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Fragmentation of long-term credit markets in early modern Spain? Composite monarchies and their jurisdictions

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This paper studies the effect of jurisdictional barriers on the integration of long-term credit markets in early modern Spain. Overlapping jurisdictions were behind many jurisdictional disputes, which obstructed market development. Using a gravity model with a newly constructed dataset on long-term capital flows, I show that belonging to the same jurisdiction increased expected long-term capital flows almost tenfold. This result is similar to the observations of today's international trade. Even large interest rate differentials across jurisdictions do not reverse this pattern.

In August 1735, Don Joseph Doz and Doña Beatriz de Funes, residents of Tarazona in the Crown of Aragon (province of Zaragoza), borrowed 1,000 Aragonese pounds from the Cathedral of Tarazona, a tidy sum since the average loan in these regions was about 50 pounds.¹ In return, Don Joseph Doz, Doña Beatriz de Funes, and their descendants had to pay a 5 per cent annual interest rate until full repayment of the loan. However, earlier in that same year, 20 kilometres away in the Crown of Castile, the convent of Augustinian Recollects of Ágreda (province of Soria) had lent 26,000 reales, approximately 1,400 Aragonese pounds, to the city council at 3 per cent annual interest in January 1735.² This too was a tidy sum considering that the annual wage of a day labourer in Madrid was about 860 reales.³ So why did Don Joseph Doz and his wife not borrow from the convent of Augustinian Recollects in the Crown of Castile at a lower interest rate just 20 kilometres away from where the couple lived?

For North, who tries to think about the transition from feudalism to capitalism, markets developed when property rights were secured and transaction costs dwindled, that is, when the state became a major player in societies. The state, through the judicial and notarial institutions that it developed from the thirteenth century, assumed the role of contract enforcer and reduced transaction costs related to uncertainty and risk.⁴ Epstein gave an overview of this great economic transition. He especially argued that the development of legal systems in the late Middle Ages, along with state formation, gave rise to market development and economic growth.⁵ Legal institutions created the conditions for a credible and predictable justice. They guaranteed the enforcement of transactions, enabling a rational allocation of production factors that improved productivity.

¹ Archivo Histórico de Protocolos de Tarazona (thereafter AHPT), caja 447/01.

² Archivo Histórico Provincial de Soria (thereafter AHPS), caja 1755, vol. 2627. One Aragonese pound is equivalent to 19 reales.

³ A day labourer in Madrid earned, on average, around four reales per day (Pinto Crespo and Madrazo Madrazo, *Madrid*, p. 203). In keeping with Álvarez-Nogal and Prados de la Escosura, 'The decline of Spain', p. 327, I assume that day labourers worked between 180 and 250 days p.a. (for a full list of sources, see idem, 'The rise and fall', p. 7), which makes for an average of 215 days. As such, a day labourer in Madrid would have earned around 860 reales p.a. in the eighteenth century.

⁴ North, 'Institutions'.

⁵ Epstein, *Freedom and growth*.

Nevertheless, Epstein sticks to the observation of the norm and legal systems, without going back too much in the analysis of the enforcement of the former or the activity of the latter. In the case of Spain, the composite nature of the monarchy made for many jurisdictional disputes, causing delays and uncertainty in legal procedures despite the development of a system of norms and legal institutions from the fifteenth century. Most recently, Grafe showed that peripheral historic territories and powerful interior cities exacerbated jurisdictional obstacles to trade, hindering market integration.⁶ It might be the case that Don Joseph Doz and his wife could not borrow on the other side of the border because of strong jurisdictional barriers between Spain's historic territories.

To test this analysis, I explore the interaction between on the one hand, the judicial system, and on the other hand, private credit. Examination of long-term mortgage's credit markets offers a good observation of jurisdictional fragmentation as it provides a fundamental measure of transaction costs, and especially enforcement costs in the event of litigation.⁷ Grafe showed the importance of jurisdictional obstacles to internal trade in early modern Spain.⁸ They can also act as a deterrent to capital flows between jurisdictions. In the event of a dispute, overlapping jurisdictions increase the enforcement costs of a contract, which raises the risk of cross-border lending. This raises two questions: does the development of norms and legal systems say anything on its efficiency? More precisely, what was the impact of jurisdictional barriers on the coordination of legal systems and the integration of markets?

I

In the early modern period, Spain was divided into a number of historic territories: Castile and Leon, Aragon (including the Kingdom of Aragon, Catalonia and Valencia), Navarre, the Basque Provinces, and the Balearic islands (see Figure 1). Each of these territories had its own jurisdictional and legal systems.

The analysis of jurisdictional fragmentation as an obstacle to market development has been present in Spanish historiography since the 1990s. In this historiography, Spain is described as a composite monarchy which was a polity "including more than one country under the sovereignty of one ruler" and which meant "a profound respect for corporate structures and for traditional rights, privileges and customs".⁹ The king had to coexist with a myriad of smaller territorial and jurisdictional units jealously guarding their independent status. He did not have the monopoly of day-to-day coercion, and sovereign justice had to coexist with strong jurisdictions in highly specific fields such as tax collection, military levies, market regulations,

⁶ In *Distant tyranny*, Grafe analysed how different fiscal systems could create differentials in prices of goods at the city level *ceteris paribus*.

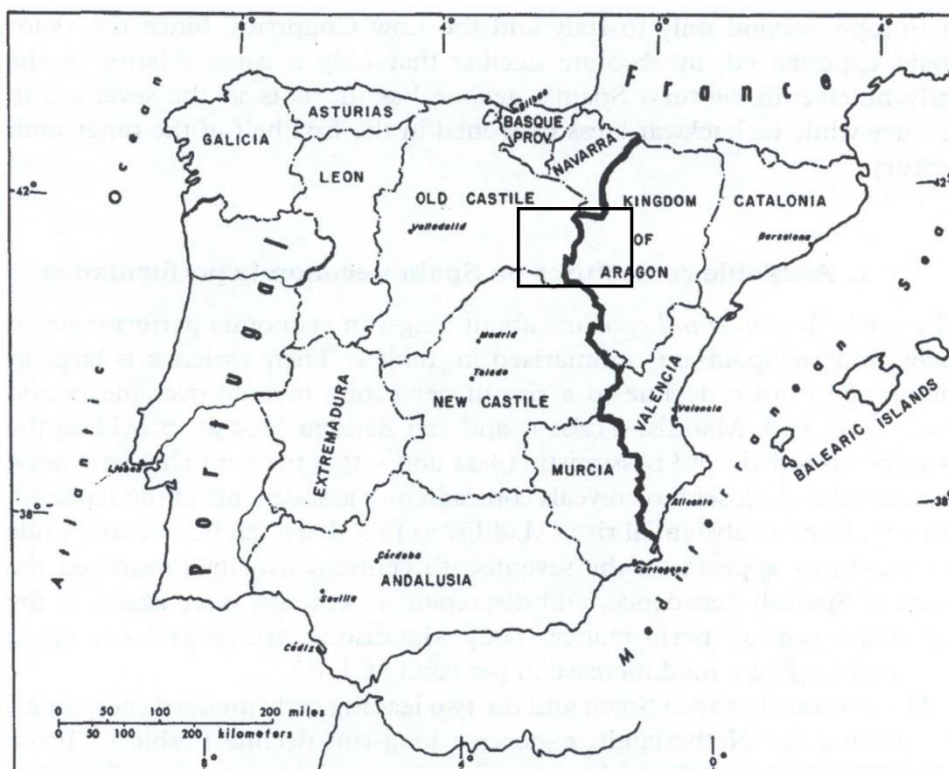
⁷ Too few studies examine Spain's capital market integration. Bernholz and Kugler, in 'Financial market integration', showed that between 1564 and 1603, deviations of up to six per cent between the Spanish Ducado and the Dutch Groat were possible between Seville and Medina del Campo. Álvarez-Nogal, in 'Oferta y demanda', looked at the market for public annuities between 1540 and 1740 and noticed high differentials in the rates of return. However, no one analysed long-term capital markets and related capital market fragmentation to jurisdictional fragmentation.

