Risk, Incentives and Contracts: Partnerships in Rio de Janeiro, 1870-1891*

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Abstract

We construct an individual-level dataset of partnership contracts in late nineteenth century Rio de Janeiro to study the determinants of contract terms. We show that partners with limited liability contributed more capital and received lower draws for private expenses and lower profit shares than their unlimited partners. Unlimited partners in turn received higher-powered incentives when they contracted with limited partners than when they contracted with unlimited partners. A reform that changed the relative bargaining power further improved the terms of unlimited partners in limited firms. These findings highlight the roles of risk, incentives, and bargaining power in shaping contracts.

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1. Introduction

Business partnerships were the main organizational form during the nineteenth century in both common-law and civil-law countries, often outnumbering corporations by a very wide margin.[1] We contribute to the literature on partnerships by constructing a unique partner-level data set on late nineteenth century Brazilian businesses to study the determinants of partners' contractual terms and highlight the roles of risk, incentives, and bargaining power in shaping these terms.

A key distinction in the study of partnerships is between partnerships where all partners are liable for firm debts and partnerships where at least one partner's liability is limited to his investment (and who does not play an active role in running the firm). The latter option was mostly available in civil-law countries and recent studies have used the existence of the flexibility offered by the limited liability option to cast doubt on the argument that the common-law system is inherently superior to the civil-law system.[2] Moreover, limited and unlimited partnerships have both coexisted in civil-law countries, suggesting that each of these organizational forms has its own advantages (see Lamoreaux 1994, 1995, 1997, Lamoreaux and Rosenthal 2005, 2006a, 2006b, and Guinnane, Harris, Lamoreaux, and Rosenthal 2007).[3]

Empirically studying the logic and the potential advantages and disadvantages of limited vs. unlimited partnerships is challenging because partner-level data on contractual terms are scarce. We address this challenge by constructing and analyzing a novel individual-level data set based on manuscript partnership contracts from Brazil in the late 19th century. We characterize contractual terms such as draws for private expenses, profit shares, and capital contributions for both types of partners, and test how these terms changed when the broad-ranging reforms of 1890 opened up other investment opportunities.

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[1] Kim, "Popularity of Partnership," p. 8, reports that partnerships accounted for 30 percent of all US firms (including proprietorships) in non-agricultural sectors. Lamoreaux and Rosenthal, "Corporate Governance and the Plight of Minority," p. 4, report that two-thirds of multi-owner firms in US manufacturing were organized as partnerships circa 1900. Lamoreaux and Rosenthal also present figures for France, where partnerships formed the bulk of new multi-owned enterprises during this period (with limited liability firms forming a small fraction of all partnerships).

[2] See the discussion in Lamoreaux and Rosenthal, "Legal Regime and Contractual Flexibility". Hilt and O'Banion, "Limited Partnership in New York", show that limited partnerships were used more widely in the US than common wisdom suggests.

[3] Other papers that have studied limited and unlimited (or ordinary) partnerships in the nineteenth century include Kim, "Next Best Thing"; Hilt and O'Banion, "Limited Partnership in New York"; Gomez-Galvarriato and Musacchio, "Larger Menus and Entrepreneurial Appetite"; Bodenhorn, "Partnership Hold-Up"; and Kessler, "Limited Liability in Context."

Conceptually, it is useful to consider the framework of Lamoreaux and Rosenthal who, based on the French case, outline the key advantages and disadvantages of limited partnerships vis-à-vis unlimited partnerships in civil-law countries. They argue that limited partnerships were more effective in preventing untimely dissolution because the partner with limited liability (henceforth limited partner) could not intervene in managing the firm and could not withdraw his participation before the specified expiration of the term without significant costs. However, because the limited partner could not intervene in the management of the firm and had lower ability to monitor, he was more at risk from exploitation and shirking on the part of his partners with unlimited liability (henceforth unlimited partners). We empirically examine these arguments and some of their implications, and use this trade-off between partnership types to frame our analysis.

Our data collection was made possible because the complete registers of partnerships in Rio de Janeiro are available in Brazil's National Archive. Hundreds of partnerships were registered every year in the ledgers of the Junta Comercial of Rio de Janeiro.[4] The data suggest that these contracts brought together thousands of partners and millions of dollars in capital. For 1870, 1888 (just before the reform), and 1891 (just after the reform), we collected full information on all partnership contracts registered in the books, including partner-level information on draws (most commonly denoted as a monthly draw on individual annual profit shares), profit shares, capital contributions, and the partners' liability statuses. We also matched partners with a comprehensive set of property records for Rio de Janeiro for 1888, which provides us with an additional measure of partners' wealth.

Our empirical results highlight and quantify the idea that insurance, shirking, untimely dissolution, and bargaining power played important roles in determining contractual terms. First, we compare limited and unlimited partners in limited firms to shed light on the importance of risk bearing in determining contracts. We find limited partners received less favorable terms than their unlimited partners, which we interpret as the "price" they paid for limiting their downside risk and their involvement in management. At the same time, just like unlimited partners, limited partners received periodic draws for private expenses despite not taking an active role in managing the firm. We interpret these draws paid out to limited partners as a means of insurance from the firm, which is a benefit typically unavailable to financiers in joint stock companies.

Second, we compare unlimited partners in limited vs. unlimited partnerships to examine the roles of shirking and monitoring in determining contracts. Specifically, we find that unlimited partners received

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[4] The Junta Comercial was a commercial tribunal with an array of judicial prerogatives including the ability to fine or ban merchants from business.

more high-powered incentives when they contracted with limited as opposed to other unlimited partners. This finding supports the premise in Lamoreaux and Rosenthal (2006b) that shirking was a bigger concern in limited partnerships, where the limited partner was disadvantaged in monitoring the unlimited partner, who managed the firm. Furthermore, we find evidence consistent with the idea that improved monitoring reduces the need for incentive contracts. In particular, we find that unlimited partners in limited firms with more than one unlimited partner received lower-powered incentive contracts than those in limited firms with only one unlimited partner. We interpret this as evidence that the improved mutual monitoring generated by multiple unlimited partners reduced the need to write higher-powered incentive contracts.

Next, we find that, as in the case of France, untimely dissolution was a primary concern of entrepreneurs. As a whole, over 80% of contracts explicitly specified a length of time during which the partnership could not be dissolved without considerable transaction costs. However, unlike the French case, we do not find a significant difference in this concern between limited and unlimited partnerships. Moreover, limited partnerships do not appear more likely than unlimited partnerships to dissolve prematurely.

Finally, we examine the role of bargaining power in determining contracts. Specifically, we exploit a set of broad-ranging reforms in 1890 that affected the relative bargaining power of unlimited partners. We use a difference-in-differences approach to show that the terms of unlimited partners in limited partnerships improved after the reforms of 1890, especially relative to partners in unlimited partnerships. This analysis is consistent with an increase in the bargaining power of entrepreneurs (unlimited partners) relative to financiers (limited partners). We illustrate that the improved terms for unlimited partners in limited partnerships were indeed due to the reform by performing a placebo test that falsely assumes the reform occurred between 1870 and 1888 and finding no such effect. Overall, our paper demonstrates that businessmen designed flexible contracts to deal with the various incentive problems they faced, and adjusted these contracts in response to changes in their environment.

2. Economic and institutional background

Brazil between 1822 and 1889 was the only long-lasting monarchy in the Western Hemisphere. For most of the years prior to the sweeping reforms of 1890, the Emperor of Brazil was Dom Pedro II. His regime, though buffeted in the early years by regional revolts, was marked by a general sense of stability. As a constitutional monarch, Pedro II ruled through an appointed Council of State and an elected Congress. The regime was weakened by poor performance in the Paraguayan War (1865-70) and struggles over the continuation of the slave system, leading eventually to a belated abolition decree, signed by Pedro II's daughter, the Princess Isabel, on May 13, 1888 (see Berman 1999 for critical

biography of Dom Pedro II). A coup d'etat led by the army and backed by elements of the elite and urban middle class brought about a declaration of a republic on November 15, 1889 (de Costa 1985). This new republican regime ushered in substantial reforms of the laws governing joint-stock companies, as well as the whole financial system, in 1890-91.

Between 1850 and 1900, the city of Rio de Janeiro was transformed from a sleepy imperial capital into a burgeoning modern metropolis by the development of railway links to the interior, European immigration to the city, particularly from Portugal, and the rise of banking and joint-stock companies.[5] The population of the city trebled in these decades, and the volume of exports more than doubled.[6] Together, these developments encouraged urbanization and industrialization, which in turn influenced the structure of the business community, including partnerships.

