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Eighteenth-Century Irish Interest Rates – Market Failure in a Booming Economy

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Abstract

The purpose of this paper is to provide the first time series of interest rates in the Irish mortgage market of the eighteenth century.[1] This time series, when combined with new data on the investment returns from land and other types of investments, sheds light on the determinants of interest rates in economies without a central bank.

This paper is relevant to two key global economic history issues for the period: the influence of institutions on economic growth and the timing of the 'Great Divergence' between Western Europe and the rest of the world.[2] However, the primary questions dealt with are how did Irish rates compare with English ones and how did they influence the development of the Irish economy?

Interest rates are 'an important index of the quality of the institutional framework' and this paper examines the development of Irish rates and shows how they compare to other economies.[3] The paper demonstrates that Irish interest rates were consistently higher than equivalent English ones and that the Irish mercantile and industrial sectors were handicapped as a result. This spread is not attributable to risk premia caused by differences in institutional effects but rather by the relative risk/return hierarchy of different investment types, notably by the exceptionally high returns on Irish land. Credit market failure was the result for much of the century as the unrealistic usury maximum caused credit rationing. There was also a sustained strong correlation between English and Irish rates.[4] However, this correlation was not due to direct market integration, since the English and Irish markets were

[1] Thanks are due in the preparation of this paper to the very useful participant feedback provided when it was presented at the meeting of Irish Quantitative Historians at Trinity College Dublin in January 2024 and the Economic History Society Conference of April 2024 and also to Tracey Earl, the archivist at Coutts Bank and Professor Liam Kennedy of Queens University Belfast who provided responses to specific queries.

[2] Of specific relevance to the role of institutions in this time period see D. North and B. Weingast, "Constitutions and Commitment: The Evolution of Institutions Governing Public Choice in Seventeenth-Century England," *Journal of Economic History* 49, no. 4 (1989): 803-32 and for the Great Divergence see K. Pomeranz, *The Great Divergence: China, Europe, and the Making of the Modern World Economy* (Princeton: Princeton University Press, 2009).

[3] van Zanden, J.L., *The Long Road to the Industrial Revolution: The European Economy in a Global Perspective, 1000-1800,* (Boston: BRILL, 2009): 4.

[4] Note that if Irish markets were correlated with any other geography it was England, or perhaps more accurately, London, see M. Flandreau, C. Galimard, C. Jobst, and P.N. Marco, "Monetary geography before the Industrial Revolution," *Cambridge Journal of Regions, Economy and Society* 2, no. 2 (2009): 149–71.

segregated, but rather the two markets were reacting in the same way to external stimuli such as wars.

Structure

The paper has the following structure. Firstly, the previous scholarship is reviewed. The background economic and institutional structure is then addressed, before presenting the main results gained from mining the data in the Irish Registry of Deeds ('RoD').[5] The mortgage interest rate data produced are then validated by a search of mortgage data sources within the Public Record Office of Northern Ireland ('PRONI'). The impact of institutions on Irish rates is considered and data regressions are provided to show what features of the mortgages influenced interest rates. Comparative analyses are then made with other interest rates both within Ireland and elsewhere, along with a review of the apparent impact of exogenous events. The returns on investment from providing mortgage finance and investment in land, also derived from the RoD, are compared. Finally, initial conclusions as to the research questions and suggestions for further research are provided. Excel database files and an Appendix to this paper contain all the relevant data and methodological details.

Previous Scholarship – International Context

In the particular context of eighteenth-century economies, North and Weingast claimed that the Glorious Revolution was key to subsequent British economic growth, increasing the predictability of government and reducing the chances of expropriation, thus enhancing and securing property rights and enabling state borrowing at lower interest rates. This in turn helped the development of the Financial Revolution and brought lower private sector interest rates which stimulated investment and entrepreneurial activity.[6] However, Ireland did not

[5] For a description of the Registry and the background to its establishment see P. Roebuck, "The Irish Registry of Deeds: A Comparative Study," *Irish Historical Studies* 18, no. 69 (1972): 61-73.
[6] However, this conclusion has been challenged in G. Clark, "The Political Foundations of Modern Economic Growth: England, 1540-1800," *Journal of Interdisciplinary History* 26 (1996): 563-88, S. Quinn, "The Glorious Revolution's Effect on English Private Finance: A Microhistory 1680-

enjoy the three key institutional benefits ascribed by North and Weingast to the English regime change: parliamentary supremacy, strong parliamentary powers over taxation and spending, and judicial independence.[7]

So, for comparative purposes we have two countries under the same crown, geographically close, with significant cultural similarities, at a similar degree of economic and scientific development, one which subsequently enjoyed the ascribed benefits of the Glorious Revolution and one which did not. A comparison may therefore be useful in identifying whether the characteristics identified were indeed of significance in promoting growth. It is difficult to measure and assess institutional change, but North and Weingast argued that capital markets provide 'one of the few means for empirically evaluating the effects of the Glorious Revolution'.[8] Hence the importance of interest rates.

Turning from one revolution to another, the eighteenth century was the period of the Financial Revolution in London, when new institutions and securities developed to reduce transaction costs and assist economic growth.[9] In the area of interest rates this included relevant developments such as tradeable state debt, state lotteries, annuities and annuity companies, the growth in joint-stock companies, private debentures and the rise of a financial services sector. This sector included banks which moved beyond their traditional restricted activities to offer loans and take mortgages, although in Ireland the banks at this period do not seem to act in this way.[10] The Financial Revolution was not, however,

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1705," *Journal of Economic History* 61, no.3 (2001): 593-615,P. Temin and H-J. Voth, "Private borrowing during the financial revolution: Hoare 's Bank and its customers, 1702-24," *Economic History Review* 61, no. 3 (2008): 541-64 and Y. Yishay and N. Sussman, "Institutional reforms, financial development and sovereign debt: Britain 1690-1790," *Journal of Economic History* no. 66 (2006): 906-35.

[7] For Irish parliamentary subservience to both the Westminster parliament and the crown see: 4 Will. & Mary, c. 1. The Irish judiciary only became independent of the crown in 1782, 21 & 22 Geo. III, c. 50.

[8] North & Weingast, *Commitment*, 819.

[9] The literature on the subject is immense but see C.I. McGrath and C. Fauske, *Money, Power and Print: Interdisciplinary Studies on the Financial Revolution in the British Isles*, (Cranbury: University of Delaware Press, 2008): 13-16 for a summary of the historiography.

[10] See for instance Temin and Voth's studies of the activities of Hoare's bank in London, Temin and Voth, *Hoare's*. For Irish bank lending activity see L.M. Cullen, "Landlords, bankers and merchants: the early Irish banking world, 1700-1820," in *Economists and the Irish Economy from*

constrained to the British Isles and similar developments took place across Europe with varying degrees of success.[11]

Since one of the key questions this paper seeks to answer is the nature of the relationship with English interest rates, I needed to have access to time series of eighteenth-century rates in England. There are many sources for general interest rates, but surprisingly relatively little scholarly work has been undertaken on English mortgage rates. This is in part due to the lack of a nationwide repository of information comparable to the Irish Registry of Deeds.[12] For the reasons which are explained later in this paper, I have used the data compiled by Ward.[13]

Previous Scholarship - Ireland

Turning to the Irish economy of the eighteenth century, Lecky's great multi-volume history only touches on economic topics.[14] Of more specific interest in terms of economic history are the works of Cullen, who described the Irish economy as experiencing a 'secular expansion of striking force for the greater

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the Eighteenth Century to the Present Day, (ed.) A.E. Murphy (Dublin: Irish Academic Press, 1983): 25-44. For Irish banks' broader involvement with mortgages see R. Dudley, "The Failure of Burton's Bank and its Aftermath," *Irish Economic and Social History* 40 (2013): 5-6.

[11] See, for instance, P.T. Hoffman, P.T., G. Postel-Vinay, and J-L. Rosenthal, *Dark Matter Credit: The Development of Peer-to-Peer Lending and Banking in France*, (Princeton: Princeton University Press, 2019 for the failure of attempts to develop similar structures in France. This in-depth study collected mortgage data from 1740, when 86% of loans were at the French usury rate of 5% and from 1780 when 97% were at 5%. They then make the statement that for the whole period that 'what was happening was that virtually all loans were made at a five-percent interest rate', Hoffman et al, *Dark*: 196. This is a questionable conclusion from such a small sample. The equivalent figures for Ireland in 1740 and 1780 from my data of deals done at the usury rate are very similar to the French ones, 83% (cf 86%) and 97% (cf 97%) respectively, but this masked a great deal more market activity in the intervening years as shown in Figure 3. It is certainly conceivable that French rates also varied in this period. As such, until further in-depth research is undertaken, the French data is of little use to this paper.

[12] In the eighteenth century the only property transaction registers in England were in Middlesex and Yorkshire, see J. Howell, "Deeds Registration in England: A Complete Failure?" *Cambridge Law Journal* 58, no. 2 (1999): 372-77 and K. O'Rourke and B. Polak, "Property Transactions in Ireland, 1708-1988: An Introduction," *Irish Economic and Social History,* 21, (1994): 58.

[13] J.R. Ward, *The Finance of Canal Building in Eighteenth Century England,* (Oxford: Oxford University Press, 1974): Table IV.

[14] W.E.H. Lecky, *A History of Ireland in the Eighteenth Century,* (London: Longmans, Green, 1892).

part of the eighteenth century'.[15] This contrasts with O'Brien's earlier work on the eighteenth century which stated that ' the condition of Ireland all through the century was going from bad to worse'.[16] I will examine which interpretation is more realistic later in this paper.

Turning to the financial markets, a paper of relevance to this subject is Solar and Hens' work on the value of Irish land from 1730.[17] As regards the credit markets, Lynch and Vaizey took the view that given the limited size of the internal Irish markets of the eighteenth century, the economy was largely insulated from credit crises.[18] Cullen views this position as untenable and, as we will see below, my new evidence would be supportive of Cullen's viewpoint.[19]

Any assessment of financial conditions would be pointless unless the background as to price inflation is understood. The primary work on compiling a cost of living price index was completed by Kennedy and shows, with the exceptions of the famine years of 1740 and 1800, long-term price trends as broadly flat for the first half of the century and then prices doubling over the second half.[20] In England, the linkage of the pound to specie for the period to 1797 constrained underlying inflation and presumably the same applied to Ireland to some degree. In Bordo

[15] L.M. Cullen, "Problems in the Interpretation and Revision of Eighteenth-Century Irish Economic History," *Transactions of the Royal Historical Society*, 17 (1967): 11. Significant works on the economy of eighteenth-century Ireland include other works of Cullen, particularly L.M. Cullen, *An Economic History of Ireland since 1660*, (London: Batsford Ltd., 1987), D. Dickson, *New Foundations: Ireland 1660-1800* (Dublin: Irish Academic Press, 2000): particularly 116-17, and for the later part of the century C. Ó Gráda, *Ireland: A New Economic History 1780–1939*, (Oxford: Oxford University Press, 1995). For consideration of eighteenth-century Ireland within a wider Atlantic economy see D. Dickson, *Old World Colony: Cork and South Munster, 1630-1830*, (Cork: Cork University Press, 2005) and S.J. Connolly, *Divided Kingdom: Ireland 1630-1800*, (Oxford: Oxford University Press, 2008) particularly the chapter entitled 'Atlantic Island'.
[16] G. O'Brien, *The Economic History of Ireland in the Eighteenth Century*, (Dublin: Maunsel, 1918): 223.
[17] P. Solar and L. Hens. "Land under Pressure: The Value of Irish Land in a Period of Rapid Population Growth, 1730-1844," *Agricultural History Review* 61, no. 1 (2013): 40–62.
[18] P. Lynch and J. Vaizey, *Guinness's brewery in the Irish economy*, 1759- 1876, (Cambridge: Cambridge University Press, 1960): 26.
[19] Cullen, *Interpretation*, 8.
[20] See L. Kennedy, "The cost of living in Ireland, 1698-1998," in *Refiguring Ireland* D. Dickson and C. Ó Gráda (eds.), (Dublin: Lilliput Press, 2003): Table 14.2 and 14.3, L. Kennedy and M.W. Dowling, "Prices and wages in Ireland, 1700-1850," *Irish Economic and Social History* 24 (1997): 62-104 and L. Kennedy and P.M. Solar, *Irish agriculture: a price history, from the mid-eighteenth century to the eve of the First World War,* (Dublin: Royal Irish Academy, Dublin, 2007).

and White's view this meant that the English nominal interest rates of the eighteenth century should be good proxies for the real interest rates, and by extension the same might be proposed for Irish ones, but the inflation of the second half of the century, though averaging less than 2% a year, needs to be borne in mind.[21]

Institutional Structures

In the eighteenth century had a peculiar Ireland had a curious constitutional position. It was 'a province of Britain' which was 'not a colony, for it had its own monarch…parliament and privy council'.[22] The crown had more power in Ireland than in England and the Irish parliament was essentially subordinate to that in England once the Declatory Act had been passed.[23] This resulted in a concentration of agency within the crown's hands which Cullen described as 'the excessive weight of the executive within the balance of power in Irish government'.[24]

In both England and Ireland, maximum usury interest rates applied throughout the eighteenth century. In Ireland these were higher than in England, being 10% up until 1703, when the rate was reduced to 8%.[25] There were further reductions in 1721, to 7%, and to 6% in 1731.[26] English rates were reduced from 6% to 5% in

[21] M.D. Bordo and E.N. White, "A Tale of Two Currencies: British and French Finance During the Napoleonic Wars," *Journal of Economic History* 51, no. 2 (1991): 307. See Kennedy and Solar, *Price* for food price increases.
[22] C. Fauske, "Misunderstanding what Swift Misunderstood, or, the Economy of a Province," in *Money, Power and Print: Interdisciplinary Studies on the Financial Revolution in the British Isles*, C.I. McGrath and C. Fauske (eds.), (Cranbury: University of Delaware Press, 2008), 137.
[23] See Fauske, *Misunderstanding*, 137-9 for a brief summary of the complexities of Ireland's constitutional position.
[24] Cullen, *Problems 1967*, 2.
[25] 2 Anne, c.16.
[26] See B. Twomey, "*Personal financial management in early eighteenth-century Ireland: practices, participants and outcomes*" (PhD diss., Trinity College Dublin, 2018), 36-7 for reductions in the usury rate. McGrath, ascribed the rationale for the second reduction to the need to 'induce people to lend their money to the government at 5 percent, when all other securities, which are certainly more precarious, are reduced to 6 percent', C.I. McGrath, "The Irish Experience of "Financial Revolution" 1660-1760," in *Money, Power and Print: Interdisciplinary Studies on the Financial Revolution in the British Isles* C.I. McGrath and C. Fauske (eds.) (Cranbury: University of Delaware Press, 2008): 177 citing Nat. Arch. ; *Stat. Ire.* 5:508-10.

1714, but otherwise remained unchanged.[27] The law on usury applied to loans including mortgages with an amount loaned of more than IR£100, but it did not seem to apply to other forms of financial transactions such as annuities, as we will see below.[28] Also usurious deals will have occurred, for example through the practice of an added 'douceur' given to the lender.[29] The level of, and need for, a usury rate was controversial and was notably the subject of a debate between Jeremy Bentham and Adam Smith.[30] It should be noted that, in the absence of deposit bank accounts, mortgages and loans were a significant, perhaps the dominant, investment sector for those with investment capital.[31]

The structure of mortgages in Ireland is worth discussing since their open-ended structure complicated considerably their liquidity and attractiveness from the perspective of an investor. We need to move away from our present-day view of mortgages as being used primarily for funding a purchase of real estate by an individual who borrows from a corporate entity.[32] In the eighteenth century these transactions were generally person-to-person loans, where the motivation of the lender was to create a stream of income from a fixed sum of money, for example to secure an income for a daughter or orphans.