⁸ Grafe, *Distant tyranny*.

⁹ Elliott, 'Composite monarchies'; Koenigsberger, *Politicians and virtuosi*.

and civil and criminal law in general. Cardim *et al* even coin early modern Spain as a “polycentric monarchy”.¹⁰

Figure 1: Early Modern Spain



Note: The rectangle indicates the geographical area of study.

Constant negotiations between the king and the different bodies of the monarchy point to a fundamental aspect of the composite monarchy's political economy that was crucial in shaping the institutional framework in which economic activities would evolve. In all of the Spanish Habsburgs' possessions, negotiations were conducted between the centralizing power of the king and the local and corporate agents. Everywhere, political pacts emerged that entangled the nobilities, the cities and their oligarchies, the clergy and even some merchants and merchant corporations with the crown's interests. Non-monetary aspects were an essential element of these pacts. In Castile, Aragon, Catalonia, Valencia and Navarre, political pacts reached

¹⁰ Cardim *et al*, *Polycentric monarchies*. See also Herrero Sánchez, *La monarquía hispánica*.

between the crown and the elites and parliaments preserved the institutional system and even gave, not money, but greater autonomy and privileges to the towns and historic territories.¹¹

The repercussions of these political pacts are crucial to understanding the political economy of the composite monarchy. Among other things, they upheld the elite's coercive powers in most territories, particularly in Castile. Market development needs to be assessed from this angle. Elliott first wrote about seventeenth-century Spain that “the institutional and legal diversity of the kingdoms of the monarchy represented an intolerable impediment to ... maximize resources”.¹² He suggested here that jurisdictional fragmentation had been a serious obstacle to market development. Market formation is closely related to the evolution of transaction costs. By maintaining high transaction costs, jurisdictional fragmentation clearly held back the integration of capital markets in Spain. However, the impact of jurisdictional fragmentation has to be understood not only between kingdoms but also within, between cities where political power was concentrated. Yun Casalilla especially emphasized the role of urban oligarchies and cities as the keystone of the Spanish political system.¹³

In this paper, I examine Spain's legal systems and their level uniformity and cooperation which defines the extent to which jurisdictions were fragmented. To look at legal fragmentation is all the more important since Epstein argued that the road towards market integration passed by the development and uniformity of legal systems.¹⁴ The judicial system was shaped by the very nature of the composite monarchy. Despite the union of the Crown of Castile and the Crown of Aragon, both crowns continued to be treated as separate entities, and the monarchy remained divided across a variety of kingdoms. According to seventeenth-century Spanish jurist Juan de Solorzano Pereira, Spanish kingdoms were unified in the form of *aeque principaliter*, which preserved their own legal and political constitutions (*fueros*), and privileges.¹⁵ The accession of the new Bourbon dynasty to the Spanish throne in 1700, and the revolt of the Catalans, Aragonese and Valencians against its legitimacy (1701-15) did not change the rule. Even the promulgation of the Nueva Planta decrees by Philip V from 1707 to 1716 did not greatly affect the historic territories' legal systems.¹⁶ Despite later claims to the contrary, the Crown of Aragon retained its essentially constitutionalist and contractual character.¹⁷ The Catalans and the Aragonese kept their civil and most of their criminal law and only Valencia was somehow “castilianized”.¹⁸ Historic territories remained in many respects kingdoms apart, and saw no major changes to their traditional laws, institutions and customs prior to the mid-nineteenth century.

¹¹ Yun Casalilla, *Marte contra Minerva*, pp. 312-23.

¹² Elliott, ‘Composite monarchies’, p. 63.

¹³ Schaub, ‘La penisola iberica’ and Yun Casalilla, ‘Cambiamento e continuità’ provided an important bibliography on the subject. The works the most representative on the general vision of the Spanish monarchy are Fernandez Albaladejo, *Fragmentos*; Jago, ‘Habsburg absolutism’; idem, ‘Philip II’; Thompson, ‘Crown and Cortes’; idem, ‘Absolutism’. In more detail, Fortea Pérez, *Monarquía y Cortes*, illustrated relations between urban oligarchies and the monarchy, while Yun Casalilla studied the relationship between the monarchy and the nobility (see Yun Casalilla, ‘Aristocracia’, for the period before 1600 and idem, ‘La situación económica’ for the seventeenth century). Finally, Grafe and Irigoien challenged the vision of a predatory monarchy in the Spanish empire (Grafe and Irigoien, ‘Bargaining for absolutism’; idem, ‘A stakeholder empire’).

¹⁴ Epstein, *Freedom and growth*.

¹⁵ Elliott, ‘Composite monarchies’, p. 53.

¹⁶ These were a number of decrees enacted by Philip V to end the institutions, privileges and ancient charters of the provinces of the Crown of Aragon (Aragon, Catalonia, Valencia and Mallorca).

¹⁷ Elliott, ‘Composite monarchies’, p. 61.

¹⁸ Tomas y Valiente, *Manual de historia*, pp. 369-82.

The development of the royal justice system throughout the entire territory did not lift the jurisdictional obstacles between historic territories. In the fifteenth and sixteenth centuries, the *chancillerías* and *audiencias*, the main royal justice institutions, were developed and improved throughout the territory of Spain along with the number and professionalism of judges and *letrados*.¹⁹ The development of the main royal justice institutions was accompanied by the publication of legal codes such as the *Nueva Recopilación de Leyes*. This “legal revolution”, to use Kagan's words, created leeway to improve the enforcement of royal justice. The development of these institutions throughout the territory and the new legal codes should have paved the way to reduce transaction costs and improve the integration of markets.²⁰ However, analysis of these institutions’ activities and enforcement of the law tell a different story. Judicial cooperation was very limited between historic territories. Castilian *chancillerías* were not independent third parties. The balance of power and patronage in the Court made for a great deal of arbitrariness in the system, as shown by Owens in a famous legal case involving two powerful litigants, the city of Toledo and the Duke of Béjar.²¹ Laws claim to ensure impartiality, but judges relate to a particular social reality from which they cannot or do not want to escape. For instance, an analysis of the letters sent to Juan Manuel Villena, president of the *chancillería* of Granada in 1758, shows that the judge was involved in numerous social networks that influenced the court ruling.²² This was all the more true at local level.

In each judicial district (*partido judicial*), day-to-day justice was performed by *corregidores* or *alcaldes mayores* in the court of second instance (appeal) and by *alcaldes ordinarios* or *peatones* in the court of first instance.²³ In royal domains, the king (the *Cámara*) appointed the *corregidores* and *alcaldes mayores* from among the urban elite. In lordships, the Lord chose them. The *alcaldes ordinarios* or *peatones* were elected by the city council of each town or village and were then approved by the *corregidor* or the *alcalde mayor*.²⁴ The justice administration in early modern Spain clearly had the latitude for at least partial justice. Judges were entrenched in political and social networks and concerns. It is therefore worth analysing both the judges, whose office was not for sale unlike in France, for example, and the influence of administrative offices on court rulings. Gómez González showed how the sale of administrative offices in the *chancillería* of Granada influenced the application of justice. Many offices hence escaped royal control, including the *alcaldes* in the chamber of nobility (the *sala de hidalgos*), provincial notaries (secondary *chancillería* magistrates) and a fair number of subordinate posts such as collectors, court clerks and prosecutors. The consequences of this alienation of royal control were legion. The privatization of these offices led these officers to seek to make their investment profitable and sell their services for a fee.²⁵ The king's judicial system was therefore rooted in local and corporative concerns.

II

¹⁹ Kagan, *Lawsuits and litigants*.

²⁰ Epstein, *Freedom and growth*.

²¹ Owens, “*By my absolute royal authority*”.

²² Castellano Castellano and Gómez González, ‘Reflexiones sobre la justicia’.

²³ Heras Santos, ‘La organización de la justicia’.

²⁴ *Idem*, pp. 126-35.

²⁵ Gómez González, *La justicia*.

