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Political Instability, Institutions and Private Capital Markets in Lima, Peru

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Abstract

This article analyzes the evolution of the private credit market of Lima between 1835 and 1865. In particular, it explores the effects of political instability and institutional change on the allocation of medium-term and long-term credit. By relying on a sample of more than 1,200 notarized records, the article shows that institutions had an important effect on the cost of credit. Political instability and institutional uncertainties led to high interest rates. As Peru became more stable after the mid-1840s and the risk of lending declined, interest rates declined.

Keywords: Mortgage credit, legislation, institutions, political instability
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1 Introduction

Institutions have long been recognized as crucial to the process of capital accumulation and economic growth. In the words of Douglass North, "institutions provide the basic structure by which human beings throughout history have created order and attempted to reduce uncertainty in exchange. Together with the technology employed, they determine transaction and transformation costs and hence the profitability and feasibility of engaging in economic activity."[2] A clear definition of property rights reduces the uncertainty on the outcomes from intertemporal decisions such as savings and investment. In an economy with clear property rights, individuals and firms thus have incentives to save and invest; credit markets then have more potential for growth.

Capital markets are especially sensitive to the definition of property rights. Several empirical studies show that a clear set of property rights contributes with financial development. North and Weingast (1996), for example, show that the Glorious Revolution led to a clear commitment to certain rules, promoting the development of public and private capital markets. Empirical studies for the 20th century also suggest that there is a relationship between property rights and financial deepening. La Porta, López-de-Silanes, Shleifer and Vishny (1997), for example, argue that legal systems that protect creditors and enforce contracts encourage better functioning debt and equity markets; whereas Levine (1998) indicates that legal rights of creditors and the efficiency with which legal systems enforce those rights explain much of the cross-sectional variation of financial development.

Political instability stands as a factor that probably restricts the development of credit markets.[3] In very unstable political contexts, property rights may not be clear or enforced. In some circumstances, the State itself may be the main violator of property rights through the confiscation of properties and arbitrary taxation. Proprietors may not fully enjoy their rights over their estates and other assets, and potential lenders may not be able to recover their investment in case of non-payment. Credit markets may then be stagnant and interest rates high.

Several historical studies have discussed the role of institutions on the evolution of credit markets in Latin America. Those studies have emphasized the importance of restrictive bank laws, discretionary policies, capital requirements, and restrictions on note

[2] North (1990), p. 118.
[3] In a recent study, for example, Roe and Siegel (2011) reported strong evidence in favor of the hypothesis that political instability impeded financial development.

issue for explaining the slow development of capital markets in the region (Haber, 1991; Maurer, 2002; Hanley, 2005; Zegarra, 2006). The impact of political instability and property rights insecurities on Latin American financial development, however, has not received much attention from the literature, even though it has been widely recognized that most Latin American countries experienced much political instability in the first decades after independence in the 19th century.

This article analyzes the effect of political instability and institutional insecurity on the development of credit markets in 19th-century Peru. In particular, the article analyzes the private credit market of Lima between 1835 and 1865. Peru during this period is an interesting historical case of study to analyze the effect of political instability and institutional change on the evolution of credit markets. In the 1830s and early 1840s Peru was a very unstable country and property rights were not secured. From the late 1840s, however, political civil wars became more sporadic and generated less instability. Furthermore, in the early 1850s the government enacted important institutional changes that improved the definition of property rights of lenders and borrowers. The expropriation of private properties was restricted and the legal rights of creditors and borrowers were more clearly defined.

By relying on more than 1,200 loan contracts over 1835-65, this article shows that interest rates were high during the period of political instability and institituonal uncertainties. In average, annual interest rates were around 20% per year in 1835-45, a very high level for international standards. As Peru became less politically unstable and property rights were more clearly defined, interest rates declined. The average interest rate declined to less than 14% in 1855-65.

Some historians indicated that the creation of commercial and mortgage banks in the 1860s led to the expansion of credit and the reduction in interest rates (Camprubí, 1957; Engelsen, 1978). It is certainly possible that the creation of banks contributed with the expansion of credit markets, especially from 1866, when the first mortgage bank was created. However, the results of this article strongly suggest that in the 1850s, prior to the creation of banks, political stabilization and the establishment of a more secure system of property rights had already led to the reduction in the cost of credit.

This article constitutes a contribution to the study of informal credit markets in Latin America. A considerable number of studies focus on the role of banks, paying less

attention to the importance of informal credit markets, probably due to the lack of official information. Notarial records have been proven extremely useful for studying early credit markets in other countries.[4] However, for Peru, only recently some studies have relied on notarial records for the study of 19th century´s credit markets, and none of them analyzes the impact of political instability.[5]

The structure of the article is as follows. Section 2 discusses the historical background of Peru between 1835 and 1865. Section 3 describes some features of the credit market of Lima during this period. Section 4 analyzes the cost of credit during this period, analyzing whether the trends are consistent with political and institutional change. Section 5 conducts an econometric analysis to test whether institutional variables influenced interest rates. Section 6 concludes the article. The data appendix indicates the data sources.

2 Historical background

During colonial times, usury laws and moral condemnation imposed upper limits on interest rates. These restrictions remained until the early 19th century.[6] In addition, some families and organizations were endowed with special rights over properties (*vinculaciones*), such that those properties could never be transferred. In spite of these restrictions, numerous lenders and bankers channeled funds to a variety of borrowers for consumption and investment in colonial times. Most lending, however, operated in the form of *censos*.[7]

From the early 19th century, there were several changes to the traditional land and credit markets. Usury laws, for example, were abolished soon after independence.[8] Some upper limits were imposed in the 1830s;[9] in 1840-70, however, no legal constraint on interest

[4] For Europe and the United States, see Hoffman, Rosenthal and Postel-Vinay (2000), Redish (2003), Beveridge (1985) and Quinn (2001). For Latin America, see Levy (2012), Riguzzi (2002), Suárez (2001) and Zegarra (2014).
[5] For Peru, Suárez (2001) analyzes the evolution of credit markets in colonial times; whereas Engelsen (1978) examines the participation of private lenders and mortgage banks in channeling fund to the agricultural sector in the 19th century. In a recent study, Zegarra (2014) has examined gender discrimination in the credit market of Lima.
[6] By 1805, for example, interest rates could not be above 6% per year (Macera, 1977, Vol. IV, p. 130).
[7] Suárez (2001), Quiroz (1994) and Armas (2002, 2007).
[8] A law, passed in Congress in December of 1832, established that all laws forbidding or restricting usury or interests on money were abolished (http://www.congreso.gob.pe/ntley/Imagenes/LeyesXIX/1833002.pdf)
[9] In 1835, however, General Felipe Salaverry, di-facto president of Peru, decreed that interest rates could not be higher than 1% per month. In 1836, the short-lived civil codes of the Confederation Peru-Bolivia published as Santa Cruz (1836) raised the upper limit on interest rates, establishing that interest rates could not be higher than 2% per month and that the legal interest rate (for those loans which did not specify a rate) was 6% per year. The civil code issued during the Confederation Peru-Bolivia was automatically abolished once Santa Cruz fell in 1839.

rates was imposed.[10] In addition, restrictions on the sale of lands were abolished from the early 19th century, prior to the independence of Peru.[11]

As colonial usury laws were abolished and more land was legally available for transactions from the early 19th century, the mortgage market could have gained some dynamism. However, political instability and the consequent institutional weaknesses probably constituted an obstacle to the growth of the credit market. Uprisings and civil wars were frequent in Peru for almost three decades after independence. Local warlords or *caudillos*, leading their own armies faced each other continuously, in an attempt to conquer power. According to Tantaleán (2011), between 1821 and 1845 there were 53 governments, with an average of five months and thirteen days per president.[12] Political instability was critical soon after the destitution of Simón Bolívar in 1827. Several constitutions were enacted during this period. In particular constitutions were enacted in 1823, 1826, 1828, 1834 and 1839, five in only 16 years.

In addition, the fiscal apparatus was weak and disorganized fiscal and fiscal revenues were low. In the 1830s the fiscal situation was very dramatic. In some cases, taxes were not collected; in other cases, taxes were collected by tax-officers but did not reach the respective government offices (Basadre, 1983). In addition, state employees did not perceive their salaries regularly, and the state permanently lived with debts that did not repay, and with loans that did not require (Contreras, 2012). The fiscal apparatus was so weak and disorganized that no fiscal budget was prepared between 1832 and 1845.

Fiscal needs severely affected the system of property rights in the 1820s and 1830s. In the 1820s, the need for funding government spending led to the confiscation of properties. In the early 1820s a large number of properties were confiscated by the governments of José de San Martín and Simón Bolívar (Armas, 2007). In February of 1833, Gamarra passed a

[10] García-Calderón (1868) mentioned that the elimination of usury laws in 1832 represented a significant change in the legislation after independence and that it favored for the development of credit markets. Fuentes and Lama (1869) indicated that the law of 1832 (published in 1833) and the civil code of 1851 established that parties had the right to freely set interest rates (Fuentes and Lama, 1869, p. 408). In addition, García-Calderón (1879) indicated that in the 1870s money loans could charge an interest and that there was no restriction on it.

[11] The first republican law of dis-entailment or *desamortización* was the law of 1829. This law made it possible the partial redemption of lay estates, such as legal chaplaincies and other pious foundations with lay titles. The dis-entailment process continued in the 1840s. Later in 1845, following the examples of Spain and Mexico, the Ministry of Hacienda Jose Gregorio Paz Soldán communicated to the Archbishop of Lima, Luna Pizarro, the government´s intention of dis-entailing capellanias colativas. With the dis-entailment process, a significant number of estates were then incorporated into the land market.