Mortgages typically took a legal form where the lender did not enter into direct ownership and use of the pledged property unless the borrower defaulted.[33]

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[27] See Temin and Voth, *Hoare's* for a discussion of the impact of the reduction in usury rates in England. D. Cassidy, *"Irish exchange rates 1698–1826: credit, market integration, and international trade"* (PhD diss., NUI Galway, 2021), 60 is incorrect in stating that the reduction also applied to Ireland.
[28] Twomey, *Financial*, 38.
[29] See for example, an advertisement of a somewhat later date where a 'handsome douceur' was offered to secure a deal, *Freemans Journal*, 12 December 1825.
[30] J. Bentham, Defence of Usury, (London: Anon, 1787). See also S. Hollander, "Jeremy Bentham and Adam Smith on the Usury Laws: A 'Smithian' Reply to Bentham and a New Problem," *European Journal of the History of Economic Thought* 6, no. 4 (1999): 523–51.
[31] According to P. Earle, *The Making of the English Middle Class*, (London: Methuen, 1989): 146 in England at least, up until 1720, they constituted the largest investment sector when compared to leases, government debt, company securities and shipping.
[32] Though they could be used for funding building work, particularly in Dublin, see B. Twomey, "Financing Speculative Property Development in Early Eighteenth-Century Dublin," in *The Eighteenth-century Dublin Town House* (ed.) C. Casey, (Dublin, Four Courts Press, 2010): 29-45.
[33] There were also loans where no specific property was pledged, but rather the lender held a personal bond with a penalty value, typically twice the amount of the loan, in the event that the borrower defaulted.

Although the stated duration is often for a short period of a year of less, in reality, after an initial period, the lender could unilaterally demand repayment or the borrower could, equally unilaterally, choose to repay.[34] Whilst these were open-ended contracts, the average real duration of the first 200 Irish mortgages which were certified as repaid in the RoD was calculated by Twomey at around six years.[35] Mortgages could also take the form of rent charges, whereby a stream of rental income was pledged to repay the interest, and in some cases, the principal outstanding on an existing loan or debt.[36] This should in theory have provided the creditor with greater security.

Twomey stated that 'lenders had legally enforceable processes by which they could take valid security for their loans. In addition the court system was sufficiently robust that court decrees ordering the disposal of the property pledged as security by defaulting debtors by public cant to repay the lenders were issued and prosecuted through to completion.'[37] However, recovery could be an expensive and lengthy process, particularly when borrowers appealed to English courts through 'writs of error' and the additional costs and risks to lenders should not be underestimated.[38] Imprisonment for debt, even for relatively small sums of less than IR£20, was common but not without controversy or universally popular.[39] However, imprisonment was generally related to unsecured rather than secured debt default.[40]

We are fortunate that, unlike the case in the other countries of the British Isles, a central Registry of Deeds was established in Ireland, covering significant

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[34] See Twomey, *Financial,* 119.
[35] Twomey, *Financial*, 108.
[36] For an example where the rent charge covered both principal and interest see RoD 257968 (1787).
[37] Twomey, *Financial*, iii.
[38] S. Moore, "'Vested' Interests and Debt Bondage: Credit as Confessional Coercion in Colonial Ireland," in *The Empire of Credit: The Financial Revolution in the British Atlantic World, 1688-1815* (eds.) D. Carey and C. Finlay, (Dublin: Irish Academic Press, 2007): 225-6.
[39] M.J. Powell, "Credit, Debt and Patriot Politics in Dublin, 1763-1784," *Eighteenth-Century Ireland / Iris an dá chultúr* 25 (2010): 127-37.
[40] For the typical social status of Dublin's debtors see P. O'Connor, "Debtor's in Dublin Prisons, 1730-1," *Dublin Historical Record* 6, no. 2 (1944): 75-80.

financial transactions including for our purposes, mortgages. The purpose of the RoD was to provide security to purchasers and prevent forged and fraudulent transactions.[41] It was not a criminal offence to refuse to register a transaction but by so recording, the legal status of the transaction and its enforceability under law was enhanced. When a deed or transaction was registered, a memorial containing the main elements was entered in the Register and these records exist for all years from 1708 onwards.[42] Mortgages were recorded within the Register along with land sales, leases and other similar transactions.[43]

A specifically Irish institution was the Penal Law system against Roman Catholics and Dissenters/ Presbyterians introduced after the Williamite laws to secure the Anglican ascendancy and the Registry of Deeds was one of the bodies established to help enforce those laws by publicly documenting all property transactions. In property-related transactions the Penal Laws significantly disadvantaged Catholics.[44] In particular, there were restrictions on Catholics owning and renting land and they were forbidden from lending money on mortgage. As a result of the Penal Laws Irish capital markets became 'limited access' institutions.[45] Thus, in the early part of the eighteenth century, Twomey noted that 'Catholic money' was almost invisible in the sources used in his thesis.[46] However, Catholics could borrow money legally, and are seen as tenants in leases.

[41] P. Phair, "Guide to the Registry of Deeds," *Analecta Hiberna* 23 (1966): 259.
[42] Details of some transactions which pre-date 1708 are contained in some of the background 'recitals' of the memorials. Photos of all the volumes of the Registry of Deeds are available online at https://www.familysearch.org/, and a partial indexing and extraction of data has been completed at https://irishdeedsindex.net/.
[43] There is a concern that the data contained in the Registry is not fully reflective of the Irish Catholic majority, but the capital and land was held primarily by the Protestant elite.
[44] See L.M. Cullen, "Catholics under the Penal Laws," *Eighteenth-Century Ireland / Iris an dá chultúr* 1 (1986): 23-36. Dissenters were discriminated against more as regards their political rather than property rights, see R.E, Burns, "The Irish Penal Code and Some of Its Historians," *The Review of Politics* 21, no. 1 (1959): 293.
[45] S. Ogilvie, "'Whatever Is, Is Right'? Economic Institutions in Pre-Industrial Europe," *Economic History Review* 60, no. 4 (2007): 671.
[46] Twomey, *Financia*l, 31.

In any economic study, transaction costs are of importance. Mortgage markets needed the involvement of intermediaries to bring parties together, reduce information costs, asymmetry and risks and document the transactions. These parties included scriveners, notaries and lawyers.[47] In the case of a mortgage transaction fees include those for bringing the parties together, writing the document and the RoD fees for registration and searches.[48] There are also due diligence costs to satisfy the lender as to the quality of the security being offered and the general creditworthiness of the borrower. As noted above, other costs included side payments or 'douceurs' when credit was tight. Costs would also be payable on repayment. In a rare example where such costs are quoted in the memorial this brought the effective interest rate payable up to in excess of 22%.[49] But perhaps the greatest potential costs related to borrower default. As to taxation there was no Irish equivalent to the English land tax and no Stamp Duty was paid, but income tax did apply.[50] Note also that Irish pounds were different from the lawful money of Great Britain and traded at a discount throughout the period.[51]

Unlike Great Britain, Ireland had no central bank during most of the eighteenth century, until the establishment of the Bank of Ireland in 1783.[52] Attempts were made in the 1720's and 1730's to establish a central bank but were defeated in the Irish parliament.[53] According to Twomey, banks although they had an important role in the 'discounting of ….bills of exchange, early-eighteenth-

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[47] See M. Miles, "The Money Market in the Early Industrial Revolution: The Evidence from West Riding Attorneys c. 1750-1800," *Business History* 23, no. 2 (1981): 127-46 for the role of intermediaries in contemporary English mortgage markets and the section below on Irish advertisements.

[48] See Twomey, *Financial*, 38 for the legal limits on commission payable. An example of the registration and other costs associated with the memorialisation of a mortgage is given in PRONI, D671/D/8/1/125 (1736) where these totalled 11 shillings and nine pence. Despite these costs mortgages could be made for relatively small loan amounts.

[49] RoD 155015.

[50] Dickson, *Foundations*, 83. See Clay, *Price*, 182 for the levels of English land tax.

[51] See Appendix for further details on the Irish currency.

[52] D. Carey, "An Empire of Credit: English, Scottish, Irish and American Contexts," in *The Empire of Credit: The Financial Revolution in the British Atlantic World, 1688-1815* (eds.) D. Carey and C. Finlay, (Dublin: Irish Academic Press, 2007): 11.

[53] See C.G. Caffentzis, "Why Did Berkeley's Bank Fail? Money and Libertinism in Eighteenth-Century Ireland," in *The Empire of Credit: The Financial Revolution in the British Atlantic World, 1688-1815* (eds.) D. Carey and C. Finlay, (Dublin: Irish Academic Press, 2007): 229-48.

century banks played (almost) no role in what would today be recognised as deposit or lending banking'.[54] Some contemporaries believed that Irish banks lent money on mortgages, but there is little direct evidence of this in the RoD and Cullen dismissed this theory.[55] Cullen noted a 'rapid growth' of banks in the eighteenth century and 'the acute shortage of coin which made bankers more capable of forcing their notes on the community which, in turn, was ready to accept them in the place of the medley of worn or underweight English and foreign gold'.[56] Unfortunately the sources in the RoD do not provide information on how the transfer of money was made in the transaction, whether through physical payment of specie or by transfer of credit balances. However, the surprising lack of specificity as to the type of coinage to be repaid (typically it is simply described as 'sterling') might indicate that banks did have a significant role in facilitating the transfers.[57]

Register of Deeds – data mining and sampling issues

In order to follow a systematic approach to obtaining data on interest rates within the mortgage market, I adopted a three-pronged approach. My primary source of data was from the RoD and example of a memorial is provided in Figure 1, which shows memorial 877 from 1709 which is a mortgage of land in Tipperary for IR£400. The data is of high quality and available online through the Mormon Church website, since all the Registries were microfilmed in the 1960's as part of the Mormon Church's project to baptise the dead.

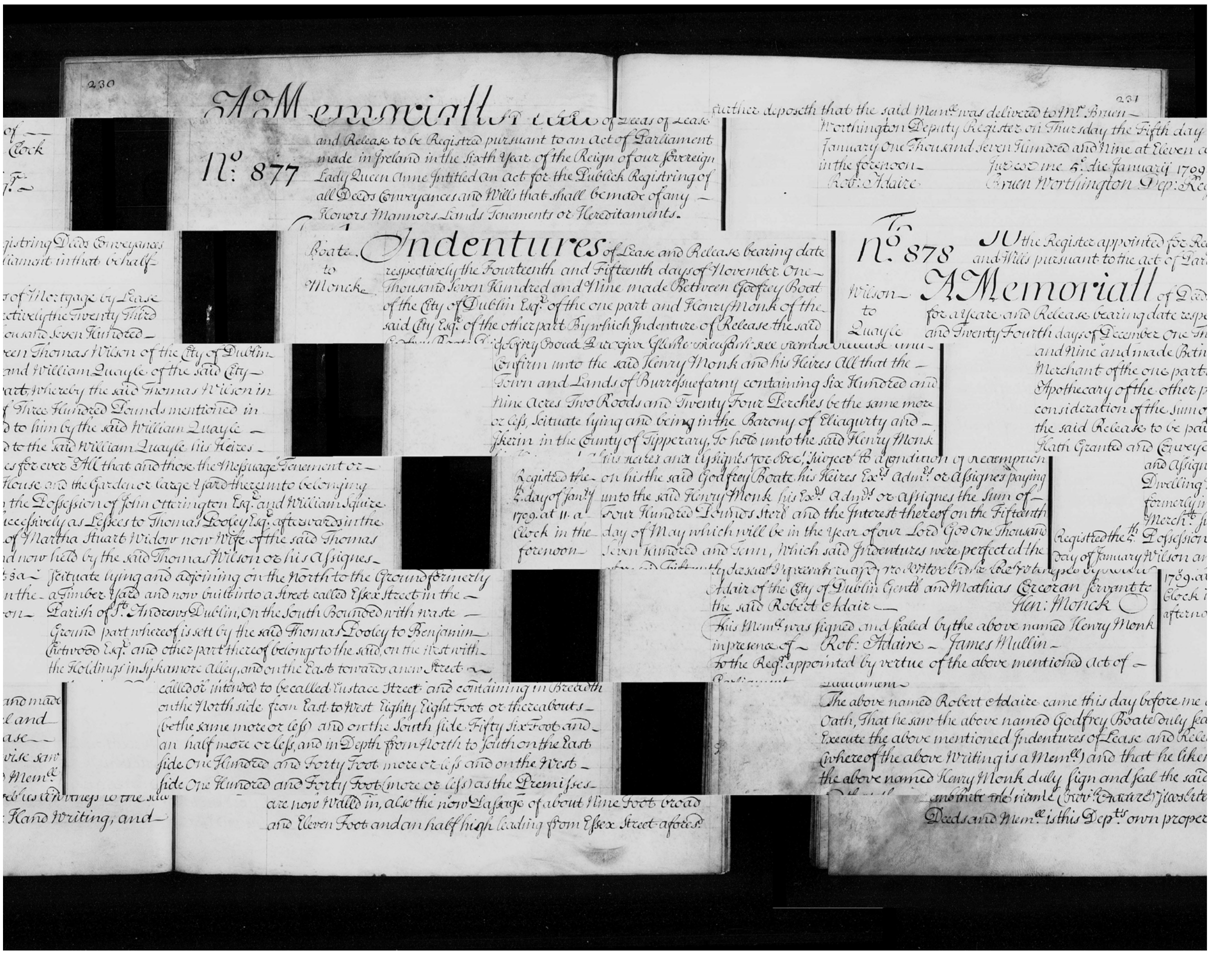
[54] Twomey, *Financial*, 58.

[55] See Anon, *Considerations on the present calamities of this Kingdom and the causes of the decay of Public Credit* (Dublin: Anon, 1760): 4. and L.M. Cullen, "The Exchange Business of the Irish Banks in the Eighteenth Century," *Economica*, 25, no. 100 (1958): 333. A rare example of bankers with an interest in a mortgage in my sample is in RoD 281940 from Limerick in 1790/1791, but the transactions are difficult to identify since bankers could register memorials in their personal names without reference to any corporate banking entity, as is the case in RoD 247052 of 1785 where the Latouche bankers record their loan of IR£300 to Lady Ann Fitzgerald on the security of Dublin property at 'lawful interest'.

[56] Cullen, *Business*, 328.

[57] If the money had been loaned as specie it would be reasonable for the lender to document a requirement that specie of a similar weight or quality was to be repaid, but this is rarely the case.

Fig. 1 Example Memorial[58]



However, I also searched newspaper archives and the PRONI to validate the data gathered from the Register. I gathered simple data, where it was available, on the amount, interest rate, location of the security (by province), its nature (whether urban property or rural land), the location of the lender (whether in Ireland or elsewhere) and the year of the transaction.[59] Unfortunately given the options to repay at any future date or to call in the loan, the term of the loan is rarely available in the eighteenth-century RoD data and thus I was unable to determine any durations and thus to construct any yield curves.

[58] Source: https://www.familysearch.org/ark:/61903/3:1:3Q9M-CSH3-M3TY-D?i=216&cat=185720, downloaded 10/07/2024.

[59] In the vast majority of transactions the security was located in Ireland. There are a few exceptions such as RoD 28450 where the security given was a share in an ironworks in Scotland. The year of the transaction was that recorded in the RoD, that is Old Style until 1752 and New Style thereafter.