The impact of these jurisdictional differences can be observed within the legal framework that regulated long-term mortgage's credit and in particular debt collection procedures whenever a borrower failed to pay the rent.

Private credit transactions fell into the domain of royal courts.²⁶ The courts had to enforce the legal code where the trial took place.²⁷ If we come back to our first example, in case of any dispute, Agreda's judges would have had to comply with the legal code of Castile and Tarazona's judges would have had to enforce the Aragonese legal code. Examining debt collection proceedings when comparing these two legal codes, the only difference lay in the statute of limitations set at 30 years in Aragon and 10 years in Castile.²⁸ The rest of the proceedings were strictly similar under the two codes. Borrowers were consequently judged under a common jurisdiction (the royal jurisdiction) and by the same rules irrespective of whether their debt hearing was held in Aragon or Castile.

The existence of similar legal provisions across territorial jurisdictions does not actually reflect the problems lenders faced if the borrower lived in another jurisdiction. If the parties resided in two separate territorial jurisdictions, two scenarios were possible depending on whether the two jurisdictions were part of a same kingdom or not. The first scenario reveals a number of obstacles. To begin with, the judge was only competent in his territorial jurisdiction. For example, if the lender took the borrower to court in jurisdiction A and the borrower resided in jurisdiction B, then the borrower's assets could only be seized by a judge in the jurisdiction where the assets were located. So to seize them, the judge in jurisdiction A had to send a request, called *requisitoria*, to the judge in jurisdiction B for each judicial act (notification, sentence, foreclosure). Court cases were expensive at the time and any request entailed an additional fee.²⁹ Enforcement of the request was also uncertain. Local judges were elected within their own jurisdiction.³⁰ It would therefore be reasonable to assume that if Judge B received a request to sue one of his electors, he might have taken more time to enforce the request.³¹

Enforcement of legal proceedings for the lender became even more uncertain when both parties resided in separate kingdoms. Through to the end of the fifteenth century, extradition of offenders between kingdoms was in a way "voluntary" as no legal provisions existed regarding the matter.³² In the early modern period, the different kingdoms of the Spanish monarchy signed extradition treaties to regulate extradition and solve the problem. These treaties and legal provisions defined a precise framework for extraditions. Between the Kingdom of Aragon and

²⁶ Probably in order to restrict jurisdictional disputes in credit transactions, Castilian and Aragonese notaries used to insert a waiver clause when drawing up a contract. Both parties had to waive their local laws and customs and to submit to royal justice.

²⁷ Martínez, M. S. don, *Librería de jueces, última y universal* (Madrid, 7th edn. 1791), tome I, chap. II, p. 98.

²⁸ In Castile, debt collection proceedings were laid down in Volume V of the *Novísima Recopilación* (see the *Novísima Recopilación de Leyes de España*, tome V, book XI, pp. 169-302). Proceedings in Aragon derived from the *fueros* and especially the *proceso de aprehensión*. The *proceso de aprehensión* is one of the four *procesos forales* of Aragon. It is described in La Ripa, J. F. don, *Ilustración a los cuatro procesos forales de Aragón* (Zaragoza, 1764), part I, "Del Proceso de Aprehensión", pp. 1-218. Differences between Castile and Aragon are well described in Martínez, M. S. don, *Librería de jueces, última y universal* (Madrid, 7th edn. 1791), tome I, chap. I, II, and III; and especially pp. 470-1.

²⁹ For instance, the cost of one request in Madrid in 1828 was 20 reales (if it did not exceed two pages), plus eight reales for the judicial decree of enforcement. See Martínez Salazar, A. don, *Práctica de sustanciar pleitos ejecutivos y ordinarios* (Madrid, 5th edn. 1828), pp. 234-5.

³⁰ Heras Santos, 'La organización de la justicia', Lorenzo Cadarso, 'Los tribunales castellanos'.

³¹ Lorenzana de la Puente, 'Jueces y pleitos'.

³² Ferrer Mallol, *Entre la paz y la Guerra*.

Castile, extraditions concerned “capital offence, forgers ... murderers, etc.”, but never mentioned debt.³³

The absence of a clear legal framework governing extradition for debt collection sentences may have seriously undermined the effectiveness of a court sentences in debt collection cases. In addition to the absence of a legal framework governing extradition, it appears that requests were not efficiently implemented between kingdoms. In 1580, the Cortes of the Kingdom of Navarre complained in these terms:

In accordance with the law and ancient traditions of these kingdoms, when someone is absent, and is called to court, we send a request (*requisitoria*) to notify him of his official summons. And it seems that ... those of the Kingdom of Aragon do not consent to notify the requests sent to this kingdom against those who reside in it. This is against the law, justice and good administration.³⁴

This complaint shows that the judges of Aragon did not act on requests from the judges of Navarre. This is not an isolated case. At the beginning of the eighteenth century, a trade conflict erupted between two Basque provinces: the province of Vizcaya and the province of Guipuzcoa. To put pressure on its neighbour, Guipuzcoa decided to stop acting on Vizcaya's requests.³⁵ This effectively blocked all legal disputes between the two provinces. Judicial cooperation was therefore restricted to the historic territories. Personal, commercial and political interests could hence impede the sound functioning of the royal justice system.

Even more importantly, it appears that natives could not be extradited to another kingdom within the Spanish monarchy. If Mr Y was a native of and resided in Kingdom B and was sued by Mr X in Kingdom A for debt, the former could not be handed over to the latter's jurisdiction. For instance, Navarre's laws stipulated: “Firstly, the natives of this kingdom, for no reason whatsoever, either civil or criminal, can be expelled from it”.³⁶ In order to seize Mr Y's assets, Mr X would have had to sue Mr Y in Kingdom B: “In accordance with the law, offenders who commit a crime in another kingdom or province can be judged and sentenced in the place and the kingdom from whence they originate”.³⁷ Clearly, this could have been a source of many obstacles. Mr X would have had to go to Mr Y's kingdom in order to take him to court and prove his allegations. At best, he could have appointed a court agent to represent him, thereby avoiding long journeys. Second, if not the most obvious, local matters could have influenced the judge's decision in favour of Mr Y.

On the borrower's side now, another obstacle lies in the fact that proceedings took place in the jurisdiction where the lender filed the suit. Borrowers then either had to go to the court in person to defend themselves or appoint an attorney to represent them before the court, assuming that borrowers had the necessary connections in the jurisdiction where the hearing took place. This no doubt acted as a deterrent to borrowers when it came to taking out a loan in a different jurisdiction.

³³ A full list can be found in *Novísima Recopilación*, II, VIII, pp. 414-5.

³⁴ Own translation. *Novísima Recopilación de Navarra* (1735), tome II, "Proceder contra los ausentes", p. 681.

³⁵ Lasa, 'Notas', p. 512.

³⁶ *Novísima Recopilación de Navarra* (1735), tome II, "Proceder con los Ausentes", pp. 686--7

³⁷ *Idem*.

Application of the law was therefore uncertain if parties came from different jurisdictions. Legal risk and enforcement costs were much higher, which definitely increased transaction costs. Clearly, these differences affected long-term capital markets, especially small loans for which fixed transaction costs were proportionally higher. Two main hypotheses derive from this analysis. First, formal institutional barriers were a major obstacle to capital flows between kingdoms (H1). Second, informal institutions restricted capital flows within kingdoms between different courts (H2).

III

In this section, I examine the impact of jurisdictional barriers between kingdoms -- the first level of jurisdictional fragmentation -- on capital market integration (H1). I consider the mortgage's credit market in two neighbouring kingdoms, the Crown of Castile and the Kingdom of Aragon. The examination of capital flows between these two regions proves exceptionally rewarding, since interest rates between them differed by two percentage points during the first half of the eighteenth century.