[12] Tantaleán (2011). In 1834, 1838, 1842, 1843 and 1844 there were moments with at least two presidents at the same time. In 1838, an extremely unstable year, Peru had seven presidents at the same time.

decree which established the transference of the properties managed by the *Caja de Consolidación* to the State. Due to the need for funding war expenses, the governments of Santa Cruz and Orbegoso confiscated and sold estates belonging to schools, the beneficence, hospitals, religious communities and Indians (in particular, to the *Caja de Censos de Indios*). The need for funding the State also led to arbitrariness in the imposition of levies. During the anarchy of 1835 and the wars of restoration of 1837 and 1838-39 and the civil wars of 1841, compulsory levies under the name of "loans" took place.[13] In addition, there were several changes in property rights that contributed to institutional uncertainty.[14]

The confiscation of properties and the continuous changes in property rights were facilitated by the absence of a civil code or a general civil legislation that limited the discretionary power of authorities.[15] As in other Latin American economies, in Peru authorities had a discretionary power to rule all aspects of economic life, so proprietors´ rights were not protected from the possibility of authorities´ abuse. Authorities and officials could gain from their discretionary political power. Additionally, the mortgage legislation included some elements that restricted the growth of the credit market. Until 1851, contracts and commercial transactions were still regulated by colonial practices, such as the *Ordenanzas del Consulado de Bilbao* and *Las Siete Partidas*.[16]

One probable constraint to the development of credit markets was the lack of a system of public information about mortgages. Potential lenders had difficulties to learn about the mortgaged situation of a property. Lenders did not know whether a property had been used as collateral, and how many times it had been used. Then there was uncertainty about the property rights over the estate. A lack of definition of the order of preference also created problems. A lender did not know whether he had preference over others for the

[13] However, in some cases merchants also benefited from the government loans (Basadre, 1983, Vol. II, p. 263). García-Calderón (1868) argued that the political instability brought desolation into the agricultural sector.

[14] During the governments of Orbegoso and Santa Cruz, national lands (estates belonging to the state) were sold to fund public expenses. In July of 1839, however, once the Confederation Peru-Bolivia was abolished, the government of Gamarra established that the sale of national lands during the government Santa Cruz was null, so the buyers had to return the estates to the original owners (Dancuart, 1903). A new law passed in November of 1839 but promulgated in 1846, however, established that the buyers could remain as leasers for a number of years until the state made the total payment of the debt. Those who had received estates as payment for their services to the confederation had to return the estates (Basadre, 1983, Vol. II, p. 260.). On the other hand, the government did not find any document regarding the chaplaincies managed by the state; in October of 1839 it enacted a decree indicating that the persons in possession of those chaplaincies had to submit their titles in four months or they would lose their rights (Dancuart, 1903).

[15] With the exception of the short-living civil code of 1836 (which lasted until 1839), Peru did not have a civil code that regulated the lives and contracts of Peruvians.

[16] Bacacorzo (1996), p. 50.

possession of collateral. In the case of non-payment, the lender had much uncertainty about the return to its investment: the process to repossess collateral was long and costly, reducing the returns to mortgage lending.

This period of extreme political instability and unclear property rights was accompanied by the stagnation of the export sector. Exports did not increase in the 1820s, 1830s and early 1840s: total exports were 5.9 million soles in 1821, 5.1 million soles in 1832, 5.3 million soles in 1839 and 4.8 million soles in 1845. Mining production went through a period of stagnation.[17] However, non-export sectors experienced moderate growth. GDP actually grew by 2.6% per year between 1835 and 1845.

INSERT FIGURE 1

Peru became more stable from the mid-1840s. The victory of Ramon Castilla in the Battle of El Carmen in 1844 and his rise to the presidency one year later largely contributed to the stabilization of the country. In the two decades that followed 1845 conspiracies, coups were not as frequent as in the first two decades of Republic Peru (Figure 1). There were still wars in the 1850s and 1860s.[18] However, wars did not generate as much instability as in 1835-45. In fact, changes of government were less frequent. In the words of Historian Javier Tantaleán, "governments no longer lasted days, months or a few years."[19] The number of presidents or heads of government declined from 13 in 1836-45 to 3 in 1846-55 and 7 in 1856-65;[20] whereas the number of coups declined from 9 in 1836-45 to 2 in 1856-65. In addition, Peru only had two constitutions during this period. The constitution of 1856, enacted by the National Convention, replaced the constitution of 1839. In 1860, a new constitution was enacted; but this new constitution remained valid for 60 years until 1920.

Furthermore, in the early 1850s property rights were defined more clearly. The enactment of the Civil Code of 1851, for example, constituted a major institutional change. The Civil Code of 1851 —enacted as law by Congress in December 29 1851— constituted a cohesive piece of legislation that aimed at establishing general regulations and property

[17] Fiscal revenues reflected the economic stagnation. Fiscal revenues declined from 5.9 million dollars per year in 1800-09 to 3.9 million dollars per year in 1820-29 and 3.3 million dollars per year in 1830-31. Figures on fiscal revenues come from Contreras (2012). Unfortunately, there is no information in fiscal revenues for 1832-45.
[18] In fact, there were civil wars in every year in 1853-58.
[19] Tantaleán (2011), p. 140.
[20] For calculating the number of presidents, I included the interim presidents or heads of government if they were in power more than a month.

rights.[21] The civil code established general requirements for contracting and therefore reduced the discretionary power of the authorities. Now borrowers and lenders counted with a piece of legislation that protected their property rights. With the civil code, for example, arbitrary confiscation was illegal, and the expropriation of properties had to follow a formal procedure. The government had to declare certain property as having public utility. The government also had to prove that the property served the public interest. The value of the property would be established by an independent expert. If the owner agreed on the sale, the transfer could be done immediately through the Prefect of the province. If the owner disagreed on the sale, declaring that the property was not necessary for the State or that the price was too low, a judge would intervene and dictate a sentence. This sentence, however, was appealable.[22]

In addition, the civil code regulated all types of contracts, including loans. According to the code, lenders could make loans secured with any asset. There were no capital requirements for private lenders, no restrictions on loan sizes, and no interest rate caps. However, there were some requirements for lending and borrowing.[23]

The code also reduced information costs by requiring the registration of mortgages (loans secured with real estate) in public offices or *Oficio de Hipotecas*, and making the information available to the public. Real-estate mortgages could only be constituted by *escritura pública*, i.e. in a notary. To be valid, mortgages had to specify the amount of the loan and the mortgaged estate, and had to be registered in the local *Oficios*,[24] which were to be established in the capital cities of each province. Before the enactment of the civil code,

[21] The civil code did not solve all deficiencies of the legislation. For instance, although the civil code indicated that the payment of the loan had to be done within the maturity indicated in the contract, it was not very specific on the length of the process of repossessing collateral (García-Calderón, 1868).

[22] The civil code constituted an important institutional change. But it was not the only one. In 1852, Congress enacted the first commercial code of independent Peru. This code regulated commercial activities. With some exceptions, practically every person that could participate in a contract, as established by the civil code, could participate in commercial transactions. The code also regulated the formation and operations of commercial companies or societies. Practically any group of individuals with some exceptions could form a company, even a corporation. The code did not establish capital requirements or the need for special charters.

[23] The individuals who could not directly lend or borrow were the non-emancipated minors (younger than 21 years old), married women without the authorization of their husbands, persons with mental problems, fatuous individuals, *pródigos* (reckless extravagant consumers), and members of the church. These were the general restrictions for participating in any contract, included in the article 1247 of the civil code. With some exceptions, most mentally sane adults could lend or borrow. Single women had the same rights as men, and married women could lend and borrow with the authorization of their husbands.

[24] These offices were in charge of registering mortgages in each department. Mortgages had to be registered in the Oficinas where the mortgaged estate was located.

these offices only operated in the capital of each department.[25] Information on mortgaged estates was supposed to be clear, thereby reducing informational deficiencies.[26]

Political stabilization and the clearer definition of property rights in the 1850s and 1860s were accompanied by the expansion of the export sector, largely caused by the boom of guano.[27] Total exports increased from 4.8 million soles in 1845 to 7.5 million soles in 1851 and 37 million soles in 1861. The index of the total volume of exports increased from 25.5 in 1840-49 to 52.8 in 1850-59 and 68.9 in 1860-69.[28] The rapid growth of exports was

In summary, for more than two decades after independence in 1821, the State did not provide a stable system of property rights. Property rights were not clearly defined and were subject to the possibility of government abuse. Even though usury laws were abolished in the early 1830s and the dis-entailment incorporated new estates into the land market, the system of unsecure property rights probably impacted the credit market. From the mid-1840s, however, Peru became politically more stable and property rights were better secured. The probability of confiscating properties declined and the legislation was clearer in the definition of lenders′ and borrowers′ property rights. As we will show in the following sections, these political and institutional changes had an important effect on credit markets.

3 The private credit market of Lima

This section provides an overview of the main characteristics of the private credit market of Lima between 1835 and 1865. In particular, the section describes the regional aspect of the market, the main characteristics of borrowers and lenders and the types of guarantees of the loans.

Notarial records provide information on the location of most borrowers and lenders. Some borrowers and lenders came from cities outside of Lima. Some came from the cities of Arequipa, Ica and Trujillo. Most borrowers and lenders, however, lived in the city of Lima.[29] The evidence then suggests that transportation costs shaped 19th century's Peruvian credit

[25] The civil code of 1851 also contributed to the mobilization of properties. Although it recognized censos as a type of contract, it established that the estates could not be burdened with perpetual censos and *vinculaciones*. Therefore, all lands could in principle be sold or purchased.
[26] In several cases, however, the staff in the *Oficinas de Hipotecas* was not responsible, and the registration books were not well organized, leading to deficiencies and confusion (García-Calderón, 1868).
[27] The expansion of the commercial activity led to an increase in public revenues. According to Contreras (2012), fiscal revenues increased from 5.6 million soles per year in 1846-49 to 13.7 million soles in 1850-59 and 28.2 million soles in 1860-69.
[28] This index is estimated by Hunt (1973). The index is equal to 100 in 1870-79.
[29] Notaries from other cities probably registered most credit transactions from their own cities.

markets. By the mid-19th century, interregional credit transactions barely occurred. The regional characteristic of the credit market did not experience significant changes througout this period. In the 1830s and in the 1860s *limeños* in need of funding transacted with *limeños* with savings. Scattered evidence from notaries in Ica, a city 100 miles South of Lima, is also consistent with the regional view of credit markets: lenders and borrowers tended to be inhabitants of the city Ica and the nearby towns.[30]

Information on gender indicates that most of lenders and borrowers were men (Table 1). Women, however, had an active participation in the credit market. In 1860-65, for example, around 16% of loans corresponded to female lenders and 24% to female borrowers. Not only married women, but also single women and widows loaned and borrowed money.

