me pediu fosse servido conceder-lhe, em nome de Sua Majestade, as ditas 3 léguas de terra de comprimento e uma de largura, por carta de sesmaria, para efeito que alegava; ao que atendendo, e a resposta que deu o provedor-mor da Fazenda Real, que houve vista do dito requerimento, e ser em utilidade da mesma Fazenda o cultivarem-se as terras neste estado. Hei, por bem, conceder, em nome de Sua Majestade, ao dito Domingos Pereira Valadares, 3 léguas de terra de comprimento e uma de largura, no sítio e com as confrontações acima declaradas e condições expressadas nas Reais Ordens, com condição de não fazer trespassar, por meio algum, em nenhum tempo, religião ou comunidade, sem que primeiro dê parte na Casa da Fazenda ao provedor-mor dela, para se me fazer presente e ver se se deve ou não consentir no tal trespassar, sob pena de ficar nula esta data para se poder conceder novamente a outrem. E, nesta forma, se lhe passa carta para as suas hajas, loges e possua como coisa sua própria, para ele e todos os seus herdeiros, ascendentes e descendentes, sem pensão, nem tributo algum mais que o dizimo a Deus, Nosso Senhor, dos frutos que nelas tiver; a qual concessão lhe faço não prejudicando a terceiro nem a Sua Majestade, se no dito sítio quiser mandar fundar alguma vila, reservando os paus Reais que nelas houver para embarcações, com declaração que mandará confirmar esta data por Sua Majestade dentro de 3 anos primeiros seguintes, e cultivará as ditas terras de maneira que dê fruto, e dará caminhos públicos e particulares onde forem necessários para pontes, fontes, portos e pedreiras; e se demarcará, ao tempo da posse, por rumo de corda e braças craveiras, como é estilo e o dito senhor ordena. E, outrossim, não sucederão nelas religião ou pessoas eclesiásticas por nenhum título; e, acontecendo, possuí-las será com o encargo de pagar delas dizimos a Deus como se fossem possuídas por seculares; e, faltando a qualquer destas cláusulas, se houver por devolutas e se dário a quem das denunciarem. Pelo que mando ao provedor-mor da Fazenda Real, e mais ministros e pessoas a que tocar, que, na forma referida, deixem ter e possuir ao dito Domingos Pereira Valadares as ditas terras, para ele e todos os seus herdeiros, ascendentes e descendentes, como coisa sua própria. Cumpram e guardem esta carta de data e sesmaria tão inteiramente como nela se contém, a qual lhe mandei passar por mim assinada e selada com o sinete de minhas armas, que se registrará onde tocar e se passou por duas vias. Dada na cidade de São Luís do Maranhão, aos 19 dias do mês de junho do ano do nascimento de Nosso Senhor Jesus Cristo de 1738. E eu, José Gonçalves da Fonseca, secretário do estado, a fiz // João de Abreu Castelo Branco//.

Data

Information extracted from the letters:

- ▶ Location.
- ▶ Year of Concession (In 1697 they were limited to 3 hectares).
- ▶ Type of Settler to whom it was granted.
- ▶ What purpose was the land requested (cattle, sugar plantation/factory, etc.).
- ▶ Who granted the request.

Treaty of Tordesillas (1494)