The Commercial Code of 1850, adopted by the Brazilian empire at the same time that the Atlantic slave trade was finally suppressed, and meant to help spur the modernization of the economy, provided the basic template for the formation and regulation of partnerships and other business organizations.[7] Joint-stock companies were also considered in the original 1850 code, but these firms required a charter. Chartering, however, depended on imperial government authority, and very few joint-stock companies were formed before the 1880s. It was only in 1882 that the chartering law was revised and joint-stock companies were allowed in most sectors of the economy without governmental permission. This law (Brazil Lei n. 3150) maintained a few restrictions, including a rule that legislative approval was required for chartering a bank of emission and, interestingly from the perspective of partnerships, joint-stock

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[5] Unless otherwise stated, our unit of analysis is the city of Rio de Janeiro, not the province of the same name. The city was also sometimes referred to as the Court (a Corte) of the Brazilian Empire. For an overview of the modernization of Brazil, see Graham, *Britain and the Onset of Modernization in Brazil, 1850-1914*. For the importance of railroads in Brazil's economic development, see Summerhill, *Order Against Progress*.

[6] The population figure for the city of Rio de Janeiro in 1849 was 205,906; by 1872 it had increased to 274,972; by 1890 it had risen dramatically to 522,651. First figure from Karash, *Slave Life*, p. 166, citing the census of the city conducted by Roberto Haddock Lobo; other years reported in Brazil, IBGE, *Recenseamento*. Export figures from Lobo, *Historia do Rio de Janeiro*, vol. 1.

[7] The articles of the Brazilian Commercial Code of 1850 and the French Commercial Code of 1807 are usually very similar and sometimes identical. The French Code, Book 1, Title 3, section 1 defines much the same menu of options as found in Brazil, including nearly identical rules for unlimited and limited partnerships. Source: Rodman. *The commercial code of France*.

companies involved in food and food provision were also restricted (art. 1, sec. 2, sub sec. 3). Additionally, the law retained elements of liability for the initial managers in firms for five years from the date of inception, Art. 13 (see Musacchio 2009 p. 33 for a discussion of the legal changes between 1850 and 1891). The declaration of a republic in 1889 allowed further institutional innovation. Stephen Haber's work on the cotton textile industry in Brazil shows that the institutional changes of 1889-91 with respect to capital markets had profound effects at the industry level. In particular, the boom in credit nearly doubled the money supply in 1890 alone and financed a great number of new joint-stock companies in increasingly diverse sectors of the economy.[8]

Precise measurement of the weight of partnerships in the local economy is probably impossible, but it is likely that they accounted for the greater part of Rio de Janeiro's manufacturing and warehousing and a substantial part of retail trade circa 1870.[9] By 1888, partnerships shared space with a rising number of joint-stock companies, and, it appears, also began to adopt contracts that provided at least some of the advantages of that model of business incorporation. In order to help place partnerships in context, it is useful to estimate the number and value of joint-stock companies as a point of contrast.

By 1886, according to one careful estimate, the market value of the companies listed on the Rio de Janeiro stock exchange amounted to 213,000 contos, or $80,940,000 in current US dollars.[10] In order to place this figure in perspective, we estimate the combined capitalization of business partnerships located and registered in Rio de Janeiro in 1888. We consider the total number of partnerships extant in 1888 according to the city directory, approximately 2,100, and estimate a total value for all these partnerships by applying to all partnerships the mean value of partnerships newly registered that same year.[11] The

[8] Haber, "Financial Markets," pp. 146-178, esp. 151-153. With respect to the money supply in relation to the stock market, see Hanley, *Native Capital*, pp. 123-124, and Musacchio, *Experiments in Financial Democracy*, p. 42: "This rapid expansion of the money supply provided liquidity to investors."

[9] Analysis of the listings of businesses and merchants in the *Almanak Laemmert*, Rio de Janeiro's city directory, reveals that in 1870 there were at least 1,000 partnerships active in the city.

[10] Musacchio, "Law and Finance," p. 66. Note that Brazil's currency in the nineteenth century was the mil-réis, written 1$000. One thousand mil-réis equals one conto, written 1:000$000. A conto was worth approximately 500 dollars in 1870 and 1888. In 1898, after a major bout of inflation and expanding money supply, the conto was worth about 150 dollars.

[11] Note that we collected a smaller sample of 308 firms from 1888 on which we base the bulk of our analysis in this paper. We lacked sufficient resources to collect full information on all 527 firms. Instead, we collected a random sample of firms, which ended up providing us with 308 observations.

result of this calculation implies a total capitalization of all partnerships in Rio de Janeiro in the realm of 112,000 contos.[12] Since this value reflects the capitalization of partnerships in the city of Rio de Janeiro alone, the comparison with the market capitalization of the joint-stock companies is problematic. Nevertheless, these rough calculations suggest the orders of magnitude of investment in joint-stock companies (on the Rio de Janeiro exchange) and partnerships (located in the city of Rio de Janeiro).

After the declaration of a republic and the ensuing changes to the laws regarding joint-stock companies and capital markets more broadly, the capitalization of joint-stock companies jumped to 575,000 contos as of 1896.[13] The number of companies listed and traded on the Rio de Janeiro stock exchange rose from an average of 12 in the decade of the 1860s to an average of 54 by the last years of the 1880s, rising again to over 100 companies in the late 1890s (see Levy 1979). Most of these companies were banks, insurance companies, and railroads, rather than the kind of smaller business firms associated with partnerships in our database.[14,15] The argument, therefore, is not that companies that would have been partnerships necessarily switched to the joint-stock form, at least not before the 1890s. Rather, in the 1888 sample and even more so thereafter, investors increasingly had the choice of putting some or all of their resources into joint-stock companies as an alternative to partnerships at a time when the growth of banking and infrastructure in Brazil abetted the rapid increase in the size and number of joint-stock companies.

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[12] These figures measure slightly different things (market capitalization is not the same thing as the capital contributed by business partners), so the comparison is meant merely to suggest orders of magnitude. The estimate of total capitalization of partnerships was calculated by multiplying the ratio 3.98 times 28,127 contos, the sum of capitalization of firms registered in 1888. The ratio 3.98 is the number of firms in the city directory divided by the number of 1888 firms in our data set. It generates a number to multiply against in order to estimate the total capitalization of partnerships existing at that time.

[13] Musacchio, *Explorations in Financial Democracy*, p. 75. For a survey of the banking sector, see Triner, *Banking and Economic Development*.

[14] Banks, railroads, and public utilities accounted for about two-thirds of the total capital raised by joint-stock companies circa 1891, Levy, *História*, p. 164. For a study of common partnerships that did at times transform into joint-stock companies (in this case in textiles), see von der Weid, *O fia da meada*, esp. pp. 31-52.

[15] We also analyzed a sample of 50 joint-stock companies formed in 1891, including unlisted companies. This sample indicated the same pattern of concentration in banking, insurance, large-scale industry, and transport (Source: Junta Comerical do Rio de Janeiro, Sociedades Anonimas, Livro 61, 1891, AN).

We collected lists of shareholders and directors in joint-stock companies in Rio de Janeiro and found evidence of partners who also invested in public companies. As a test of the cross investment in partnerships and joint-stock companies, we collected a list of over 1,700 shareholders in our sample of 50 joint-stock companies circa 1891.[16] We then compared these names with the names of the partners in our database. There were 51 matches out of the over 2,100 individual partner listings we observe in our data set, suggesting that some individuals invested in both partnerships and joint-stock companies, although the number of matches is not particularly large. These cross investors tended to be wealthier than the average partner, and were no more or less likely than the average partner to be limited partners. The mean capital of the partnerships from which matches were obtained with shareholders was 19,211 1870 pounds (the mean capital contribution of the partner who also owned stock in the sample was 5,537 1870 pounds), indicating that cross investors tended to be significantly wealthier than the mean partner who had an average capital contribution of 2,477 pounds. Approximately a third of the partners who were found to own stock in the sample were limited partners, which is in rough proportion to the number of limited partners in our overall sample. Further research will be required to ascertain the degree to which this subset of entrepreneurs shifted their pattern of investment toward stocks, and whether limited partners diversified more than unlimited partners. We can be certain, however, that the phenomenon of investment in both partnerships and joint-stock companies existed. Furthermore, it appears that there were no significant minimum share price or share holding requirements that would have limited a partner's abilities to withdraw from partnerships and invest in diversified portfolios of joint-stock companies. Most shares were denominated 200$ mil-réis, and some investors held as little as five shares.[17]

Along similar lines, an analysis of estate inventories recorded in the city of Rio de Janeiro indicates that, in the period in question, the average proportion of decedents' wealth in stocks and bonds rose from 11.2 percent circa 1870 to 32 percent circa 1888, at the same time that business assets declined slightly from 14.4 percent to 11 percent of inventoried wealth. Capital that might have flowed into partnerships increasingly ended up in stocks and bonds as Brazil's institutions improved and capital markets

[16] Junta Comercial do Rio de Janeiro – Sociedades Anonimas, Livro 61 – 1891 – Codigo de Fundo: 46 – Secao de Guarda. Seven out of the 50 joint-stock companies in our list had no shareholders listed.