A large percentage of lenders and borrowers were merchants. In 1860-65, around 51% of lenders and 27% of borrowers were merchants.[31] That merchants represented an important source of funds was not limited to medium- and long-term credit. Prior to the creation of commercial banks, commercial houses granted short-term credit. Commercial notes by the main merchants were so widely accepted that they circulated as a means of payment. Later from 1862, merchants expanded their businesses through the creation of banks of issue in Lima and other cities of Peru. And from 1866, merchants participated in the formation of mortgage banks.[32]

State employees also had an important participation as borrowers. In 1860-65 around 15% of borrowers were state employees, mainly military personnel. In addition, farmers and landowners represented 17% of borrowers.

INSERT TABLE 1

According to our data of notarized contracts, loans were secured with a wide variety of assets (Table 2). Depending on the guarantee, mortgages could be "general" or "special". Practically all loans indicated that the borrower would secure the loan with all present and future assets. If a loan was only secured with "all present and future assets", then the contract was called "general mortgage". Garcia-Calderon (1968) indicated that these general mortgages were not actual mortgages: they were just like any loan, since using all present

[30] We looked at some notaries, whose registration books are stored in the National Archives of Peru, at Lima.
[31] We report this information only for 1860-65 because we counted with other sources (in particular, Fuentes, 1860) to identify the occupations of many lenders and borrowers.
[32] Camprubí (1957).

and future assets as a guarantee was legally the same as not specifying any collateral. Other contracts included a precise specification of the collateral of the loan. The specific guarantees consisted of real-estate properties, leasing contracts, machinery, merchandise, and even the borrower´s salary. If a loan was secured with a specific guarantee, the contract was called "special mortgage".

In the 1830s and early 1840s mortgage loans were mostly "general mortgages". In 1835-45 around 44% of loans were general mortgages. General mortgages may have been so ambiguous that did not represent a binding obligation. The importance of general mortgages, however, declined over time. By 1856-65, only 11% of loans were general mortgages.

An important number of loans were secured with urban estates. In 1835-45, urban loans accounted for almost 29% of the total number of loans, respectively. The importance of urban estates as a guarantee for mortgage loans increased over time. In 1856-65, almost half of the loans were secured with urban estates. Meanwhile, loans secured with rural estates represented a smaller percentage of the sample. In average, loans secured with rural estates accounted for less than 10% of the total number of loans.

A significant number of loans were chattel mortgages, i.e. they were secured with leasing contracts, merchandise and machinery. In 1856-65, around 16% of loans were secured with urban and rural movable capital and merchandise. A large number of merchants, not owning a house or finca, secured their loans with the leasing contracts and merchandise in their stores. In December 1855, for example, Santiago Meyans borrowed 3,000 pesos from Juan del Busto, secured with his leasing contract or *derecho de llaves* in a store in Lima, as well as with the merchandise for sale in such store. Loans to farmers and landowners were also secured with movable capital. José Bonifacio Echenique, for example, borrowed 20,000 pesos from Jose María Urresti in February 1865, securing all movable capital in Hacienda Huacoy as well as with the leasing contract of the hacienda.

Salaries were also used as collateral for loans. In 1860, several state employees, especially members of the Army mortgaged their salaries. Salaries were especially important after the state enacted the *Ley de Reparación* in 1855, which recognized the debt from unpaid salaries to members of the Army. While the beneficiaries waited for the payment of their salaries, some lenders such as Alejo Esusinaga, Juan Sánchez, and José Paredes loaned them cash secured with the rights to those salaries. The contracts usually did not specify an

interest rate. Only one contract indicated that the discount was 70%. In particular, the debtor received 150 pesos but the obligation was for 500 pesos.

INSERT TABLE 2

4 The cost of credit

Risk influences interest rates, and institutions probably influence the risk of lending. Then institutional deficiencies and political instability in the 1830s and early 1840s probably increased the risk of default, leading to high interest rates. Consistently, our evidence indicates that interest rates reached very high levels in the 1830s and 1840s (Figure 1). The average nominal interest rate was above 20% in the 1830s and 1840s. In particular, the average nominal interest rate was 20.7% in 1835-45. For urban loans, the average nominal interest rate in 1835-45 was 23.6%. With these high interest rates, several investment projects were probably not profitable.[33]

Contemporary sources also indicated that in the 1830s and 1840s interest rates were high. In 1830 the Minister of Hacienda José María de Pando indicated that there was scarcity of specie and interest rates were high.[34] In his memoirs, President José Echenique also indicated that credit in the 1840s was scarce and interest rates were very high.[35] In particular, Echenique indicated that with only a few capitalists and with only one or other that speculated with "usury" rates of 2% or 3% per month, it was impossible to depend on credit to invest on rural estates or repair urban estates.[36]

INSERT FIGURE 2

As institutional uncertainties declined from the mid-1840s, the supply of funds may have increased more rapidly than the demand for funds.[37] As risk declined, interest rates declined. According to our data, nominal interest rates declined in the 1850s and 1860s.

[33] These rates were higher than in colonial times. According to Armas (2002), annual interest rates in colonial times ranged between 6% and 8% per year, although informal lenders charged higher rates. Annual interest rates for deposits ranged between 4% and 5% per year (Armas, 2002, p. 153).

[34] De Pando (1831), p. 17.

[35] Echenique´s memoirs were published as Echenique (1952).

[36] Echenique (1952), Vol. II, p. 195. Macera (1977) also indicated that the interest rate was around 24% per year in 1832-39 and in the early 1840s. Meanwhile, Engelsen (1978) indicated that landowners an interest rate between 18% and 24% in the 1830s (p. 18).

[37] In this case, total credit would have increased more rapidly than in the 1830s and early 1840s. We have not estimated total credit. However, our data also indicates that loan sizes remained stagnant in the 1830s and increased from the mid-1840s.

Average nominal interest rates declined from 20.7% in 1835-45 to 16% in 1846-55 and 13.2% in 1856-65. Among loans secured with urban estates, average nominal interest rates declined from almost 24% in 1835-45 to 16.1% in 1846-55 and 14% in 1856-65.

Contemporary sources also indicated that the supply of funds increased in the 1850s and 1860s and thus interest rates went down. By 1869, for example, Nicolás Rodrigo indicated that annual interest rates declined from 24% in 1830 to around 12% in 1854-70 as loanable funds became more available. In particular:

> "The Peru today has more money than in previous years is a tangible truth that is showed everywhere by the material progress of the country, and the easiness, with which many companies are formed, even those that can provide only distant profits … So that by the years 30 [1830] and 32 [1832] as money was scarce and therefore food products were cheap, the interest came to 24 percent; while subsequently and as money was abundant, the interest has come down to 12, 9 and even 8 percent … From the year 1854 to today, the interest of money has generally remained around 12%".[38]

Other contemporary sources also indicate that annual interest rate in Lima in the 1850s and 1860s was around 12% per year. Emilio Althaus indicated that the annual interest rate in 1854-70 was around 12% per year.[39] E. Ayulo indicated that the interest rate in 1854-70 was around 1% per month, except in some moments of abundance of capitals, when interest rates were lower.[40] Meanwhile, J. F. Lembecke indicated that the annual interest rate was 9%. According to Lembecke, at this rate "it was easy to find money".[41] Similarly, in the early 1860s José Arnaldo Márquez indicated that the annual interest rate in Peru ranged between 9% and 12%.[42] In his *Estadística General de Lima*, published in 1858, Manuel Fuentes

[38] Junta Municipal de Lima (1870), p. 8. The original text is the following: "Que el Perú tiene hoi más dinero que en años anteriores es una verdadera palpable que por todas partes demuestran el progreso material del país, y la facilidad, con que muchas empresas se realizan, aún las que solo utilidades lejanas pueden dar … Así es que por los años 30 y 32 en que el dinero escaseaba y eran por tanto baratos los productos destinados a la alimentación, el interés llegaba a 24 por ciento anual; al paso que posteriormente y a medida que el dinero iba abundando, el interés ha venido bajando hasta el 12, 9 y aun el 8 por ciento … del año 1854 acá, el interés del dinero se ha mantenido jeneralmente al 12 por ciento".
[39] Junta Municipal de Lima (1870), p. 15.
[40] Junta Municipal de Lima (1870), p. 14.
[41] Junta Municipal de Lima (1870), p. 12.
[42] Márquez (2003), p. 134. The first edition of this book was published in 1862.

indicated that mortgage rates ranged between 1% and 2% per month.[43] Meanwhile, Francisco García-Calderón indicated that the interest rate in Lima in the late 1860s —just prior to the creation of the Banco de Crédito Hipotecario, the first mortgage bank— was 1% per month.[44]

Commercial and mortgage banks appeared in the 1860s.[45] Some historians point to the appearance of those banks as a key factor in the expansion of credit markets (Camprubí, 1957; Engelsen, 1978). It is possible that the creation of banks had an important effect on the development of private capital markets. However, the evidence strongly suggests that interest rates had already declined prior to the creation of commercial and mortgage banks.

