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Abstract: Mortgage markets in developing economies are often confined to private networks. Inadequate registration of property rights has been blamed for this, but it is questionable whether registration provides a simple and complete solution. This paper addresses this issue by analysing the Low Countries, where registration was organised well, and England, where registration was organised poorly, between 1300 and 1800. These historical cases show that registration was important but did neither provide a simple nor a complete solution for the emergence of broad mortgage markets. Successful historical markets took considerable time to appear and also addressed mortgage law and financial intermediation.

Keywords: mortgages, Europe, pre-industrial period.

JEL Codes: G21, N23, N94

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1. Introduction

Mortgage markets enable people to purchase real estate and to make stored-up wealth liquid. These attractive benefits notwithstanding, not all societies have succeeded in establishing well-functioning mortgage markets. Hernando de Soto pointed out that the lack of property rights registration withholds people in developing economies from accessing mortgage markets beyond the confines of their private networks.¹ They fail to do so because of an inability to provide credible information about their property rights to lenders. This exerts a negative influence on economic development and the well-being of people. De Soto's interpretation is attractive and inspired new research but has also been criticised much.² This paper contributes to the debate by examining from a historical perspective whether property rights registration provided a simple and complete solution to the problem. It analyses England and the Low Countries – more specifically the provinces Brabant, Flanders, and Holland – during the pre-industrial period to answer this question.

The regions analysed in this paper are particularly suitable to the topic and seventeenth-century English observers believed so too. Amazed by Holland's booming economy they widely debated how such success might be emulated. A recurring theme in their writings was how copying institutional arrangements would yield great benefits to England. They thought, for instance, that the Dutch way of registering transactions related to real estate facilitated a broad use of mortgages. In Holland title registers were kept by the public authorities of the town or village where the real estate was situated. Registration was compulsory and consulting the registers was easy and cheap. Many

¹ H. de Soto, *The Mystery of Capital: Why Capitalism triumphs in the West and fails everywhere else* (London, 2000).

² See for instance C.J. Zijderduijn, *Medieval capital markets. Markets for renten, state formation and private investment in Holland (1300-1550)* (Leiden and Boston, 2009); H.L. Platt, 'Exploding cities: housing the masses in Paris, Chicago, and Mexico City, 1850-2000', *Journal of Urban History* **36** (2010), 575-593. See also A. Gilbert, 'De Soto's *The Mystery of Capital*: reflections on the book's public impact', *International development planning review* **34**, 3 (2012), v-xvii, for a summary of the critiques.

profitable opportunities were allegedly foregone in England because the lack of such registration made it near impossible there to mortgage real estate.³ Josiah Child argued that the 'keeping up Publick Registers of all Lands and Houses, Sould or Mortgaged, whereby many chargable Law-Suits are prevented, and the securities of Lands and Houses rendred indeed, such as we commonly call them, Real Securities.'⁴ Andrew Yarranton quite similarly stressed that the Dutch 'have fitted themselves with a Publick Register of all their Lands and Houses, whereby it is made Ready Money at all times [...]'.⁵

Despite the unification of the Low Countries during the Burgundian era, a strong path-dependency resulted in the creation of different registration systems. This is best documented for the cases of Flanders, Brabant, and Holland, which were the most urbanised regions and the consecutive cores of economic growth. This paper compares the evolution of registration systems in these regions and in England and shows that establishing them was never simple. Considerable periods of time were involved and outcomes were not necessarily effective. Holland's relative lack of medieval structures enabled its public authorities to establish fairly effective and uniform registers, which were probably inspired by registration systems developed in Brabant and Flanders. Although the latter were quite effective, local registers differed significantly from one another due to a much stronger medieval legacy. England's medieval social structures, on the other hand, made registers neither uniform nor effective. In quite some instances vested interests managed to resist royal reform attempts and were able to cling onto old privileges of title registration. The less effective English system necessitated specialised and costly intermediaries such as scriveners and attorneys to sift through several registers to establish title. This ameliorated the situation but could not fully rule out non-

³ An overview of the pamphlet literature is available in 'Publications on Registering Deeds of Land', *The Legal Observer or Journal of Jurisprudence* **1** (1831), 234, and 'The Registry Question in Former Times', *The Jurist or Quarterly Journal of Jurisprudence and Legislation* **4** (1833), 26-43.

⁴ Josiah Child, *Brief observations concerning trade and interest of money* (London, 1668), 6.

⁵ Andrew Yarranton, *England's Improvement by Sea and Land to Out-do the Dutch without Fighting [...]* (London, 1677), 7.

ownership or the existence of competing claims. Growth of mortgage-backed borrowing therefore only occurred in those parts of England where registration systems improved during the eighteenth century.

Registers did not provide a complete solution for those wishing to mortgage real estate either. Two crucial elements to a successful mortgage transaction, namely mortgage law and financial intermediation, were not addressed by De Soto. It will be shown that pre-industrial mortgage law was much stricter and unfavourable to borrowers in England than in the Low Countries and Englishmen consequently turned to mortgages mostly as a last resort. Moreover, even when mortgage law was more conducive, demand and supply still had to find each other. This paper therefore also reviews the implications that the different registration systems had for financial markets. It argues that the effective registers in the Low Countries favoured lenders and borrowers because they made the market for brokerage services more competitive.

These historical cases demonstrate that local circumstances determined whether and how effective title registration was established. Changing less effective institutions was a long-term process easily delayed by vested interests. A well-functioning mortgage market only emerged, however, once additional problems, such as mortgage law and financial intermediation, were addressed as well.

2. The evolution of registration in Holland

Holland's registration system developed during the middle ages and was only completed in 1542. The way in which the area was occupied played a central role in this process. Inland Holland was marshy and uninhabitable until the land reclamations organised by the counts between the tenth and fourteenth centuries. They faced a wilderness largely unaffected by medieval social structures and offered personal freedom, property rights to land, and a right to self-government to anyone willing to reclaim land. In return, settlers had to acknowledge the count as their lord and pay taxes. Pre-existing medieval structures thus played a relatively unimportant role in the largest part of Holland, but did

exist in the older settlements along the coast and the rivers. A majority of these resided directly under the counts, who succeeded in gradually reducing the remaining intermediate feudal layers. By 1500, and probably much earlier, Holland mostly consisted of urban and rural jurisdictions governed by its inhabitants. Towns and villages functioned as independent public bodies, as did their law courts.⁶