The data from the Register is a very useful source since it has not been systematically searched for interest rate information for the complete century by any previous scholars.[60] It is however, subject to bias, both from a geographic perspective and by the choice of those who wished transactions registered and were willing to pay the relevant costs.[61] The contents of the memorials are also dependent on the choice of the scribe/parties as to what he/they thought was necessary to record in the memorial as a summary of the transaction concerned. There are for instance, many mortgage memorials which refer only to 'interest' rather than describing or specifying the rate to be paid, and particularly in periods when interest rates were predominantly at the usury rate, it may be that there was no perceived need to record an interest rate since it would have been understood that the usury rate applied.[62]

It was impractical to search the hundreds of thousands of memorials to obtain all the records containing interest rates.[63] In order to adopt a systematic approach I extracted a sample of transactions where the interest rate payable is described, either explicitly or stated as being at a 'legal' or 'lawful' interest rate, for each year from 1708 to 1799. A total of 5,040 interest rates were gathered. The data within any particular year were selected randomly from the memorials available, and at least 40 datapoints were obtained per year in order to ensure a minimum number of annual observations. However, more memorials were searched and data were obtained, for the earlier years of the Registry's operation, since these

[60] Twomey examined all the mortgage transactions contained within the Register in two years: 1710 and 1730 and the first 200 discharged mortgages, Twomey *Financial:* iii.
[61] There is a clear geographic distortion, it being easier to register deeds for those close to Dublin where the Registry was based.
[62] Since the Register was publicly available for inspection there may be a tendency to exclude rates which were particularly high or low on the grounds of commercial sensitivity or non-adherence with the usury laws.
[63] The nature of the handwriting means that it is, for the moment at least, it was not possible to scrape data digitally from the online microfilms, though perhaps in the future techniques will have advanced to enable this approach to be undertaken systematically. A project is currently being undertaken to attempt to digitise the data in the RoD (see https://readingthedeeds.wordpress.com/project-team/ last accessed 25 April 2024) but there was no response from the leaders of this project when they were contacted as to current progress. The Registry themselves have established a digitisation strategy for 2023-2025, https://www.tailte.ie/en /registration/document-library/registry-of-deeds/20230227roddigitisationstrategyfinal .pdf last accessed 25 April 2024.

had a higher potential for containing data on the period prior to the Registry's foundation in 1708. [64]

One important assumption is the interpretation of the interest rate applicable when a mortgage is described as being at 'legal' or 'lawful' interest. It has previously been assumed to be equal to the usury rate, but this assumption is open to challenge in the earlier period of the Registry's operation.[65] On occasions the terms are accompanied by an explicit description of the interest rate, which is most commonly equal to the usury limit then in force.[66] However, there are a number of memorials where the interest rate is described as 'legal' or 'lawful' and where the explicit rate given is below the usury rate then in application.[67] On balance, however, I believe that a reference to legal interest or lawful interest, without any explicit percentage stated, was intended to show that the usury rate was in force and in the main body of the paper this is the assumption made.[68] I have, however, presented data in the Appendix which both include and exclude the legal or lawful interest mortgages. The overall conclusions of this paper are

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[64] See Data Mining – Mortgages in the Appendix for more details on the source data. Given the nature of the data and the sampling, the number of cases by year is not an indicator of prevalence or market volume. See O'Rourke and Polak, *Transactions,* 60 on the use of the number of transactions within the Register as an indicator of activity. However, this approach allows the comparison of annual average figures, even if there was more data available for one year compared to another.

[65] See S. Campbell, "The Economic and Social Effect of the Usury Laws in the Eighteenth Century," *Transactions of the Royal Historical Society* 16 (1933): 197: 'The meaning of "interest" itself had slowly changed until in the eighteenth century "lawful interest" in Great Britain meant simply "interest at 5 per cent"'. Note that the term 'legal' interest may be derived from the interest applicable to debts established through the courts, for instance in RoD 257809 from 1787 or as cited in Twomey, *Financial*, 239. For consideration of the 'ontogeny' theory of mortgage formation, as debt moves from bond, to judgement, to mortgage, in a contemporary West Indian context see S.D. Smith, "Merchants and Planters Revisited," *The Economic History Review* 55, no. 3 (2002): 434- 65.

[66] The earliest example in my sample is RoD 3598 from 1611, which is one of a number of memorials which provide information through recitals of earlier deeds which pre-date the establishment of the RoD in 1708.

[67] An example of a transaction within the sample with lower interest rates than the usury rate which was 8%: RoD 10567 (1715), which states that the loan is at lawful interest of 6.5%. After 1747 all explicit references to a legal or lawful interest rate are the same as the usury rate.

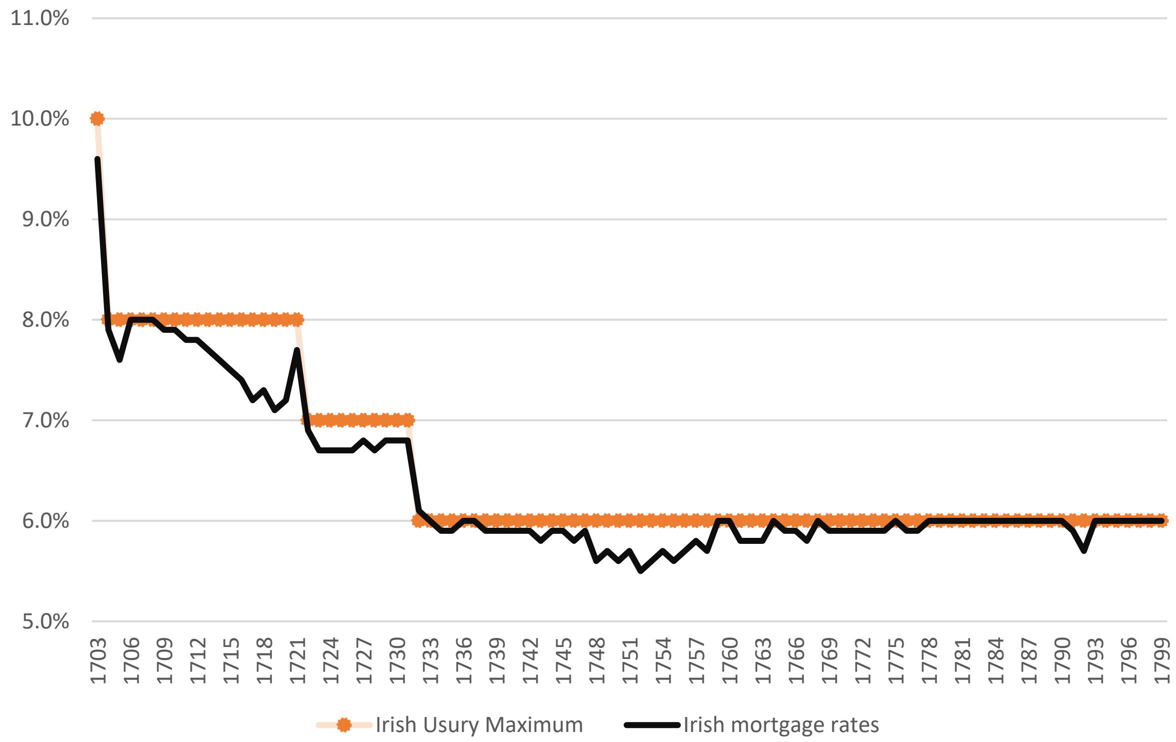
[68] Indeed in mortgages examined in the PRONI there are binding documents where the only reference to interest rate is to legal or lawful interest, which supports its use as a legitimate legal term with a precise meaning when used in isolation, rather than being a generic shorthand used for memorials e.g. PRONI D959/21/1/4 (1729). See also RoD 160110 (1766) where the power to raise money on an estate is to be at 'lawfull (sic) or any lower rate' which has the same implication.

not altered, whichever approach is taken, though the statistical significance and error terms would be impacted if 'legal/lawful' cases are excluded.

Register of Deeds – Results – diachronic development

Prior to 1708, when the RoD came into operation, the data available are relatively sparse and no systematic sampling is possible.[69] The data for this period are set out in a sub-section below. The data on interest rates from 1708 are shown in Figure 2.[70]

Fig. 2 - 18th Century Irish Mortgage Interest Rates

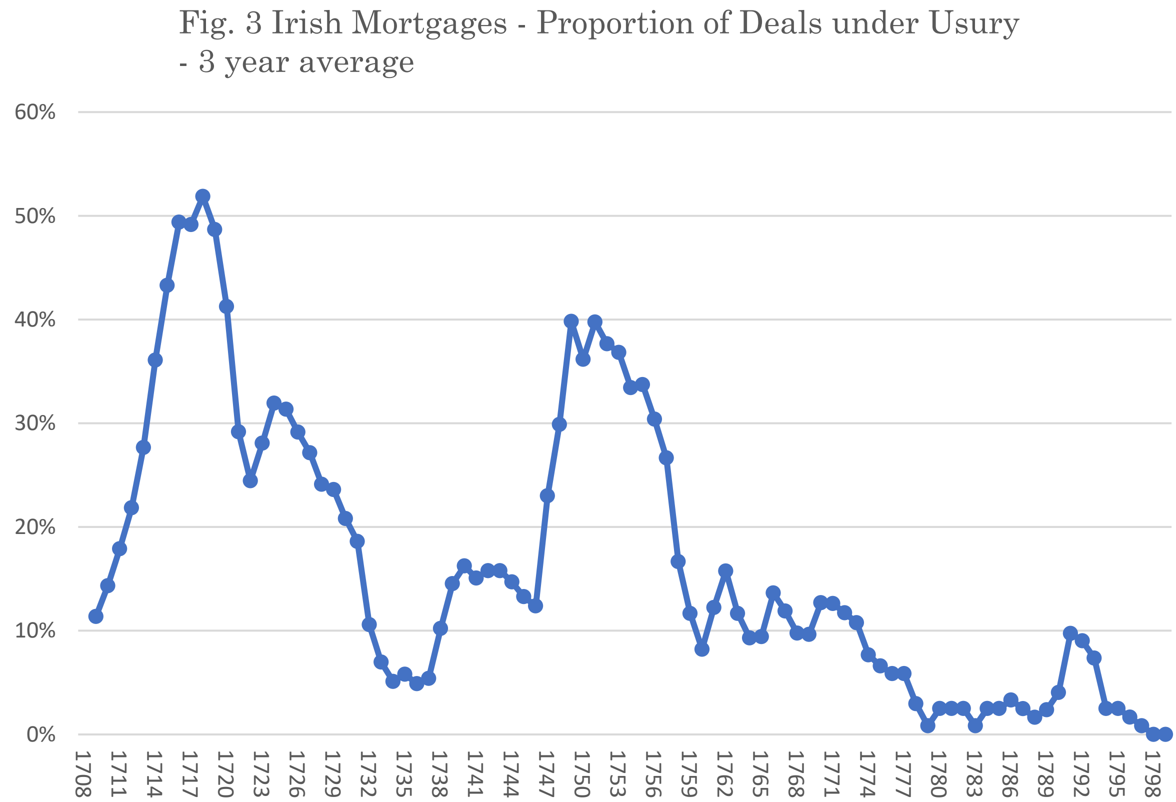


There are three distinct periods which correspond to the usury rates then applying. The first is the period when usury rates were 8% and when rates show a steady decline to close to 7%, before an uptick in rates in 1721. The reasons for the uptick are considered in the sub-section below. The second period when the

[69] Data for earlier periods is sometimes found within the recitals of relevant previous deeds mentioned in the memorials.
[70] Source: data attached.

usury rates were 7% shows that some deals were still being contracted at rates below the usury maximum. However, when the 6% usury rate was introduced in 1732, rates seem to have been forced down to the level of the usury rate and much of the rest of the century deals were largely done at the usury rate. The main exception to this is the period from 1748 to 1758. There was also a slight reduction in rates in the period from 1790 to 1792.

Another way of looking at this data is to consider the percentage of transactions that were undertaken where the interest charged was under the usury rate, and thus they were being determined by some form of market mechanism rather than by convention. The proportion of these deals is shown in Figure 3, which shows more clearly the uptick in true market activity between 1748 and 1758.[71]



After an initial period when the interest rate was naturally declining as usury rates were high, the peak of true market activity and sensitivity was in the

[71] Source: data attached.

1750's but from the 1760's onwards typically 90% or more of all activity was simply transacted at the usury rate and the interest rate market had ceased to function.

Twomey described the Irish mortgage market as 'vibrant' and this may arguably be the case for the period he studied between 1710 and 1730, but for the period after 1760 it was stagnant and moribund.[72] In this it was more akin to the lending at the legal rate of interest that Temin and Voth found on their examination of the Hoare's London archive for an earlier period in the century.[73]

A contemporary concern of certain commentators was that English investors were extracting product from the Irish economy, not only by their direct ownership of land as absentee landlords, but also by their actions as mortgagees receiving interest payments.[74] It is also important to understand the degree to which the Irish mortgage market was influenced by endogenous and exogenous factors, of which foreign involvement as market participants, particularly lenders, would be one. It is evident, however, that the Irish mortgage market was almost exclusively internal given the location of the participants, and the contemporary concerns were misguided. Of the 5,040 mortgage memorials reviewed only 2.2% involved lenders from outside Ireland (normally England as may be expected).[75] Interestingly there are only two lenders in the sample from Scotland which would indicate little or no commercial contact between Ulster and Scotland, despite the presence of a large Ulster-Scots population and the geographic proximity. Similar numbers would be seen for borrowers.

Twomey noted that 'there was an almost complete absence of foreign (English) participation in either the land or the mortgage market'.[76] My wider data would support this finding, but as we will see below, this does not mean that financial

[72] Twomey, *Financial*, 31.
[73] Temin and Voth, *Hoare's*, 546.
[74] Prior, *Absentees*, 15-16.
[75] The percentage of non-Irish lenders by amount is somewhat larger at 10.7%.
[76] Twomey, *Financial*, 140.

conditions in England did not have an impact on Irish markets. However, one of Twomey's other conclusions, that Jonathan Swift was a private lender 'who took a very professional and, for this period, a sophisticated approach to the management of his lending portfolio' can be challenged.[77] Of the eight loans that Swift made, where we know the date, amount and interest rate, they were generally to people of similar social status to himself. Six were made at rates below the market equivalent, at an average overall rate differential of 0.5%.[78] So he was making less money than he could have. Perhaps this reflects Swift's humanity more than his business acumen.