Like many other regions in Europe, the predominant instruments of long-term private credit in Spain were redeemable annuities (*censos consignativos*).³⁸ The *censo* was a mortgage-backed loan which can be compared to the French *rente constituée* or the Italian *censo consegnativo*. The contract was supported by collateral that could be a real asset such as a land, a farm, a house, or another mortgage loan. One of the characteristics of the *censo* was that the lender could not demand the capital from the borrower: the latter repaid the capital whenever he wanted. This was the only debt instrument that could involve the explicit payment of interest, as long as this did not exceed a legal maximum rate.³⁹ In the crown of Aragon, the *censos consignativos* were called *censales*. *Censos* and *censales* were exactly the same kind of mortgage-secured loans. Contemporaneous notaries used to draw them up with the same terms and conditions to the extent that they can be considered as substitutes.⁴⁰

Interest rates on these loans were regulated by public authorities (the Cortes and the king), which set an interest cap. Interest rates on loans could be set below the cap, but not above it. Crucially, in Spain, this cap differed nationwide from 1705 to 1750. On 12 February 1705, Philip V reduced the interest cap from 5 to 3 per cent in the Crown of Castile for *censos*, but kept it at 5 per cent in the Crown of Aragon through to 1750 for *censales*.⁴¹

³⁸ For the dominance of *censos* in eighteenth-century long-term capital market, see Tello Aragay, "El papel del crédito rural", p. 10, for a list of authors; Ruiz Martín, *La Banca*. Three types of *censos* co-existed in early modern Spain. The *censo enfiteútico* was a loan-lease contract. It was generally a lifetime or perpetual loan. Another legally defined *censo* was the *censo reservativo*, the sale of a property by credit. These were two forms of indirect credit. By the sixteenth century, a new form of *censo* became popular. It was the legally defined *censo consignativo* and the only one akin to a mortgage (Quiroz, "Reassessing the role of credit"). In the rest of the paper, I will use the word *censo* instead of *censo consignativo* for convenience.

³⁹ Fiestas Loza, "El censo consignativo".

⁴⁰ For Castile, see Febrero, J. don, *Librería de escribanos, é instruccion juridical theorico práctica de principantes* (Madrid, 1789), part I, tome II, chap. V, pp. 185-303. For Aragon, see Alliaga Bayod y Salas Guasqui, M. don, *El escribano perfecto, espejo de escribanos teorico-practico* (1789, Tarragona), tome II, pp. 7-135. For a complete list of contemporaneous notaries' books, see Luján Muñoz, "La literatura notarial".

⁴¹ As soon as the king enacted his royal order, the interest rate was reduced to 3 per cent on all existing and future *censos* in Castile.

The king's decision to lower the maximum legal rate was not taken overnight. It was the result of a balance of power that progressively tipped in favour of indebted landowners, urban classes and cities (represented by the Cortes) against ecclesiastical institutions.⁴² However, the reduction was not extended to the Crown of Aragon. Aragon had its own representative assemblies, at least through to 1707, and any such reform would also have had to have been approved by these assemblies before being able to be enforced in the realm. In addition, the reform came in the midst of the War of the Spanish Succession that divided Spain between Castile in support of Philip V and Aragon in support of the Habsburg monarch.⁴³ When the war ended in 1714, the question of extending the reform to Aragon was raised.⁴⁴ However, the systematic opposition of the Aragonese Church delayed enactment of the interest rate cap reduction until 1750.⁴⁵ A large gap therefore stood between the two crowns for 45 years.

The differential could reasonably be expected to have triggered critical capital flows between Aragon and Castile during this period. Lending at 5 per cent might allow for riskier projects, whereas more collateral may be required at 3 per cent.⁴⁶ On the one hand, lower risk borrowers would therefore go to the Castilian side or the interest rate in Aragon would have converged towards the interest cap of Castile (H1a). On the other hand, higher risk borrowers would go to the Aragonese side (H1b).

To test these hypotheses, I selected a number of cities in the two neighbouring provinces of Soria in Castile and Zaragoza in Aragon. I chose them within a 20-kilometre radius from the border to limit transport cost issues and capture the jurisdictional effect on capital flows.⁴⁷ This corridor has also certain advantages in terms of similar geographic conditions and no major geographic obstacles. I also checked for the existence of transport networks between the two provinces. Given the availability of sources, I recorded all the mortgages registered in notaries' records signed in 1725 and 1735 in three cities (Ágreda, Noviercas and Ólvega) in the province of Soria (Old Castile) and one city (Tarazona) in the province of Zaragoza (Aragon).⁴⁸ I chose these years as being far enough away from the 1705 rate cap reduction reform in Castile, the end of the war between Castile and the Kingdom of Aragon in 1707, and the implementation of the rate cap reduction in Aragon in 1750.

I observed 56 *censos consignativos* in Castile and 32 *censales* in Aragon. Mortgage credit activity was actually quite substantial since these cities were relatively small and this type of

⁴² Alvarez Vázquez, "El memorial" and idem, *Rentas*, pp. 279-91. Ecclesiastical institutions were the main providers of long-term credit.

⁴³ This assessment is clearly made by the royal order of 1750: "Remaining the crown of Aragon with the same interest of 5 per cent, because the situation in which it was found, did not allow for such a reduction".

⁴⁴ Again, this is clear from the royal order of 1750: "and once abolished its *fueros* ... many doubts were raised as to whether the reform could be extended to it [the Crown of Aragon]".

⁴⁵ In a memorandum to the king around 1720, the Cathedral of Valencia listed all the Aragonese Church's arguments against reducing the interest rate cap on the *censales*. See *Reflexiones, que el cabildo, y canonigos de la santa metropolitana iglesia de Valencia, exponen a los señores del real consejo de Castilla sobre el precio de los censos de aquel reyno*, available at <http://dadun.unav.edu/handle/10171/30903>.

⁴⁶ Stiglitz, J. E. and Weiss, A., 'Credit rationing with collateral', Bell Communications Research Economics Discussion Paper no. 12, show potential adverse selection in credit transactions with collateral.

⁴⁷ Traditionally, historians blamed Spain's rugged geography and resulting transport problems for slow market integration across Spain (Ringrose, *Transportation*). However, Grafe reported that these technical issues were solved "slowly, but surely" over time (Grafe, 'Tyrannie à distance', p. 12).

⁴⁸ Data comes from 16 notaries' records, among them 13 concentrated the bulk of the deeds. Ólvega and Noviercas used to have only one notary, whereas Ágreda and Tarazona hosted at least two of them.

credit was long term.⁴⁹ Noviercas and Ólvega were situated along the border with Aragon. As mentioned above, Ágreda was the administrative centre of a *corregimiento* and the main city on the road from Soria, the capital of the province, to Tarazona in Aragon. It was just 20 kilometres away from Tarazona.

Tarazona is a more important city. Also the administrative centre of a *corregimiento* and a bishopric, it was the second largest town (after Zaragoza) in the province of Zaragoza in the eighteenth century.⁵⁰ Located in the Queiles valley linking the Ebro valley to the Meseta, the city stands at a crossroads between Aragon, La Rioja, Navarra and Castile. Therefore anyone travelling between Zaragoza and the Meseta (where Madrid is located) had to pass through Tarazona, Ágreda, and Soria.

All the contracts contain the borrower and lender's names, place of residence, the capital borrowed, the annual rent and the collateral pledged as security. Among the Aragonese loans, 13 contracts (40 per cent) provide information on the borrower's profession: seven labourers, one doctor, one knitter, one chandler, one wool dresser and two friars from the Cathedral of Tarazona. Seven borrowers (20 per cent) bore the title "Don" and usually borrowed larger amounts than the others. The title "Don" does not necessarily refer to the nobility. It can also refer to important people in trade or the administration, for instance. Among the Castilian loans now, only two contracts mention the borrower's profession – one notary and one presbyter – and only three of them (5 per cent) bore the title "Don". The largest amount of capital (26,000 reales) was borrowed by the city council of Ágreda. With respect to the contracts where profession is not mentioned, there is good reason to believe that most of the borrowers were labourers or small craftsmen, given that they did not know how to write and generally borrowed small amounts secured against small plots of land. Regarding the lenders, ecclesiastical institutions provided 94 per cent of the capital lent in Castile and 92 per cent in Aragon. This confirms the dominant position of ecclesiastical institutions in long-term credit markets in eighteenth-century Spain. The reason for the loan is only given in four contracts: to buy land, a mill and solve financial difficulties.⁵¹

The two markets differed on one point though. Table 1 shows the amounts lent in Castile and in Aragon. Both the mean and the median were higher in Tarazona than in Castilian cities. This corroborates the importance of Tarazona as an economic center compared with Ágreda, Noviercas, and Ólvega.