Public law courts consisted of a sheriff, who organised court days, and representatives of the local community, called aldermen or simply neighbours, who acted as judges. They established themselves as the most important authorities for ratifying transfers involving real estate.⁷ The earliest evidence of their presence comes from Holland's major towns Delft (1260), Dordrecht (1269), Leiden (1293), and Haarlem (1295).⁸ Law courts occupied a central position in conflict resolution because anyone disputing titles, lease contracts, or mortgages had to file a complaint with them. The origins of this practice go back to the thirteenth century and count William V strengthened it in 1351 when he forbade noblemen and clerics to settle disputes.⁹ High

⁶ B.J.P. van Bavel and J.L. van Zanden, 'The jump-start of the Holland economy during the late-medieval crisis, c. 1350-c.1500', *The Economic History Review* **57** (2004), 503-532; B. van Bavel, J. Dijkman, E. Kuijpers, and J. Zuijderduijn, 'The organisation of markets as a key factor in the rise of Holland from the fourteenth to the sixteenth century: a test case for an institutional approach', *Continuity and Change* **27**, 3 (2012), 347-378; P.C.M. Hoppenbrouwers, 'Op zoek naar de "kerels": De dorpsgemeente in de dagen van graaf Floris V', in D.E.H. de Boer, E.H.P. Cordfunke, and H. Sarfatij eds., *Wi Florens...: De Hollandse graaf Floris V in de samenleving van de dertiende eeuw* (Utrecht, 1996), 224-242, there 226, 231; H. van der Linden, 'Het platteland in het Noordwesten met nadruk op de occupatie circa 1000-1300', in D.P. Blok, W. Prevenier, and D.J. Roorda eds., *Algemene Geschiedenis der Nederlanden II* (Haarlem, 1982), 48-82, there 73-78.

⁷ Zuijderduijn, *Medieval Capital Markets*, 184-190.

⁸ I.H. Gosses, *Welgeborenen en huislieden: Onderzoekingen over standen en staat in het graafschap Holland* (Groningen and The Hague, 1926), 82; J.L. van Dalen ed., 'Oorkonden en regesten betreffende de stad Dordrecht en hare naaste omgeving tijdens het grafelijke huis van Holland, 1006-1299', *Bijdragen en mededeelingen van het Historisch Genootschap* **33** (1912), 115-278, there 150-151; E.C. Dijkhof ed., *Oorkondenboek van Holland en Zeeland tot 1299 V: 1291 tot 1299* (The Hague, 2005), 310, 490; J.G. Kruisheer ed., *Oorkondenboek van Holland en Zeeland tot 1299 III: 1256 tot 1278* (Assen and Maastricht 1992), 243-244.

⁹ F. van Mieris ed., *Handvesten, privilegiën, octroyen, rechten en vryheden...* (Leiden, 1759), 617.

courts would only sentence disputes in second instance, after one of the litigants had appealed over a judgment by a local law court.¹⁰ Since the latter preferred contracts they had ratified themselves over those ratified by other authorities and even tended to give them priority, contracting parties stopped to consult other authorities altogether. Although local ratification was only made mandatory by Charles V in 1529, voluntary ratification at local law courts had long been common.¹¹

The system was completed in 1542 when registration of ratified real estate transactions was also made mandatory.¹² As with ratification, preserved registers from Dordrecht (1405), Gouda (1465), and Haarlem (1471) show that law courts had started registering at an earlier stage.¹³ A bylaw from the small town of Schiedam (1475) indicates that mortgages were also recorded in a register. All mortgaged annuities were recorded in these registers, yet as soon as they were redeemed, the entry was crossed out.¹⁴

A similar synchronicity occurred in the countryside, where registration first took off in the South of Holland. An early register has been preserved for Ouderkerk aan den IJssel (c.1470). In the region Land van Putten, the bailiff ordered village law courts to register land transactions on penalty of a fine (1479). Annuities were to be registered

¹⁰ This is for instance prescribed by the customs of Kennemerland. See A.J. Allan, *Het Kennemer landrecht van 1274 tot het begin van de Republiek: Tekst van het handvest van 1292 met hertaling en toelichting* (The Hague, 2005), 228-229.

¹¹ Zijderduijn, *Medieval capital markets*, 65-67.

¹² Zijderduijn, *Medieval capital markets*, 65-67.

¹³ L.M. Rollin Couquerque and A. Meerkamp van Embden, *Rechtsbronnen der stad Gouda* (The Hague, 1917), 470; C.J. Zijderduijn, 'Conjunctuur in laatmiddeleeuws Haarlem: Schepenregisters als bron voor de ontwikkeling van een Hollandse stad', *Holland Historisch Tijdschrift* **40** (2008), 3-17.

¹⁴ Also, in 1530 the town government of Schiedam warned contracting parties to have transactions officially ratified and registered within two weeks, on penalty of a fine. See K. Heeringa, 'Het oudste keurboek van Schiedam', *Verslagen en Mededeelingen van de vereniging tot uitgave der bronnen van het Oude Vaderlandsche Recht* **6** (1915), 139-174, there 164-165; K. Heeringa, 'Bladen uit het oudste keurboek en het stadboek van Schiedam', *Verslagen en Mededeelingen van de vereniging tot uitgave der bronnen van het Oude Vaderlandsche Recht* **5** (1909), 229-258, there 250-251, 257.

every seven years while unregistered annuities would no longer have force of law.¹⁵ In the course of the sixteenth century more evidence becomes available for registration in villages, and it was common practice at the start of the Dutch Revolt in the 1560s.

Soon enough, the number of urban transactions reached a threshold necessitating administrative improvements. The government of Haarlem, for instance, introduced separate registers for sales of real estate, annuities, and debts collateralised on ships. Around the mid-sixteenth century the town used six different registers for transactions of real estate and various types of credit.¹⁶ Attempts were made to improve the use of registers through indices. Leiden's government, for example, instructed its secretaries to 'use their time, once in a while, to create indices for the books and registers they kept'.¹⁷

Registering transactions was inexpensive for the parties involved. In 1580, the States of Holland decreed that all transactions related to real estate having occurred since 1572, and of which no proper registers were yet available, should be registered for one groat¹⁸ – less than one day's wage of an unskilled labourer.¹⁹ A similar tariff is encountered for the town of Haarlem (1562): 'to prevent all fraud they should keep a register of all sealed ratifications, to be able to look these things up at any time, they would receive for registration one stiver on top of the usual earnings'.²⁰ Table 1 shows that tariffs for registration varied, but that they were altogether low: less than one guilder in the fifteenth and sixteenth centuries and usually less than two guilders in the

¹⁵ M.S. Pols, 'Oudste rechten van het Land van Putten', *Verslagen en Mededeelingen van de vereniging tot uitgave der bronnen van het Oude Vaderlandsche Recht* 1 (1885) 122-161, there 158-159.