Public Record Office of Northern Ireland - PRONI

In order to validate that the RoD summary/memorial data was representative of the wider market, I made a comparison with original mortgage documents in the PRONI. I completed a search on the word 'mortgage' on the PRONI website which yielded details of 149 useable individual mortgages for the period from 1708 to 1799 and the data were extracted by examining the individual documents.[79] I fully recognise that inevitably this sample of all contracted mortgages will be biased, not only by archival and survival tendencies, but also to Ulster/Northern Irish records. Unfortunately, the equivalent search could not be undertaken for the National Archives of the Republic of Ireland since as of the date that the research was undertaken, the relevant items had not been fully indexed within an e-catalogue.[80] I also recognise that as the RoD data is likely to be biased towards the vicinity of Dublin, where the Registry was based, the PRONI data will be biased towards Ulster, but I have allowed for this by making a comparison with RoD data from Ulster only.[81]

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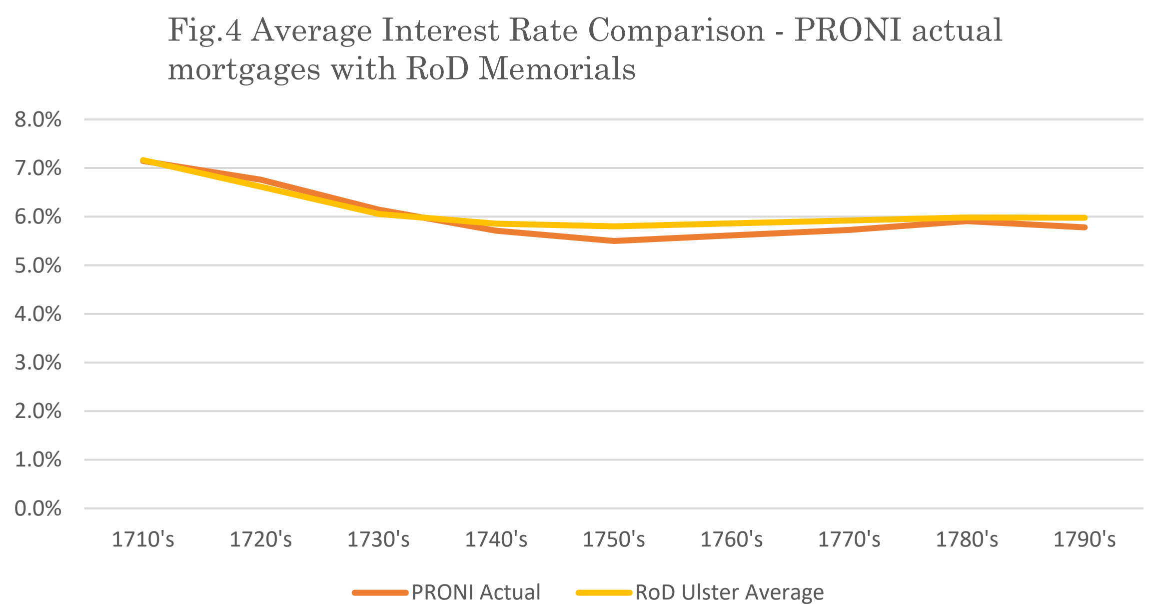
[77] Twomey, *Financial*, 257.
[78] See the attached databases, also Twomey, *Financial*, 223-52.
[79] See https://apps.proni.gov.uk/eCatNI_IE/SearchResults.aspx retrieved 09/01/2024.
[80] As of 09/01/2024 a simple search of the word "mortgage" produced only 70 results compared to the 4796 of the PRONI, https://www.nationalarchives.ie/search-the-online-catalogue/advanced-search/#!/results.
[81] It is appropriate to make the comparison with Ulster RoD data only since 79% of the data in the PRONI sample the security is in Ulster.

The examination of the PRONI data shows two important points. Firstly, the terms 'legal' and 'lawful' interest rates are not simply lawyer's shorthand used in the summary memorials but have a specific and legally enforceable meaning since they appear frequently in the original mortgage deeds without any additional definition of an explicit percentage.[82] This provides support for the assumption that 'legal' or 'lawful' interest equates to a specific rate, presumably the usury rate. Secondly the PRONI data, though insufficient in itself to provide yearly time series shows little systemic difference between interest rates within the full deeds from the PRONI and the RoD memorials as is shown in Figure 4.[83]



If anything, the PRONI rates are slightly lower than those from the RoD. This is consistent with the fact that the PRONI mortgages were generally for higher amounts than the RoD ones, and would thus, as will be shown below, be likely to have lower interest rates.[84]

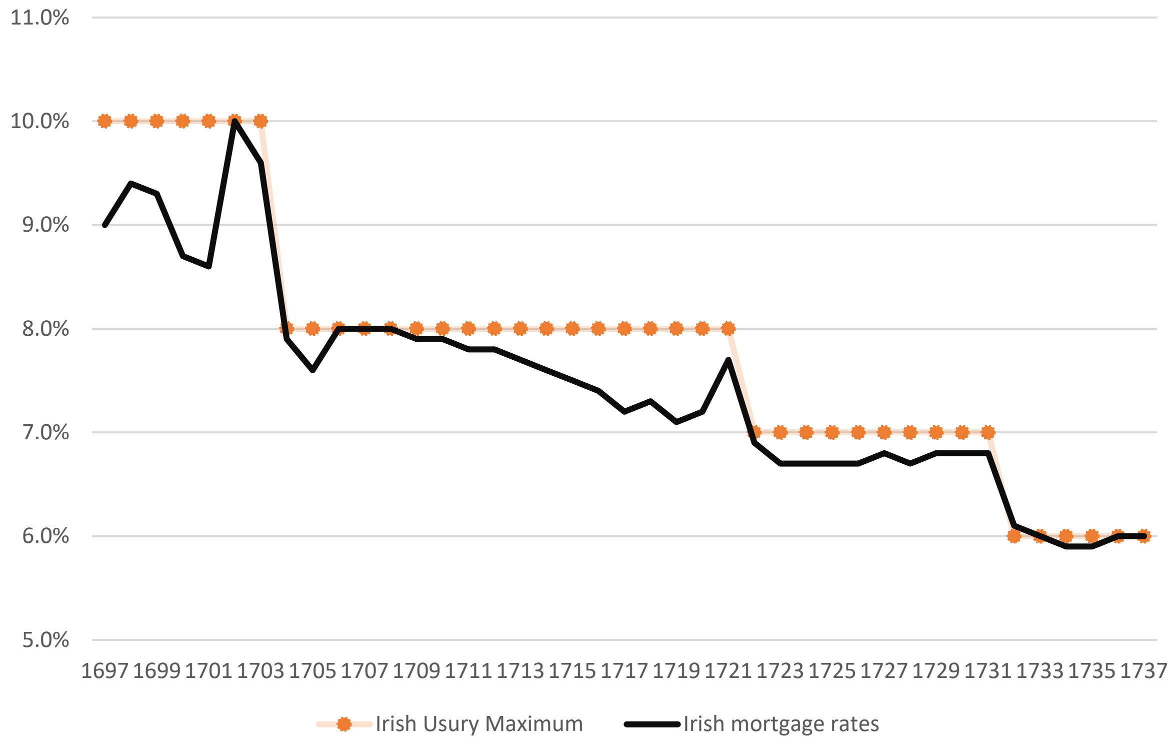
[82] In the PRONI data there are also some interesting features which are not apparent in the RoD data. There appears to be more frequent use of Great Britain currency rather than Irish than would be obvious in Ulster memorials in the RoD. Also there are numerous notes in the PRONI data which show that a deed was memorialised in the RoD which lends support to the argument that the RoD was widely used, at least for formal agreements.
[83] Source: data attached.
[84] The average size of mortgages from the PRONI data is IR£ 2,179 (n=149) and from the RoD data IR£ 757 (n=5,040). this probably reflects a tendency for the PRONI data to be biased towards the survival of documentation from larger estates and transactions.

The Influence of Institutions

Turning to why Irish rates found their level, that Irish mortgage interest rates were influenced by institutions is in no doubt. The Penal Laws restricted access to the market and the usury limit effectively determined rates from 1760 onwards. However, the data also lend themselves to answering a question for the earlier part of the century, that is, are specific institutions responsible for the decline in interest rates in the first half of the century?

Dealing first with the usury laws, Figure 5 shows the development of rates from 1700 to 1737.[85]

Fig. 5 - The Impact of Usury Rate Reductions



The data prior to 1708 are sketchy, but the market-driven rate of the late 1690's and early 1700's looks to be in the region of 9.5% and rates were forced down by the usury rate reduction in 1704. There is a clear downward trend from 1709, which, with the exception of the uptick in 1721 which I will attribute later in this paper to the South Sea Bubble effect, continues until 1723. The reduction in

[85] Note that the data prior to 1708 are limited, see the attached excel database.

usury rate of 1722 may be considered as being in line with the downward trend of market-driven rates. However, the further reduction in usury rate in 1732 forced the prevalent interest rate down to levels which would not have been seen without the usury limitation. The interest rate decline from 9.5% to 7% from 1697 to 1723, whilst it may have been assisted by usury rate reductions, appears to be a genuine market-driven trend. So what factors led to this decline?

In the Irish context I believe we can dismiss the specific institutions championed by North and Weingast in their influential paper discussed above. As we have seen the Irish did not have local parliamentary supremacy, strong parliamentary powers over spending and taxation or an independent judiciary. Since North and Weingast published their paper there have been a number of localised studies of interest rates which have provided some more data, for instance by Quinn who showed that, for one lender at least, private rates actually increased in the immediate period after the Glorious Revolution.[86] Quinn attributed this effect to the 'crowding out' of private debt by the new state debt, an effect that did not occur in Ireland, since formal permanent state debt did not exist until 1716.[87] Even then the size of the state debt was small compared to the mortgage market. To give an idea of relative sizes, Twomey quotes annual size of registered mortgage market in 1730 as IR£175,000 which compares to the IR£50,000 initial tranche of formal Irish state debt in 1716.[88]

So, despite the lack of the institutions that North and Weingast consider so important, interest rates did decline up until the 1720's. I believe that there was one main reason in that title to land had become more secure for the Protestant elite, politically, after the Williamite wars as the Jacobite threat receded. Security of property rights is indeed a driver of interest rates, but this was a political rather than institutional driver in Ireland's case.

[86] Quinn, *Glorious*, 610.
[87] Quinn, *Glorious*, 613 and Thomas, *Exchanges*, 6.
[88] Twomey, *Financial*, iii, Thomas, *Exchanges*, 6.

We can also examine the impact of institutions, in this case the usury law, in the period from around 1760 when the Irish usury rate dominated the market and nearly all deals were done at that rate. In similar conditions in the English markets, Temin and Voth found that credit was being rationed by Hoare's bank to a smaller group of higher status customers, and loan size increased.[89] When we examine the Irish data, we see a similar increase in loan size in the later part of the century although that could partly reflect the increase in land values shown in Figure 15. However, the supply and demand evidence from advertisements described below, and the fact that the natural interest rate was higher than the usury rate as will be demonstrated by consideration of unconstrained rent charge interest rates, show that there must have been credit rationing as lenders were unwilling to provide capital at artificially low interest rates.

Register of Deeds Data – Regressions

Before providing data regressions to try and identify trends and correlations, it is worth stating briefly what features of a society and an economy can affect interest rates. One of the key theoretical diachronic determinants of the level of interest rates is, of course, the money supply and in this regard, as we will see later, Ireland was in a unique position. In principle and practice, if money (of whatever form) is scarce, interest rates will tend to rise and vice versa if money is plentiful.[90] The money supply in a premodern economy was dependent on the balance of trade and this economic principle was fully understood in the eighteenth century.[91]

[89] Temin and Voth, *Hoare's*, 554-5 and also P. Temin and H-J. Voth. "Interest Rate Restrictions in a Natural Experiment: Loan Allocation and the Change in the Usury Laws in 1714," *The Economic Journal* 118, no. 528 (2008): 743-58, though their attempt to reach broad conclusions on the economic impacts of usury rates based on a small sample from one particular institution and one short period of time can be questioned.
[90] See L.S. Pressnell, "The Rate of Interest in the 18th Century," in *Studies in the Industrial Revolution* L. S. Pressnell (ed.), *London: The Athlone Press, 1960): 178 for a consideration of the difference between 'real' and 'money' interest rates.
[91] See for instance T. Prior, *A List of the Absentees of Ireland, and the Yearly Value of Their Estates and Incomes Spent Abroad. With Observations on the Present State and Condition of That Kingdom*, (Dublin: R.Gunne, 1729): 19.

Interest rates also do not exist within a vacuum, rather they form part of a risk/return hierarchy of investments. In a predominantly agrarian society there is a close relationship between mortgage interest rates and the return from investing in land which has existed since ancient times.[92] In England in the eighteenth century, Beckett, Clay and Habbakuk believed that land was overvalued, given the additional social status that land ownership provided.[93] Allen disagreed with this, and more detail is given in the section below which compares mortgage interest rates with returns from land.[94]

Interest rates can also be correlated with inflation. In economic conditions where goods and services are increasing in price, returns on real assets may follow (nominal profit margins from agriculture and trade are linked to prices) and within that hierarchy, interest rates may also rise. Interest rates are also impacted by transaction costs, including costs relating to information asymmetry and enforcement. If these institutional costs are high, they will tend to increase interest rates themselves.

The structure of interest rates, particularly the yield curve, can also be impacted by social features. For instance, in eighteenth-century Ireland there was a demand for secure long-term income streams which was partly due to the habit of providing settlements to daughters on marriage or other events. If that demand had not existed, then there would have been fewer lenders in the marketplace. Thus, interest rates would have been higher than otherwise. On an individual case by case basis, interest rates for a particular transaction will also

[92] See for instance, P.V. Kelly, *The Financial Markets of Roman Egypt*, (Liverpool: Liverpool University Press, 2023): 165-6 for an example of the hierarchy of mortgage interest rates and returns on investment in land in Roman times.

[93] J.V. Beckett, "The Pattern of Landownership in England and Wales," *Economic History Review* 37 (1984): 14-15, C. Clay, "The Price of Freehold Land in the Later Seventeenth and Eighteenth Centuries," *Economic History Review* 27, No. 2 (1974): 185 and H.J. Habakkuk, "The English land market in the eighteenth century," in *Britain and the Netherlands*, J.S. Bromley and E.H. Kossmann (eds.), (London: Chatto and Windus, 1959): 171.

[94] R.C. Allen, "The Price of Freehold Land and the Interest Rate in the Seventeenth and Eighteenth Centuries," *Economic History Review* 41, no. 1 (1988): 33-50. Note that, in the context of eighteenth-century Ireland, the hierarchy of returns could include not only the return on land, but also on the emerging securities of the Financial Revolution.

depend on the quality of the security being offered, the duration of the loan and the 'trust' between the parties concerned, which is partly, but not entirely, related to information quality and the degree of its asymmetry. In the context of person to person loans it is also determined by the personal relationships between the parties and may lead to outcomes which are not financially profitable but may be socially rational.[95] Longer-term interest rates, such as mortgage rates, can also be regarded as a function of previous short-term rates and a risk premium under the 'Rational Expectations' theory.[96] Unfortunately we lack the data to test this for eighteenth-century Ireland.

Finally, I would draw an important distinction between the determinants of the medium-term average level of interest rates and the determinants of short-term changes in interest rates. Is, for instance, the first more linked to context and institutions, including the position of the rate within a risk/return hierarchy? And the second, more driven, perhaps, by short-term changes, such as the money supply? Note that this question should not be conflated with the question of what changes the yield curve between short and long-term interest rates. The question I am addressing relates to what determines both the average level and short-term volatility of a particular longer-term market – that for mortgages.

It can be seen above that there are many possible determinants of the rate of interest, both diachronically and within a particular timeframe. The available data permits an analysis of some of the correlations for interest rates within certain timeframes including size of loan, geographical location of security by province and whether urban or rural, and location of lender. However, there are some unobservable explanatory variables that may well also have influenced interest rates within the sample, including participant religion, reputation, degree of social networking and expected term of the arrangement.

[95] See Kelly, *Markets*, 2-4 for a description of the Weberian and other interpretations behind the behaviours of individuals when transacting interpersonal loans.
[96] See K.J. Weiller and P. Mirowski, "Rates of interest in 18th century England," *Explorations in Economic History* 7 no.1 (1990): 8-9.

A summary of the data is contained in the Appendix, but a number of comments can be made. On the size of the loan, this varies from a minimum of IR£ 5 to a maximum of IR£ 60,000.[97] To give some idea of the relative size of these amounts, the average wage for a semi- or unskilled worker in Dublin at the beginning of the century was around a shilling a day, so IR£ 5 would constitute perhaps four months' wages.[98] In the vast majority of cases the security granted for a mortgage was real estate either of an urban nature, typically a house or a vacant lot, or a rural piece of land.[99] It should be noted that the usury laws only applied to loans greater than IR£100, and interest rates for lower sums, including pawn loans, would have been much higher. [100] The physical location of the security was also collected in order to determine the degree of local integration of the market. Finally, when collating the data, it rapidly became obvious that interest rates tended to be lower when the loan size was high or the lender was English, and the formal regressions shown below confirm these features to a degree.