[17] See, e.g., Registro Nº 1511 –Banco Comissário Minas e Rio, Junta Comercial, Sociedades Anonimas, 1891, livro 61, AN. We note that we only refer to listed companies and it is possible that unlisted companies differ substantially from listed ones.

expanded.[18] Another common avenue for investment was land, especially urban property. The same estate inventory samples indicate that 39 and 29 percent of wealth was accounted for by urban real estate in the respective periods.[19] According to these records, as well as property tax rolls, the average annual return on these investments (calculated as annual rental value) was approximately ten percent of the market value of the property. Partnership contracts evolved in response to this changing environment.

3. Data

Formal business partnerships were required to register with the Junta Commercial in Rio de Janeiro. Registration served two purposes. First, it allowed the state to regulate and tax businesses in accordance with the Commercial Code of 1850. Second, and more importantly for our purposes, it allowed individuals to pool their resources in larger enterprises under the discipline of the rules of the Junta. Registration as a formal partnership carried consequences for relations among partners as well as for relations between the partnerships and outside creditors. Recent work by Aldo Musacchio documents several instances where the Commercial Code was enforced vigorously when partners committed fraud or otherwise attempted to avoid their obligations.[20]

Over the period in question, there were three main types of business partnership in Rio de Janeiro (and Brazil more broadly): 1) *sociedades em nome coletivo* (common, unlimited liability); 2) *sociedades em comandita* (limited liability); and 3) *sociedades de capital e indústria* (capital and industry, with or without limited liability). This paper focuses on the first two types because they comprised the vast majority of all partnerships and are also more analytically tractable. For the sake of readability and consistency, we will refer to these forms as "unlimited" and "limited" partnerships. Unlimited partnerships predominated, although this form declined relative to limited partnerships over the period covered by our data. In unlimited partnerships, each member took on unlimited liability. The limited liability form of partnership was formed when one or more partners, protected by limited liability, provided capital to the enterprise, which was then managed by one or more active partners with unlimited

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[18] Post mortem estate inventories, Arquivo Nacional, Rio de Janeiro. 1868-73 N = 87; 1885-1888 N = 143. Further detail regarding the estate inventory data reported in Frank, *Dutra's World*, p. 88.

[19] Ibid., p. 88.

[20] Musacchio, "Law and Finance," pp. 81-82, sec. 4.4. For contemporary commentary on the Commercial Code and an exposition of the rules regarding payment of creditors and rights and duties of partners, see *Codigo Commercial,* esp. pp. 361-477.

liability.[21]

The data used in this paper is housed in the National Archive of Brazil in Rio de Janeiro. The archive itself consists of the registry books maintained by the Junta Commercial, containing the detailed contracts regarding new, renewed or modified, or dissolved firms for all registered partnerships in the city of Rio de Janeiro. Our data collection proceeded as follows: for 1870, we collected full information on all partnership contracts registered in the books pertaining to that year (books 638-640). Some firms registered in the books for 1870 were actually initiated in 1869; we collected these as well. We also noted the incidence of partnership contracts outside the city, but did not collect full information on these cases. Finally, we noted basic information about each case of dissolution throughout the year. For 1888, our procedure was the same. We collected all of the information on contracts regarding firms within the city of Rio de Janeiro (in books 204-217) and the supplemental partial information regarding firms outside of the city and dissolutions. As with the 1870 data, the initiation date of firms in the 1888 books included some firms founded in 1887. Finally, we collected data on firms in 1891 from books 244, 245, 248, 252, and 254. These data cover all firms with initiation dates ranging from December 1890 through September 1891. As with the other years, we also collected abbreviated information from these books regarding firms outside the city and dissolutions. We chose to collect data on partnership contracts in 1888 and 1891 because they are right before and right after the 1890 reforms. The short span was chosen so that we could test the effect of the 1890 reforms rather than the effect of other events that happened later. The data from 1870, when compared with 1888, allow us to test for pre-existing trends before the reforms.

Analysis of the specific clauses underpinning partnership contracts reveals sophisticated and sometimes complex arrangements. The first clauses are generic, stipulating the names of the partners, the form the contract would take, the type of enterprise, the address, and the duration of the enterprise.[22] There are scores of different kinds of enterprises listed in the contracts, ranging from bakeries and tailoring shops up to major import-export houses. Our regressions include three industry dummy variables for partnerships engaging in commissions and/or consignments (comissões e consignações[23]), dry goods and cloth. These were among the largest, most complex, and most highly capitalized firms in the database.

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[21] Note that there were also partnerships of "industry," which joined together partners with capital with partners who offered their skilled labor. In many cases, the "industry" partnerships were also set up with limited liability.

[22] *Codigo Comercial*, art. 5.

[23] For an extended study of these firms, focusing on the coffee trade, see Joseph Sweigart, *Coffee Factorage and the Emergence of a Brazilian Capital Market, 1850-1888* (New York: Garland, 1987).

Because many firms were listed as engaging in multiple activities, or were listed with vague designations, we were not able to conduct detailed analysis of firm types below the most general level.[24]

Next are clauses indicating the capitalization of the partnership, the amount each partner brought to the table, and the nature of each partner's contribution to the firm. Among artisan and retail establishments, the capital often included equipment and stock provided by one or more partners. For this reason, it is important to acknowledge that non-cash contributions could be over or undervalued in the contracts. Systematic undervaluation will only affect our difference-in-differences estimates if the 1890 reform changed this undervaluation systematically differently for unlimited and limited partners. After specifying the distribution of capital, contracts usually stipulated the rules for the use of the firm name in business and private dealings. Many contracts forbade the use of the firm name in private matters or in business affairs outside of the narrowly defined purposes of the firm. In some contracts, only one partner was given the right to use the firm name in the course of business, such as for signing contracts for goods or services.[25]

All contracts included a clause indicating which partner or partners would be in charge of maintaining the firm's account ledger. The ledger was to be updated regularly, to include all relevant data and correspondence, and to be used at the end of each year to audit the balance of the firm, including information on all assets and liabilities.[26] And, as if this were not enough to dissuade cheating, merchants were required by the Commercial Code to maintain a detailed daily log of their transactions.[27] Failure to produce these books in the case of a legal proceeding against the merchant could result in a stint in prison.[28] In general, the larger was the number of partners in the firm, the more detailed were the restrictions on the activities of various partners.[29] The contracts we studied in detail generally set forth either annual or monthly draws that the partners could make for private expenses. These amounts were

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[24] For instance, in the category of commissions and consignments, there were many firms listed with designations such as "negócio de comissões de café e outros gêneros," implying that the partnership dealt with coffee commissions and with "other products." These complications were found in most other general categories of business.

[25] Lamoreaux and Rosenthal, "Legal Regime," esp, tables 2-4, explore the importance of such clauses limiting the activities of one or more partners.

[26] *Codigo Comercial*, art. 10, sec. 4.

[27] Ibid., arts. 12 and 13.

[28] Ibid., art. 20.

[29] Lamoreaux and Rosenthal, "Legal Regime," tables 2-4, pp. 42-44, find the same pattern in French partnerships.

referred to using the same language in the contracts *both* for unlimited partners, who actively worked in and managed the firms, *and* for limited partners, who legally could not engage directly in management or firm business. Most contracts stated that a given partner had the right to withdraw a certain amount from the partnership per month (or year) for private expenses. In some cases, the contracts indicated that these draws were against his current account and/or his share of annual profits. In over 90 percent of the contracts, the exact language used to characterize the draw was "poderá retirar para suas despesas particulares," which translates literally as "may withdraw for his private expenses." As a whole, the vast majority (94%) of partners in our sample were entitled to such draws (the figure was 97% for unlimited partners and 89% for limited partners). The average annual draw figure was about 209 Pounds Sterling (1870 Pounds).[30]

The vast majority of contracts used the same vocabulary to describe the draws of unlimited and limited partners, and stipulated the same periodic schedule for withdrawals. Over 70% of contracts used identical vocabulary to describe the draws of unlimited and limited partners and stipulated the same periods of payment. A typical example states: "Each partner may withdraw for his private expenses up to 60 mil-réis per month, with the clear understanding that the limited partner may not interfere in the management of the partnership; the withdrawals of each will be debited from the profit account of each partner."[31] We take this as evidence that, just like the unlimited partner, the limited partner had the expectation of receiving a regular periodic draw from the firm. Second, we show that the typical period was a month. That is, the contracts typically stipulated a monthly draw for both limited and unlimited partners, suggesting that these were amounts that the partners expected to be able to withdraw regularly. Finally, our results hold even when we restrict estimation to the sample for which only monthly draws were stipulated (results not presented). We note these draws are often stipulated as "up to" amounts, most

[30] Brazil experienced significant inflation during the last decades of the nineteenth century. Following Summerhill, *Order Against Progress*, 86, we use a wholesale price index for Brazil to deflate the values in our data set. See also Luis Catão, "A new wholesale price index for Brazil," *Revista Brasileira de Economia* 46:4 (1992), 519-533, esp. p. 530. The index values for the relevant years of this study are: 71.57 (1870), 55.96 (1888), and 81.86 (1891). We then use Oliver Ónody, A Inflação Brasileira, 1820-1958 (Rio de Janeiro, 1960), pp. 22-23 to convert the 1870 mil-réis into 1870 Pounds Sterling using an exchange rate of 10.88 mil-réis per pound.