¹⁶ Zijderduijn, 'Conjunctuur'. This process of diversification was already visible at a much earlier stage in the North of Germany, such as in Lübeck, where magistrates kept a *liber civitatis* for debts and a *liber hereditatum* for titles to real estate. See J.A. Kossmann-Putto, *Kamper schepenacten, 1316-1354* (Zwolle, 1955), 17.

¹⁷ Van Mieris, *Handvesten*, 241.

¹⁸ 1 guilder = 20 stivers = 40 groat; 1 pound Flemish = 6 guilders.

¹⁹ A.S. de Blécourt and N. Japikse, *Klein plakkaatboek van Nederland: verzameling van ordonnantiën en plakaten betreffende regeeringsvorm, kerk en rechtspraak, (14e eeuw tot 1749)* (Groningen 1919), 132-133.

²⁰ B. Becker ed., *Bronnen tot de kennis van het leven en de werken van D.V. Coornhert* (The Hague, 1928), 17-18.

seventeenth and eighteenth centuries. This represented only a small fraction of the sums that usually changed hands in real estate markets.²¹

Public courts could use these extensive registers for reference,²² and the same held for individuals, who had to pay a small fee for this service.²³ In Amsterdam (1644) registers were accessible to 'anyone with a certain interest [in a piece of real estate, who] would be granted access to the aforementioned register under supervision of the secretary'.²⁴ That this amounted to a public service also becomes clear from sources of the village of Amstelveen (1700). The village secretary would receive 'for opening the registers and looking up any annuities, *opdrachten*, *custing-brieven*, *schepen-kennisse* etc., and to copy these 1 guilder 4 stivers'.²⁵ The secretary would also receive 'for opening and looking up in the registers for any duties [put on real estate] 6 stivers' or 0.3 day wages of an unskilled labourer.²⁶

The registration system in Holland was easy and effective. Local law courts, both in cities and in the countryside, were the sole authorities to ratify real estate transactions. These registers facilitated mortgage markets in three ways. First, prior to ratification potential lenders could use them to collect crucial information about real estate. Second, in the process of ratifying transactions, public courts verified whether a seller or mortgagor was the rightful owner of real estate. Third, when real estate was used as collateral they would also look whether it sufficed to secure the debt, for instance

²¹ In Haarlem, in the fifteenth to early seventeenth centuries the average value of annuities was over 210 guilders. Zijderduijn, 'Conjunctuur', 8.

²² M.H.M. Spierings, *Het schepenprotocol van 's-Hertogenbosch 1367-1400* (Tilburg, 1984), 82, 139.

²³ In the town of Geervliet this only cost one groat, see Pols, M.S., 'Oudste rechten van de stad Geervliet', *Verslagen en Mededeelingen van de vereniging tot uitgave der bronnen van het Oude Vaderlandsche Recht* **2** (1886), 78-108. In Land van Putten, in 1479, registers were already accessible to the public, see Pols, 'Oudste rechten', 158-159.

²⁴ H. Noordkerk, *Handvesten; ofte privilegien ende octroyen; mitsgaders willekeuren, costuimen, ordonnantien en handelingen der stad Amstelredam II* (Amsterdam 1748), 556.

²⁵ *Reglement, waar na den officier, secretaris en andere bedienden in de heerlykheid van Amsterveen, haar in't stuk van hare vacatien en salarissen voortaan zullen hebben te reguleeren* (Amsterdam 1700), 21.

²⁶ *Reglement*, 21.

by establishing existing mortgages.²⁷ The available figures suggest that the registration system was a success. Table 2 provides data from registers in the Low Countries to give an impression of the number of transactions registered. Urban public courts usually recorded several hundreds of transactions per annum and kept records concerning titles to many thousands of properties and the mortgages put on these. This was not only the case in a city such as Haarlem, but also in a small town like Edam, and even in the village Mijnsheerenland.

Tables 1-2 about here.

3. Medieval structures in Flanders and Brabant

The evolution of registration practices in Flanders and Brabant differed from Holland in two respects. First, the early economic development and urbanisation led to an earlier rise of law courts. Before the twelfth century, however, written contracts were not yet common outside the imperial and papal courts. Oral contracts dominated and were usually confirmed in the presence of qualified witnesses such as members of the clergy or the urban patriciate. The aldermen in particular gained importance because they gradually drew larger competences with respect to criminal and civil justice and voluntary jurisdiction. Early traces of their activities can be observed in Nivelles (1075), Bruges (1094), Ypres (1111), Liège (1113), Louvain (1131), Antwerp (c.1146), Ghent (1147), Brussels (1155), and Lille (1177).²⁸

Due to commercial growth testimonial proof lost ground to written contracts during the twelfth century. Private persons applied to aldermen's courts, feudal courts, and ecclesiastical courts to draw up and ratify their contracts. Early private contracts, passed before the aldermen, were found in Ghent (1147), Tournai (1160), Ypres (1206),

²⁷ Zuijderduijn, *Medieval capital markets*, 208-214.

²⁸ H. Nélis, 'Etude diplomatique sur la juridiction gracieuse des échevins en Belgique (1150-1300)', *Annales de la Société d'émulation de Bruges* **80** (1937), 1-57, there 3.

Bruges (1211), Brussels (1234), and Antwerp (1239).²⁹ Urban and rural aldermen's courts became the dominant courts with respect to the ratification of contracts during the first half of the thirteenth century. Where no court was available people went to the nearest town. For reasons of safety and control, doubles of these contracts were conserved in chests from the fourteenth century onwards. This practice can be traced back to the German Empire, where, in thirteenth-century Cologne, the city government stored copies in a wooden box.³⁰ Perhaps inspired by the German tradition of registering private contracts in *Grundbücher* and *Erdbücher*, the aldermen introduced registers for the chronological entry of all contracts under voluntary jurisdiction.

Second, registration practices were less uniform because towns developed within the stronger medieval structures of existing territories. Whereas each registration system became transparent and effective on the local level, path dependency gave rise to larger local and regional differences. Three examples will clarify this.

The first example relates to the County of Flanders witnessed an early urbanisation. When settlements developed within the domains of the count of Flanders and other landlords, private persons gradually received the right to construct their houses on the land of someone else and paid him a *landcijns* for the use of that land. In the city of Ghent, this distinction remained important and this gave the *landcijns* a key role in the way registration was organised. Although property transfers and mortgage contracts were originally ratified by the aldermen, landowners wanted to be aware of transactions of and mortgages on the houses built on their land, since their *landcijns* had priority over all mortgages. Therefore, a system developed in which sales and mortgages

²⁹ Nélis, 'Etude diplomatique'; G. des Marez, 'Le droit privé à Ypres au XIIIe siècle', *Bulletin de la Commission royale des anciennes lois et ordonnances* **12** (1926), 211-464. A lack of sources makes it impossible to determine when ratification and registration became mandatory. The frequency of transactions suggests, however, that they were already mandatory at this time.