Given the very significant influence of the level of usury rate on the market it is appropriate to assess the correlations per usury period, and only when there is some significant market variability in the interest rate.[101] These periods are 1704-1721 for 8%, 1722 to 1731 for 7% and 1748 to 1758 for 6%.

The main regression equation is:

$$i = \alpha + \beta \times S + \gamma \times E + \delta \times U + \epsilon$$

[97] RoD 59872 (1734) and RoD 294991 (1774), respectively.
[98] Assuming worked 25 days a month, see Kennedy and Dowling, *Prices*, Table 1. Equivalent wages outside Dublin were approximately half this level.
[99] On occasions other types of security are offered, such as church tythes, see RoD 2514 for example.
[100] See Twomey, *Financial*, 38 for usury limit and J. Hoppit, "Attitudes to Credit in Britain, 1680-1790," *Historical Journal* 33 (1990): 314 for contemporary English pawnbroking rates.
[101] To attempt to perform an analysis when the usury rate is dominant and the vast majority of rates are set at that rate would be nonsensical.

where i is the interest rate, α is the intercept, S is the size of the loan (in IR£1,000s), E is a dummy variable equal to 1 if the lender is English and U is a dummy variable equal to 1 if the security offered is urban rather than rural and β ,γ and δ are coefficients and ϵ is the error term. The regression results for this equation were determined and then a further dummy variable which is equal to 1 dependent on which province the security was located in was added. The results are shown in Table 1.

Table 1 Interest rate Correlations[102]

Period	1704-21, 8% usury rate n=1,456		1722-31, 7% usury rate n=555		1748-58, 6% usury rate n=464	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
By Size (IR£1000)	**-0.13%*** **	0.02%	**-0.07%*** **	0.00%	**-0.08%*** **	0.01%
English Lender	-0.21%	0.14%	**-0.86%*** **	0.14%	-0.41%	0.22%
Urban Property	**0.18%*** **	0.04%	**0.16%*** **	0.04%	0.15%**	0.05%
Province						
Connacht	0.18%*	0.09%	-0.03%	0.09%	-0.12%	0.09%
Leinster	**0.12%*** **	0.04%	0.05%	0.04%	0.07%	0.05%
Munster	0.01%	0.04%	-0.03%	0.04%	-0.12%*	0.05%
Ulster	**-0.40%*** **	0.05%	-0.10%	0.05%	0.17%*	0.07%
Average Interest Rate	7.7%	NA	6.8%	NA	5.6%	NA

*** p<.001, ** p<.01, * p<.05.

[102] Source: data attached.

The results show a negative and significant relationship between the size of the loan and the interest rate charged in all periods. Thus, the larger the size of the loan, the lower the interest rate.[103] There is also a positive and significant relationship between urban loans compared to rural ones. That is that loans made on town or city property tended to be at higher interest rates than those for agricultural land. One reason for this may be that some of the urban mortgages are speculative building loans of a short-term nature where the duration of the loan is so short that the interest rate paid is commercially insignificant compared to the other profits, costs and risks of building housing.[104] However, there are also fundamental differences in the risk profile of different types of security and this was understood by at least some participants in the market. A contemporary commentator in England in 1739 suggested that the rates of interest underlying different transactions should reflect the security and other features of the property. In particular he suggested that for the purchase of good rural land, 4% would be appropriate, but that 5.5% or 6% should be used for well-situated houses. [105]

The relationship between rates for loans where the lender is English compared to Irish show a negative correlation. That is English lenders achieved lower interest rates than Irish ones, although the statistical significance is lower than other relationships, probably reflecting the small number of cases in which English lenders were involved. Apart from a potentially lower rate of interest in Ulster and a corresponding higher rate in Leinster in the earlier period, there are no clear trends by province, implying a good degree of geographic transfer of information and internal market integration.

There are, however, potential problems of endogeneity with the regression equation. Loans by English lenders tend to be larger than average and loans for

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[103] Temin and Voth found a similar relationship when they examined loans from Hoare's bank in London, Temin and Voth, *Hoare's*, 546.
[104] See Twomey, *Speculative* for more on the financing of house building.
[105] C. Lewin, *Pensions and Insurance before 1800: A Social History,* (East Linton: Tuckwell Press, 2003): 353.

urban properties tend to be smaller than those for rural property. To address these size effects, I re-tested the regression looking only at larger loans over IR£300 and IR£1,000 and there were still strong results for the English lender negative correlation at 7%, and for the urban property positive correlation at 8% and 7%, although at 6% it was not present.[106]

Other interest rate data – Advertisements and Pamphlets

I also examined the number of 'classified' advertisements or 'small ads' in the newspapers of the period, by a systematic search. Only advertisements which specified either the amount of the loan, or the interest rate applying were included in the database established.[107] For the bulk of the period these advertisements are from, and/or directed to, individuals, often using intermediaries such as lawyers. The data are too sparse to lend themselves to statistical analysis, but the following points can be made.

We need to consider the relationship between a lender or borrower's opening bargaining position – as defined by the attributes they advertise and the interest rates that they are seeking. Attributes that are commonly viewed as being positive and therefore which would make the loan more attractive relate to both the borrowers' and lenders' positions. For instance, due to the uncertain nature of the duration of the loan, lenders where the loan was expected to be left in place for a significant time were viewed as preferable and could presumably demand a higher interest rate if there was an active market. So, for instance, borrowers seek to portray themselves as Protestant gentlemen of good-standing and advertisements from lenders seeking counterparties sometimes make the point that the money concerned was coming from a minor who would not call in the loan for a period: 'To be lent…on land security, within 30 miles of Dublin,

[106] See Appendix for further comments on larger loans.
[107] The advertisements were extracted from Irish Newspaper Archives (https://www.irishnewsarchive.com/), last accessed 29/04/2024. The earliest example of an advertisement is from 1737 and from this date to 1800 all advertisements containing either a specific amount or an interest rate were analysed, allowing some conclusions to be reached on prevalence and supply/demand.

clear of incumbrances…..As the money belongs to minors, in all probability it will not be called in for several years'.[108] The advertisement also shows the importance that the form of security that was offered had to lenders. Larger sums of money appear to have been available at lower interest rates as the following advertisement from the same year suggests (legal interest being 6% at that time): 'To be lent at interest….two thousand Pounds; any sum not exceeding £500 to be lent at legal interest, and any greater sum at five pounds by hundred yearly'.[109] This feature of the market is confirmed statistically above.

Although the earliest interest advertised dates within the sample dates from 1737, in practice, through accidents of survival or changes in practice, useable data could only be extracted for two short periods. These are the 1740's and the period from 1792 to 1793.[110] These advertising data support to a degree the validity of the RoD data, though the sample size is very small.[111]

Further confirmatory information might be gained from anecdotal sources including pamphlets. Twomey defended their use for economic history as 'an example would be the interest rates mentioned in the bank controversy pamphlets of 1720 where we can take it that the credibility of the argument, except in the case of an explicitly satiric or ironic piece, would be undermined if patently incorrect interest rates were cited.'[112] However, I would tend to agree with Cullen that contemporary pamphlets are generally 'highly coloured by controversy and reflect more faithfully the progress of polemic than the state of the economy' and thus I have not included contemporary quoted interest rates as

[108] *Dublin Journal*, June 23, 1747.
[109] *Dublin Journal*, August 11, 1747.
[110] In the 1740's 9 out of 10 lending rates were at 5% and 1 was at 4%, and 9 out of 13 borrowing rates were at 6% and 4 were at 5%. In this period 1792-1793 the average interest rate quoted is 5.6%, the bulk of advertisers being potential borrowers (n=14). The average rate at this period for the RoD data is somewhat higher at 5.9% (n=62).
[111] For information on supply and demand for mortgage credit as measured by the number of advertisements asking for, or offering, credit, see the Appendix. This confirms that demand exceeded supply in the last quarter of the century.
[112] Twomey, *Financial*, 20.

statistically valid data points.[113] That does not mean however, that contemporary sources should be ignored entirely, and I have quoted a number of examples to illustrate points of relevance.[114]

Analysis – Comparison with other Irish interest rates

Person-to-person mortgage interest rates can be compared with other rates to establish a more detailed hierarchy of rates and risk premia. The first Irish government debt was issued in 1716 at the 'legal' rate of 8% (payable half-yearly). The total amount of IR£50,000 was subscribed by 63 individuals, many of them leading establishment figures.[115] The 8% would have been an attractive rate when compared to the average rate on private mortgages of 7.4% in my data for the same year and the inverse of the normal risk premium of state to private debt. In 1726 warrants of IR£10,000 were issued at 7% again without any difficulty in finding subscribers, given that the average interest rate on the private market was only 6.7%.[116] At this time according to Twomey 'Irish state debt was not readily available to other than well-connected MPs and their coteries' and thus no market existed.[117] In economic terms, ownership of state debt was equivalent to a 'rent'.

Even in 1729, there was no difficulty in raising IR£150,000 at the lower rate of 6% when the private mortgage rates were still 6.8% and indeed in 1730 when a IR£40,000 loan was required to meet the pay of the Irish garrison in Gibraltar the action of the Lord Lieutenant in seeking to raise this loan exclusively from certain members of parliament and those he had 'a mind to gratify' led to clashes in the Irish parliament.[118] From this period onwards Irish state debt would

[113] L.M. Cullen, "The Value of Contemporary Printed Sources for Irish Economic History," *Irish Historical Studies* 14, no. 54 (1964): 152.
[114] See for instance, J. Laffan, *Political Arithmetic of the Population, Commerce and Manufactures of Ireland.* (Dublin, Anon, 1785). See also G. Rees, "Pamphlets, Legislation and the Irish Economy, 1727-49," *Irish Economic and Social History* 41 (2014): 20-35, for a counter-balancing argument to Cullen's views on the value or otherwise of pamphlets.
[115] McGrath, *Experience.* 175-6.
[116] McGrath, *Experience,* 179.
[117] Twomey, *Financial*, 221.
[118] McGrath, *Experience,* 184.

generally be raised at rates below that of the private market, reflecting the 'normal' view of the risk premium between government and private debt, and the emerging market perception that the Irish state would honour its debt. In this respect the Irish government's approach to state debt differed in a number of respects from that of Great Britain and this would have had some impact on investor confidence. Firstly, the initial interest payments were not linked to any tangible government revenue stream as they were in Great Britain, and indeed required the Irish Commons to vote through the required funds through Supply Acts.[119] Secondly, in the early years, interest payments were often in arrears.[120] However, despite these negative points, interest rates on state debt declined to 4% by 1741 as investors were reassured by the government's practice of redemption of principal and regular interest payments through the budgetary surpluses that were run for most of the first half of the century. The risk premium only reversed at the very end of the century when the need to raise funds to fight the French wars raised state interest rates in Ireland above the usury maximum of 6%. The risk premia are shown in Figure 6.[121]

Fig. 6 Risk Premia: Private v State Interest Rates

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[119] For the precarious legal nature of the early Irish interest payments see McGrath, *Experience*, 177.
[120] See McGrath, *Experience,* 178.
[121] Source: data attached and W.A. Thomas, *The Stock Exchanges of Ireland*, (Liverpool: Francis Cairns Publications, 1986), 6 and Appendix 1.

The RoD mortgage rates almost exclusively relate to person-to-person loans. A comparison with the private 'institutional' market can be made by examining the borrowing rates of Dublin Corporation as set out in the Calendar of Ancient Records of Dublin.[122] Data for the earlier part of the century are insufficient for any statistical analysis, but for the period from 1708 to 1731 when the usury rates were 8% or 7% and the RoD rates were generally a little below these maxima, the Corporation maintained a policy of 6% interest rates.[123] This trend of generally lower Corporation rates continued throughout the century.

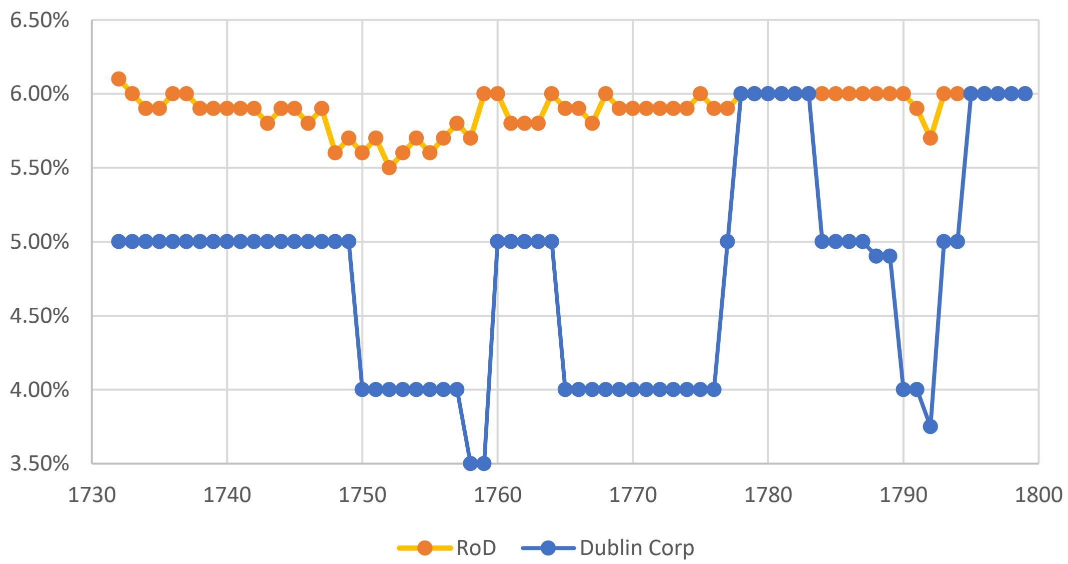
There are, I believe, four reasons for these lower rates. Firstly, the Corporation may have been considered more credit worthy than most individuals and indeed there were no defaults by the Corporation in the century. Secondly, lenders may have been driven by civic pride, in an expression of civic euergetism to lend money as part of their public persona as leading citizens and many of the loans were made by aldermen.[124] In these cases the level of interest payable would have been a secondary consideration. Thirdly, in some circumstances, the Corporation issued loan notes or bonds to tradesmen undertaking civic works or others to whom they were already indebted, or borrowed money from institutions that they effectively controlled.[125] In these cases the level of interest to be paid on the debt would have been largely determined by the Corporation and the individuals or institutions would have had little choice but to accept the note or bond. Finally, in the case of the non or under-payment of interest, the procedure for seeking redress by the lender was considerably easier than in a conventional mortgage. The lender could simply publicly petition the Corporation to make the payment and there are a number of examples of this occurring.[126] This would

[122] Henceforth referred to as 'CARD'. See also Twomey, *Financial*, 156-64 for a description of the Corporation's policy in the earlier part of the century.
[123] There were some exceptions to this rule as in CARD vii 427 at 5% to an English lender in 1728 or CARD vii 235 at 7% in 1723.
[124] For example, CARD ix 88.
[125] For an example CARD vii 395 in relation to borrowing from an institution under the effective control of the Corporation, the Blue Coat Hospital.
[126] For example, CARD vii 190 where a widow who had lent money at 5% in 1720, petitions (successfully) to have the interest rate increased to 6% in view of the general increase in interest rates where 6% 'is the very lowest interest given for money', see Figure 13 below and discussion as to the reasons for the sharp rise in interest rates at that time.

have been cheaper and probably more effective than seeking redress through the courts and this reduced transactional cost could partially justify a lower received interest from the lender's perspective.