Table 1: Private annuities in Castile and Aragon (grams of silver), 1725 and 1735.

⁴⁹ Aranda's census (1768) counted 3,594 inhabitants in Ágreda, 1,108 in Noviercas and 1,142 in Ólvega. One could object that mortgage credit is mostly urban whereas obligations are used in rural areas. However, my sample draws a rather different picture since *censos* represented 61% of credit transactions in Castile and 52% in Aragon. This might be due to the particular structure of Spanish credit markets where ecclesiastical institutions were the main lenders and almost exclusively resorted to this type of contract. In addition, these two instruments served different purposes. Obligations recorded were short term, from three months to a year, and were more akin to commercial credit. In most cases, they were used to pay for agricultural or industrial products and services. This demonstrates that obligations were not an alternative to mortgage credit when interest rates differed between Aragonese and Castilian annuities.

⁵⁰ In 1768, Tarazona counted 6,060 inhabitants (Aranda's census).

⁵¹ The same reasons are given by Tello Aragay, 'El papel del crédito rural', p. 11, and Fernández de Pinedo, 'Del censo a la obligación', p. 301.

	Castile ^a	Aragon ^b
Number of contracts	56	32
Total amount	101,630	125,136
Mean	1,814	3,910
Median	781	1,186

^a Ágreda, Noviercas, and Ólvega.

^b Tarazona.

Sources: See text. Monetary equivalences are derived from Feliu, *Precios*, p. 20 and Fernandez de la Ferrería, M., *Nuevo tratado de reduccion de monedas, efectivas, e imaginarias, de estos Reynos de España, a reales de vellon* (Madrid, 1803).

All annuities bore the maximum legal interest rate: 3 per cent in Castile and 5 per cent in Aragon. In other words, 20 or 30 years after the differential was introduced, the interest rate in Aragon had not converged towards Castile's and remained stuck at the maximum legal rate whereas it could have been lower, which discards part of the first hypothesis (H1a).

Under these conditions, lower risk Aragonese inhabitants should have stopped borrowing in Tarazona and gone 20 kilometres away to Ágreda, for example, to borrow at 3 per cent. Although I cannot conclude that there was a decrease in loan transactions in Tarazona,⁵² I can examine capital mobility and capture possible foot-voting effects by looking at the city of origin of borrowers and lenders in Castile and Aragon.

Figure 2: Borrowers' hometown in Ágreda, Noviercas, and Ólvega, 1725 and 1735.

⁵² Some notaries' records are missing, which makes it impossible to see the full lending picture in Tarazona at the time.



Note: Cities with a cross are given for information only.

Sources: AHPS, for 1725, see cajas 1737, 2367, and 2443. For 1735, see cajas 1740, 1755, 1774, 2369, and 2446.

Figure 2 shows that not one single person from Aragon borrowed in Castile in 1725 and 1735. On the other hand, I also examine the borrowers' hometowns based on the 32 contracts signed in Tarazona (Aragon).⁵³ This city, close to the border, should have attracted risky Castilian borrowers offering higher rates of return, but not one single person from Castile went to borrow at 5 per cent in Tarazona. Riskier borrowers did not move to Aragon in order to finance their projects.

Except by assuming that all potential borrowers were high risk in Aragon and low risk in Castile, such an absence of credit transactions between the two neighbouring regions despite a two percentage point differential is highly surprising.

To definitely discard H1a and H1b, an analysis of loan contracts in Castile and Aragon further reveals no difference in the kind of collateral pledged as surety.⁵⁴ Borrowers in Aragon were not particularly riskier than their counterparts in Castile. To come back to my first example, Don Joseph and Doña Beatriz either preferred to borrow 1,000 Aragonese pounds at 5 per cent in Tarazona for some reason, when they could have borrowed at 3 per cent just 20 kilometres away, or did not find any lender in Castile willing to provide the amount needed, not because

⁵³ AHPT, for 1725: cajas 420/02 and 442/02; for 1734-7: cajas 459/02, 447/01, 469/01, and 475/02.

⁵⁴ As mentioned, the type of activity financed is only given in four cases. The usual reasons given are to buy land or a house or solve financial difficulties. No differences are found in the type of activities financed by Castilian and Aragonese contracts.

their project was risky or the amount of collateral provided was not sufficient, but because the collateral they provided was located on the other side of the border.

Loan transactions between Aragonese and Castilians might be thought to have been easier to set up in large cities than small towns, as there was a better chance of finding a financial intermediary in a large city to conduct the transactions. For instance, Marcos Martín showed how the provincial house of the Theresian Carmelite Order in Valladolid managed to pool capital across its network of convents, lending it to the city council of Valladolid and rich nobles.⁵⁵ This would imply that interregional credit transactions mainly took place in more important cities. To test this hypothesis, Figure 3 examines the borrowers' hometowns in the capital of the province, Soria. I do not find any borrowers from Aragon, even though the city's elite could have expanded their coverage outside the province of Soria.

Figure 3: Borrowers' hometown in Soria, 1735.



Notes: Cities with a cross are given for information only. Viniëgra was part of the province of Soria at the time.

Sources: AHPS, cajas 1516, 1572, 1633, 1643, 1660, and 1681. There were six notaries in Soria at the time, but only four concentrated the bulk of credit transactions.

There is also the possibility that currency exchange fees between kingdoms were too high and offset the differential. Moneys of account were different between the two regions. In the Kingdom of Aragon, contracts were drawn up in *libras jaquesas* (Aragonese pounds), while in Castile, they used the *real de vellón*. However, these currencies were not the actual money that

⁵⁵ Marcos Martín, 'La actividad crediticia'.

people used. Sometimes, the notary specified which coins were transferred between lender and borrower. Usually, they were gold coins (*monedas de oro*) or silver coins (*monedas de plata*) in use everywhere in Spain, if not internationally like the eight-real coin (*real de a ocho*). The common practice was for the parties to write in the contract that the transferred coins could be used in every kingdom, "*monedas corrientes de estos reinos*". In addition, Philip V's monetary reforms at the beginning of the eighteenth century promoted the Castilian monetary system in the Crown of Aragon and gradually made its use widespread.⁵⁶ This means that, despite different moneys of account, the coins used were broadly the same across kingdoms. This shows that there was no exchange rate or commission on private loans between kingdoms that might have explained the market fragmentation.

Of course, these markets were mainly local. In my sample, all transactions in Tarazona involved citizens within Tarazona's jurisdiction. In the three Castilian cities studied, the average distance between borrower and lender's hometowns was 14.6 kilometres in 1725 and 3.5 kilometres in 1735, with distances ranging from zero to 42.5 kilometres (between Soria and Noviercas).

The level of information that the lender can obtain on the borrower is crucial, especially on long-term credit markets. The Aragonese might have preferred to borrow in Aragon where they could borrow from family and friends. Likewise, Castilian lenders might have preferred to lend to relatives living in their neighbourhood. In addition, the nature of the lenders, namely ecclesiastical institutions, might have reinforced intra-family lending. Administrators of pious funds in ecclesiastical institutions frequently tend to lend to family members and acquaintances.