³⁰ Cf. this practice in the Low Countries: R.A.D. Renting, *Regesten van de schepenkest-oorkonden uit het rechterlijk archief van Arnhem* (The Hague, 1952).

were registered per landlord.³¹ Since Ghent's customary law confirmed that knowledge of the landlord preceded knowledge of the aldermen, the latter performed a less important role in the registration of real estate related contracts. Notaries gradually assumed the function of drawing up formal contracts and in 1679 the magistrate abolished the aldermen's registers altogether. Knowledge of property rights and mortgages thus became private information, but it was at least concentrated in the landlords' registers and for a small fee they provided extracts 'for those involved'. The system was transparent since sales contracts referred to the registers of the landlord. On the urban level as well, tax registers on housing values gave a survey of all properties within the city, with a reference to the landlords involved.³²

The second example relates to the city of Bruges, also situated in the County of Flanders, where the urban authorities established a central registration system. There were two main differences with Ghent. First, when Bruges expanded within the domains of different landlords, it decided to buy these lands and bring them under the urban jurisdiction during the thirteenth century.³³ Only the feudal court of the Bourg of Bruges and the ecclesiastical court of *the Proosse* maintained authority over some minor enclaves (less than 5%) until the end of the eighteenth century. Both institutions had their own customary law and system of registration.³⁴ Second, when Bruges developed

³¹ Some house-owners had constructed their houses on their proper land. The transfers related to these properties were registered in the urban registers "Vrij huis, vrij erve" (Free house, free land).

³² D. Liévois, 'De landcijsboeken in Gent', in L. Charles et al. eds., *Huizenonderzoek in Gent, een handleiding* (Ghent, 1994), 29-35; A. Gheldolf, *Coutume de la ville de Gand I* (Brussels, 1868), 26; J. Dambruyne, 'De 17de-eeuwse schepenregisters en de rente- en immobiliëntransacties te Gent: enkele beschouwingen', *Handelingen der Maatschappij voor Geschiedenis en Oudheidkunde te Gent* **42** (1988), 153-182; L. Charles et al. eds., *Erf, huis en mens: Huizenonderzoek in Gent* (Ghent, 2001), 47. Notaries in Ghent thus assumed much more a writing role than their colleagues in Paris. Cf. P.T. Hoffman, G. Postel-Vinay, and J.-L. Rosenthal, *Priceless Markets: The Political Economy of Credit in Paris, 1660-1870* (Chicago, 2000).

³³ A. Verhulst, *The Rise of Cities in North-West Europe* (Cambridge, 1999), 68-118.

³⁴ L. Gilliodts-van Severen, *Coutumes de la ville de Bruges* (Brussels, 1874-1875); L. Gilliodts-van Severen, *Coutume du Bourg de Bruges* (Brussels, 1883-1885); L. Gilliodts-van Severen, *Coutume de la Prévôté de Bruges* (Brussels, 1887).

into a major international commercial centre, the distinction between house and land was removed (in 1302) and the *landcijns* evolved into a simple, though preferential burden on the house. This facilitated a central registration system on the urban level. Despite the fragmentation over the three remaining jurisdictions, the town's central registers (1580-1800) recorded all real estate. For the houses and land situated in the enclaves, reference was made to the registers of the other jurisdictions. Consulting Bruges' different registers was easy because all administrations were housed along the same city square. Like their counterparts in Holland these registers were effective as they were kept well and could be searched easily.

The third example relates to the different amplitude of urban jurisdictions in relationship to their surrounding countryside. In the region of 's-Hertogenbosch (Duchy of Brabant), the town of 's-Hertogenbosch had an important interregional market function during the middle ages. The urban bench of aldermen ratified contracts both for its urban inhabitants and for the people in the surrounding countryside. When Bruges (County of Flanders), however, became the main centre of international trade during the thirteenth century, the city and its surrounding countryside (the *Brugse Vrije*) moved in different directions. The former adapted its customary law to the needs of international commerce and created an aldermen's bench restricted to the city. The inhabitants of the countryside, however, kept their existing customary law, more focused on the protection of the property of land, and established their own court in the city. Bruges thus differed from a town like 's-Hertogenbosch (Brabant), where trade developed much less and a change in customary law was not required. The extended rural area around 's-Hertogenbosch (the Meierij) therefore continued to register contracts with the urban aldermen's bench.³⁵

Bruges, still the main international trade centre at the end of the fifteenth century, had tried to establish a separate registration system for annuities on a per

³⁵ J.A. van Houtte, *De geschiedenis van Brugge* (Tielt, 1982), 45-75, 289-291, 305-317; B.C.M. Jacobs, *Justitie en politie in 's-Hertogenbosch voor 1629. De bestuursorganisatie van een Brabantse stad* (Assen and Maastricht, 1986), 18-19.

street level, but this system never took off probably because it was not properly related to the real estate registration. The *registers van de zestendelen*, functioning from 1580 to 1800, were more successful. This pre-cadastral registration system contained summaries of contracts on a per house level, both for property transfers and mortgages. Only contracts passed before the urban clerks and ratified by the aldermen could be registered. Notaries could therefore never become as important as in Ghent and the aldermen ratified all contracts related to real estate until the end of the eighteenth century.³⁶ Antwerp, the European commercial gateway during the sixteenth century, developed a similar system with the *Wyckboeken* in its 1582 charter. To prevent fraud related to an underestimation of mortgages, all individuals were held responsible for the correct citation of annuities and other forms of mortgaged debt. Failure to provide the correct information would be prosecuted in the criminal court. Town secretaries were responsible for checking out property titles and existing mortgages before ratifying new ones. Extracts were provided for a small fee. Bruges and Antwerp, the two main commercial cities with active financial markets, thus developed additional registration systems that closely resembled those in Holland. A key difference, however, was that customary law limited access to the registers to parties who were directly involved.³⁷

Although registration systems differed within and between cities, each of them was effective on the local level. Since financial markets were in first instance local markets, these systems performed well.

³⁶ H. Deneweth, *Huizen en mensen. Wonen, verbouwen, investeren en lenen in drie Brugse wijken van de late middeleeuwen tot de negentiende eeuw* (unpublished D. Phil. thesis, Vrije Universiteit Brussel, 2008), 236-237, 795-802.

³⁷ This distinction exists until the present day. Another difference was that owners of real estate in Antwerp held deeds containing information about property rights and mortgages on their backsides (*en dorso*). Mutations were recorded by the aldermen when mutations were registered. G. de Longé, *Coutumes de la ville d'Anvers. Coutumes du Pays et Duché de Brabant. Quartier d'Anvers II* (Brussels, 1871), charter of 1582, title 57, article 20; appendix to this charter, procedure before the secretaries, articles 4 and 5.