For the rest of the century, when the usury rate was 6% the interest rates set by policy or generally applicable are shown in Figure 7.[127]

Fig. 7 Dublin Corporation v RoD - 6% Usury Rate



The comparison shows that the Corporation's interest rate was more variable than private debt. This reflects the 'commoditisation' that was possible for the Corporation's debt compared to the illiquid and variable nature of private mortgages which were less uniform and thus less tradeable and comparable and therefore moved more slowly when market conditions, such as money supply, changed.

The Corporation policy was not conducted in isolation, and they had to respond to market conditions. In 1740 an attempt to reduce the borrowing rate to 4% was unsuccessful due to an inability to find any counterparties willing to lend at that

[127] Source: data attached.

rate other than two aldermen who wished to 'set an example'.[128] Then in 1760, Dublin Corporation was forced to increase borrowing rates from a record low of 3.5% in 1758, to 4% and then in very short order in the same year to 5%. They stated they did so because of the 'present scarcity of money and a parliamentary loan at five per cent'.[129] In the late 1770's and 1780's despite the attractiveness of the Corporation as a borrower, they had to increase their rate to the usury maximum of 6%. This indicates that the effective rate in a free market of person-to-person loans would have been in excess of 7% if a risk premium of at least 1% was maintained. A further comparison of mortgage rates with the short-term shadow interest rates determined by Cassidy is provided in the Appendix and shows that, as expected, the short-term rates are also more volatile, although there is no strong correlation between the short-term and longer rates.[130]

Analysis – Comparison with investment in land[131]

Any comparison would not be complete without considering the main alternative available to an investor – direct investment in land. Allen provided evidence that, in seventeenth- and eighteenth-century England, land traded at a financially rational value, once risk and possible future appreciation had been taken into account.[132] In this period, land was generally valued at 'years' purchase' which is the number of year's rent that it would take to it would take to repay the purchase price.[133] Allen suggested the following equation for years' purchase, Y, as a function of a, the anticipated rate of appreciation in land value, i the mortgage interest rate, r the risk premium on mortgages vis-a-vis land and g are taxes and administration.

[128] Twomey, *Financial,* 162.
[129] CARD x 400, 415. See C.I. McGrath, "Money, politics and power: The Financial Legislation of the Irish parliament," in *The eighteenth-century composite state: Representative institutions in Ireland and Europe, 1689-1800 (*eds.) D. Hayton, J. Kelly and J. Bergin, (Basingstoke: Palgrave Macmillan, 2010): 37 as regards the 'massive escalation in Ireland's national debt from the 1760's'.
[130] Cassidy, *Exchange.*
[131] A comparison with rates of return on commercial ventures could also be made, but unfortunately word-limit constraints preclude this.
[132] Allen, *Price.*
[133] Thus, a purchaser of land which would return him £100 rent per annum in the future paid £2,000 for the land, he was paying 20 'years' purchase'.

$$Y = 1/(i - r - a + g)$$

He then tested his theory by calculating an expected value for Y over time from his estimates for the other variables and found that they had a high predictive value. Whilst Allen's theory seems sound, it does rely on an assumption that there was always an anticipated increase in land values. This is certainly evidenced in some Irish leases where rents increase after an initial period, although this may relate to anticipated investment in the land, but was it universally true in all market conditions?[134] Allen's findings can also be criticised on the grounds of the poor quality of the mortgage rate data used and in particular his reliance on that from 'Coke of Norfolk'.[135] His model shows particularly strong predictive power in the 1760's when Y increases as mortgage rates, i, decrease. However, whilst the Coke data show a strong decline to 3.5% in the period 1763-1772, other more representative sources show no such decline.[136] So if Allen's conclusions can be questioned – what does the Irish data show?

By way of background, consider the following statement:

> "But above all, see how this measure would effect (sic) the landed interest: In England the ordinary value of land is rated at from twenty-five to thirty years' purchase, which in Ireland has seldom been known to fetch twenty years' purchase, at the present moment not half that value; yet the land is as good, the titles as far as they can go equally secured."[137]

[134] See RoD 14152 for an example of a scheduled rent increase.
[135] See further discussion on Coke of Norfolk below.
[136] Allen, *Price*, Figure 6. Note that the validity of Allen's comparison of mortgage rates from Norfolk with land values from the South Midlands can also be called into question.
[137] Sir John Blaquiere quoted in *Belfast Newsletter* February 5, 1799 – supporting the Act of Union with Britain. For the earlier English debate on the relationship between interest rates (including mortgages) and returns on land see P.G.M. Dickson, *The Financial Revolution in England: A Study in the Development of Public Credit, 1688–1765*, (London: Macmillan, 1967): 24-6.

The purpose of the quote was to convince the reader that a union with Britain would be favourable to the landed interest, reducing the interest rate charged on mortgages and increasing the 'years' purchase' and thus the value of land. But it also provides some information on expected rates of return. If the value of land in England was 25 years' purchase this equates to an expected rate of 4%. If the value of land in Ireland was ten years' purchase or less, this equates to an expected rate of 10% or more.

In the best traditions of parliamentary hyperbole, the speaker exaggerated for effect in relation to Ireland.[138] For Ireland, there is some limited evidence from the RoD as to years' purchase actually paid since on a few occasions the number of years' purchase was explicitly stated within a memorial. In addition, there are a number of memorials where the price of land and the current rental are both available and the number of years' purchase can be inferred. Overall, the average years' purchase is 17 (n=85) and there appears to be a general increasing trend over time.[139]

Years' purchase is an indicator of expected returns from leasing land, but the data are sketchy and we cannot repeat Allen's modelling. There are, however, considerably more detailed and robust data for rents paid per acre from memorials of leases in the RoD. O'Brien's view that it is 'useless to attempt to arrive at an estimate of the actual average rent of Irish land' is no longer tenable.[140] I have gathered data for the decades of the 1710's, 1740's and 1770's and 1800's. For each year as with mortgages at least 40 rents have been gathered and the total land area covered at some point is some 325,000 plantation acres or 2.5% of Ireland, which I believe to be a reasonably large sample.[141] This data can be used to assess 'actual' returns from leasing land although the long-term nature of the leases concerned makes comparisons with

[138] His estimate of English multiples is however, correct, see Clay, *Price*, Table 1.
[139] See Appendix and database.
[140] O'Brien, *Economic*, 96-7, cited in R.Crotty, *Irish Agricultural Production: Its Volume and Structure*, (Cork: Cork University Press, 1966): 23.
[141] See the attached excel database for details.

mortgage returns difficult, particularly given the options to pay off or call in mortgages. Nevertheless, we can compare the investment options for an investor in the eighteenth century who placed their capital in mortgages (assuming a ten year term for the mortgage before it is renewed) and land for leasing (assuming a 30 year term for the lease).[142] The average investment returns per annum achieved are shown in Table 2.

Table 2 Comparison of returns on mortgages and land[143]

Period	Mortgages (n= 4,686)	Land (Simple Average, n=2,106)	Land (Average controlled for Griffiths' valuation, n=1,136)[144]
1710's to 1740's	6.9%	>6.7%	>7.0%
1740's to 1770's	5.8%	>8.1%	>7.8%
1770's to 1800's	6.0%	>7.0%	>7.4%

The rates of return on land are substantially higher than on mortgages for the majority of the century. The figures assume that land was bought and sold at a constant years' purchase rate of 20. If the possible upward slope of years' purchase over time, as described in the Appendix, was taken into account, and the purchase price was made at less than 20 years' purchase (which the limited data suggests), then the rates of return on land would be higher still, hence the ">" shown.

We lack sufficient Irish data on years' purchase to repeat the exercise that Allen undertook for England, however, the estimates of the actual returns gained would seem to support the proposition that land ownership did provide a financially rational alternative to investment through mortgages. Contemporary

[142] Ignoring default costs and profits for mortgages and assuming rents paid as agreed. Note that 31 year leases were relatively common (they constitute 18% of the leases gathered) and this was the longest period that land could be leased to a Roman Catholic under the Penal Laws. Rents quoted are net of receiver fees. See the Appendix for further details.
[143] Source: data attached.
[144] See the Appendix for details of the approach taken. See L.P. Curtis, "Incumbered wealth: Landed indebtedness in post-famine Ireland," *The American Historical Review* 85, no. 2 (1980): 342-5 for consideration of the validity or otherwise of using the Griffith's rents as a measure of value.

commentators understood the implications of the options available and Swift, although not the greatest economic theoretician, understood that land was a 'real' asset linked to the economy in a way that mortgages were not.[145] On principle he preferred land rents 'because it would always be of the same intrinsic value, whether money or land should rise or fall'.[146]

Analysis – Comparison with Rent Charges/Annuities

The most accessible Irish data for returns which were not constrained by the usury rules are those from rent charges or annuities which were not dependent on the life of an individual. Under these types of transactions an investor could, in return for a capital sum, receive an income in perpetuity or for a fixed period, but usually with no return of capital.[147] Annuities between individuals (and these form the bulk of annuity transactions, though in the latter part of the century we start to see the emergence of annuity companies) were normally secured through a charge on the rent for a specific property. These transactions do not seem subject to the usury laws and in the latter part of the century rates of return were often higher than those for mortgages, but they were less liquid from an investor's perspective since the investor did not generally have an option to call in the money. Other types of transaction of a similar nature are those which involve a reduction in rent in exchange for a capital sum. All the transactions concerned share the common feature of a commutation of a future stream of income for a lump sum.

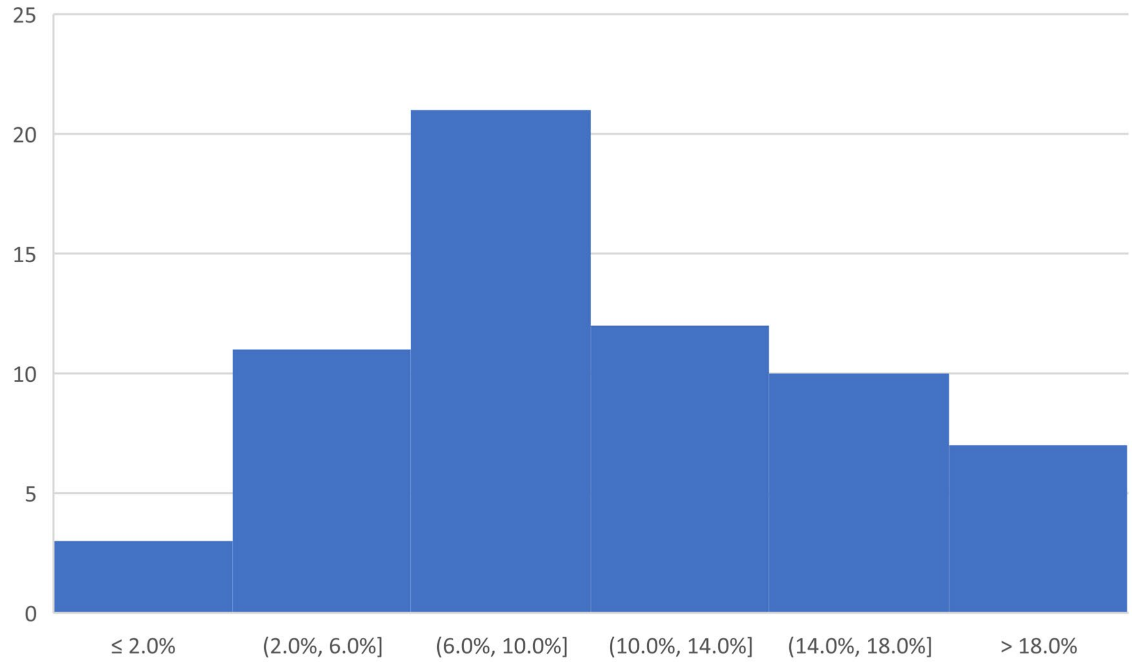
[145] For Swift's lack of understanding of economic theories and principles see Fauske, *Misunderstanding*.
[146] Swift to the Earl of Burlington, 22 May 1729, D. Woolley, D. *The Correspondence of Jonathan Swift, D.D. vol. 3*, (Frankfurt am Main: Peter Lang, 2003): 237.
[147] It should be noted that annuities on a life or lives also existed. It is incorrect to quote a 'rate of return' on a life annuity as Twomey did, calculated as the annuity divided by the purchase price, since this does not take account of the considerable chance of death, Twomey, *Financial,* 75. There were also rent charges which paid off specific sums of principal and/or interest. These are treated as mortgages. See R. Dudley, "The Rise of the Annuity Company in Dublin, 1700-1800," *Irish Economic and Social History* 29 (2002): 8 for a description of the personal annuities of the period, though my examination of the annuities recorded in the RoD would suggest that she is incorrect in her statement that annuities were more commonly on the life of the seller rather than the buyer and in her statement that a six year purchase price was common.

This data is important since it provides an assessment of the commercial private interest rate and addresses the issue that, due to the usury constraints, lenders could not charge in excess of the legal rate, and 'had to resort to hidden charges and other subterfuges in periods of credit stringencies, making existing evidence on private rates hard to interpret'.[148] The approach taken is similar to that adopted by Clark for English rates, though the Irish rates are considerably higher.[149]

There are far fewer examples of these transactions than regular mortgages but a sample of these transactions from the period when the usury rate was dominant at 6% (from 1760 to 1799) are shown in Figure 8.[150] The average rate of return (with no allowance for default, costs or taxes) was 11.4% and the median was 10.0% (n=73). There may well have been diachronic variations over this period but the currently available data are too sparse to provide any analysis, other than to note an upward trend over time. It is interesting that some investors were willing to accept rates which were lower than those applying to mortgages at that date and perhaps they preferred the security of a specific stream of income to the uncertainty of income repayment from a mortgage.[151] However, overall, the average is much higher than the mortgage rate, reflecting the constraints of the usury rate on the market rate.[152]

[148] Weiller and Mirowski, *England*, 4.
[149] Clark, *Foundations*, 578.
[150] Source: data attached.
[151] An example of a case where the rate of return is lower than the average for mortgages is RoD 18786 from 1726 where the return is 5.3%, in a year when the usury rate was 7.0% and the average mortgage rate was 6.70%. This feature is more pronounced in earlier periods with higher usury rates – see the relevant attached excel database. For a discussion of the relative return levels of mortgages, land ownership and rent charges see H.J. Habakkuk, "The Long-Term Rate of Interest and the Price of Land in the Seventeenth Century," *The Economic History Review* 5, no. 1 (1952): 37-9.
[152] It is also much higher than the equivalent rates recently collected by Chilosi et al for continental European rent charges for the same period, where rates are generally between 3% and 4% but this may reflect the fact that those rates are for annuities issued by urban authorities rather than individuals, D. Chilosi, S. Schulze, and O. Volckart,"Benefits of Empire? Capital Market Integration North and South of the Alps, 1350-1800," *Journal of Economic History* 78, no. 3 (2018): Figure 2.