Nominal interest rates in Lima in the 1830s and 1840s were not only higher than the rates in the 1850s and 1860s. Nominal interest rates in those years of political instability and institutional insecurities were also very high for international standards. In the United States, for example, mortgage rates were usually below 11%. Eichengreen (1984) estimated that mortgage rates ranged between 7.4% and 8.6% in 1869-79, and between 6.2% and 7.4% in 1880-90; whereas Homer and Sylla (2005) reported that mortgage rates in the city of New York were 7% in 1869, 5.9% in 1879 and below 6% in the 1880s. Interest rates in Western Europe were also below 11%.[46] In Latin America, interest rates were usually higher than in the United States and Europe, but were still lower than those in Lima in the 1830s and early 1840s. According to Levy (2012), average interest rates in the state of Yucatan, Mexico, ranged between 10% and 16% in the 1870s, 1880s and 1890s.[47] Meanwhile, mortgage rates in

[43] Fuentes (1858), p. 328.

[44] García-Calderón (1868), p. 65. Macera (1877) also indicated that borrowers usually did not pay more than 12% per year and the trend of the interest rates was downward. This source also indicated that the interest rate was frequently between 8% and 9% in 1860 (Macera, 1877, Vol. IV, p. 130).

[45] The first commercial bank was the Banco de la Providencia, which started to operate in late 1862. Other banks of issue and discount were then created in the following years. By 1875 there were 13 commercial banks in Peru; most operated in Lima, a few in other cities. The first mortgage bank was created in 1866; four years later it was created the second mortgage bank.

[46] Mortgage rates in Paris were around 10% in the first half of the 19th century and 6% or less in Germany in 1820-75 (Homer and Sylla, 2005).

[47] In 1880, for example, the average interest rate to all borrowers was 10.6%. Then average interest rates were 15.9% in 1885, 12.5% in 1890 and 11.4% in 1895. In Mexico, usury laws were abolished in the early 1860s. In 1870, less than 20% of loans did not specify interest rates; in 1875 the percentage was less than 5%. Yet the average interest rate was far below 20%. Prior to 1860, in formal markets, nominal interest rates were low due to usury laws. However, it is possible that informal markets of credit charged much higher rates, especially considering the period of deep political instability during most of the 19th century. Wiemers (1985), for example, indicated that interest rates in agricultural mortgage and loan contracts were 4.9% in average in the state of Veracruz in 1822-67. Long-term rates on well-secured mortgages ranged between 8% and 9%, but short-term rates ranged between 12% and 40% per year (Wiemers, 1985, p. 537).

Bogota, Colombia, were around 12% per year;[48] whereas in Medellin commercial houses charged rates between 8% and 12% and individuals charged up to 18% per year.[49]

Inflation is usually one important element in explaining nominal interest rates: in the presence of high inflation, creditors add a substantial premium to the real interest rate and thus nominal interest rates tend to be high. Inflation, however, cannot account for the evolution of nominal interest rates in Lima. In fact, in the 1830s and early 1840s the Peruvian economy did not go through an inflationary process: in the period 1830-45 there was inflation only in 1836, 1837 and 1844. In 1835, 1838-43 and 1845, prices went down every year. Overall, prices fell by 12% between 1830 and 1840 and by 7% between 1840 and 1845. On the contrary, prices went up in the 1850s and 1860s: annual inflation was 0.1% in 1845-50, 4.8% in 1850-55, 22% in 1855-60 and 3.1% in 1860-65. Then nominal interest rates in the 1850s and 1860s were much lower than in the 1830s and 1840s in spite of the increase in inflation from 1850.

Expected changes in the relative value of the currency may have influenced nominal interest rates. Expected currency depreciation in the 1830s and 1840s may have come from the fact that feeble pesos circulated in the Peruvian economy. It is then possible that borrowers attempted to repay their loans in these feeble pesos issued in Bolivian mints, which would have pushed nominal interest rates up. A better organized monetary system was achieved in 1863 when the peso was replaced by the sol as official currency. One might argue that only in 1863 monetary uncertainty vanished; the reduction in nominal interest rates, however, occurred prior to 1863.

Therefore, interest rates reached high levels in the 1830s and early 1840s probably due to political uncertainties. Interest rates then declined in the 1850s and 1860s probably due to the stabilization of the country. Certainly, a simple comparison of means may be misleading. Other factors may have impacted the cost of credit. An econometric multivariate analysis is then useful to determine the factors that explain the differences in interest rates in 1835-65.

5 Multivariate analysis

[48] This is the rate charged by private lenders prior to the creation of the Banco de Bogota in 1871 (Romero, 1992, p. 39).
[49] These rates were charged in Medellin prior to the creation of the Banco de Antioquia in 1871 (Botero-Restrepo, 1985, p. 109).

This section analyzes the impact of political instability on interest rates. Table 3 lists the variables included in the econometric analysis and Table 4 reports the main statistics. INTEREST is the annual nominal interest rate. This variable ranges between 0% and 101%, with a mean of 15.3% and a standard deviation of 9.4%.

Institutional factors are included as explanatory variables. One of them is WAR. This is a dummy variable that adopts a value of one if the country was at war (war against another country or civil war) during the year and zero otherwise. The effect of this variable on INTEREST may be positive. WARLONG is a dummy variable that adopts a value of one if the country was at war during the year or during the last three years, and zero otherwise. This variable captures the long-term effect of wars. Including WARLONG is important because it is possible that interest rates responded to long-term changes in institutions rather than short-term changes. If, for example, a country went through a period of deep political instability, it is possible that soon after the pacification of the country lenders kept charging high interest rates, and that the risk of lending declined only after a number of years of political stability. If this was the case, WARLONG would have a higher and more significant impact on INTEREST than WAR.

Another institutional variable is LNPRES, the natural log of the number of presidents or heads of government, including interim heads of government if they were in power more than one month. This variable captures political instability. A much greater value of LNPRES may have been associated with greater political instability, greater risk of lending and higher interest rates. I also included LNPRESLONG which is equal to the natural log of the number of presidents in the year and in the previous three years. The variable COUPS is the number of coups in a particular year, whereas COUPSLONG is the number of coups in a particular year and in the three previous years. The effect of LNPRES, LNPRESLONG, COUPS and COUPSLONG on INTEREST may be positive.

Another institutional variable is CODE1851. This is a dummy variable that adopts a value of one for 1851-65 and zero for 1835-50. This variable captures the effect of the Civil Code of 1851, which defined property rights better than previous legislations and probably reduced uncertainty in credit markets. The effect of CODE1851 on INTEREST may be negative.

One control variable is GDPG, which measures the growth rate of GDP. The growth of the economy may have impacted the cost of credit, but the sign of the net effect is

ambiguous. On the one hand, faster growth may have led to a faster accumulation of savings, increasing the supply of loanable funds and reducing interest rates. On the other hand, economic growth may be associated with a greater demand for loanable funds, which may have pushed interest rates up. I also include EXPG which is the growth rate of the value of exports.

I also control for the size and maturity of the loan by including LNSIZE and LNMATURITY. One potential problem with LNSIZE is that it may be endogenous to interest rates. I deal with this issue with an instrument for LNSIZE. The instrument is LENDER_FEM. Since women probably had less wealth than men, they may have loaned smaller amounts than men. LENDER_FEM may then have a negative effect on LNSIZE. In addition, LENDER_FEM is exogenous to INTEREST: that interest rates were high may attract savers to lend; but women were not necessarily more attracted than men to loan their funds.

Other control variables are INFLATION, DEBTOR_FEM, and RELIGIOUS. INFLATION may have a positive effect on INTEREST. DEBTOR_FEM would have a positive effect on the dependent variable is there was discrimination against women. RELIGIOUS controls for the fact that priests and religious institutions may have charged lower interest rates than other lenders. I also control for the type of security by including dummies. These dummies are URBAN, RURAL, WAGE and GENERAL.

Let us analyze whether LNSIZE is endogenous to INTEREST. Table 5 reports OLS and 2SLS estimates for INTEREST as dependent variable. In the 2SLS regressions, LENDER_FEM is the instrument for LNSIZE. Table 6 reports first-stage results which show that LENDER_FEM has, as expected, a negative and significant effect on LNSIZE. The second-stage results in Table 5 are similar to OLS estimates. For example, the estimates for LNPRES are 0.0123 in column 1 (OLS regression) and 0.0127 in column 2 (2SLS regression); moreover, both coefficients are significant at 5%. In addition, the estimates for WARLONG are 0.0138 in column 3 (OLS regression) and 0.0123 in column 4 (2SLS regression). Also, estimating the models with OLS or 2SLS methodologies yields similar results for the other variables. Consistently, a Hausman test indicates that OLS estimates are not different from 2SLS estimates. The null hypothesis for this test is that the OLS and 2SLS coefficients are the same. For models 2 and 4, the Hausman statistic is 1.24 and 1.17, respectively. The p-value in both cases is 1.0, which means that at 5% one cannot reject the null hypothesis. Considering

that OLS estimates are not only consistent but also efficient, it is more appropriate to rely on the OLS estimations.

INSERT TABLE 5

INSERT TABLE 6

Column 1 in Table 5 indicates that the effect of WAR is positive and significant at 10%. In particular, the coefficient of WAR is 0.008, which implies that during wars interest rates were 0.8 percentage points higher than during peace. The coefficient of LNPRES is 0.0123 and significant at 5%. The results for CODE1851 indicate that interest rates were lower after the enactment of the Civil Code of 1851. In particular, interest rates were in particular 4.69 percentage points lower in 1851-65 than in 1835-50, controlling for other variables. Although 2SLS estimates are less efficient than OLS estimates, notice that the estimates for LNPRES and CODE1851 in model 2 are also significant. In addition, the model explains around 25% of the variance of interest rates.