[31] Original text: "Cada sócio poderá retirar mensalmente para suas despesas particulares até 60, ficando claro que o sócio comanditário não pode se imiscuir na gerencia da sociedade e que a retirada de cada um será debitada na conta de lucros de cada um.". Antonio Fernandes Bertallo & Cia, Reg. 32184, 1888.

likely to allow flexibility in an uncertain environment (as is often the case in developing countries today).

Among smaller contracts, the draw tended to be high relative to capitalization, suggesting that these firms probably provided their partners with their primary source of income. Larger partnerships, to be sure, had higher draws in nominal terms, but quite a bit lower relative to capitalization. It seems likely that these partners expected to derive some of their income from the division of profits, which was accounted for separately in the contracts, rather than from a regular draw. Earnings in a form of profit shares were nearly universal in our sample with 99% of the partners receiving a positive profit share.

The contracts also specified the precise capital contribution made by each partner. As with profit sharing, capital contributions were nearly universal in our sample across all years, with more than 95% of the partners contributing some capital to the enterprise. In fact, 95% of unlimited partners made some capital contribution to the firm, although, as we shall see, their average contribution was lower than that of limited partners.

Finally, all contracts contained clauses dealing with the event of the death of a partner or the dissolution of the partnership for other reasons prior to the end of the contracted period. In most cases, these clauses stipulated that the procedures of the Junta Commercial and the Commercial Code would be followed. With these clauses, contracts reduced the degree of uncertainty associated with problems of untimely dissolution. The default position was one in which a complete inventory of the firm's assets was undertaken within 15 days of the dissolution and, after paying creditors in the order determined by the code, the remaining assets were divided among the partners according to the proportion of their capital contribution (see *Codigo Comercial* 1850, arts 344-353). Most contracts included a provision that disputes be settled by arbitration, sometimes citing the relevant paragraphs in the Commercial Code in this connection. Some contracts included more creative clauses regarding the potential dissolution of the partnership. These clauses included monetary penalties for early withdrawal and, in one instance, a precocious non-compete provision in which the defecting partner was barred from opening a competing shop in the same neighborhood.[32] It is important to note that, in the absence of judicial intervention, untimely dissolution was only permitted in cases where all partners agreed to it or when the firm was constituted without a set time limit (*Codigo Comercial* 1850, art. 335, sec. 3).

The contracts also indicated how profits and other responsibilities were to be divided. There was wide variation in profit sharing across firms in all years. In a general sense, profit shares were strongly correlated with capital contributions; however, considerable variation remained even after accounting for capital shares. These draw setting and profit sharing clauses, along with stipulations regarding the right to

[32] Contrato, Santiago & Alves, Livros de Registros, Junta Comercial, ANRJ.

sign papers in the company name, served to reduce uncertainty and inhibit misconduct.

Most partnerships stipulated a specific period of association, although a substantial number of partnerships, increasing in proportion over the period studied, were registered without limit of time. Every three-to-five years, most partnerships needed to be renewed or unwound. As we shall see, there were several reasons for firms to adopt fixed time horizons. The most important of these was that these time-delimited firms were not construed legally as "at will" partnerships and were thus less susceptible to untimely dissolution. Partnerships with open time horizons could be dissolved at the whim of any individual partner, whereas without judicial intervention time-delimited partnerships could only be dissolved in the event that *all* partners agreed to dissolution.[33]

We collected information on 263 partnerships in 1870, 215 partnerships in 1888, and 188 partnerships in 1891.[34] Most partnerships were unlimited liability, but the proportion of limited liability firms increased from 17% in 1870 to a third in 1888 and 1891. Most partnerships had two or three partners and partnership size increased between 1888 and 1891. The average total capital of partnerships in our data is 6421 measured in 1870 Pounds Sterling. The total capital increased substantially between 1888 and 1891, with the average amounting to £9429 by 1891. The capital contributions of each partner to the partnership were quite even, with a Herfindahl index of about 0.5 in all years. About a third of all partnerships in 1870 were based on equal sharing of profits, but this fraction increased to 52% in 1888, and fell slightly to 46% in 1891. Almost all partnerships in 1870 stipulated a time-delimitation clause of the type described above, but by 1888 24% of partnerships did not have this clause. About 16% of partnerships were family firms and this number did not vary much over the period under study. About two-thirds of all partners in 1870 and 1888 were Portuguese, but this number dropped to 44% in 1891. The relatively high fraction of Portuguese partners is reflective of the strong hold that the Portuguese merchant community continued to exercise over the economy of Rio de Janeiro, a reflection of Brazil's colonial past. The Portuguese merchant community was fairly large (it formed the majority of merchant businessmen through the 1870s) and was a cohesive group. Relevantly, there was a historical divide between this community and the Brazilian-born merchant community. We thus include in the partner-level regressions below a variable

[33] Prior to the end of the stipulated contract period, expulsion of partners was restricted and required a judicial finding of moral turpitude, incapacity, or the like. *Codigo Comercial*, art. 336. Family partnerships were overrepresented among firms with open time horizons: the danger of "at will" defection from a family firm must have been lower.

[34] The number of partnerships reflects our firm-level data set after dropping all firms that had at least one of the variables in our analysis with an empty value. This amounts to dropping 12, 17, and 0 firms for 1870, 1888, and 1891, respectively.

indicating whether the partner is Brazilian rather than Portuguese to examine whether these tensions caused the contract terms of Portuguese partners to be different.

We observe 178 limited firms (27% of the sample) and 488 unlimited firms. Limited firms had, on average, a larger number of partners, greater capital contributions, and less concentration of the capital contribution shares amongst the partners. Additionally, while limited firms were more likely than unlimited firms to be family firms and to have a smaller fraction of Portuguese partners, they were less likely than unlimited firms to be based on equal sharing. Lastly, limited firms were more likely to be commission firms than unlimited firms, while unlimited firms were more likely to operate in the dry goods industry.

We collected information on 548 partners in 1870, 488 partners in 1888 and 443 partners in 1891 for a total of 1479 partner level observations.[35] Based on a name-matching algorithm we found that fewer than 5% of our partners participated in multiple partnerships that were formed or adjusted in a given year.[36] The fraction of limited partners increased over time in our sample, with only 6% of partners having limited liability in 1870, but 15% and 17% of partners having limited liability in 1888 and 1891 respectively. The fraction of partners making positive capital contributions remained uniformly high throughout the period (in each of the three years, between 96% and 98% of all partners made positive capital contributions), as did the fraction of partners receiving a profit share, with 99% of all partners receiving a share (averaged over 1888 and 1891). Unfortunately, we do not have data on profit shares and wealth for 1870. Finally, for the purposes of the analysis, we also define profit shares relative to a reference point of equal sharing. We define the "normalized profit share" variable to equal $\left[s_i - \frac{1}{N}\right]$ where s_i is the share of profits received by partner i and N is the number of partners in the firm. It measures the deviation from equal sharing and is equal to zero when profits are divided equally. It is positive when the partner gets more than an equal share and it is negative when the partner gets less than an equal share. We similarly define normalized capital share to create a measure of the share of a partner's capital contribution that is not mechanically related to firm size.

4. Empirical strategy and results

[35] We exclude from our analysis all partners with a missing value for one of the variables of interest. This amounts to dropping 95, 85, and 73 partners for 1870, 1888, and 1891, respectively. Including these partners in the regressions did not change our results substantially.

[36] Note that this is a lower bound since our sample is a subset of all extant partnerships.