Fig. 8 Rent Charge Returns - 1760 to 1799



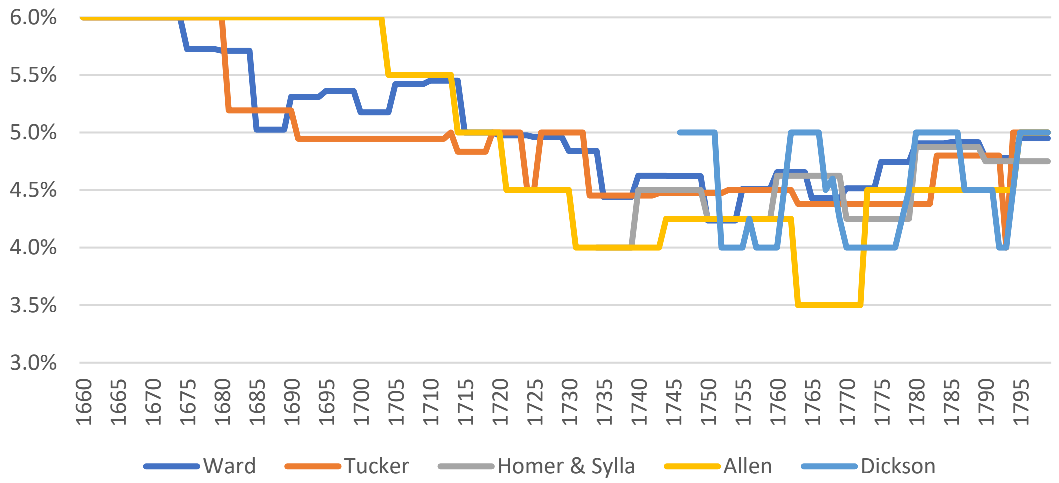
<u>Analysis – Comparison with English and International rates</u>

Comparison with English mortgage rates is problematic since there are a variety of sources available for these which all suffer from some flaws. Allen mostly used data taken from a single estate, Coke of Norfolk, for his comparison.[153] Dickson and Homer & Sylla used data from the Sun Fire Insurance Company but show different rates. Tucker used data sourced from a polemic pamphlet which he admitted may be biased. Perhaps the best data comes from Ward, who used data sourced from the English registries of deeds supplemented by data from turnpike trusts and who provided a detailed listing with sample numbers by quinquennial period. The differences in the English data are not insignificant as Figure 9 shows.[154]

[153] Allen, *Price*, Table 1 citing R. Parker, Coke of Norfolk: A Financial and Agricultural Study, 1707–1842, (Oxford: Oxford University Press, 1975): 30, 133.

[154] Sources: P.G.M. Dickson, *The Sun Insurance Office, 1710-1960,* (Oxford, Oxford University Press, 1960): 257, S. Homer and R. Sylla, *A History of Interest Rates*, (New Jersey: John Wiley & Sons, 2005): 160, G. Tucker, *Progress and Profits in British Economic Thought, 1650-1850*, (Cambridge: Cambridge University Press, 1960): 31 and Ward, *Canal*, Table IV.

Fig. 9 English Mortgage Rates by Source



Allen's rates are perhaps the most difficult to justify, since they are primarily based on one landowner and the substantial decline in interest rates in the 1760's and 1770's is not evident in the other sources. I have therefore used the data compiled by Ward as the most likely to be representative of the general market rate, even though it must be pointed out that Ward was only able to collect 584 data points for the English market for the eighteenth century compared to the 4,995 within the Irish sample.

Some Irish data is available for the late seventeenth century which we can compare to the available data for English mortgages from Ward, though it is insufficient to allow a yearly comparison to be made. During this period the usury rate in Ireland was 10% and that in England, 6%. The comparison is shown in Table 3.

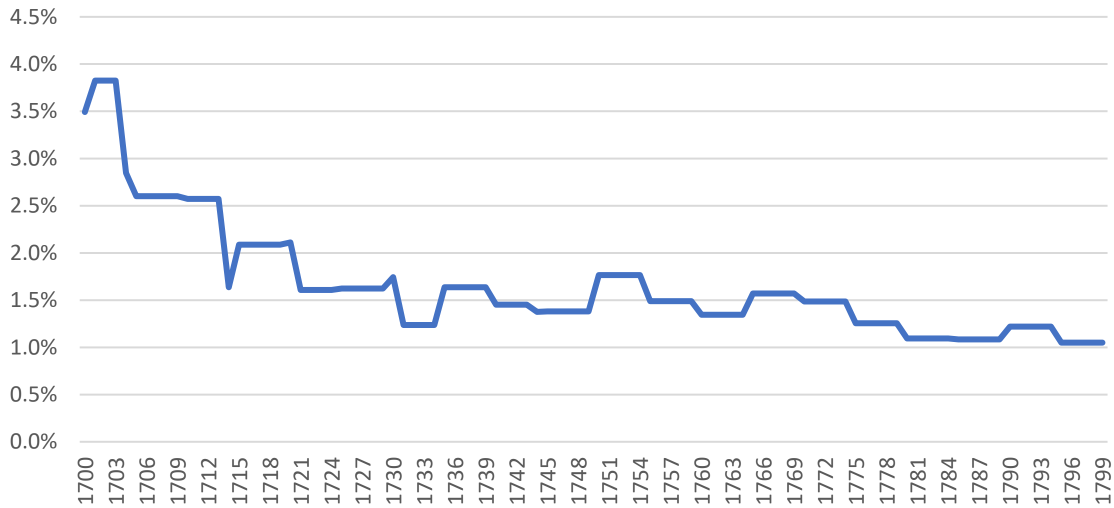
Table 3 Seventeenth-Century Mortgage Rates[155]

	England Average	n	Ireland Average	n
1680's	5.4%	30	9.4%	16
1690's	5.3%	41	9.5%	27

[155] Source: data attached. There are also two Irish mortgages which pre-date 1680.

For the eighteenth century, the comparison is shown in Figure 10.[156]

Fig.10 Irish less English Mortgage Rates Spread 1700 - 1799



For the bulk of the period the spread between English and Irish rates was around 1.5%. There is a gradual decline, though it needs to be borne in mind that from 1760 onwards the Irish rates were typically constrained by the usury rate of 6%, and the English rates at the end of the century were similarly constrained by their rate of 5%.

In terms of the vibrancy of the market, the percentage of deals which were done at market-determined rates, rather than the usury rate in the two countries, when the English usury rate was 5% and the Irish, 6% is shown in Figure 11.[157]

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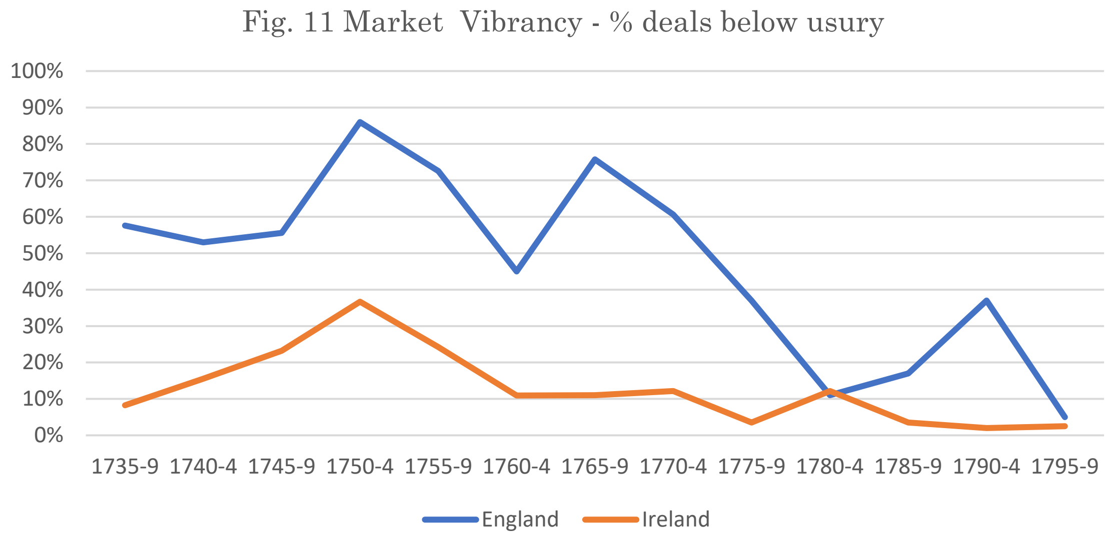
156 Source: Irish data attached and Ward, *Canal,* Table IV.
157 Source: Irish data attached and Ward, *Canal,* Table IV.



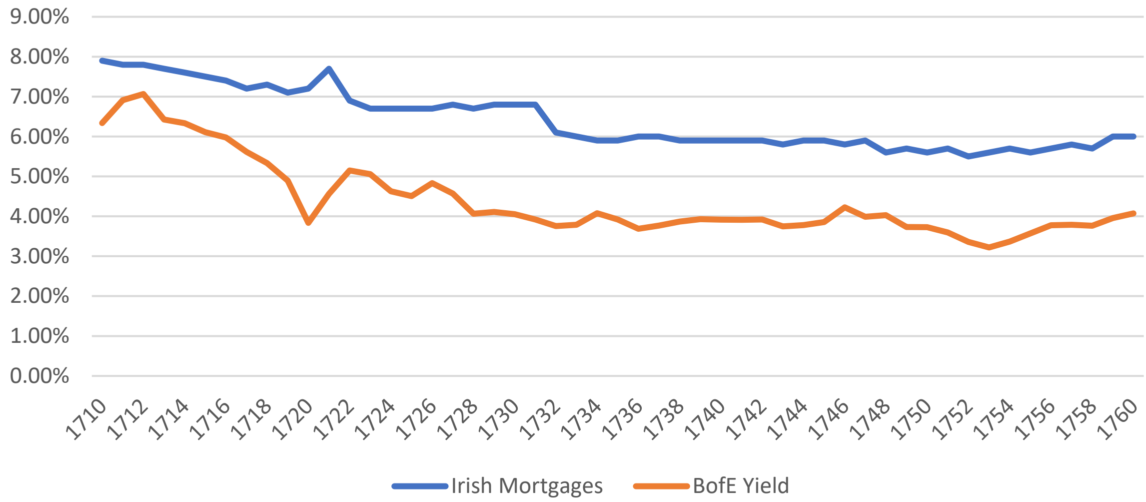
Apart from a period at the beginning of the 1780's, the English market was always more vibrant than the Irish, and credit rationing would have been much more prevalent in Ireland than England, even given the higher usury limit. As we noted above, the Irish mortgage market was essentially endogenous in nature with little direct involvement from English participants. However, some participants in the market were aware of the comparison with English rates. Consider the following conjecture from 1799 and relating to the Act of Union: 'why pay six per cent on mortgages here, when in England the common interest is four, the highest five?'.[158]

I have compared the evolution of the Irish mortgage rates with Consol yields and there is no clear correlation, caused in part by the constraints of the 6% usury rate. However, when the comparison is made with Bank of England stock yields for the period up to 1760, as shown in Figure 12, there is a strong correlation, with the exception of the period of the South Sea Bubble around 1721, which will

[158] Sir John Blaquiere quoted in *Belfast Newsletter,* February 5, 1799 – supporting the Act of Union with Britain.

be discussed further below.[159] At this period the yield on Bank of England stock can be considered as a proxy for English long-term interest rates.[160]

Fig. 12 Irish Mortgage Rates v Bank of England Yield



Another comparison, useful when considering Ireland within a colonial context, is that with indicatory data on loan interest rates for other British colonies and this is shown in the Appendix. The average Irish rates are broadly comparable with those in New England but West Indian rates are somewhat higher. Turning to a broader comparison, both diachronically and geographically, the decline in Irish rates over the century can be seen as part of a 'supra-secular' decline in real interest rates as recently outlined by Schmelzing.[161]

[159] The correlation factor is 0.87. It is not appropriate to try and calculate correlation coefficients between English and Irish mortgage rates based on annual data given the inadequate nature of the English data.
[160] Weiller and Mirowski, *England,* 5.
[161] For recent work on quasi-universal 'natural' real interest rate trends see P. Schmelzing, "Eight centuries of global real interest rates, R-G, and the 'suprasecular' decline, 1311–2018," *Bank of England Staff Working Paper* No. 845, 2020 – although some of Schmelzing's data are open to challenge, for instance did Italian interest rates really remain unchanged at 4% for all of the eighteenth century? See also M. Flandreau, C. Galimard, C. Jobst and P. N. Marco, "The Bell Jar: Commercial Interest Rates between two revolutions, 1688-1789," *Centre for Economic Policy Research Discussion Paper* 5940 (2006), for an analysis of shadow interest rates in Amsterdam, London and Paris.

Analysis - Impact of financial or other crises?

When looking at the limited fluctuations of interest rates in the Irish economy can we see any linkage to exogenous factors related to financial and political crises? Neal identified a number of crises which disturbed the London financial markets and which may similarly be expected to leave a trace within the data I have examined and the comparison with the Irish data is shown in Table 4.[162]

Table 4 Exogenous Shocks

Date	Description	Evidence in Irish Data?
1708-1710	Government financing of War of Spanish Succession	No perceptible impact but interest rates are at usury maximum. "Peace dividend" in 1713 visible as interest start to decline below usury levels.
1715	Jacobite Rebellion	No perceptible impact.[163]
1720-1721	Mississippi and South Sea Bubbles	Significant uptick in interest rates in 1721. See further commentary below.
1745	Jacobite Rebellion	No perceptible impact on mortgage rates, Dublin Corporation or Government borrowing but mortgage interest rates were already very close to the usury maximum of 6%.
1761	Financial panic in London – unknown cause	Clear increase in rates, but see comments as to Irish banking crises below.
1772-1773	Financial crisis in Scotland then London	No perceptible impact, though mortgage rates at usury maximum.
1776	American War of Independence	No perceptible impact on mortgage rates since at usury maximum, but clear increase in Dublin Corporation rates.
1793 onwards	French revolutionary wars	Clear uptick in both mortgage and Corporation rates.

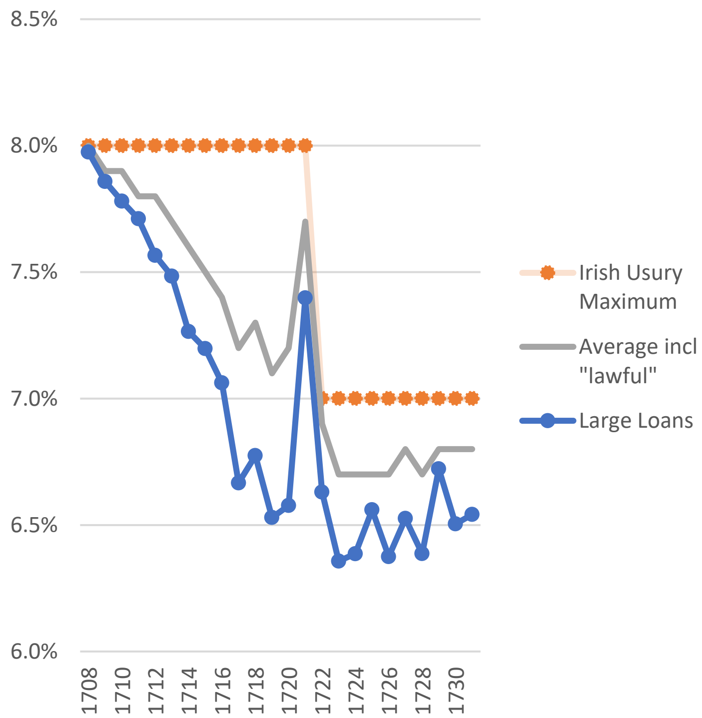
[162] Irish data attached and L. Neal, *The Rise of Financial Capitalism: International Capital Markets in the Age of Reason*, (Cambridge: Cambridge University Press, 1990): 134, 169-70.
[163] See Dickson, *Foundations*, 68 for the relative immunity of Ireland from the impacts of the rebellion in Britain.

Whilst coincidence is not causation, there would appear to be a clear link between wars, with the attendant general increase in government borrowing and the interest paid on state debt, and local Irish mortgage rates.