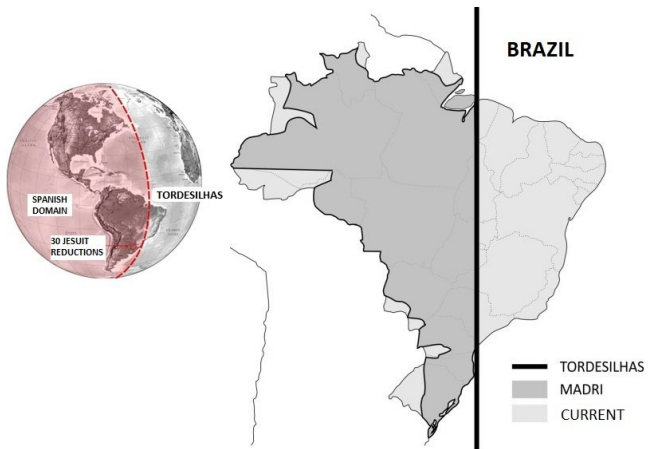


Key to Captaincies

1. João de Barros e Aires da Cunha (Pari), and Part 2. Fernão Álvares de Andrade (Maranhão) 3. Antônio Cardoso de Barros (Piau) 4. João de Barros e Aires da Cunha, 1st Part 5. Pero Lopes de Sousa (Itamaracá), 3rd Part 6. Duarte Coelho (Pernambuco) 7. Francisco Pereira Coutinho (Bahia) 8. Jorge Figueiredo Correia (Ilhéus) 9. Pero do Campo Tourinho (Porto Seguro) 10. Vasco Fernandes Coutinho (Espírito Santo) 11. Pero de Góis (São Tomé) 12. Martin Afonso de Sousa (Rio de Janeiro), and Part 13. Pero Lopes de Sousa (Santo Amaro), 1st Part 14. Martin Afonso de Sousa (São Vicente), 1st Part 15. Pero Lopes de Sousa (Sant'Ana), and Part

Captaincies of Brazil in the sixteenth century

Treaty of Madrid (1750)



Fuzzy RDD Design

- Estimate a Fuzzy RDD in which the probability a municipality has a *sesmaria* is a function of whether it is located to the Portuguese side of the Treaty of Tordesillas (follows [Laudares et al., 2022](#) (WP)).

First Stage:

$$Sesmarias_{m,s} = \delta \cdot TT_{m,s} + f(D_{m,s}) + \mu_s + X_{m,s} + \epsilon_{m,s}$$

Second Stage:

$$Y_{m,s} = \beta \cdot \widehat{Sesmarias}_{m,s} + f(D_{m,s}) + \mu_s + X_{m,s} + \epsilon_{m,s}$$

Instrumental Variable

- ▶ Exploit exogenous land quality for certain types of requests, following [Wigton-Jones, 2020](#) (JEG). Use that as an instrument, with the exclusion restriction arguing that the suitability for a certain crop only affects outcomes in the future through the land grants.

First Stage:

$$Sesmarias_{m,s} = \delta \cdot Suitability_{m,s} + \mu_s + X_{m,s} + \epsilon_{m,s}$$

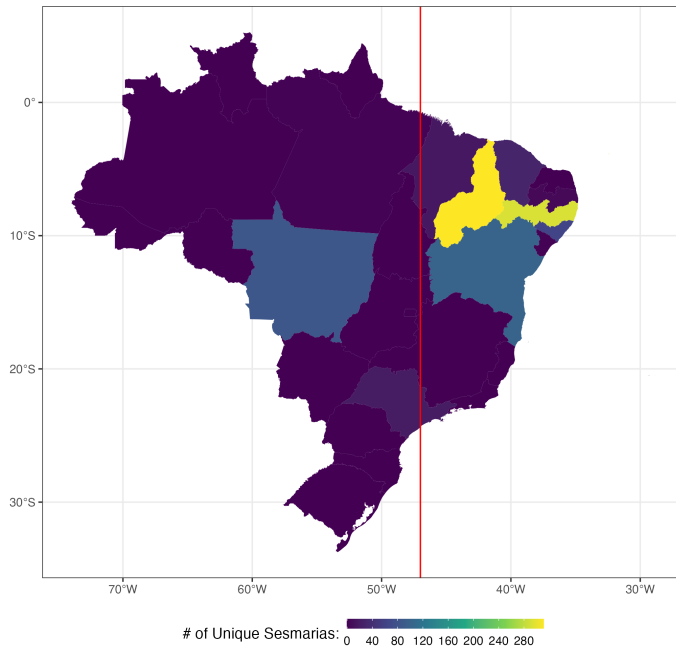
Second Stage:

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Work to be Done

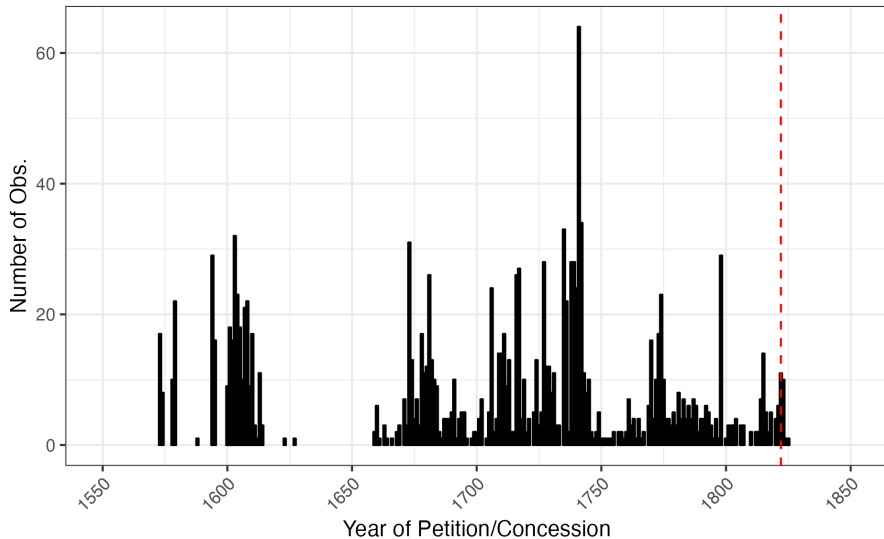
- ▶ Transcription of Manuscripts and information extraction are being done in Brazil.
 - ▶ My state of Para (and Minas Gerais) has all the transcriptions \Rightarrow only needed to extract the information.
 - ▶ Machine Learning techniques to extract the information [Currently what I am working on]
- ▶ Georeferencing would be most of the work required.
 - ▶ Look for a professional that works with Brazilian historical data.

Current Data Collection by State



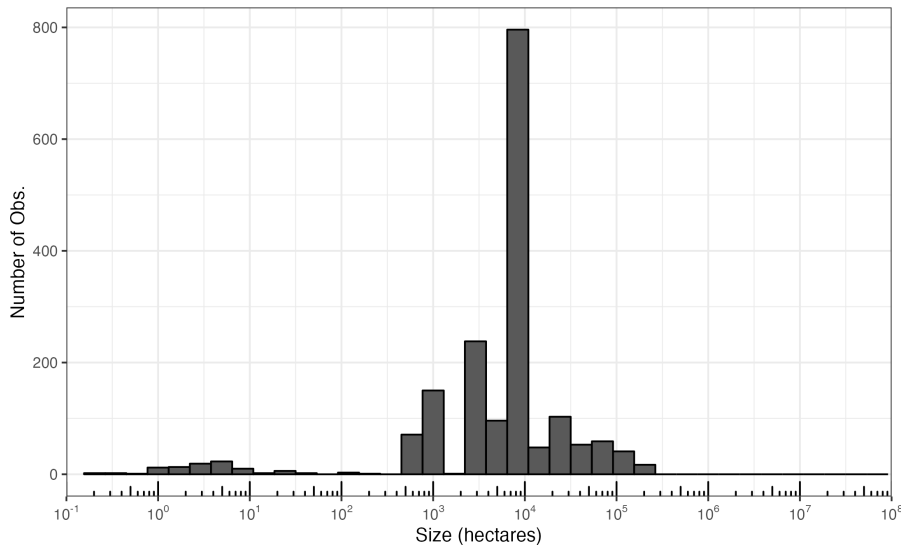
Basic Descriptive Statistics

Year Dist.



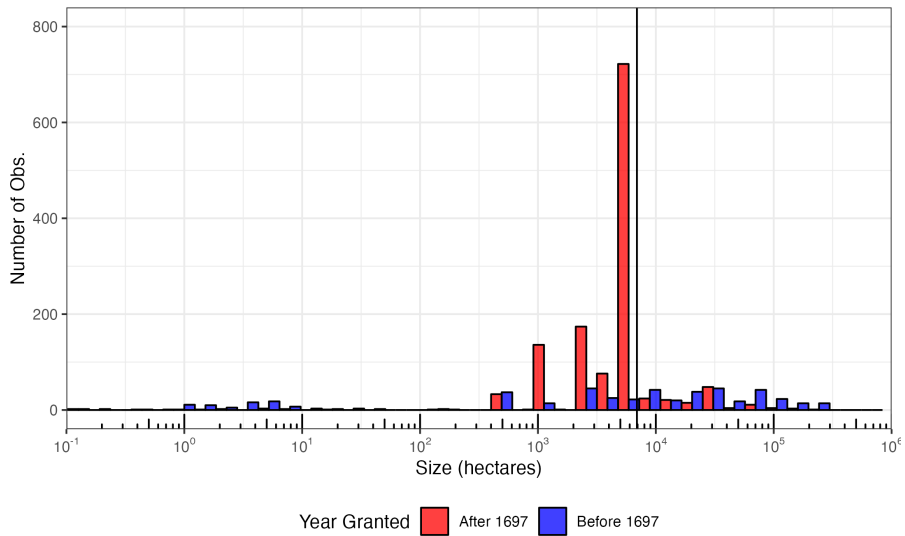
Basic Descriptive Statistics (1 hec = 2.5 Football Fields)