We next explore the roles of insurance, risk bearing, moral hazard (shirking) and bargaining power in business partnership contracts. Contract theory in general and partnership theories in particular yield several predictions that we can confront with our data. First, if insurance is valuable for business partners, we expect contracts to include periodic (e.g. monthly) pay that is not profit-based. Moreover, if facing limited downside risk and avoiding the effort involved in managing the firm are valuable, we expect the limited partner to get worse contractual terms than the unlimited partner. Second, because the limited partner could not intervene in the management of the firm and had lower ability to monitor, he was more at risk from exploitation and shirking on the part of his unlimited partners. We thus expect him to motivate his unlimited partners by giving them high-powered incentives (Lamoreaux and Rosenthal 2005, 2006b, Guinnane et al 2007). That is, we expect unlimited partners to get more high-powered incentives when in limited partnerships. Third, because the limited partner could not intervene in managing the firm and could potentially incur significant costs if he withdrew his participation before the specified expiration of the term, we might expect limited partnerships to be less likely to use clauses to prevent untimely dissolutions than unlimited partnerships (Lamoreaux and Rosenthal 2005, 2006a, Guinnane et al 2007). Finally, we use the reforms in 1890, which facilitated both the creation of joint stock companies (which is expected to disproportionately benefit limited partners) and bank lending (which is expected to disproportionately benefit unlimited partners), to examine how the change in the relative bargaining powers of partners affected their relative contractual terms

4.1. Risk and Insurance: did partners with unlimited liability receive better terms?

We ask whether limited partners received worse terms (lower profits, lower draws, or higher capital contributions) than unlimited partners, as we predict, given their lower level of risk bearing and their lower involvement in running the firm.

Specifically, we compare the (normalized) share of profits, the draws, and the (normalized) share of capital contributions of the limited and unlimited partners in limited partnerships. We run partner-level OLS regressions where the alternative dependent variables are the partner's normalized profit share, the log of his draw, and his normalized capital share, and the main explanatory variable is whether the partner had limited liability.

The regressions pool observations from the years 1888 and 1891. In all regressions we include a set of control variables that comprise a set of firm-level variables such as total firm capital, the number of partners, whether the firm existed in any prior form, a set of industry dummies including in particular one for whether a firm was a commission firm (defined roughly as a firm listed to be primarily working on commission and consignment), and whether the contract included a time delimitation clause. We also control for a set of partner-level variables including nationality and whether the partner was one of two or

more family members in the firm. Because profit shares, draws and capital contributions are jointly determined, we also include profit shares, capital, and draws received as explanatory variables when they are not being used as dependent variables. We do not attempt to account for the simultaneity and so these regressions are best interpreted as best linear predictions. For symmetry, when the dependent variable is measured in 1870 Pounds (draw), we control for the (log) capital contribution in 1870 Pounds, but when the dependent variable is a share (profit share), we control for the capital share. For robustness, we also examined one specification where we predict draw and control for the capital share (but we do not report these results since they are very similar to the ones using log contributions). Finally, to account for unobserved differences between partnerships, we ran specifications with partnership level fixed effects (available from the authors upon request), but since the results were very similar to those obtained from standard OLS regressions, we only present the results from the OLS regressions. We also ran specifications that included wealth, as proxied by a partner's rental holdings culled from the Rio property records as a control; the results were very similar to those presented here, therefore we omit them.[37] In all the regressions, we compute heteroscedasticity-robust standard errors and allow for intra-firm correlation in the error terms.

Columns 1-3 of Table 1 show that in limited partnerships, limited partners had significantly worse terms than their unlimited counterparts. Limited partners' profit shares were 12 percentage points lower than those of unlimited partners. Since the average profit share was about 39%, this represents about a 30% lower profit share for limited partners. Draws for limited partners were 64% ((exp(-1.04)-1)*100) lower and capital contributions were 34 percentage points higher. Given an average capital contribution of about 34%, the coefficient implies that limited partners were contributing nearly *twice* the share of capital of their unlimited counterparts (even after controlling for firm size). Limited partners were thus the primary investors in the partnership. In return for limited liability and not taking part in any active management, the limited partner contributed a higher share of the capital and received a lower profit share and a lower draw. That is, the lower profit share, the lower draw and the higher capital contribution can be viewed as the "price" for limiting risk and not managing or working in the firm.

An interesting finding is that even the limited partner got some of his return in the form of a "draw"

[37] We expected the coefficient on wealth to be positive because wealthier people may have contributed assets to the firm that we do not see, or had high unobservable (to us) skills, or because greater wealth creates more outside options through more connections and sheer attractiveness, and thus generates greater bargaining power. However, the coefficient on wealth was generally small and statistically insignificant.

despite not taking an active role in managing the firm. The draw clauses can be viewed as clauses that determine dividend policy in order to protect the limited partners from the lock-in of their capital. This finding may imply that the limited liability partners received some insurance from the firm (an insurance they could not get in joint stock companies) to protect their investments against very low profits or lazy or incompetent unlimited partners.[38]

4.2. Shirking and incentives: did unlimited partners get better terms when in limited partnerships?

We expect monitoring to have been easier in unlimited partnerships, where all partners were actively involved in running the firm. In contrast, the lack of active participation by limited partners made monitoring more difficult for them. We thus expect the potential shirking problem to be greater in limited partnerships. One way limited partnerships could mitigate the shirking problem was to offer higher-powered incentives (higher profit shares) to unlimited partners.

Empirically, we run partner-level OLS regressions where the dependent variables are the unlimited partner's (normalized) profit share, his log of draw, and his (normalized) share of the capital contribution. The main explanatory variable of interest is a dummy for whether the unlimited partner was in a limited partnership (as opposed to an unlimited partnership). Columns 4-6 in Table 1 suggest that, compared with unlimited partners in unlimited partnerships, unlimited partners in limited partnerships received higher-powered incentives. They contributed lower shares of the overall firm capital by 17 percentage points or about 42% lower capital contributions given the average contribution level of 40%. Further, they received a 7 percentage point higher profit share (or about a 17% higher profit share given the average profit share was about 40% among unlimited partners). These findings lend support to the idea that shirking and the imperfect ability to monitor were of concern to partners. These findings, however, are also consistent with two other hypotheses. First, they are consistent with positive selection of unlimited partners to limited firms. That is, unlimited partners in limited firms may have been "better" than those in unlimited firms as reflected by their higher shares of profits, higher draws (statistically insignificant), and lower shares of capital contributions.[39] Second, it could be that unlimited partners were required to work harder in limited firms, so that the better terms they received were merely compensation for their greater efforts.

It is reasonable that the extent of the shirking problem varied with the number of unlimited partners in

[38] Some contracts stipulated that these draws were against future annual profits, in which case these can be thought of as minimum guaranteed returns to the investor.

[39] This positive selection can also be rationalized as a case where an unlimited partner with a better business idea is more likely to contract with a limited partner. We thank a referee for this point.

the firm. In a limited firm with more than one unlimited partner there exists both the possibility of collusion (the unlimited partners could collude and shirk together), which would exacerbate the shirking problem, and of monitoring (the unlimited partners could monitor each other and had incentives to do so), which would attenuate the shirking problem. We thus expect unlimited partners in such firms to receive higher-powered incentives if collusion was more important, and lower-powered incentives if monitoring was more important.

The results in columns 1-3 of Table 2 show that the limited partner received unambiguously and significantly better terms (about 15% higher profit shares and 41% lower capital contributions based on average calculations) when in a partnership with more than one unlimited partner, and that the unlimited partners in such firms received unambiguously worse terms and lower-powered incentives. These results suggest that the shirking problem was attenuated in firms with more than one unlimited partner, perhaps because monitoring was more effective in such firms.[40] The results in columns 4-6 further corroborate this finding. In particular, they show that an unlimited partner in a limited firm with more than one unlimited partner received a lower profit share (column 4) and contributed a greater capital share (column 6) than his counterpart in a two-partner limited firm. Note that since the former was always in a three (or more) person firm, his profit share is likely to be mechanically lower than that of the unlimited partner, who was usually in a two person firm (although note that there are 10 partnerships with one unlimited partner and multiple limited partners). However, the capital share results are unambiguous: despite being in larger firms, partners in limited firms with multiple unlimited partners contributed greater capital shares than partners in two-person limited firms. Since the draws remain the same (column 5) the most convincing conclusion is that the unlimited partners in limited firms with multiple unlimited partners received lower-powered incentive contracts than their counterparts in two-person limited firms. We note that the largest number of unlimited partners in any limited firm in our data is 3 (while the largest limited firm as a whole

[40] We were concerned that these results were driven by the fact that firms with more than one unlimited partner are mechanically larger than firms with only one limited partner (as they have at least three partners) and therefore that what we pick up is really a firm size effect. To check whether our interpretation is correct or whether we are just picking up a firm size effect, we fix firm size and then ask whether the effect of having more than one unlimited partner remains. We do this by controlling for both firm size and the interaction between firm size and Limited Partner. The coefficient on this interaction is very close to zero and statistically insignificant, while the coefficient on the variable of interest, Limited Partner * Firms with more than one Unlimited Partner, still has the same magnitude as before (although, as expected, our standard errors are much larger due to multicollinearity between the two interaction terms).

comprises 12 partners). Larger limited liability firms therefore consisted primarily of limited partners. This is consistent with the hypothesis that beyond a certain firm size, the monitoring advantages obtained by contracting with more partners with unlimited liability were outweighed by the attendant collusion problems.