However, in my sample, only two contracts explicitly stipulate a family relationship between borrower and lender. In one case, the daughter's dowry was lent to the father and, in the other case, an uncle lent to his nephew. Only three contracts bear any connection between the borrower's name and the lender's name or administrators' names. It seems that administrators of pious funds actually lent to any kind of individual as long as the person provided solid guarantees. Ecclesiastical institutions might have sidestepped some asymmetric information problems inherent to these societies. Whenever some capital was paid back or deposited in a pious foundation, the information was circulated that there was capital available for credit, either by an announcement (*pregón*) or by a simple poster (*cartel*). Potential borrowers had to provide administrators with a memorandum on the actual assets that they could put up as collateral with an evaluation of their value and the names of at least two witnesses who would certify that they actually owned the collateral and that the evaluation was sound. For example, on average, the amount of the loan represented 30 per cent of the value of collateral in Soria, with extreme values comprised between 13 and 33 per cent. This is slightly lower than the ratio found by Sánchez González in the province of Toledo.⁵⁷

Once the administrators had examined and accepted the application, they had to request permission to loan from the diocese, which was in charge of most pious foundations and had the final say in the matter. One of these letters read:

My Lord,

The bearer of this letter, who is Pedro Frances, resident of this town of Borobia, asks for the two *censos* which Don Manuel Ruiz, priest of Golmaio, has redeemed before

⁵⁶ Ruiz Trapero, 'La unidad'; De Santiago Fernández, 'Legislación y reforma monetaria'.

⁵⁷ Sánchez González, 'El crédito rural'.

Your Grace. The mortgages offered are a house worth two thousand reales and an estate of two and a quarter *yugadas* within the bounds of this town, whose value is thirty ducats, said mortgages as I am informed are free and of the stated value, so that if you consider them sufficient, you may extend the said *censos* with the corresponding deeds, which will be granted by the aforementioned Pedro and his wife Maria Coloma, whose house is part of her estate. ... May God keep Your Grace for many years.

Borobia, 4 May 1735. Don Geronimo Alvarez.⁵⁸

In this letter, administrator Don Geronimo Alvarez of Francisco Abad's pious memories asked the diocese for authorization to lend the capital to Pedro Frances. As we can read, the administrator already had a precise description and evaluation of the collateral provided in the memorandum. Therefore, he could give that crucial information to the diocese for it to consider whether the collateral was sufficient or not. The diocese would appear to have agreed since the contract was signed on 9 May 1735, five days later. The amount lent was 308 reales, just 13 percent of the value of the collateral.⁵⁹

Even with a differential of two percentage points, capital did not flow between provinces. Local acquaintances are not sufficient to explain such territorial fragmentation between Castile and Aragon. As can be seen from my sample, ecclesiastical institutions clearly lent to individuals that they may not have known given that their monopoly position meant they could insist on all the guarantees they wanted. Grafe contended that although technical transport issues may have been overcome, political barriers and jurisdictional obstacles to trade were, by contrast, never lifted.⁶⁰ The fact that the border between Aragon and Castile can be equated with an impassable wall for long-term capital flows merely shows how much explicit different institutions can be an obstacle to market integration. Beyond explicit barriers between kingdoms, informal institutions also play a major role in the presence of jurisdictional obstacles to long-term capital flows.

IV

As a test to assess the impact of jurisdictional barriers within kingdoms and between courts (H2), I implemented a gravity model to long-term capital flows. The impact of jurisdictional barriers can be estimated by including a dummy variable indicating when the capital flow occurs within the jurisdiction and when it occurs with other jurisdictions. I define a market as fragmented when jurisdictions influence the pattern of asset transactions. Borders matter when borrowers have better access to domestic lenders than lenders in other jurisdictions.

This section also provides new insights into gravity models applied to asset trade. First, I present the oldest estimate of the distance elasticity of capital flows, dating back to the eighteenth

⁵⁸ Own translation. AHPS, caja 1015, vol. 1572.

⁵⁹ Pedro Frances's memorandum of mortgages. On average, the value of collateral was three times the amount of the loan. This is slightly lower than the ratio found by Sánchez González, 'El crédito rural', in the province of Toledo.

⁶⁰ Grafe, 'Tyrannie à distance', p. 12.

century. My results and historical setting support previous findings on the role of market size and distance already observed by other studies.⁶¹ Second, I use the Poisson Pseudo Maximum Likelihood (PPML) estimator to estimate the gravity equation as an easy, convenient solution in the presence of zero capital flows.⁶² Lastly, I provide new evidence of a border effect. An important line of empirical inquiry in economic geography consists of attempting to explain the effect of borders on trade.⁶³ Two classes of explanations have been put forward: the first one focuses on transaction costs and informational frictions.⁶⁴ The second one centers on terms of trade changes.⁶⁵ More recently, Coeurdacier and Aviat also looked at the impact of trade in goods on trade in assets.⁶⁶ My study belongs to the first class of explanations, but I chose here to investigate another idea, namely that jurisdictional barriers are a strong deterrent for asset trade.

Portes *et al* posit that a gravity model explains international transactions in financial assets at least as well as goods transactions when addressing this question.⁶⁷ A gravity model for trade is a model that explains trade flows between countries i and j by the two masses (GDPs) and distance. Extended versions include dummies for trade areas, cultural factors, etc. The purpose of this chapter is to measure and explain the sources of capital market fragmentation in early modern Spain.

The term gravity equation covers a number of alternative specifications. The most commonly used specification takes a log-log format and estimates the parameters of interest by least squares. In keeping with Portes and Rey, with a bit of rewriting, I propose the following empirical specification (1):⁶⁸

$$\log CF_{ij} = \alpha + \beta_1 \log Y_i + \beta_2 \log Y_j + \beta_3 \log D_{ij} + \beta_4 jdummy + city\ dummies_i + city\ dummies_j + \epsilon_{ij}$$

This equation is very intuitive and similar to the standard gravity equations derived in the literature of international trade. CF_{ij} denotes capital flows from city i to j . Obviously, there is no such thing as a GDP measure for early modern Spain, especially at local level. Previous findings suggest that per capita GDP and population take approximately equal sign.⁶⁹ I hence use the population as a proxy for economic mass: Y_i and Y_j denote the population of city i and j .

D_{ij} denotes the distance between city i and j , measured as the minimum straight-line distance in kilometers. Lastly, a jurisdiction dummy is added ($jdummy$), defined as equal to 1 for intra-

⁶¹ Martin and Rey, ‘Financial super-markets’; Portes and Rey, ‘Cross-border equity flows’; Coeurdacier and Aviat, ‘The geography of trade’.

⁶² This approach is advocated by Santos Silva and Tenreyro, ‘Log of gravity’. They show that the PPML estimator performs very well even with a large proportion of zeros.

⁶³ To cite just three major studies, see McCallum, ‘National borders matter’; Head and Mayer, ‘Non-Europe’; Wolf, ‘International home bias’.

⁶⁴ Portes, Rey, and Oh, ‘Information’; Portes and Rey, ‘Cross-border equity flows’.

⁶⁵ Cole and Obstfeld, ‘Commodity trade’; Helpman and Razin, ‘A theory of international trade’.

⁶⁶ Coeurdacier and Aviat, ‘The geography of trade’. For a recent survey, see Coeurdacier and Rey, ‘Home bias’.

⁶⁷ Portes, Rey, and Oh, ‘Information’.

⁶⁸ Portes and Rey, ‘Cross-border equity flows’.

⁶⁹ Helliwell, ‘National borders matter’.

jurisdiction capital flows, to measure the impact of jurisdictions on asset trade. ϵ_{ij} is the error term.

The existence of observations for which the dependent variable is zero creates a problem for the use of the log form of the gravity equation. The approach taken by the vast majority of empirical studies is to simply drop the pairs of zero trade from the dataset and estimate the log form by OLS. Rather than discarding these observations, some authors estimate the model using $\log(1 + trade_{ij})$ as the dependent variable or a tobit estimator. These procedures generally produce inconsistent estimators of the parameters of interest. One way of obtaining a more efficient estimator than the standard OLS is to estimate the parameters of interest using a PPML estimator, since it allows for a large number of zeros in the dependent variable.⁷⁰

The theory suggests that the capital flow from city i to city j is proportional to the population of the two cities and inversely proportional to their distance, D_{ij} . I also would expect jurisdiction barriers (i.e., if the two cities do not belong to the same jurisdiction), which could be interpreted as a proxy for enforcement costs in the event of litigation, to be negatively correlated with capital flow. Lastly, I add city dummies to control for aggregate shocks.