Column 3 reports the results when including WARLONG, LNPRESLONG and COUPSLONG instead of WAR, LNPRES and COUPS. The inclusion of those three variables responds to the possibility that institutional factors may have a more important effect in the long-run than in the short-run. The estimate for WARLONG is 0.0138, positive and significant at 5%. In addition, the coefficient of COUPSLONG is positive and highly significant, whereas the effect of CODE1851 is negative and significant at 5%. In addition, notice that the estimates for WARLONG, COUPSLONG and CODE1851 in model 4 have the same signs as in model 3, and are also significant at 5%.

Column 5 reports OLS estimates when adding three lags for GDPG and EXPG. Not including lags of GDPG and EXPG may lead to miss-specification if interest rates are partly influenced by not only current economic growth but also by economic growth in previous years: economic growth in previous years may influence on the accumulation of savings (the supply of funds) and on the demand for funds. Including lags for GDPG and EXPG reduces the effect of WAR and makes its non-significant. The estimate for LNPRES, however, is still positive and highly significant. In particular, an increase of one unit in LNPRES increases INTEREST by 0.018. Having two presidents instead of one president increased interest rates by 1.3 percentage points. In addition, the estimate of CODE1851 is still negative and significant at 5%.

Column 6 includes WARLONG, LNPRESLONG and COUPSLONG. In this case, the estimate for WARLONG is positive and significant at 5% even after including the lags of GROWTH. The results indicate that wars increase interest rates by 3.2 percentage points. In addition, the coefficient of COUPSLONG is 0.016 and highly significant. The coefficient of CODE1851 is negative and significant at 5%. The results indicate that the adoption of the Civil Code of 1851 led to a reduction of 3.8 percentage points in interest rates.

The results in columns 5 and 6 deserve a special attention. The results indicate that WARLONG has a much higher and more significant effect on INTEREST than WAR. The evidence suggests that wars have a more important effect in the long run than in the short run. The fact that there were wars during a number of years increased the risk of lending. If the country then entered into a period of peace, the risk of lending did not decline immediately. It took a few years before lenders changed their expectations about the future and reduced the cost of credit.

On the other hand, the results in columns 1-6 show that either the number of presidents or the number of coups is significant, but not both variables. One possible explanation for this result is that these variables are correlated. For instance, the correlation between LNPRES and COUPS is 0.3, and the correlation between LNPRESLONG and COUPSLONG is 0.58. Importantly, in columns 1, 2, and 5 the coefficient of LNPRES is positive and significant; whereas in columns 3, 4, and 6 the coefficient of LNCOUPSLONG is positive and significant.[50]

Columns 7 and 8 report the results when including either COUPSLONG or LNPRES. In column 7, the coefficient of COUPSLONG is positive and significant at 1%, and in column 8 the coefficient of LNPRES is positive and significant at 10%. The differences in the significance suggest that COUPSLONG captures more of the variance of INTEREST than LNPRES. Importantly, as expected, both variables have a positive and significant effect on the dependent variable,[51] which indicates that continuous changes in the head of government and coups increased the risk of lending and the cost of credit.

[50] I estimated an additional model with the same variables from column 6, but including LNPRES instead of LNPRESLONG. The results are very similar: LNPRES is not significant, whereas WARLONG and COUPSLONG have significant coefficients.

[51] We also estimated a regression similar to model 8 but including LNPRESLONG instead of LNPRES. In that case, the coefficient of LNPRESLONG is only 0.0029 and is not significant at 10%. It them seems that LNPRES is more correlated with INTEREST than LNPRESLONG.

Figure 2 depicts the actual and estimated average interest rates for 1835-65. The estimated interest rates were calculated using the estimates in column 6. The results indicate that much of the variation and of the declining trend of interest rates is explained by the model. For instance, actual interest rates were in average 20.7% in 1835-45, 16% in 1846-55 and 13.2% in 1856-65; whereas the estimated interest rates were in average 20.5% in 1835-45, 16% in 1846-55 and 13.6% in 1856-65.

Therefore, the results indicate that institutional factors had an important impact on interest rates. The adoption of the Civil Code of 1851 had a significant effect on the cost of credit. This legislation explains around 4 percentage points of the decline in interest rates. Political instability also led to higher interest rates. Wars and continuous changes in the presidency or coups led to higher interest rates.

6 Conclusions

In recent years, notarial records have been more extensively employed for the study of private credit markets in the United States, Western Europe and Mexico. Notarial records have been employed to study the role of notaries as financial intermediaries, the participation of women in credit markets, the impact of revolutions, among other subjects. Notarial records for Peru are also available and allow us to study the development of private credit markets.

The evidence of more than 1,200 loans for 1835-65 strongly suggests that political institutions had a key impact on the development of the private credit market of Lima. In particular, political instability and institutional uncertainties led to high interest rates in the 1830s and early 1840s; whereas the rise of Ramón Castilla, political stabilization and the enactment of civil legislation, by providing a more secured system of property rights reduced interest rates. Even controlling for inflation, interest rates steadily declined as the country became more stable.

We cannot argue that political stabilization was the only factor that explains the growth of credit markets in the 1850s and 1860s. The growth of the economy probably also impacted the private credit market. As the Peruvian economy benefited from the guano boom in the 1850s and 1860s, more funds may have flown into the economy and more needs for credit may have appeared. The supply of and the demand for credit probably increased

as the economy grew. However, controlling by this and other variables, institutions had an important effect on interest rates.

The case of Peru confirms that political institutions had a deep impact on capital markets. Commitment to certain rules, however, did not act similarly to other economies. North and Weingast (1996), for example, consider the Glorious Revolution and the enactment of a constitution in 17th–century England as an example of the positive effect of commitment on the development of capital markets. In Peru, however, although political institutions mattered, constitutions did not play the same role as in 17th-century England. Peru in fact had seven constitutions between 1823 and 1860. In practice, the enactment of constitutions did not imply commitment to a certain set of rules.

In Peru constitutions cannot be considered exogenous. Civil wars and continuous political unrest may have been more exogenous than constitutions. There were constitutions throughout the 19th century. That they changed so rapidly was probably not only a symptom that they did not represent a strong commitment to a set of rules, but also a signal to economic agents. If individuals realized that constitutions did not represent a binding commitment, then the enactment of a new constitution itself did not represent a major change in the securing of property rights. It was probably not the enactment of the Constitution of 1855 which reduced the risk of lending, but the political stability —together with the abundance of fiscal resources— which sent a signal to estate owners, lenders and borrowers that both the probability of confiscation and the risk of lending would decline.

Data Appendix

Financial data

Notaries provide a very useful source of information of credit markets. Notaries registered all types of transactions, such as loans, sale, leasing contracts, inheritance, among others. The use of the notarial records can provide deep insights into the importance of credit markets in Lima.

This article relies on a sample of 1,244 new mortgage loans for the period 1835-65. I constructed the sample from notaries´ records, all of them taken from the National Archives of Peru (*Archivo General del Perú*) in the city of Lima. There are regional notaries outside of Lima. Our research has been exclusively based on evidence from the office in Lima.

From all notaries operating in the city of Lima, I selected three notaries: José de Selaya (1835-65), Ignacio Ayllón-Salazar (1835-37) and José Ayllón-Salazar (1837-1845). José de Selaya started his businesses in 1831 and ended in 1877. Ignacio Ayllón-Salazar was also an important notary, especially for the early 19th century: its businesses covered from the late 18th century until 1835. José Ayllón-Salazar continued the businesses of Ignacio until 1852. The selection of the notaries was not random. I include loans by Selaya because this was one of the main notaries for this period. I included the data from Ignacio Ayllón and José Ayllón to have additional information for the 1830s and early 1840s.

I collected all loans granted by the three notaries between January and December in the selected years. The sample includes all new loans recorded by the three notaries. These loans were registered as *obligaciones*, *mutuos* and *hipotecas*. We analyzed each contract and only took into account new loans. Some contracts were registered as *obligaciones*, but were not loans; we did not include those contracts in the sample. Also, we did not include loans where it was not clear whether they were charging interest rates or not.

The sample of more than 1,200 loans is of a relatively considerable size. For instance, for 1860-65 notaries registered 3,974 *obligaciones*, *mutuos* or *hipotecas*. Our sample includes 712 of these contracts, which represents 18% of the entire population.

Moreover, to determine whether the results were robust, we included additional loans registered by other three notaries (Felipe Orellana, Francisco Palacios and Félix Sotomayor). Originally, we did not include those loans, because they mostly refer to 1860-65, and we wanted to have a balance sample. However, even after including the loans registered by Orellana, Palacios and Sotomayor, the main results do not change much (Table A.1). In particular, compare the estimates from column 5 in Table 5 and the estimates in column 1 in Table A.1. Also, compare the estimates from column 6 in Table 5 and column 2 in Table A.1. One can notice that there are no large differences in the results, in particular regarding the institutional variables.

All loans include information on the size of loans. The original figures are in pesos until 1862 and in soles or pesos in 1863-65. The official currency in Peru until 1862 was the silver peso. However, it seems that the common currency was the feeble peso, minted in Bolivia, which had less specie than the Peruvian peso. In 1863 the government established a new currency: the silver sol. One feeble peso was equivalent to 0.8 soles and one silver peso was equivalent to one silver sol. For the loans with amounts in pesos, I converted those

amounts to soles using the equivalence one peso = 0.8 soles. In addition to including the names of the lenders and debtors and the amount of the loan, most loans included the maturity of the loan, the interest rate, and the mortgaged asset. Sometimes contracts also included the actual date of payment and the purpose of the loan.

To complete the information on residences, and occupations, we relied on secondary sources, especially Fuentes (1860, 1863) and Lemale (1876).

Other variables

Information on wars comes from Sarkees and Wayman (2010). These authors report the years in which a number of countries were involved in all types of wars.

Data on coups comes from Tantaleán (2011).

Data on the number of presidents and heads of government comes from Basadre (1983). I included interim heads of government if they remained in power during more than one month.