4.3 Untimely dissolution: were limited partnerships more likely to include a time delimitation clause?

The literature on partnerships has argued untimely dissolution is a key concern among partnerships and that it is one of the defining disadvantages of unlimited partnerships. We next examine whether partnerships in general attempted to prevent untimely dissolutions by including time delimitation clauses, and (more directly than before) whether such clauses were more common in unlimited partnerships. We find that a large fraction of partnerships (about 82%) specified a time delimitation clause (as described above), suggesting that partners were concerned by the possibility of untimely dissolution. Looking at Table 2, where the dependent variable is whether the partnership included a time delimitation clause, we see that while such clauses were nearly universal in 1870, their use declined to about 70% of partnerships by 1891.

Interestingly, unlike the predictions in Lamoreaux and Rosenthal (2006a), there does not seem to be a differential rate of adoption of these clauses by limited vs. unlimited partnerships, suggesting that, at least from the language of the contracts, this was of equal concern to partners in limited and unlimited partnerships. One possible reason for the contrast with Lamoreaux and Rosenthal (2006b) could be the different implications for limited partnerships in terms of dissolution between the Brazilian and French cases, where in the latter it appears that a limited partnership implied a specified expiration term for the partnership. Further, upon an analysis of 82 dissolutions registered in 1888 and 1891, we find that the rate of (likely) untimely dissolution did not vary by partnership type.[41] Therefore, while it seems clear that untimely dissolution was an important concern for partnerships, we do not have evidence that suggests that this concern was different for limited partnerships. In addition, the decline in the presence of this

[41] Junta Comercial, livro 204 (1887-88) and livro 244 (1891), ANRJ. The dissolution contracts are not always clear about the reason for the dissolution and it is not possible to quantify the precise number of untimely dissolutions. The data suggest that firms dissolved for a range of reasons, including deaths of partners, ends of time-delimited terms, and a substantial number of dissolutions that appear to have fallen under the rubric of at-will and consensual. However, limited and unlimited firms appear quite similar in our sample, the main difference, of course, being the liability of the general partner in the process of winding down the firm.

clause is also potentially interesting, but there seem to be no good predictors of this decline, precluding any analysis of why this should be the case.

4.4 Bargaining power: the effect of the 1890 financial reforms on limited and unlimited partners

Finally, we examine how contract terms change when the relative bargaining powers of the partners change. Specifically, a set of broad-ranging reforms in 1890 both increased investment opportunities (more joint stock companies were created) and facilitated borrowing opportunities.[42] We expect the former to disproportionately benefit limited partners, who now had an additional investment option. We expect the latter to disproportionately benefit unlimited partners, who now could finance their entrepreneurial activities more easily without relying on limited partners. Thus, when designing partnership contracts, the rise of joint stock companies is expected to increase the bargaining power of limited partners, and easier borrowing opportunities are expected to increase the bargaining power of unlimited partners. It thus remains an empirical question whether these reforms improved the bargaining power (i.e. relative contractual terms) of unlimited partners.

Before we describe our empirical strategy, a few things are worth noting. First, additional reforms were put in place over the course of 1891. These reforms further protected investors in joint-stock companies, increasing the attractiveness of this option. However, for our purposes, the most important shift came with the promulgation of Laws 164 and 165 of January 17, 1890.[43] These laws, which passed in conjunction, liberalized banking and made joint-stock companies easier to form and invest in. This is the "shock" to the system that our analysis aims to exploit. Subsequent reform laws in 1891 added to this process, but did not, we argue, fundamentally shift the parameters with respect to choices made in contracting partnerships. It is true that the collapse of the speculative bubble known as the Encilhamento provided a shock in the opposite direction, as many shareholders stood to lose everything in a wave of bankruptcies and fraudulent companies, but this collapse did not occur until late in 1891. Second, partnerships by and large remained in the same industries before and after the reforms. These industries were typically small and medium scale enterprises, as distinct from joint stock companies, which were typically much larger and in sectors such as railroads, banking, and utilities. Third, limited liability

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42 Notarized borrowing by partnerships was an available option, and Joseph Ryan in *Credit Where Credit is Due* (esp. pp. 53, 110, and 163) show such borrowing increased in 1890, particularly in terms of bank lending as recorded in notarized contracts.

43 For an overview of these laws, see John Schulz, *The Financial Crisis of Abolition* (New Haven: Yale University Press, 2008), pp. 81-83.

already existed in the 1850 Commercial Code and was further extended, with certain restrictions, in the 1882 reform of joint-stock company law. Therefore, the importance of the 1890 reforms was not in the realm of liability, but rather in the expansion of borrowing opportunities and joint stock companies. Finally, similar broad-ranging reforms took place in other countries such as France and the US, so a promising direction for further research could be to test whether these reforms had similar effects in other countries.

We next test whether the effect of the 1890 reforms differed for unlimited partners who worked in limited firms relative to the two other types of partners. We use a standard difference-in-differences approach to examine the role of bargaining power in contract choice. That is, we test: (1) whether the contractual terms for limited partners vs. unlimited partners improved after the reforms; and (2) whether the terms of unlimited partners in limited vs. unlimited partnerships improved after the reforms. Specifically, in the first case we run the following OLS regression on partners in limited firms:

$$Y = \beta_0 + \beta_1 Post + \beta_2 LimitedPartner + \beta_3 PostLimitedPartner + X'\delta + \varepsilon$$

where *Post* is a dummy variable for the year 1891, *LimitedPartner* is a dummy variable for whether a partner has limited liability, and *PostLimitedPartner* is the interaction between these two variables. The coefficient of interest is β_3, which tests whether limited partners post reform improved their contract terms relative to the unlimited partners in limited partnerships. We run a similar regression for our second test, but using the sample of unlimited partners, and replacing *LimitedPartner* with a dummy variable for the partner being in a limited firm.

It is important to point out that such a strategy cannot control for differential time trends in the types of partner or firm. As a potential check, we explore whether any differential time trends existed before the reforms by looking at data from 1870 and repeat the above regressions for pre-reform data only. Specifically we use data from 1870 and 1888, "pretending" that the reforms occurred sometime in between those years. We expect β_3 to be zero in these regressions, unless the terms for the three types of partners were on different time trends.

Finally, we note that since we are obtaining identification off time trends and the financial reforms were part of a larger set of major changes in the economic regime, our results capture the net effects of these different policy changes and we cannot determine the relative contributions of different policies to the changes in contract terms. However, absent any data on the channels through which these reforms affected policy, the reduced form results presented here are a useful first approximation to the effects of the reforms on partnership contracts.

4.4.1 Within limited partnerships: comparing limited partners vs. unlimited partners

We test whether the difference in contractual terms (profit shares, draws, and capital contributions) of limited vs. unlimited partners in limited firms changed after the 1890 reforms. The top left quadrant of Table 3 presents results from these regressions using data from the years just before (1888) and just after (1891) the reforms. None of the coefficients are statistically significant at conventional levels although the point estimates suggest that limited partners' terms deteriorated post-reform. The point-estimate implies that profit shares declined by about 10% (-0.03 percentage points on an average profit share of 30%), stipulated draws decreased by about 32% ((exp(-0.40)-1)*100), and capital contributions increased by about 10% (0.028 percentage points on and average capital contribution of about 30%).

The top right quadrant of Table 3 presents results of these regressions for pre-reform data (1870 and 1888) to test for differences in pre-existing trends. These tables suggest that there were no differences in pre-reform trends in capital contributions, and the negative point estimate is encouraging since it suggests the higher capital contributions post reform were likely an effect of the reform rather than of pre-existing differences in trends. However, while there were also no statistically significant differences in pre-reform trends for draws, the negative point estimate could suggest that the decline in post-reform draws was a continuation of a previous trend. Note that we cannot run the placebo for profit shares because we do not have data on this variable in 1870.

4.4.2 Comparing unlimited partners in limited vs. unlimited partnerships

We test how the difference in contractual terms of unlimited partners in limited vs. unlimited partnerships changed after the 1890 reforms. The bottom left quadrant of Table 3 presents results from these regressions using data from the years just before (1888) and just after (1891) the reforms. The table suggests that the difference in terms between unlimited partners in limited vs. unlimited firms increased somewhat post-reform, with the former receiving even better terms post reform than the latter. Specifically, the profit shares of unlimited partners in limited firms vs. unlimited firms increased post reform (by about 2 percentage points or about 5% based on average profit shares of 34% in 1888) and their capital contributions decreased (by about 3.4 percentage points or about 10% based on average capital contributions of 34% in 1888).