One potential problem pointed by the literature is that policy variables may be endogenous and their coefficients inconsistent because of “reverse causality” or an omitted variable.⁷¹ In the case of jurisdictions for example, reverse causality would imply that the volume of capital flows between two cities also determine if they are part of a same jurisdiction or not. However, this is unlikely to happen. Jurisdictions in Spain were historical outcomes determined by political stakes. Nevertheless, one solution to address this problem is to draw on a natural experiment, which I did in section III using the reduction of the interest rate ceiling in 1705 as an exogenous shock hitting only Castile and not Aragon.

The empirical results presented below are based on the Cadastre of Ensenada. The Cadastre was conducted throughout Castile at the beginning of the 1750s. It collected information on wealth and population for each city and village. In particular, it recorded mortgage loans, the *censos consignativos* mentioned earlier, secured on real assets located in the city. So the Cadastre lists the borrowers’ stock of *censos* for each place for a given year (generally 1751 or 1752).

For each *censo*, the Cadastre provides information on the borrower’s and the lender’s names, their cities of origin, the capital, the interest rate, and the mortgaged asset. Based on this evidence, I can observe intra-jurisdictional capital flows and cross-jurisdictional flows for each place. Obviously, a study of Castile in its entirety is beyond this study. The data contained in the Cadastre is considerable and *censos* information is not listed in a separate section.⁷² I have therefore restricted my study to the judicial district of Ágreda in the province of Soria.⁷³ The

⁷⁰ Whenever distance is equal to zero (intra-city lending), I use $\log(1 + D_{ij})$.

⁷¹ Head, K. and Mayer, T., ‘Gravity equations: workhorse, toolkit, and cookbook’, CEPR Discussion Paper no. 9322.

⁷² In addition, Cadastre archives are not centralized, but are kept at provincial level in the *Archivos Históricos Provinciales*.

⁷³ Ágreda was a *corregimiento*. These were administrative and judicial districts under the ancien regime. The *corregimiento* of Ágreda was chosen for its common border with the Kingdom of Aragon (which was under study in section III). See Heras Santos, ‘La organización de la justicia’, p. 128, for a complete list of *corregimientos*.

data covers the 17 cities in the district and I collected information on 442 *censos*.⁷⁴ I identified 23 cities of origin for the capital lent in the judicial district of Ágrede, making a total of 368 observations (23×16).⁷⁵ Summary statistics for the population and capital flow data are given in the Appendix.

The population was drawn from the Aranda census (1768). Where this information was not available, the Floridablanca census (1789) was used.⁷⁶ Ágrede was the main recipient of capital flows (83 per cent of the total in value), which is not surprising since it was the administrative centre of the judicial district and concentrated a large share of its population (almost 50 per cent). Intra-jurisdictional flows accounted for almost 70 per cent of total capital flows, 58 per cent of which were intra-city flows. Eight of the 23 cities of origin did not belong to the judicial district of Ágrede and 15 kilometers separated lenders from borrowers on average. Among these eight cities, the majority of capital flows came from Pamplona, Alfaro and Soria, three other main judicial district centres. In general, these were large one-off transactions among the cities' elites.

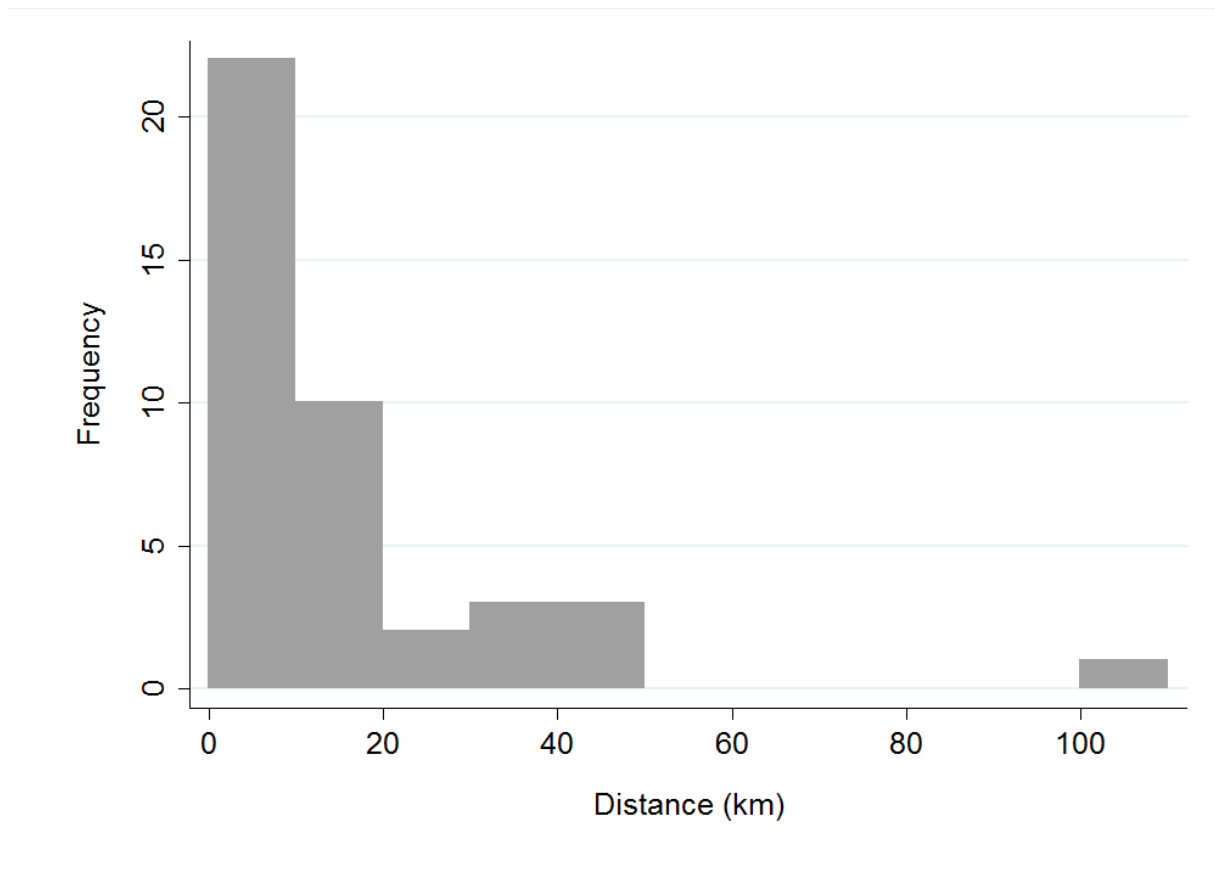
As expected, distance certainly had a substantial and negative effect on capital flows. Figure 4 gives the histogram of the distance between borrowers and lenders. It confirms the local character of long-term credit activities while showing that some transactions involved distant parties.

Figure 4: Distance between borrowers and lenders (pair of cities).

⁷⁴ For a list of cities by districts, see *España dividida en provincias e intendencias* (1789), vol. 1, pp. 488-9, available at <http://www.bne.es/es/Catalogos/BibliotecaDigitalHispanica/Inicio/index.html>. One of them, Conejares, a very small village, does not contain any information on mortgages. Cities of destination are: Ágrede, Añavieja, Beratón, Castilruiz, Devanos, Fuentestrún, La Aldehuela, La Cueva, Las Fuentes de Ágrede, Matalabreras, Montenegro de Ágrede, Muro de Ágrede, San Felices, Trévago, Valdelagua, and Vozmediano. Data has been collected from AHPS, Cajas 9471-9474, 9958, 9544, 9561, 9595, 9626, 9658, 9493, 9624, 9656, 9708, 10012, 9741, 9833, 9886 and 9892.