4. Confusion and resistance in England

Whereas the Low Countries were a confederation of provinces ruled by the Burgundians and Habsburgs, England was much more a central state. While this could have facilitated rationalisation and more uniform and effective registers there nevertheless were many medieval remnants that hampered the emergence of a well-functioning registration system. This was brought to the fore in 1535 by the Statute of Enrolments, which attempted to reduce contracting disorder. The Statute's intent was to reform the way in which people could dispose of their freehold land. They had traditionally done so through private contracts and fines (fictitious lawsuits before royal justices)³⁸, but these made it difficult to establish ownership and presence of debts. The Statute of Enrolments thought to remedy these shortcomings by stipulating that all land transactions henceforth be registered.³⁹

The key problem of the Statute of Enrolments was that it failed to override arrangements of medieval times. People could register at one of Westminster's royal courts – Chancery, Exchequer, King's Bench, or Common Pleas – or with the keeper of the rolls in the county where the land was located. The Statute, however, exempted corporations (e.g. boroughs) that already had their own court of record.⁴⁰ Instead of improving matters, the Statute was unable to implement a clear system as had (almost) been established in parts of the Low Countries. As transactions could be registered at a number of courts, ownership and extent of mortgaging remained hard to establish.

³⁸ P. Brand, 'Aspects of the Law of Debt, 1189-1307', in P.R. Schofield and N.J. Mayhew eds., *Credit and Debt in Medieval England c.1180-c.1350* (Oxford, 2002), 19-41, there 31; C. Briggs, *Credit and Village Society in Fourteenth-Century England* (Oxford, 2009), 83; C. Briggs, 'Credit and the Freehold Land Market in England, c.1200-c.1350: Possibilities and Problems for Research', in P. Schofield and T. Lambrecht eds., *Credit and the rural economy in North-western Europe, c.1200-c.1850* (Turnhout, 2009), 109-127, there 110-113.

³⁹ 27 Hen VIII, c. 16 (1535-1536); F. Sheppard and V. Belcher, 'The deeds registries of Yorkshire and Middlesex', *Journal of the Society of Archivists* 6 (1978-1981), 274-286, there 274, 276.

⁴⁰ Ibid.

Not surprisingly, therefore, the seventeenth-century observers cited earlier agitated against this shared jurisdiction. Yarranton was amazed by the simplicity of registers in the Dutch Republic, where such fragmentation of jurisdiction did not exist. Transactions in Groningen, he explained, were only registered in Groningen. When in Amsterdam one only had to send a letter to that town to establish information about ownership and mortgaging.⁴¹ During the early eighteenth century it was further stated that the Statute 'hath been found by Experience to be of little or no use'. Clerks were not enjoined to carefully store their registers and no specific location was appointed where recording and safekeeping should take place.⁴²

In the absence of well-working registers, information about property rights and existing mortgages became a valuable asset. Some scriveners, laymen who wrote legal documents, specialised in retrieving this information in the records of the various courts. This added search costs that the registers in the Low Countries made redundant. In addition to this service, scrivener Robert Clayton introduced a unique, but time-consuming, service around the middle of the seventeenth century. Clayton's meticulous inspections and land assessments gave him a competitive edge over his colleagues, as was readily acknowledged by contemporary banker Francis Child. Through this elaborate process Clayton was able to accurately assess crucial characteristics of a property. This not only ensured lenders that their money was sufficiently covered, but also that borrowers would not mortgage too large a share of a property. By drafting and registering a detailed deed, the legal part of the deal was also watertight. As mortgage law became more complex the attorney, who had more specific judicial training than the scrivener, took over the services that were earlier provided by the scriveners. It was the attorney who profited from this development. Through his intimate knowledge of the law

⁴¹ Yarranton, *Improvement*, 10-11.

⁴² 2 & 3 Anne, c. 4 (1703; register for the West Riding of Yorkshire); 6 Anne, c. 20 (1706 ; amendment West Riding); 6 Anne, c. 62 (1707; register for the East Riding of Yorkshire).

and the changes that were made to it, he was in a better position to provide his clients with deeds that would hold in court.⁴³

The first effective register was established only in 1703 in the West Riding of Yorkshire. The Act's preamble provided similar arguments for a register as did Child and Yarranton: 'Whereas the West Riding of the County of York is the principal Place in the North for the Cloth Manufacture and most of the Traders therein are Freeholders and have frequent Occasions to borrow Money upon their Estates for managing their said Trade but for want of a Register find it difficult to give Security to the Satisfaction of the Money-Lenders (although the Security they offer be really good) by Means whereof the said Trade is very much obstructed and many Families ruined [...]'.⁴⁴

Notwithstanding these arguments the bill was unsuccessful in 1701 and 1702. In 1703 the West Riding register faced resistance of the Clerks of Enrolment of the Court of Chancery. Despite the Clerks' lack of success, other interest groups were more successful in protecting their privileges and obstructing the introduction of new registers. The failed applications for local registers by the counties of Berkshire, East Riding of Yorkshire, Huntingdon, Middlesex, Surrey, and Wiltshire illustrate this. Although they all followed the West Riding example only the bills of East Riding (1707) and Middlesex (1708) were successful. The Berkshire and Surrey bills were opposed by boroughs that already had a court of record themselves. In the same way the cities of London and York were not included in the Middlesex and Yorkshire Acts. More than a dozen bills for a national register also failed to pass the House of Commons.⁴⁵

⁴³ F.T. Melton, *Sir Robert Clayton and the Origins of English Deposit Banking, 1658-1685* (Cambridge, 1986).

See D.C. Coleman, 'London Scriveners and the Estate Market in the Later Seventeenth Century', *The Economic History Review* **4** (1951), 221-230, for an early discussion of the work performed by scriveners.

⁴⁴ 2 & 3 Anne, c. 4 (1703).