Information on GDP comes from Seminario, Alva and Ponce (2010). These authors estimate GDP from 1830 in constant dollars of 2000 until recent years.

Data on export values comes from Randall (1977) and Micthell (1998). Exports are in silver pesos and silver soles. Since silver pesos and soles had the same specie content, I assumed that the exchange rate was one sol = one silver peso. Notice, however, the difference with feeble pesos, the circulating means of payment until 1862: one feeble peso was equivalent to 0.8 silver pesos or 0.8 soles. Exports and imports were probably transacted in pure silver or gold coins,

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Table 1

Distribution of loans by gender and occupation of lenders and borrowers

	Lenders	Borrowers	Total
Men and companies	83.9%	76.0%	80.0%
Merchants	51.3%	26.7%	39.0%
Hacendados and farmers	3.3%	17.2%	10.3%
Artisans and laborers	0.7%	1.7%	1.2%
State employees	3.6%	15.1%	9.4%
Professionals	3.5%	5.8%	4.6%
Proprietors	3.0%	5.6%	4.3%
Others	1.3%	2.8%	2.1%
Non-identified	17.2%	1.2%	9.2%
Women	16.1%	24.0%	20.0%

Notes: A large number of contracts specify the occupation of lenders and borrowers. Fuentes (1860, 1865) and Lemale (1873) were also used to identify the occupations.
1/ Includes men and companies. 2/ Includes *hacendados* and other individuals dedicated to agriculture. 3/ Includes employees from the state bureaucracy and military personnel. 4/ Includes lawyers, medical doctors, teachers, etc. 5/ Includes proprietors of urban estates, such as houses and *fincas* without other specified occupation. Proprietors of *haciendas* are included in the item "*Hacendados* and farmers".

Table 2

Distribution of loans by type of guarantee

	1835-45	1846-55	1856-65
Urban estates	28.5%	39.3%	44.2%
Rural estates	6.8%	6.1%	10.0%
Chattel	13.1%	14.7%	15.6%
Wages	0.4%	2.2%	8.7%
Others	5.0%	6.0%	4.5%
General	44.0%	23.0%	11.4%
Non-specified	2.3%	8.8%	5.7%

Source: National Archives of Peru. See data appendix for more information.

Table 3
List of variables included in the econometric model

Variable	Description
INTEREST	Annual interest rate.
WAR	Dummy variable. It adopts a value of one if the country was at war and zero otherwise.
WARLONG	Dummy variable. It adopts a value of one if the country was at war during the year or during the three previous years and zero otherwise.
LNPRES	Natural log of the number of presidents.
LNPRESLONG	Natural log of the number of presidents during the year and during the three previous years.
COUPS	Number of coups.
COUPSLONG	Number of coups in the year and during the three previous years.
CODE1851	Dummy variable. It adopts a value of one for 1851-65 and zero for 1835-50.
GDPG	Annual growth rate of GDP.
EXPG	Annual growth rate of the value in dollars of exports.
INFLATION	Inflation rate.
PERSONAL	Dummy variable. It adopts a value of one if the lender and debtor had family or business ties, and zero otherwise.
DEBTOR_FEM	Dummy variable. It adopts a value of one if the debtor was a woman, and zero otherwise.
RELIGIOUS	Dummy variable. It adopts a value of one if the lender was a priest or a religious institution, and zero otherwise.
URBAN	Dummy variable. It adopts a value of one if the guarantee is an urban estate, and zero otherwise.
RURAL	Dummy variable. It adopts a value of one if the guarantee is a rural estate, and zero otherwise.
WAGE	Dummy variable. It adopts a value of one if the guarantee is the wage of the debtor, and zero otherwise.
GENERAL	Dummy variable. It adopts a value of one if the mortgage was general, and zero otherwise.
LNSIZE	Natural log of the size of the loan (in soles).
LNMATURITY	Natural log of the maturity of the loan (in years).
LENDER_FEM	Dummy variable. It adopts a value of one if the lender was a woman.

Table 4

Descriptive statistics

Variable	Mean	Standard deviation	Maximum	Minimum	Number of observations
INTEREST	0.1534	0.0939	1.0122	0.0000	1594
WAR	0.4014	0.4903	1.0000	0.0000	1993
WARLONG	0.6578	0.4746	1.0000	0.0000	1993
LNPRES	0.6006	0.5192	1.7918	0.0000	1993
LNPRESLONG	1.3651	0.5013	2.1972	0.0000	1993
COUPS	0.2825	0.5588	2.0000	0.0000	1993
COUPSLONG	1.1204	1.4725	5.0000	0.0000	1993
CODE1851	0.6774	0.4676	1.0000	0.0000	1993
GDPG	0.0190	0.0363	0.1069	-0.0558	1993
EXPG	0.1073	0.2362	1.0245	-0.1526	1993
INFLATION	0.2408	0.4572	2.0000	0.0000	1993
PERSONAL	0.0221	0.1470	1.0000	0.0000	1993
DEUDOR_FEM	0.2383	0.4262	1.0000	0.0000	1993
RELIGIOUS	0.0166	0.1276	1.0000	0.0000	1993
URBAN	0.4191	0.4935	1.0000	0.0000	1878
RURAL	0.0900	0.2862	1.0000	0.0000	1878
WAGE	0.0564	0.2308	1.0000	0.0000	1878
GENERAL	0.2295	0.4206	1.0000	0.0000	1878
LNSIZE	7.2786	1.2725	11.2898	3.6889	1943
LNMATURITY	0.0761	0.8730	2.8064	-4.7875	1686
LENDER_FEM	0.1962	0.3972	1.0000	0.0000	1993