⁷⁵ Cities of origin are: Ágrede, La Aldehuela, Alfaro, Añavieja, Beratón, Cascante, Castilruiz, La Cueva, Devanos, Las Fuentes, Fuentestrún, La Cuesta, Matalabreras, Montenegro, Muro de Ágrede, Noviercas, Pamplona, San Felices, San Pedro Manrique, Soria, Trévago, Valdelagua and Vozmediano. One obvious outlier was removed from the dataset: two small loans for a total amount of 1,650 reales between the city of Ágrede and the city of Malaga, 610 kilometres away.

⁷⁶ They are both available on the *Instituto Nacional de Estadística* website at <http://www.ine.es>.



Source: see text.

I estimate equation (1) with the PPML procedure. The equation includes a constant term and city dummies to control for aggregate shocks, whose estimates are not reported. The dependent variable CF_{ij} is the capital flow from city i to city j . The estimation procedure gives heteroskedasticity-consistent standard errors, which are shown in parentheses below the coefficient estimates.

Table 2: The gravity equation: PPML estimator.

Estimator:	PPML ^a
Dependent variable:	$\log CF_{ij}$

Log of population _i	2.200*** (0.583)
Log of population _j	1.881*** (0.347)
Log distance	-0.756*** (0.274)
Jurisdiction dummy	2.331** (1.076)
Observations	368

^a Full set of city dummies.

Note: Significance levels: * p<0.1; ** p<0.05; *** p<0.01.

Sources: See text.

Both population size variables return the expected signs with very well-determined coefficients. Distance elasticity is appropriately negatively signed (-0.73) and precisely estimated (s.e. = 0.27). This confirms the results of previous studies on asset trade. It is comparable to what Portes and Rey found (-0.7) and a little bit higher than the effect observed by Coeurdacier and Aviat, between -0.4 and -0.7.⁷⁷ I also explore the role of jurisdictional barriers: the Poisson regression indicates that jurisdictional ties play a role in determining capital flows. The Poisson estimates suggest that belonging the same jurisdiction multiplies expected capital flows by almost 10.⁷⁸ Compared to trade in goods, this result is similar to the finding made by Wei, but is below the (probably overestimated) value of 20 obtained by McCallum.⁷⁹ This means that fragmentation between Spanish jurisdictions at that time was almost as strong as between countries today.

V

⁷⁷ Portes and Rey, ‘Cross-border equity flows’; Coeurdacier and Aviat, ‘The geography of trade’.

⁷⁸ The formula to compute this effect is $(e^{\beta_i} - 1) \times 100\%$, where β_i is the estimated coefficient.

⁷⁹ Wei, S.-J., ‘Intra-national versus international trade: how stubborn are nations in global integration?’, NBER Working Paper no. 5531. McCallum, ‘National borders matter’, used an OLS procedure which overestimates the effect of borders and distance. Using an OLS procedure, I also find much higher results. Estimating equation (1) with $\log(1 + CF_{ij})$ as the dependent variable, the model predicts that distance elasticity is -1.17 and that capital flows between two cities within the same jurisdiction will be 100 times higher than capital flows between cities from different jurisdictions.

The road to market integration is long. I analyse new data on long-term private loans, called *censos consignativos*, in the crowns of Castile and Aragon in eighteenth-century Spain. To my knowledge, this study is the first to uncover and measure a specific jurisdiction-based pattern of capital flows in early modern times.

I derive the estimated equation from a simple gravity model. I show that jurisdictional barriers between cities have a strong negative impact on long-term capital flows and confirm that distance, a proxy for information frictions and transport costs, plays a negative role. Long-term capital flows are predicted to be ten times higher within the same jurisdiction than between two different jurisdictions.

I also show that even large differentials in interest rates do not reverse this pattern. Using a large gap of two percentage points between Castile and Aragon for 45 years, I observe that there were hardly any long-term capital flows between the two crowns and that interest rates remained at their legal ceilings while markets remained local. A number of explanations can be put forward for this lack of long-term cross-border credit. Among them, I believe legal institutions to be decisive elements in the fragmentation of long-term capital markets.

Local control over justice and the different legal systems imposed massive transaction costs on local credit market activities. Legal fragmentation increased legal risk in the capital market and impeded capital mobility between historic territories. On the one hand, explicit different institutions between kingdoms created barriers to judicial cooperation and increased the gap between the number of requests and the number of cases dealt with, as repeatedly mentioned by the kingdoms' assemblies. On the other hand, informal institutions within cities represented a cause for slowness in legal assistance procedures, even a reason of resistance to judicial cooperation. This certainly was another obstacle encountered by citizens in the enforcement of their rights which depressed cross-border economic activity.

To come back to Epstein, state formation alongside the development of a judiciary system and the “judicialization” of social relations does not necessary guarantee the development of an integrated market. The mere observation of the development of these systems cannot suffice to infer the emergence of favorable conditions for the integration of the market: this view is, precisely, too focused on institutions, to the detriment of the use that is made of them. Judicial cooperation and the administration of justice within a composite monarchy are also key to a more integrated market. These requirements do not appear to have been met in Spain due to the kind of political economy in place.

In this setting, Spain was certainly rather the norm than the exception. Italy and the former German kingdoms are then better comparators than centralized England. Like the majority of its European counterparts, Spain suffered from coordination problems in the absence of a centralized state. In our case, this led to the great fragmentation of long-term capital markets. However, other institutions than the state managed to circumvent these jurisdictional barriers. In Spain, some ecclesiastical orders developed into a highly sophisticated and integrated system.⁸⁰ They acted through a vast network of convents and monasteries, supplying everything from small loans to farmers in a local market to substantial amounts to nobles, merchants, officials, and local treasuries across the whole country and beyond. Their three-tier system, with the General Curia at the top in Madrid and then the provincial houses and the local convents scattered over all of Spain, allowed them to address all kinds of demands, to solve asymmetric

⁸⁰ Milhaud, C., *Sacré crédit ! The rise and fall of ecclesiastical institutions in early modern Spain*, unpublished thesis (2017).

information problems, and to circumvent the strong jurisdictional barriers inherent to these markets. Of course, this was a second best. These particular institutions also had their own purposes and constraints which were not directly connected to the economy. As such, they only offered long-term mortgage loans and this integrated market was limited to big loans.

In the end, the administration of justice and, more generally, jurisdictional fragmentation whereby transaction costs and risks were driven upwards were certainly not the only reason for slow market development. Economic performance in ancient regime societies was indirectly affected by the official justice system. However, the evolution of the composite monarchy and pacts among the elites created obstacles to the formation of a solid base for a more efficient political economy, which might have reduced risks and transaction costs. At the end of the sixteenth century, a very well-informed *arbitrista*, Sancho de Moncada, wrote that, “Many people complain that they cannot even set a foot on the ground without breaking some of the laws of Spain”.⁸¹ This situation certainly had an impact on the allocation of productive factors, which could have affected long-term financing.

Appendix

Summary statistics

City of destination	Population	Capital flows (reales)					
		Without zeroes			With zeroes		
		Mean	Number of cities of origin	Mean	Standard deviation	Min	Max
Ágreda	3,594	82,813	12	43,206	136,828	0	623,655
La Aldehuela	189	4,125	1	179	860	0	4,125
Añavieja	122	2,160	1	93	450	0	2,160
Beratón	231	3,025	2	263	1,197	0	5,750
Castilruiz	597	11,609	5	2,523	7,640	0	35,048
La Cueva	258	3,070	3	400	1,642	0	7,880
Devanos	196	745	2	64	254	0	1,200
Las Fuentes	266	18,657	2	1,622	5,390	0	19,986
Fuentestrún	220	1,716	2	149	528	0	2,333
Matalebreras	454	17,204	3	2,244	8,657	0	41,360
Montenegro	108	250	1	10	52	0	250
Muro	290	4,403	2	382	1,456	0	6,777
San Felices	371	870	1	37	181	0	870
Trévago	430	3,799	3	495	1,672	0	7,355
Valdelagua	345	1,500	1	65	312	0	1,500
Vozmediano	348	5,750	1	250	1,198	0	5,750
Number of different cities of origin							23
Distance (km)						Mean	21.8
						Min	0
						Max	122.7

⁸¹ Moncada, *Restauración política*, p. 201.

Sources: See text.

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