⁴⁵ With the exception of the Bedford Level register (established in 1663 on reclaimed land where no existing rights existed) and the North Riding register (established through 8 Geo II, c. 6 [1734]) these were the only registers established in England. Sheppard and Belcher, 'Deeds registries', 275-277; W.E. Tate, 'The Five English District Statutory Registries of Deeds', *Bulletin of the Institute of Historical Research* **20** (1944), 97-

While vested interests thus hindered the introduction of more effective registers, the West Riding Act shows how shortcomings of existing registers could be remedied. The new register was to be kept in a public office in Wakefield since this was 'the nearest Market Town to the Centre or Middle of the said West Riding'. This office had to be open between 9 and 12 am and 2 and 5 pm on all days except Sundays and holidays. These stipulations show that the government was concerned with the ease with which the register could be accessed. The fees for registering a deed were also specified: up to two hundred words one shilling was charged and each additional hundred words cost 6 pence. Table 3 reconstructs what the relative costs would have been when registering a deed of a given length in combination with mortgages of specific values. Since longer deeds were most likely associated with larger mortgages, the relative costs of registering a deed can be called modest. Identical terms were found in the 1707 (East Riding) and 1735 (North Riding) Acts; but now the registers were located in Beverley and Northallerton.⁴⁶

Searches would be made for 1 shilling, a building worker's day's wage, and copies of deeds could be ordered at the same rates as registering.⁴⁷ Searching was relatively easy since the register was supposed to contain an alphabetical index of the names of places in the West Riding with reference to the number of the deed and the names of the parties involved. In reality, however, these indices were not always properly compiled. Since deeds that were concurred after 29 September 1704 and not recorded in the register were fraudulent and void, people had an incentive to actually use the register. Failure to register was consequently low and this greatly enhanced the register's usefulness as a tool to proof ownership and presence of other mortgages.⁴⁸ Figure 1 illustrates the success of the newly established registers.

105; J. Howell, 'Deeds Registration in England: A Complete Failure?', *The Cambridge Law Journal* **58** (1999), 366-398.

⁴⁶ 2 & 3 Anne, c. 4 (1703).

⁴⁷ Woodward, *Men at work*, 275.

⁴⁸ 2 & 3 Anne, c. 4 (1703); Sheppard and Belcher, 'Deeds registries', 277; F. Sheppard, V. Belcher, and P. Cottrell, 'The Middlesex and Yorkshire deeds registries and the study of building fluctuations', *The London Journal* **5** (1979), 176-217.

Table 3 about here.

Figure 1 about here.

5. Mortgage law

Whereas proper registration systems mattered greatly and were a necessary condition for developing impersonal mortgage markets, they were not a sufficient condition. Lenders and borrowers also had to find mortgage law favourable enough to actually engage in transactions.⁴⁹ It was exactly in this respect that major differences existed between England and the Low Countries. Mortgage law in the Low Countries differed from England in that it protected the interests of both lenders and borrowers. As long as they did not default, borrowers not only stayed in full use but also possession of their real estate. In England, however, real estate was conveyed to lenders upon the signing of mortgages and title remained with them upon default, no matter how small. Owners of real estate therefore preferred to raise capital through more expensive lease constructions. Robert Allen consequently argued that mortgage law was a 'major impediment' to more productive agriculture in England.

While mortgage law was on first sight less strict in the Low Countries, registered mortgages did give lenders a strong position in case of default. In theory they obviated the need for legal proceeding and allowed the mortgaged real estate to be auctioned publicly. In practise public courts usually mediated between borrower and lender, negotiating an instalment plan that allowed the former time to repay his debts, and

⁴⁹ This section builds upon E. Clark, 'Debt Litigation in a Late Medieval English Vill', J.A. Raftis ed., *Pathways to Medieval Peasants* (Toronto, 1981), 247-279, there 264; R. C. Allen, *Enclosure and the Yeoman* (Oxford, 1992), 86, 102-104; D. Sugarman and R. Warrington, 'Land law, citizenship, and the invention of "Englishness": The strange world of the equity of redemption', in J. Brewer and S. Staves eds., *Early Modern Conceptions of Property* (London, 1995), 111-143; L.M. Fisher, 'Renegotiation in the Common Law Mortgage and the Impact of Equitable Redemption', *The Journal of Real Estate and Economics* **32** (2006), 61-82; Briggs, *Credit*, 82-92, for England, and Deneweth, *Huizen en mensen*, 781-1046; Zijderduijn, *Medieval capital markets*, 199-223, for the Low Countries.

acknowledged the claim of the latter.⁵⁰ In case it came to an auction, lenders could participate, although they would not necessarily be the highest bidders and become owners of the property. Instead, the auctions' proceedings minus transaction costs compensated registered lenders in the order in which they had registered their mortgages. Borrowers received what remained, but faced claims on their 'person and goods' when this was insufficient to redeem lenders. Mortgage law in the Low Countries was thus flexible as well as strict towards borrowers and hence more conducive for wide use.

Lawmakers did become aware of these negative characteristics of English mortgage law and started to change it from the late sixteenth century onwards. The right of redemption, for instance, enabled defaulters to reclaim their property after repayment of the principal. This strengthened the position of borrowers and made them more willing to mortgage their real estate. Whereas around 1660 only c.2.5% of the value of real estate was mortgaged this had increased to c.8% during the 1690s. By the early twentieth century this had further grown to over 27%. This increase of course also reflects the growing demand for finance caused by the industrial revolution, but it is hard to imagine this level of growth without the changes in mortgage law.

6. Financial intermediation

Although proper registers and a mortgage law attractive for both lenders and borrowers were important, they were not yet a guarantee for successful transactions. Some future borrowers might have been familiar to wealth holders willing to lend them money, but many were not. Matching borrowers to lenders required the services of intermediaries. Who provided such services seems to have depended on the type of registration system in use. In England it was only logical that scriveners and attorneys expanded their role in mortgage markets by operating as financial intermediaries as well. Through their day-to-day business as writers and legal specialists they acquired information about their clients'

⁵⁰ Zijlenderdijn, *Medieval capital markets*, 219.

financial situation.⁵¹ Attorneys, for instance, were involved in litigation, functioned as estate stewards and trustees, and served on the boards of institutions and companies. Information about the surpluses and preferences of wealth holders enabled them to take up the role of financial intermediary.

The literature has documented these activities in regions such as Lincolnshire, but most is known about Lancashire and Yorkshire.⁵² Letters to and from attorneys demonstrate how this business operated. One client was informed, for example, that before a potential lender could be contacted, he had to specify the wished-for loan size and provide as much detail as possible about the collateral. Attorneys did not always succeed in identifying a match amongst their own clients, but alternative mechanisms nevertheless allowed them to identify other lenders. First, attorneys corresponded with each other asking for and offering lenders or borrowers. Opportunities could also be discussed at the various court meetings that they attended. Second, some attorneys were in contact with London goldsmith bankers and attorneys. Such relationships were convenient not only for gaining access to courts and the stock exchange, but also for accessing yet another pool of potential lenders. Third, if no match could be identified through these networks, the press offered a means of contacting the general public.

In the Low Countries the link between searching the registers and matching borrowers to lenders did not necessarily exist. Registers could be consulted at small fees and their keepers consequently did not possess proprietary information about property

⁵¹ Common law did not require officially sanctioned specialists such as the notary for drawing up legal deeds. See C.W. Brooks, R.H. Helmholz and P.G. Stein, *Notaries Public in England since the Reformation* (Norwich, 1991).