Size Dist.



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Size Dist.



If it is too much work

- ▶ Possible to focus only where we would expect them to have an effect and spend time transcribing/focusing on them (eg. Northeast).
 - ▶ “Under the auspices of King Philip I (1581-1598), the *sesmaria* was widely applied in the northeast and central coast regions of Brazil where a system involving large properties and slave labor was considered the only way to make a profit in the new land, whether by means of cultivation or cattle ranching.” (Lobb, 1976)
 - ▶ Sugarcane plantations required extensive amounts of slave labor (Silva et al., 2019; Baer, 2014, p. 16).
 - ▶ “Much of the windfall profits of the sugar cycle had been appropriated by Portuguese and foreign intermediaries, whereas a large part of the profits accruing to the *fazenda* and *engenho* owners were spent on imported consumer goods rather than technical and infrastructural improvements” (Baer, 2014, p. 16)

Table 1 *Colonial Brazil: White Population and Engenhos, 1570 and c. 1585*

Captaincy (main towns)	1570		c. 1585	
	white population*	engenhos	white population*	engenhos
Itamaracá (Conceição)	600 (2.9%)	1 (1.7%)	300 (1.0%)	3 (2.5%)
Pernambuco (Olinda, Igaracú)	6,000 (28.9%)	23 (38.3%)	12,000 (41.0%)	66 (55.0%)
Bahia (Salvador, Vila Velha)	6,600 (31.8%)	18 (30.0%)	12,000 (41.0%)	36 (30.0%)
Ilhéus (São Jorge)	1,200 (5.8%)	8 (13.3%)	900 (3.0%)	3 (2.5%)
Porto Seguro (P. Seguro, Santa Cruz, Santo Amaro)	1,320 (6.4%)	5 (8.3%)	600 (2.0%)	1 (1.0%)
Espírito Santo (Vitória, Vila Velha)	1,200 (5.8%)	1 (1.7%)	900 (3.0%)	5 (4.0%)
Rio de Janeiro (São Sebastião)	840 (4.0%)	0 —	900 (3.0%)	3 (2.5%)
São Vicente (São Vicente, Santos, Santo Amaro, Itanháem, São Paulo)	3,000 (14.4%)	4 (6.7%)	1,800 (6.0%)	3 (2.5%)
Totals	20,760 (100)	60 (100)	29,400 (100)	120 (100)

Sources: Pero de Magalhães Gândova, *Tratado da terra do Brasil e história da província de Santo Cruz* (c. 1570); Fernão Cardim, *Informação da província do Brasil para nosso padre* (1583); Fernão Cardim, *Narrativa Epistolar* (1583); José de Anchieta, *Informação do Brasil e de suas capitanias* (1584); Gabriel Soares de Sousa, *Tratado descritivo do Brasil em 1587*.

* Calculated on the basis of six persons per household (*fogo*).

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Other Relevant (?) Information to Add

- ▶ *Sesmarias* caused economic uncertainty in colonial times as often poor people would settle, develop land, and then lose the right of the land because a richer person would claim it ([Costa Porto, 1979](#), p. 142).

Explaining the future laws timeline

Manueline Ordinances 1511-1512

“Na petição por uma carta de sesmaria, o requerente devia justificar seu pedido, e quando recebesse a carta de concessão havia uma serie de obrigações entre as quais estava a necessidade do cultivo”

Timeline

How many observations per state Map

Variation in year of creation of municipalities with the treaty of tordesillas

Look for geographical variation.
Geographical reasons of colonization.