Table 5

Dependent variable: INTEREST

	1	2	3	4	5	6	7	8
	OLS	2SLS	OLS	2SLS	OLS	OLS	OLS	OLS
WAR	**0.0080** *	0.0061			0.0030			
	0.0047	0.0050			0.0076			
	1.72	*1.22*			*0.40*			
WARLONG			**0.0138** **	**0.0123** **		**0.0320** ***	**0.0293** ***	**0.0307** ***
			0.0055	0.0058		0.0092	0.0091	0.0093
			2.51	*2.14*		*3.47*	*3.23*	*3.29*
LNPRES	**0.0123** **	**0.0127** ***			**0.0188** ***			**0.0122** *
	0.0048	0.0049			0.0062			0.0063
	2.57	*2.61*			*3.03*			*1.93*
LNPRESLONG			-0.0059	-0.0024		-0.0101		
			0.0059	0.0068		0.0065		
			-0.99	*-0.35*		*-1.55*		
COUPS	0.0023	0.0024			-0.0008			
	0.0046	0.0047			0.0052			
	0.49	*0.51*			*-0.15*			
COUPSLONG			**0.0154** ***	**0.0134** ***		**0.0160** ***	**0.0116** ***	
			0.0038	0.0043		0.0048	0.0038	
			4.10	*3.14*		*3.36*	*3.03*	
CODE 1851	**-0.0469** ***	**-0.0394** ***	**-0.0311** ***	**-0.0256** ***	**-0.0417** ***	**-0.0380** ***	**-0.0394** ***	**-0.0512** ***
	0.0060	0.0091	0.0073	0.0089	0.0072	0.0083	0.0083	0.0071
	-7.85	*-4.34*	*-4.29*	*-2.87*	*-5.81*	*-4.56*	*-4.76*	*-7.22*
GDPG	0.0347	0.0342	**0.1631** **	**0.1420** *	0.0575	**0.2969** ***	**0.2574** **	**0.1764** *
	0.0726	0.0736	0.0780	0.0814	0.0919	0.1027	0.0995	0.0935
	0.48	*0.46*	*2.09*	*1.74*	*0.63*	*2.89*	*2.59*	*1.89*
GDPG (-1)					0.1351	0.1364	**0.1414** *	0.1285
					0.0986	0.0836	0.0836	0.0845
					1.37	*1.63*	*1.69*	*1.52*
GDPG (-2)					0.0119	0.0081	0.0185	-0.0732
					0.1207	0.0971	0.0970	0.0931
					0.10	*0.08*	*0.19*	*-0.79*
GDPG (-3)					-0.1259	-0.1189	-0.1117	**-0.2536** ***
					0.1004	0.1083	0.1082	0.0971
					-1.25	*-1.10*	*-1.03*	***-2.61*** *
EXPG	-0.0038	-0.0022	0.0038	0.0044	-0.0107	-0.0093	-0.0116	-0.0338
	0.0096	0.0099	0.0097	0.0098	0.0129	0.0163	0.0163	0.0139
	-0.40	*-0.22*	*0.39*	*0.45*	*-0.83*	*-0.57*	*-0.71*	*-2.44*
EXPG (-1)					0.0024	-0.0077	-0.0107	-0.0204
					0.0123	0.0140	0.0139	0.0136
					0.19	*-0.55*	*-0.77*	*-1.50*
EXPG (-2)					-0.0139	0.0204	0.0183	0.0035
					0.0123	0.0135	0.0135	0.0131
					-1.13	*1.51*	*1.36*	*0.27*
EXPG (-3)					-0.0125 **	**0.0414** ***	**0.0349** **	0.0142
					0.0134	0.0142	0.0135	0.0155
					-0.93	*2.92*	*2.57*	*0.91*
INFLATION	-0.0098	**-0.0128** *	**-0.0379** ***	**-0.0373** ***	-0.0091	**-0.0443** ***	**-0.0376** ***	**-0.0246** ***
	0.0068	0.0073	0.0094	0.0096	0.0084	0.0109	0.0100	0.0089
	-1.45	*-1.74*	*-4.02*	*-3.90*	*-1.08*	*-4.08*	*-3.77*	*-2.78*
PERSONAL	-0.0014	0.0031	-0.0004	0.0037	-0.0007	-0.0049	-0.0046	-0.0037
	0.0182	0.0189	0.0181	0.0187	0.0182	0.0181	0.0181	0.0182
	-0.08	*0.17*	*-0.02*	*0.20*	*-0.04*	*-0.27*	*-0.25*	*-0.21*
DEBTOR_FEM	-0.0028	-0.0097	-0.0035	-0.0101	-0.0027	-0.0027	-0.0029	-0.0028
	0.0052	0.0081	0.0052	0.0081	0.0053	0.0052	0.0052	0.0052
	-0.54	*-1.19*	*-0.66*	*-1.25*	*-0.52*	*-0.52*	*-0.56*	*-0.53*
RELIGIOUS	**-0.0512** ***	**-0.0530** ***	**-0.0512** ***	**-0.0530** ***	**-0.0538** ***	**-0.0522** ***	**-0.0524** ***	**-0.0535** ***
	0.0152	0.0155	0.0151	0.0154	0.0152	0.0151	0.0151	0.0152
	-3.37	*-3.42*	*-3.39*	*-3.44*	*-3.53*	*-3.45*	*-3.47*	*-3.53*
URBAN	**0.0129** **	0.0103	**0.0139** **	**0.0113** *	**0.0133** **	**0.0141** **	**0.0142** **	**0.0133** **
	0.0059	0.0065	0.0059	0.0064	0.0060	0.0059	0.0059	0.0059
	2.16	*1.59*	*2.34*	*1.76*	*2.24*	*2.37*	*2.40*	*2.25*
RURAL	0.0134	**0.0205** *	0.0136	**0.0204** *	0.0126	0.0132	0.0130	0.0124
	0.0085	0.0107	0.0085	0.0106	0.0085	0.0085	0.0085	0.0085
	1.58	*1.91*	*1.61*	*1.92*	*1.48*	*1.56*	*1.53*	*1.47*
WAGE	0.0237	0.0113	**0.0291** *	0.0167	0.0254	**0.0288** *	**0.0278** *	**0.0269** *
	0.0155	0.0193	0.0155	0.0194	0.0156	0.0155	0.0155	0.0155
	1.53	*0.59*	*1.87*	*0.86*	*1.63*	*1.86*	*1.79*	*1.73*
GENERAL	-0.0044	-0.0047	-0.0047	-0.0049	-0.0036	-0.0048	-0.0047	-0.0051
	0.0069	0.0070	0.0069	0.0070	0.0069	0.0069	0.0069	0.0069
	-0.63	*-0.67*	*-0.68*	*-0.71*	*-0.52*	*-0.69*	*-0.68*	*-0.74*
LN_SIZE	**-0.0258** ***	**-0.0402** ***	**-0.0254** ***	**-0.0393** ***	**-0.0253** ***	**-0.0251** ***	**-0.0253** ***	**-0.0254** ***
	0.0019	0.0131	0.0019	0.0130	0.0019	0.0019	0.0019	0.0019
	-13.60	*-3.07*	*-13.41*	*-3.02*	*-13.19*	*-13.18*	*-13.29*	*-13.32*
LN_MATURITY	**-0.0131** ***	-0.0081	**-0.0123** ***	-0.0076	**-0.0134** ***	**-0.0125** ***	**-0.0128** ***	**-0.0133** ***
	0.0028	0.0053	0.0028	0.0052	0.0028	0.0028	0.0027	0.0028
	-4.73	*-1.53*	*-4.47*	*-1.47*	*-4.85*	*-4.56*	*-4.67*	*-4.83*
Constant	**0.3648** ***	**0.4686** ***	**0.3467** ***	**0.4461** ***	**0.3585** ***	**0.3355** ***	**0.3312** ***	**0.3564** ***
	0.0156	0.0945	0.0168	0.0934	0.0193	0.0209	0.0207	0.0182
	23.45	*4.96*	*20.63*	*4.78*	*18.61*	*16.07*	*16.00*	*19.60*
Hausman stat		1.24		1.17				
p-value		*1.00*		*1.00*				
R-squared	0.2535	0.2228	0.2610	0.2324	0.2577	0.2674	0.2662	0.2633
Adj R squared	0.2450	0.2139	0.2526	0.2236	0.2461	0.2559	0.2552	0.2523
F-stat	29.85 ***		31.06 ***		22.11 ***	23.25 ***	24.22 ***	23.86 ***
Chi-squared stat		294.01 ***		318.07 ***				
No.obs	1424	1424	1424	1424	1424	1424	1424	1424

Notes: The table reports OLS and 2SLS estimates for INTEREST as the dependent variable. For the 2SLS regressions, the instrument for LNSIZE is CREDITOR_FEM For each explanatory variable, the table reports three figures. The first figure is the estimator of the coefficient. The second figure is the standard error. The third figure is the t-stat for OLS regressions, and the Z-stat for 2SLS regressions.
Significance levels: *** 1%, ** 5%, * 10%.

Table 6

First-stage regressions. Dependent variable: LNSIZE

	1		2	
LENDER_FEM	**-0.4039**	***	**-0.4034**	***
	0.0725		0.0723	
	-5.57		*-5.58*	
WAR	**-0.1184**	*		
	0.0646			
	-1.83			
WARLONG			-0.1172	
			0.0768	
			-1.53	
LNPRES	0.0201			
	0.0668			
	0.30			
LNPRESLONG			**0.2453**	***
			0.0823	
			2.98	
COUPS	0.0209			
	0.0643			
	0.33			
COUPSLONG			-0.1376	
			0.0523	
			-2.63	
CODE 1851	**0.5013**	***	**0.3855**	***
	0.0820		0.1005	
	6.11		*3.84*	
GDPG	-0.0772		-1.5412	
	1.0088		1.0866	
	-0.08		*-1.42*	
EXPG	0.1089		0.0400	
	0.1334		0.1345	
	0.82		*0.30*	
INFLATION	**-0.1925**	**	0.0534	
	0.0937		0.1313	
	-2.05		*0.41*	
PERSONAL	**0.4185**	*	0.3989	
	0.2535		0.2521	
	1.65		*1.58*	
DEBTOR_FEM	**-0.4824**	***	**-0.4817**	***
	0.0717		0.0716	
	-6.72		*-6.73*	
RELIGIOUS	-0.1863		-0.1861	
	0.2114		0.2107	
	-0.88		*-0.88*	
URBAN	**-0.1409**	*	**-0.1410**	*
	0.0828		0.0828	
	-1.70		*-1.70*	
RURAL	**0.4752**	***	**0.4683**	***
	0.1175		0.1172	
	4.04		*4.00*	
WAGE	**-0.9075**	***	**-0.9362**	***
	0.2151		0.2151	
	-4.22		*-4.35*	
GENERAL	0.0139		0.0201	
	0.0962		0.0961	
	0.14		*0.21*	
LNMATURITY	**0.3660**	***	**0.3565**	***
	0.0375		0.0375	
	9.76		*9.52*	
Constant	**7.2719**	***	**7.1948**	***
	0.1047		0.1405	
	69.47		*51.22*	
R-squared	0.2044		0.2088	
Adj R squared	0.1954		0.1998	
F-stat	22.60	***	23.20	***
No.obs	1424		1424	

Notes: The table reports the results of first-stage regressions. The dependent variable is LNSIZE. For each explanatory variable, there are three figures. The first figure is the estimate, the second figure is the standard error, and the third figure is the t-statistic.
Significance levels: *** 1%, ** 5%, * 10%.