⁵² A.J. Schmidt, 'The Country Attorney in Late Eighteenth-Century England: Benjamin Smith of Horbling', *Law and History Review* **8** (1990), 237-271; B.L. Anderson, 'Provincial Aspects of the Financial Revolution of the Eighteenth Century', *Business History* **11** (1969), 11-22; B.L. Anderson, 'The Attorney and the Early Capital Market in Lancashire', in F. Crouzet ed., *Capital Formation in the Industrial Revolution* (London, 1972), 223-255; M. Miles, 'The Money Market in the Early Industrial Revolution: The Evidence from West Riding Attorneys', *Business History* **23** (1981), 127-146; P. Mathias, 'The Lawyer as Businessman in Eighteenth-Century England', in D.C. Coleman and P. Mathias eds., *Enterprise and History: Essays in Honour of Charles Wilson* (Cambridge, 1984), 151-167.

rights. As the registers were also easy to consult it did not require a specialised searcher to retrieve that information either. This allowed anyone who possessed information about lenders and borrowers, and who could thus bring such parties together, to operate as financial intermediary. Notaries were likely candidates because people may have preferred their help for consulting the registers and writing the sales contract.⁵³ Notaries were familiar with wealth holders as well, but knew relatively little about borrowers. They recorded very few loans and were therefore also uninformed about the recent credit history of potential borrowers. This is not to say that notaries did not provide any intermediary help at all. There is some qualitative evidence, for instance, of a The Hague notary that sought a loan for one of his clients.⁵⁴ Since mortgages had to be recorded in the registers, and not in the notary's own deeds, it is hard to document how much loan intermediation this resulted in. The same problem also exists, however, for brokers and other less obvious intermediaries. While competition between these potential intermediaries may have made it more difficult to generate economies of scale, it will also have reduced opportunities for rent-seeking. The enhanced competition that the effective registers made possible therefore likely benefited lenders and borrowers.

7. Conclusion

This paper contributed to the debate on real estate and mortgage markets, initiated by Hernando de Soto, by examining whether property rights registration really provided a simple and complete solution to the rise of well-functioning and impersonal mortgage markets. The case studies confirmed that good registration facilitated the rise of larger and impersonal mortgage markets. Registers enabled borrowers to present credible information to lenders about property rights and the presence or absence of other

⁵³ This certainly became common in Paris once a public register was established. See Hoffman, Postel-Vinay, and Rosenthal, *Priceless Markets*.

⁵⁴ National Archives, The Hague, Archief van de familie Van der Staal van Piershil, 1636-1904 (entry number 3.20.54), inv.nr. 353. See C. van Bochove and H. Kole, 'The Private Credit Market of Eighteenth-Century Amsterdam' (Unpublished paper 2013) for a more elaborate discussion.

mortgages. This allowed purchasers and owners of real estate to attract funding beyond their personal networks.

Setting up registers, however, was far from simple because there did not exist ready-to-use blueprints. The case studies showed that it took urban and regional rulers several centuries to fine-tune the various local registers. This process was strongly influenced by medieval legacies of real estate ownership. These medieval roots, and the vested interests that they had created, hence exerted a long-term influence on the financial and economic possibilities of regions. The English case illustrated this perhaps best, but also showed an ability to change institutions that hampered economic development.

Property rights registration was a necessary but not a complete solution for the emergence of broad mortgage markets, however. The case studies showed that mortgage law could provide an impediment to entering mortgage markets on a wide scale. Only where the law contained the right conditions did lenders and borrowers find mortgages sufficiently attractive to use. Yet even in the presence of good registers and favourable mortgage law lenders and borrowers could still fail to identify each other. Intermediaries could solve such information asymmetries, but their functioning depended strongly on the registration system. Where registration was effective, entry barriers for intermediaries were low and competition curtailed rent-seeking opportunities.

This paper therefore argues that the registers De Soto appealed for neither provide a simple nor a complete instrument for the flourishing of broad mortgage markets. The complexities and long-term consequences of establishing them should serve as a warning for present-day policymakers to adapt the registration systems to the exact needs of the financial markets they aim to support.

Tables and figures

Table 1: Tariffs for registration.

	Year	Tariff (in stivers)	Day wages
Holland			
Land van Putten	1479	5	1.8
Goedereede	1491	0,5	0.2
Haarlem	16th century	2	0.2-0.6
Noordwijk	1527	2 (incl. copy)	0.6
Heenvliet	1536	5	1.3
Middelharnis	1664	30 (annuity or debt – incl. copy)	1.6
		18 (deed or <i>kusting</i> – incl. copy)	0.9
Leiden	1668	30 (annuity or debt – incl. copy)	1.6
		42 (idem, large contracts)	2.2
Amstelveen	1700	24	1.3
De Zijpe	1717	12-18	0.7-1.0
Flanders			
Bruges	1579	2 (registering transfer/ mortgage)	0.4
		1 (searches for third parties)	0.2
		2 (copy after search)	0.3

Sources: Land van Putten: Pols, 'Oudste rechten', 158-159. Goedereede: M.S. Pols ed., 'De rechten der stad Goedereede' *Verslagen en Mededeelingen van de vereniging tot uitgave der bronnen van het Oude Vaderlandsche Recht* 2 (1886), 288-357, 310. Haarlem: J.G.C. Joosting ed., 'Haarlemsche dingtalen' *Verslagen en Mededeelingen van de vereniging tot uitgave der bronnen van het Oude Vaderlandsche Recht* 2 (1886), 620-639, 634-635. Noordwijk: Historisch Archief Gemeente Noordwijk, inv. nr. 115. Heenvliet: M.S. Pols ed., 'De keuren van Heenvliet van 1536' *Verslagen en Mededeelingen van de vereniging tot uitgave der bronnen van het Oude Vaderlandsche Recht* 1 (1882) 210-223, 221. Middelharnis: *Lijste van't salaris voor balliu, schout, leenmannen, schepenen, secretaris ende boode van Middelharnisse* (Delft 1664). Amstelveen: *Reglement*, 21. De Zijpe: *Octroyen, privilegiën ende keuren: mitsgaders de ordonnantie van de weeskamer en vierschaar van Oude-Zijpe en Hase-polder* (Alkmaar 1717). Bruges: L. Gilliodts-van Severen, *Coutumes des pays et comté de Flandre. Quartier de Bruges, Tome second: Coutumes de la ville de Bruges* (Bruxelles, 1875) 426-432; Wages: L. Noordegraaf, *Hollands welvaren? Levensstandaard in Holland, 1450-1650* (Bergen, 1985) 73; J. de Vries and A. van der Woude, *The first modern economy*:

Success, failure, and perserverance of the Dutch economy, 1500-1815 (Cambridge, 1997), 610-611; E. Scholliers, 'Lonen te Brugge en in het Brugse Vrije (XVe-XVIIe eeuw)', in: C. Verlinden et al. eds., *Dokumenten voor de geschiedenis van prijzen en lonen in Vlaanderen en Brabant* (Brugge, 1959-1973), II, 87-160.