These results are consistent with an increase in the relative bargaining power of unlimited partners in limited firms, probably a result of the reduced need to rely on limited partners for resources. Alternatively, the selection of unlimited partners could have changed after the reform.[44] Finally, unlimited partners may

[44] Specifically, a limited partner can now be expected to enter a partnership only if he is able to find an exceptionally talented unlimited partner, and otherwise he will just invest in the stock market, an option previously unavailable. This would also imply that unlimited partners in limited firms post reform could be expected to be more productive and get even better

have been expected to do more work or to take more risks in limited partnerships post reform, so that their better terms simply reflect compensation for these additional activities.

The bottom right quadrant of Table 3 presents results of placebo regressions that use pre-reform data (1870 and 1888) to test for differences in pre-existing trends. This table suggests that the results we found above do not just reflect different time trends, because there were no significant changes in the relative capital contributions of unlimited partners in limited firms compared with unlimited partners in unlimited firms between 1870 and 1888.

5. Conclusions

While there is a large body of literature on the determinants of organizational and contractual choice and an increasing body of literature on partnerships, this paper is among the first to use individual-level data to address these issues. By shifting the frame of analysis from firm-level to partner-level, this paper sheds light on the logic of partnerships. This analysis is possible owing to the numerous detailed partnership contracts registered with the Junta Commercial in Rio de Janeiro.

Our findings highlight the importance of considerations of risk and incentives in determining contracts. Draws and capital contributions were near universal for all partners, irrespective of liability status. Specifically, we find that more than three quarters of all limited liability partners received fixed periodical payments from their partnerships, a form of draw. Because limited liability partners were legally prohibited from participating in running the firm, we interpret this draw as an income-smoothing device for the limited liability partner. Capital contributions by both limited and unlimited partners could serve as a lock-in device that made leaving the partnership costly, a complementary mechanism to time delimitation clauses to prevent untimely dissolutions (see Abramitzky (2008) for a similar mechanism).

Furthermore, we find that limited partners obtained *lower* profit shares and lower draws than did unlimited partners; at the same time, limited partners contributed *more* capital to their firms. We argue that these worse terms can be interpreted as the "price" an investor paid in return for limiting both his downside risk and his involvement in managing the firm. When comparing unlimited partners across partnership types, we find that unlimited partners received higher profit shares when they contracted with limited partners. This attests to the potential importance of higher-powered incentives in limited partnerships, where the ability to monitor is limited and thus shirking is more likely.

We hypothesize that in firms where shirking problems (by the unlimited partner) were attenuated, one would observe lower-powered contracts. We show that sole unlimited partners in limited firms received higher-powered contracts than their counterparts in limited firms with more than one unlimited partner.

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terms than before the reforms.

To the extent that the presence of two workers with unlimited liability in a firm reduces shirking by increasing monitoring, the lower-powered contracts observed in such firms are consistent with this hypothesis.

We also test the effect of major institutional reforms in 1890, which increased the number of joint-stock companies and increased borrowing opportunities, on the contract terms received by limited and unlimited partners. We find that unlimited partners post reform received better terms than limited partners, suggesting an increase in their relative bargaining power because they had to rely less on limited partners for resources. Unlimited partners in limited firms improved their terms relative to those in unlimited firms, which is again indicative of the relative increase in their bargaining power in limited firms.

References

Abramitzky Ran. "The Limits of Equality: Insights from the Israeli Kibbutz." *Quarterly Journal of Economics,*123 no. 3. (2008): 1111-1159.

Almanak Administrativo, Mercantil e Industrial do Rio de Janeiro [*Almanak Laemmert*]. Rio de Janeiro: Laemmert & C.

Barman, Roderick. *Citizen Emperor: Pedro II and the Making of Brazil, 1825-91*. Stanford, CA: Stanford University Press, 1999.

Brazil, *Código Comercial*, Lei nº 556, de 25 de junho de 1850.

Brazil, Diretoria Geral de Estadistica, *Recenseamento da Populacao do Imperio do Brasil a que se Procedeu no Dia 18 de Agosto de 1872*.

Bodenhorn, Howard. "Partnership and Hold-Up in Early America." NBER Working Paper Series, number w8814, 2002.

Catão, Luis A. V. “A new wholesale price index for Brazil during the period 1870-1913.” Revista Brasileira de Economia, 46 no. 4. (1992): 519-533.

Costa, Salustiano Orlando de Araujo. *Codigo Commercial do Imperio do Brazil.* Rio de Janeiro: Laemmert & C., 1886.

da Costa, Emilia Viotti. *The Brazilian Empire, Myths and Histories*. Chicago: University of Chicago Press, 1985.

Frank, Zephyr L. *Dutra's World: Wealth and Family in Nineteenth-Century Rio de Janeiro*. Albuquerque: University of New Mexico Press, 2004.

Goirand, Leopold. *The French Code of Commerce and Most Usual Commercial Laws with a Theoretical and Practical Summary*. London: Stevens and Sons, 1880.

Gómez-Galvarriato, Aurora, and Aldo Musacchio. “Larger Menus and Entrepreneurial Appetite: An Empirical Investigation of Organizational Choice in Mexico, 1886–1910.” Working Paper, Harvard Business School, 2008.

Graham, Richard. *Britain and the Onset of Modernization in Brazil, 1850-1914*. Cambridge: Cambridge University Press, 1968.

Guinanne, Timothy, Ron Harris, Naomi Lamoreaux, and Jean-Laurent Rosenthal. “Putting the Corporation in its Place.” *Enterprise and Society* 8, no. 3 (2007): 687-729.

Haber, Stephen H. “Financial Markets and Industrial Development: A Comparative Study of Governmental Regulation, Financial Innovation, and Industrial Structure in Brazil and Mexico, 1840-

1930." In *How Latin America Fell Behind*, edited by Stephen H. Haber, 146-178. Stanford: Stanford University Press, 1997.

Hanley, Anne G. *Native Capital: Financial Institutions and Economic Development in São Paulo*, Brazil, 1850-1920. Stanford: Stanford University Press, 2005.

Hilt, Eric, and Katherine O'Banion. "The Limited Partnership in New York, 1822-1858: Partnerships without Kinship." *Journal of Economic History* (2009): forthcoming.

Karasch, Mary. *Slave Life in Rio de Janeiro, 1808–1850*. Princeton: Princeton University Press, 1987.

Kessler, Amalia D. "Limited Liability in Context: Lessons from the French Origins of the American Limited Partnership." *Journal of Legal Studies* 32, no. 2 (2003): 511-48.

Kim, Duol. "The Popularity of Partnerships in United States Manufacturing during the Nineteenth Century." Working Paper. Department of Economics, University of California, Davis. 2003.

Kim, Duol. "The Next Best Thing to Getting Married: Partnerships among the Jewelry Manufacturers in the Providence/Attleboro Area during the Nineteenth Century." *Enterprise and Society* 8, no. 1. (2007): 106-135.

Lamoreaux, Naomi R. *Insider Lending: Banks, Personal Connections, and Economic Development in Industrial New England*. New York: Cambridge University Press, 1994.

Lamoreaux, Naomi R. "The Partnership Form of Organization: Its Popularity in Early-Nineteenth-Century Boston." In Entrepreneurs: The Boston Business Community, 1750-1850, ed. Conrad E. Wright and Katheryn P. Viens, 269-95. Boston: Massachusetts Historical Society, 1997.

Lamoreaux, Naomi R. "Constructing Firms: Partnerships and Alternative Contractual Arrangements in Early-Nineteenth-Century American Business." *Business and Economic History*, 24 (1995): 43–71.

Lamoreaux, Naomi R. and Jean-Laurent Rosenthal. "Legal Regime and Contractual Flexibility: A Comparison of Business's Organizational Choices in France and the United States during the Era of Industrialization." *American Law and Economics Review*, 7, no. 1. (2005): 28-61.

Lamoreaux, Naomi R. and Jean-Laurent Rosenthal. "Contractual Tradeoffs and SMEs Choice of Organizational From: A View from U.S. and French History." NBER Working Paper No. 12455, 2006a.

Lamoreaux, Naomi R. and Jean-Laurent Rosenthal. "Corporate Governance and the Plight of Minority Shareholders in the United States before the Great Depression." NBER Working Paper No. 10900, 2006b.

Levy, Maria Bárbara. *História financeira do Brasil colonial*. Rio de Janeiro: IBMEC, 1979.