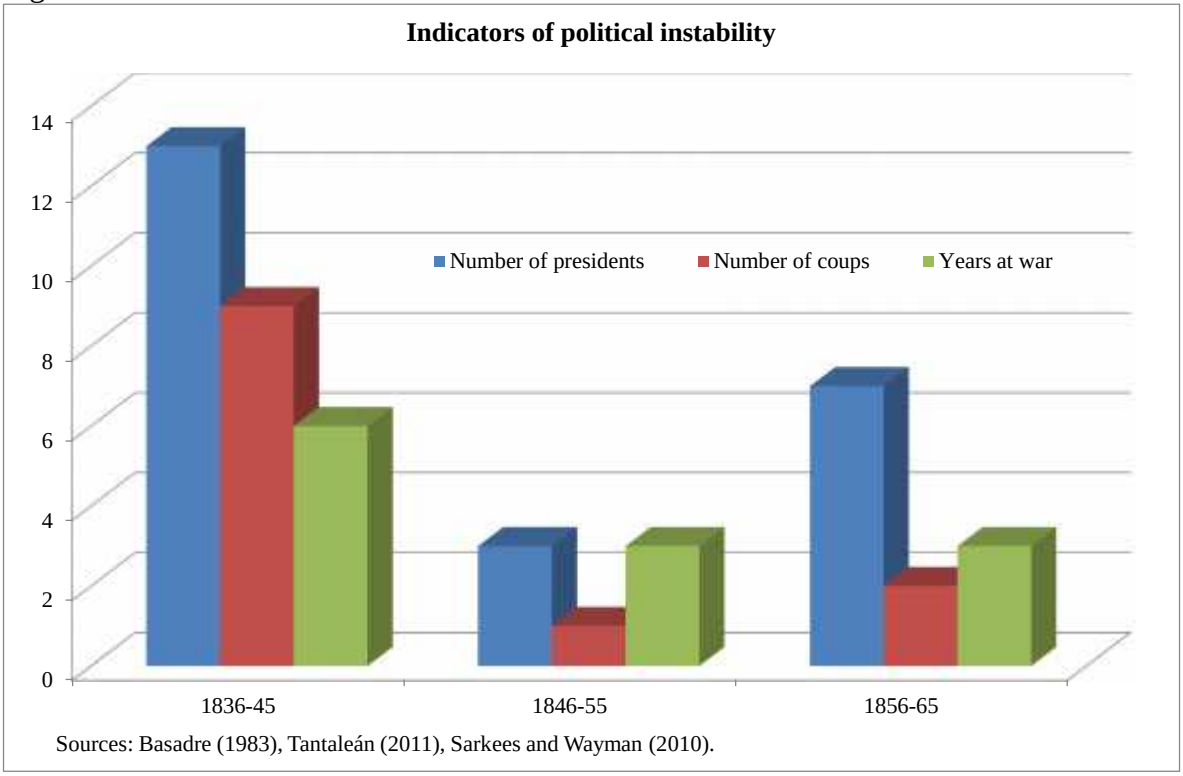
Table A.1

Dependent variable: INTEREST

	1		2	
WAR	0.0008			
	0.0083			
	0.10			
WARLONG			**0.0222**	**
			0.0093	
			2.39	
LNPRES	**0.0235**	***		
	0.0065			
	3.63			
LNPRESLONG			-0.0029	
			0.0063	
			-0.46	
COUPS	-0.0057			
	0.0044			
	-1.31			
COUPSLONG			**0.0142**	***
			0.0046	
			3.08	
CODE 1851	**-0.0404**	***	**-0.0371**	***
	0.0074		0.0074	
	-5.49		*-5.03*	
GDPG	0.0692		**0.2985**	***
	0.0997		0.1136	
	0.69		*2.63*	
GDPG (-1)	0.1695		0.1346	
	0.1040		0.0884	
	1.63		*1.52*	
GDPG (-2)	0.0826		0.1192	
	0.1246		0.0962	
	0.66		*1.24*	
GDPG (-3)	0.0155		0.1128	
	0.0912		0.0887	
	0.17		*1.27*	
EXPG	0.0039		0.0195	
	0.0105		0.0141	
	0.37		*1.38*	
EXPG (-1)	**0.0232**	**	0.0206	
	0.0111		0.0125	
	2.10		*1.64*	
EXPG (-2)	0.0069		**0.0402**	***
	0.0107		0.0124	
	0.64		*3.26*	
EXPG (-3)	**-0.0181**	*	**0.0341**	***
	0.0110		0.0121	
	-1.65		*2.82*	
INFLATION	-0.0009		**-0.0293**	**
	0.0088		0.0115	
	-0.11		*-2.55*	
PERSONAL	-0.0035		-0.0067	
	0.0170		0.0170	
	-0.20		*-0.40*	
DEBTOR_FEM	-0.0022		-0.0029	
	0.0044		0.0044	
	-0.50		*-0.66*	
RELIGIOUS	**-0.0498**	***	**-0.0482**	***
	0.0145		0.0145	
	-3.44		*-3.33*	
URBAN	0.0074		0.0080	
	0.0051		0.0051	
	1.45		*1.57*	
RURAL	0.0032		0.0040	
	0.0076		0.0076	
	0.43		*0.53*	
WAGE	0.0059		0.0076	
	0.0126		0.0126	
	0.47		*0.60*	
GENERAL	-0.0063		-0.0066	
	0.0063		0.0063	
	-0.99		*-1.05*	
LN_SIZE	**-0.0249**	***	**-0.0248**	***
	0.0017		0.0017	
	-14.89		*-14.91*	
LN_MATURITY	**-0.0128**	***	**-0.0123**	***
	0.0024		0.0024	
	-5.27		*-5.06*	
Constant	**0.3460**	***	**0.3182**	***
	0.0175		0.0187	
	19.78		*17.00*	
R-squared	0.1890		0.1908	
Adj R squared	0.1813		0.1831	
F-stat	24.47		24.76	
No.obs	2333		2333	

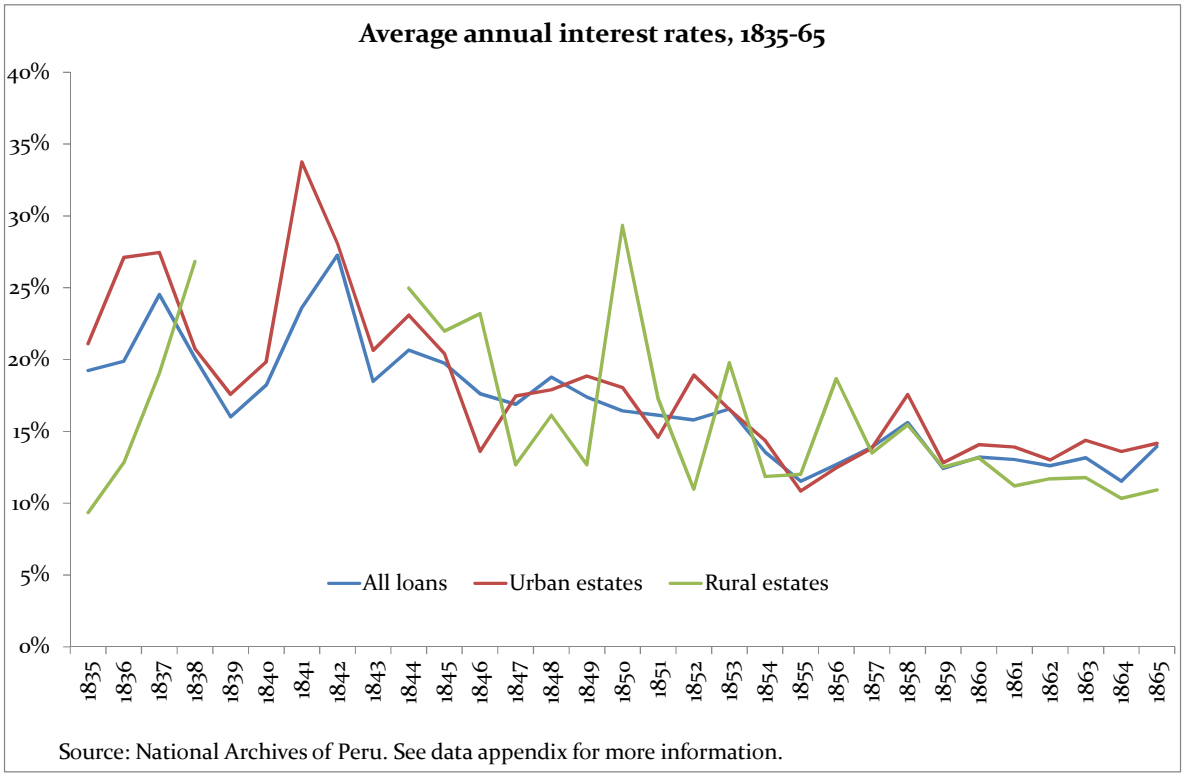
Notes: The table reports OLS estimates for INTEREST as the dependent variable. The table reports three figures for each explanatory variable. The first figure is the estimator of the coefficient. The second figure is the standard error. The third figure is the t-stat. The information on loans comes from the notaries of José de Selaya, Ignacio Ayllón, José Ayllón, Felipe Orellana, Francisco Palacios and Félix Sotomayor. For more information on the dataset, see the data appendix. Significance levels: *** 1%, ** 5%, * 10%.

Figure 1



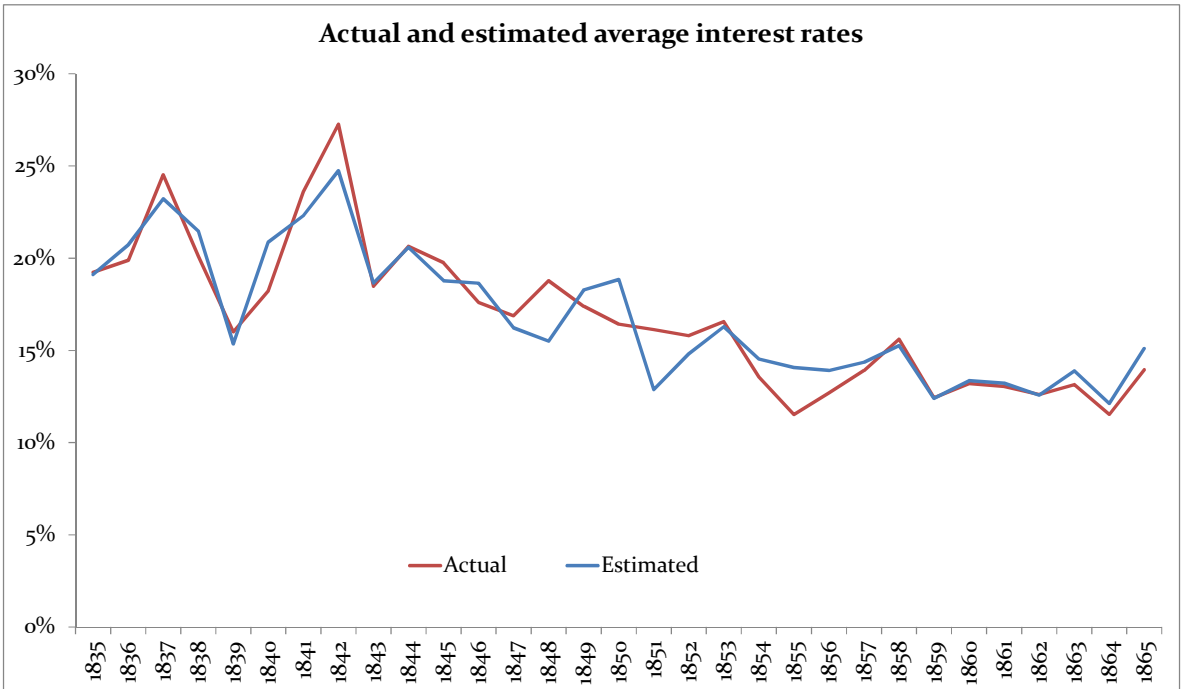
Sources: Basadre (1983), Tantaleán (2011), Sarkees and Wayman (2010).

Figure 2



Source: National Archives of Peru. See data appendix for more information.

Figure 3



Source: The information about loans comes from the National Archives of Peru. See data appendix for more information. Estimated interest rates were calculated using the estimates in column 6 in Table 5.