Note: The wages of unskilled construction workers were used.

Table 2: Number of transactions registered in towns and villages (13th-17th centuries).

	Period	Years	Real estate	Mortgages	Per annum	Inhabitants	Per 1,000 inhabitants p.a.
Holland							
Haarlem	1471-1555	85	25,160	2,493	325	16,000	20.3
Edam	1564	1	174	120	294	6,000	49.0
Mijnsheerenland	1532-1543	12	33	47	7	400	16.7
Brabant							
Antwerp	1545	1	300	364	664	80,000	8,3
	1555	1	153	187	340	80,000	4,3
	1585-1610	6	463	406	145	48,500	3,0
Flanders							
Ghent	1483-1502	20	2,900	2,075	249	45,000	5.5
	1525-1580	7	2,735	1,823	651	43,500	15.0
	1590-1641	6	1,262	1,163	404	36,000	11,2
Bruges	1580-1799	220	46,209	29,422	344	31,000	11.1

Source: Haarlem: Zijderduijn, 'Conjunctuur'. Edam: J.L. van Zanden, J. Zijderduijn and T. de Moor, 'Small is beautiful: The efficiency of credit markets in sixteenth-century Holland, *European review of economic history* 16 (2012) 3-23. Mijnsheerenland: L. Helms van Eis ed., 'Register ende protocol van eigen- ende rentbrieven van Moerkercken, ingaende anno XVc XXXII ende eindigende metten jare 1552', *Ons voorgelacht* (1982) 97-123 and *Ons voorgelacht* (1985) 143-155, 349-370. Antwerp: H. Soly, 'De schepenregisters als bron voor de conjunctuurgeschiedenis van Zuid- en Noordnederlandse steden in het Ancien Régime. Een concreet voorbeeld: de Antwerpse immobiliënmarkt in de 16^{de} eeuw', *Tijdschrift voor Geschiedenis*, 87 (1974) 521-544; L. Meulenaere, *De verhandeling van onroerende*

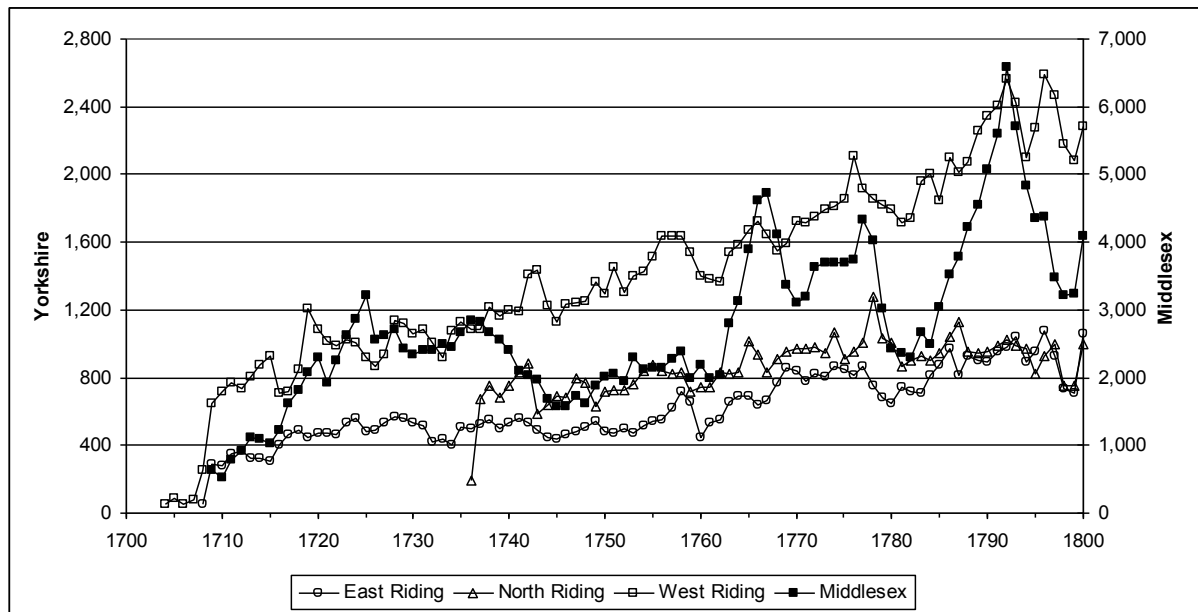
goederen te Antwerpen, 1585-1595 (unpublished thesis; Ghent, 1973); J. Jaspers, *De verhandeling van onroerende goederen te Antwerpen (1600-1610)* (unpublished thesis; Ghent, 1973). Ghent: M. Boone, M. Dumon, and B. Reusens, *Immobiëlenmarkt, fiscaliteit en sociale ongelijkheid te Gent 1483-1503* (Kortrijk, 1981); J. Dambruyne, *Mensen en centen: Het 16de-eeuwse Gent in demografisch en economisch perspectief* (Ghent, 2001) 130, 156; J. Dambruyne, 'De Gentse immobiëlenmarkt en de economische trend, 1590-1640', *Bijdragen en mededelingen betreffende de geschiedenis der Nederlanden* 104 (1989), 157-183. Bruges: H. Deneweth, *Huizen en mensen: Wonen, verbouwen, investeren en lenen in drie Brugse wijken van de late middeleeuwen tot de negentiende eeuw* (unpublished PhD; Brussels, 2008).

Table 3: The relative costs of registering a mortgage deed in the West Riding of Yorkshire.

words	pence	days work	£50	£100	£500	£1,000
200	12	1	0.10%	0.05%	0.01%	0.01%
500	30	2.5	0.25%	0.13%	0.03%	0.01%
1,000	60	5	0.50%	0.25%	0.05%	0.03%
2,500	150	12.5	1.25%	0.63%	0.13%	0.06%
5,000	300	25	2.50%	1.25%	0.25%	0.13%

Source: Based on 2 & 3 Anne, c. 4 (1703); Woodward, *Men at work*, 275.

Figure 1: Deeds registered in Yorkshire and Middlesex.



Source: Francis Sheppard, Victor Belcher, and Philip Cottrell, 'The Middlesex and Yorkshire deeds registries and the study of building fluctuations', in: *The London Journal* 5 (1979), 176-217, there 209-212.