Lobo, Eulalia Maria Lahmeyer. *História do Rio de Janeiro: Do Capital Comercial ao Capital Industrial e Financeiro*. Rio de Jeneiro: IBMEC, 1978.

Musacchio, Aldo. *Experiments in Financial Democracy: Corporate Governance and Financial Development in Brazil, 1882–1950*. Cambridge: Cambridge University Press, 2009.

Musacchio, Aldo. "Law and Finance in Historical Perspective: Politics, Bankruptcy Law, and Corporate Governance in Brazil, 1850–2002." *The Journal of Economic History*, 67 no. 2. (2007): 503-506.

Musacchio, Aldo. "Law and Finance in Historical Perspective: Politics, Bankruptcy Law, and Corporate Governance in Brazil, 1850–2002." PhD dissertation. Stanford University, 2005.

Peláez, Manuel and Wilson Suzigan, *História Monetária do Brasil, 1800-1973*. Rio de Janeiro: IPEA, 1976.

Rodman, John. *The commercial code of France with the motives, or Discourses of the counselors of state, delivered before the legislative body, illustrative of the principles and provisions of the code By France*. C. Wiley, printer, 1814.

Summerhill, William. *Order Against Progress: Government, Foreign Investment, and Railroads in Brazil, 1854-1913*. Stanford: Stanford University Press, 2003.

Sweigart, Joseph. *Coffee Factorage and the Emergence of a Brazilian Capital Market, 1850-1888*. New York: Garland, 1987.

Triner, Gail. *Banking and Economic Development: Brazil, 1889-1930*. New York: Palgrave, 2000.

von der Weid, Elisabeth. *O fia da meada: estratégia de expansão de uma indústria textile*. Rio de Janeiro: FCRB-CNI, 1986.

Manuscript Archives: Arquivo Nacional, Rio de Janeiro, Brazil; Junta Comercial: Livros de Registros and Sociedades Anônimas; Arquivo Geral da Cidade, Rio de Janeiro, Brazil; Decima Urbana, 1888.

Table 1: Comparing Contract Terms across Partner Type and Partnership Type

Comparison Group:	Limited and Unlimited Partners in Limited Firms			Unlimited Partners in Limited and Unlimited Firms		
Dependent Variable:	Normalized Profit Share	Log Draw	Normalized Capital Share	Normalized Profit Share	Log Draw	Normalized Capital Share
	(1)	(2)	(3)	(4)	(5)	(6)
	OLS	OLS	OLS	OLS	OLS	OLS
Limited Partner	-0.12***	-1.04***	0.34***			
	(0.030)	(0.33)	(0.056)			
Limited Partner * More than 1 Unlimited Partner	0.054**	0.20	-0.14**			
	(0.027)	(0.44)	(0.059)			
Limited Firm				0.070***	0.10	-0.17***
				(0.015)	(0.10)	(0.029)
Limited Firm * More than 1 Unlimited Partner				-0.043***	0.30	0.089***
				(0.015)	(0.28)	(0.030)
More than one Unlimited Partner	-0.033**	0.64***	0.10***			
	(0.016)	(0.19)	(0.031)			
Additional Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	350	350	350	783	783	783
R^2	0.359	0.386	0.538	0.478	0.299	0.505

Notes: The analysis in columns (1)-(3) focuses on partners in limited firms in 1888 and 1891. The analysis in columns (4)-(6) focuses on unlimited partners (in both limited and unlimited firms) . "Normalized Capital Share" is equal to $c_i - \frac{1}{N}$, where c_i is the share of capital contributed by partner i, out of total capital contributed by all partners, and N is the number of partners in the firm. "Normalized Profit Share" is similarly calculated, equal to $s_i - \frac{1}{N}$, where s_i is now the share of profits received by partner i,and N is the number of partners in the firm. All variables relating to draws and capital contribution are in 1870 Pounds Sterling (see footnote 32 for details on conversion). All columns are estimated using ordinary least squares. Similar results were obtained when running the estimations above with a smaller set of independent variables or using fixed effects at the firm level. Standard errors are in parentheses and are heteroscedasticity robust and clustered at the firm level. "Additional Controls" are Existing Earlier, Log (Firm Capital), Number of Partners, Time Delimitation, 3 industry dummies, Brazilian National and Family Member (see pp. 10-16 for more details on variables). For each dependent variable, "Additional Controls" also includes for each regression the two other dependent variables listed above. T-test significant at ***1%, **5%, *10%.

Table 2: 1870-1891: Time Delimitation Clauses and Firm Type over Time

	(1) Time Delimitation
1870	0.94***
	(0.016)
1888	0.76***
	(0.036)
1891	0.69***
	(0.041)
Limited Liability Firm	0.085
	(0.068)
1870*Limited Firm	-0.097
	(0.079)
1888*Limited Firm	-0.084
	(0.092)
Observations	666
R^2	0.833

Notes: Time Delimitation is equal to one if the contract explicitly stipulates a length of time at the completion of which the firm either needs to be renewed or dissolved. Limited Liability Firm is a dummy variable equal to 1 if the firm is a limited liability firm. the * symbol represents an interaction. T-test significant at ***1%, **5%,*10%

Table 3: THE EFFECTS OF THE REFORMS:DIFFERENCE-IN-DIFFERENCE RESULTS

Dependent Variable:	Normalized Profit Share	Log Draw	Normalized Capital Share	Dependent Variable:	Log Draw	Normalized Capital Share
	(1)	(2)	(3)		(4)	(5)
	OLS	OLS	OLS		OLS	OLS
Panel A	Comparing Partners within Limited Firms			"Placebo" Specification		
1891*Limited Partner	-0.031	-0.40	0.028	1888*Limited Partner	-0.43	-0.11
	(0.021)	(0.46)	(0.045)		(0.36)	(0.068)
Limited Partner	-0.068***	-0.83***	0.23***	Limited Partner	-0.39	0.33***
	(0.018)	(0.28)	(0.029)		(0.25)	(0.058)
1891 Dummy	0.014	-0.38**	-0.0091	1888 Dummy	0.49**	0.041
	(0.010)	(0.16)	(0.019)		(0.20)	(0.028)
Additional Controls	Yes	Yes	Yes	Additional Controls	Yes	Yes
Observations	350	350	350	Observations	281	281
R^2	0.346	0.365	0.507	R^2	0.220	0.360
Panel B	Comparing Unlimited Partners across Firm Type			"Placebo" Specification		
1891*Limited Firm	0.020*	-0.025	-0.034*	1888*Limited Firm	-0.058	0.033
	(0.011)	(0.21)	(0.019)		(0.20)	(0.025)
Limited Liability	0.078***	0.33**	-0.21***	Limited Liability	0.26	-0.33***
Firm	(0.021)	(0.15)	(0.035)	Firm	(0.17)	(0.064)
1891 Dummy	-0.00042	-0.33**	0.0035	1888 Dummy	0.50***	-0.0012
	(0.0037)	(0.14)	(0.0044)		(0.083)	(0.0051)
Additional Controls	Yes	Yes	Yes	Additional Controls	Yes	Yes
Observations	783	783	783	Observations	924	924
R^2	0.475	0.294	0.504	R^2	0.440	0.060

Notes: The analysis in Panel A focuses on partners in limited firms and the analysis in Panel B focuses on unlimited partners. The analysis in columns (1)-(3) focuses on partners in 1888 and 1891 and the analysis in columns (4)-(5) focuses on partners in 1870 and 1888. See p.22 for a discussion of the "placebo" specifications. "Normalized Capital Share" is equal to $c_i - \frac{1}{N}$, where c_i is the share of capital contributed by partner i, out of total capital contributed by all partners, and N is the number of partners in the firm. "Normalized Profit Share" is similarly calculated, equal to $s_i - \frac{1}{N}$, where s_i is now the share of profits received by partner i,and N is the number of partners in the firm. All variables relating to draws and capital contribution are in 1870 Pounds Sterling (see footnote 32 for details on conversion). All columns are estimated using ordinary least squares. Similar results were obtained when estimating using median regression or fixed effects at the firm level.

"Additional Controls" are: Existing Earlier, Log (Firm Capital), Number of Partners, Time Delimitation, 3 industry dummies, Brazilian National and Family Member (see pp. 10-16 for more details on these variables). For each dependent variable, "Additional Controls" also includes the two other dependent variables listed above. For the regression with "Log Draw" as the dependent variable, we also ran the same regression as columns (2) and (5), only with "Log(Capital Contribution)" instead of "Normalized Capital Share" as one of the control variables, in order to compare the effect of the level of capital contribution on the draw level. Results were similar to those reported in columns (2) and (5). Standard errors are in parentheses. Standard errors are heteroscedasticity robust and clustered at the firm level. T-test significant at ***1%, **5%, *10%.