The financial events of 1720 to 1721 are particularly complex from an Irish perspective. Not only did this period include the Mississippi and South Sea Bubbles, but also the proposal of the establishment of an Irish National Bank which would issue loans at 5% interest rates.[164] As we have seen the usury rate was 8% and the average mortgage interest rate in 1719 was 7.1%. This average rose marginally to 7.2% in 1720 and more substantially in the aftermath of the crises to 7.7% in 1721. In that year, the proposal to establish the Irish national bank was defeated but a bill reducing the usury rate to 7% passed.[165] The rates are shown in Figure 13.[166]

[164] For a description of the nature of the Bubbles, see P. Walsh, *The South Sea Bubble and Ireland: Money, Banking and Investment, 1690-1721,* (Martlesham: Boydell and Brewer, 2014): 2-10.
[165] The reasons why the national bank proposal failed are too complex to deal with adequately here but they include the specific interest rate sensitivities of certain groups, particularly those with vested interests in keeping interest rates high. See McGrath, *Experience*, 170-3, Fauske, *Misunderstanding,* 138-42 and for the wider political debate see M. Ryder, "The Bank of Ireland, 1721: Land, Credit and Dependency," *The Historical Journal* 25, no. 3 (1982): 557-82. Also P. Kelly, "Berkeley and the Idea of a National Bank," *Eighteenth-Century Ireland / Iris an dá chultúr* 25 (2010): 98-117.
[166] Source: data attached.

Fig. 13 Irish Mortgage Interest Rates
1708 onwards



As Walsh noted the gentlemen of Ireland 'went late into the stocks, bought dear, extracted all the foreign gold out of Ireland, which is the best part of their current coin, to make those purchases, so that money is become extremely scarce' and the data shown in Figure 13 are entirely consistent with such changes in the Irish money supply.[167] It also shows that Cullen's statement that 'the Irish financial world escaped from the direct consequences' of the South Sea Bubble is incorrect.[168]

Furthermore, it adds to the evidence that Walsh provided on the widespread effect of the South Sea Bubble, which contradicts Hoppit's view that the Bubble

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[167] P. Walsh, Irish Money on the London Market: Ireland, the Anglo-Irish, and the South Sea Bubble of 1720, *Eighteenth-Century Life* 39, no.1 (2015): 131, quoting the London Mercury of 29 April 1721. For the high Irish relative level of investment in South Sea, as opposed to Bank of England or East India stock see Dickson, *Revolution*, 313. There were for instance 100 Irish holders of South Sea stock, 9 of Bank stock and none of East India stock in 1723-4. The respective numbers for holders of stock from the United Netherlands were 587, 430 and 219.
[168] Cullen, *Interpretation*, 14.

was essentially a London-based phenomenon.[169] It also calls into question Hoppit's view that the Bubble had little effect on the broader British economy, since he cited no evidence on English interest rates. If the Bubble could have a substantial, if temporary, impact on 'peripheral' Irish rates, could it not also have impacted English ones?[170] An assessment of Hoppit's view that there 'are good reasons to doubt that the Bubble generally disrupted the British economy in the eighteen months after it burst in the late summer of 1720' would certainly benefit from an examination of any equivalent interest rate data from English sources.[171] However, as North and Weingast noted for English private interest rates 'unfortunately the data from the first half of the eighteenth century, in contrast to those from the second half, are sketchy'.[172]

The broad picture painted by Figure 13 of improving availability of credit to around 1715 is paralleled in contemporary views. Prior, noted that by 1715 'the ballance (sic) of trade running much in our favour, there was no want of money or credit for the support of business; but on the contrary, the interest of money was lower'd, and the price of land grew high', but that by 1730 he was 'daily more sensible of the scarcity of money which could formerly easily be had at 6 per cent interest, but now cannot, without some difficulty, be had at 7'.[173]

But what about crises which were specific to Ireland? Cullen identifies banking crises, normally linked to poor harvests and drops in the trade balance in the 1720's, 1745, 1754-55 and 1759-60.[174] I discuss this further within the next

[169] J. Hoppit,"The Myths of the South Sea Bubble," *Transactions of the Royal Historical Society* 12 (2002): 158.
[170] Hoppit does note that the English land markets had a mini-boom at the height of the Bubble, Hoppit, *Myths,* 151.
[171] Hoppit, *Myths,* 155.
[172] North and Weingast, *Commitment*, 826, but see Quinn, *Glorious* for rates at the very beginning of the century.
[173] Prior*, Absentees*, 19.
[174] Cullen, *Problems 1967*, 14. He also finds crises later in the century, but since the usury rate was then dominant, the RoD data do not show any strong impact, although 1778 (which coincides with the 1777/1778 English credit crisis that Cullen identified as having a substantial impact on Ireland) is the start of a prolonged period when almost no deals were struck other than at usury rate, L.M. Cullen, "Economic developments, 1691-1750," in *A New History of Ireland, Eighteenth-Century Ireland*, 1691-1800 T.W. Moody, and W.E. Vaughan (eds.), (Oxford: Oxford University Press, 1986): 151.

section on money supply. No increase in rates is seen in any of the years identified except for 1759-60 which saw the end of the active market of the 1750's.[175] It would be possible, as Cassidy did for bill discount rates after 1760, to perform a statistical exercise, mapping interest rate changes against the years that Cullen classified as good or bad years economically.[176] However, to do so would be to compare statistical data on one hand with Cullen's, inevitably subjective, views on the other, which would not give us hard information about the determinants of interest rates. As regards other crises, the great Irish famine of 1740-1741 had no visible effect on interest rates which remained very close to the usury rate of 6%.[177]

Analysis - Money Supply

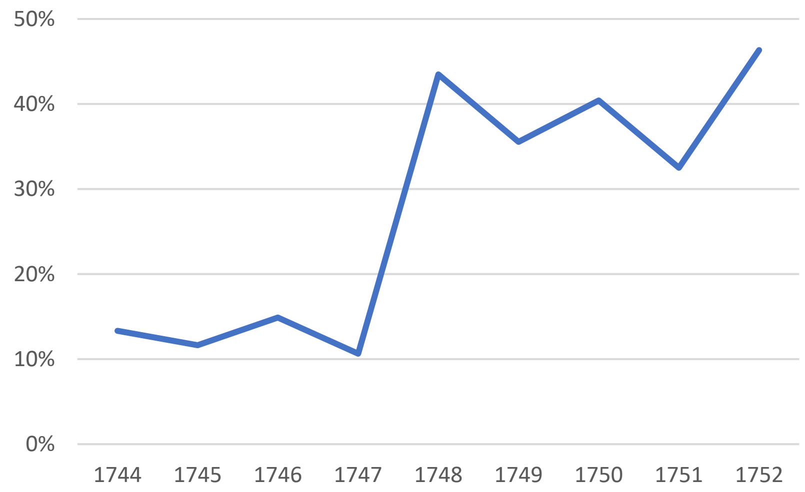
It would be ideal to have a yearly indicator of money supply in Ireland, to assess the relationship with interest rates but this is clearly unachievable. There were no national statistics and, as noted above, the money supply of specie in Ireland was composed largely of foreign coins. Contemporary estimates of the amounts of money in circulation are 'notoriously inaccurate' according to Twomey.[178]

Cullen believed that up until the 1730's there was an acute scarcity of specie in Ireland, but specie supply improved from the 1730's to the end of the 1740's. He then noted that in the 1750's 'all the Irish banks were affected by a general shortage of cash' as imports increased and remittances to absentee landlords continued and, indeed, three Dublin banks collapsed.[179] However, my interest rate data do not support this view as interest rates declined in the 1750's compared to the previous two decades as is evidenced in Figure 2 above. Cullen however, also identified an increase in bank note issue associated with the 'greatest boom in Irish history' from 1749, which would have contributed to lower

[175] See Appendix for percentage of deals done at below usury rates.
[176] L.M. Cullen, "Problems in and Sources for the Study of Economic Fluctuations, 1660-1800," *Irish Economic and Social History* 41 (2014): 1-19.
[177] See J. Kelly, "Coping with Crisis: The response to the Famine of 1740-41," *Eighteenth-Century Ireland / Iris an dá chultúr* 27 (2012): 99-122 for a description of the famine and its impacts.
[178] Twomey, *Financial*, 56.
[179] Cullen, *Business,* 333.

interest rates and although the timing is not exact this could explain the sharp rise in sub-usury activity I have identified in 1748.[180] This is shown in Figure 14.[181]

Fig. 14 % Deals under Usury Rate (Annual)



Cullen also stated that the amount of paper money in circulation in Ireland in 1752 was 'double or treble' the level of the 1720's.[182] He noted that, if note issue in 1754 was 'probably equal' to supply of specie by 1797 the ratio had fallen to one quarter.[183] The relative vibrancy of the Irish mortgage market had ended however, earlier than this, by the end of the 1750's.[184] This was associated in part with the failure of a number of Irish banks between 1754 and 1760, which will inevitably have reduced the effective money supply and increased interest rates.[185]

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180 Cullen, *Landlords*, 35 for the remark about the 'greatest boom', bearing in mind that he was writing in pre-'Celtic Tiger' days, in 1983 and Cullen, *Business,* 335 for banknote issue. I have failed to find any alternative explanation for this discontinuity in rates. There was no relevant Irish legislation in the period concerned according to a search conducted of the ILD, https://www.qub.ac.uk/ild/?func=simple_search&search=true&search_string=&search_string_type=ALL&search_type=any&session_from=1747&session_to=1747&submit.x=50&submit.y=11 accessed 22/11/2023.
181 Source: data attached.
182 Cullen, *Landlords,* 29.
183 Cullen, *Landlords,* 38.
184 See Figure 3 above.
185 M.-L. Legg, "Money and Reputations: The Effects of the Banking Crises of 1755 and 1760," *Eighteenth-Century Ireland / Iris an dá chultúr* 11 (1996): 78. For the coinage reform of 1750 which may have contributed to the banking crisis see E. Magennis, "Whither the Irish Financial

Money supply developments are thus broadly consistent with the interest rate movements, but do not, in themselves, tell the whole story. Mortgage rates also existed within a hierarchy of investment returns, and this will also have contributed to the stubbornly high rates which existed after 1760. In the preceding sections we have seen that Irish interest rates were determined by a variety of factors, some short-term and others of an institutional nature. However, we are left with two remaining questions as regards determinants. Why was the essentially endogenous Irish market apparently so closely linked to Bank of England stock yields? And was the persistent differential between Irish and English mortgage rates justifiable by economic fundamentals?

Explaining the correlation between Irish mortgage rates and Bank of England Yields

It is clear that in certain Irish circles market participants had an understanding of English markets and the new securities that had become available during the early part of the century. Thus Jonathan Swift wrote to Esther Johnson (Stella) 'let me beg you to buy Bank Stock …, which has fallen near thirty per cent. And pays eight pounds per cent'.[186] Although Stella was herself English, for those elite Irish investors with the connections to invest in England, investment in Bank of England stock or other securities was available. Swift did indeed invest £300 on his own account in Bank of England stock in 1710, funding his purchase from monies in Ireland.[187]

The simplest way to explain the correlation would be to suppose that the markets were fully integrated with English and Irish investors participating in both markets. But we know this is not the case as English involvement in the Irish mortgage markets was minimal. So there is a conundrum: what mechanism

Revolution? Money, Banks and Politics in Ireland in the 1730s," in *Money, Power and Print: Interdisciplinary Studies on the Financial Revolution in the British Isles*, C.I. McGrath and C. Fauske (eds.) Cranbury: University of Delaware Press, 2008): 205-7.

[186] H. Williams (ed.), *Journal to Stella*, (Oxford: Clarendon Press, 1948): I, 73-4.

[187] See Twomey, *Financial*, 190 for details of the modalities of paying for the stock. Swift also invested (profitably at first) in South Sea stock, see Twomey, *Financial*, 192-3.

could lead to the correlation between Irish mortgage rates and English Bank yields? Imagine therefore Irish investors who had spare cash had essentially two choices – put the money out to mortgage on the Irish market at say 6.0%, or invest in Bank of England stock at 4.0%. These are not exactly equivalent investment alternatives, the Bank of England stock is for instance, more liquid, as Swift knew.[188] There is also the exchange rate risk.

So depending on their risk preferences, some Irish investors will choose the mortgage route and others the Bank of England stock. Suppose the Bank of England stock yield decreases by 0.5% to 3.5%. Some Irish investors will reassess their position and switch to Irish mortgages, increasing the Irish money supply and decreasing the Irish interest rate. The inverse would apply in the case of an increase in the Bank of England yield. However, given the relative size of the markets and the lack of English involvement in the Irish mortgage market there would be no reverse causality, that is to say that changes in Irish mortgage interest rates would have minimal impact on the English market.

Whilst the above analysis suggests a mechanism whereby Irish rates could be influenced by Bank of England stock yields, it is dependent on Irish investors having access to purchase English securities. This could certainly be done by well-connected high-status investors such as Swift, but the vast majority of participants in the Irish markets did not have such connections, so the closeness of the correlation remains surprising. The additional costs of purchasing securities in London would also have reduced the attractiveness of such investments for an Irish buyer and reduced the volume of transactions and hence the correlation, unless the correlation is due to common underlying economic factors. Initially at least, there was little Irish investment in Bank of England stock. Of the 1,268 investors within the opening list of stockholders of 1694 only four listed an Irish residence.[189] It might be thought that Irish involvement

[188] 'And you have the principal when you please' Williams, *Stella*, I, 73-4.
[189] Lord John Fitzharding, who invested £2,000, Robert Molesworth Esq. £500, Philip Savage Esq. £1,500 and Henry Scardeville, Dean of Cloyne, £500, extracted from Bank of England, *Index to the Book of the Subscriptions, 1694,* Bank of England Archive (10A285/1).

might have grown over time, but the number of individual stockholders from Ireland had only grown to 26 by the 1720's.[190] It later declined to five by 1750.[191] Therefore the close correlation of the two sets of data cannot be due to the effect of these acting as alternative investments within a strongly integrated financial system. Rather I believe that the reason for the strong correlation is that there are two disconnected investments which react, other than at the time of the South Sea Bubble which had a particular impact on the Bank of England stock, in the same way to external stimuli such as a declaration of war.

Explaining the persistent spread between Irish and English mortgage rates

Whilst the discussion above dealt with the tendency of Irish rates to move in tandem with certain English ones, it does not deal with the issue of the maintenance of a gap between equivalent rates. By way of a simple comparison, in the period from 1710 to 1760, English Bank stock yields averaged 4.4%, English mortgage rates 4.8% and Irish mortgage rates 6.4%. Was this 1.6% 'risk premium' justified by economic fundamentals?

There are a number of economic factors which could explain this persistent premium. Firstly, perhaps property rights were better secured in England than in Ireland? Were the 'institutions' in the broad sense attributed to the term by North, as the 'rules of the game', better in England than Ireland.[192] However, this seems difficult to justify given that in practical terms, from 1708 Irish real estate was better secured than most English titles by the recording and search capabilities that the RoD provided, whereas most of England lacked any land

[190] A. Carlos and L. Neal, "The Micro-Foundations of the Early London Capital Market: Bank of England Shareholders during and after the South Sea Bubble, 1720-25," *The Economic History Review* 59, no. 3 (2006): 522. The total number of stockholders had expanded to 7,924 so the proportion of Irish stockholders remained miniscule. 'Anglo-Irish' investors who split their time between English and Irish residences are, however, likely to have been excluded from these figures.

[191] Dickson, *Revolution*, 324. See also the low Irish investment in 1748 4% government stock from the 1750 registries, Dickson, *Revolution*, 331.

[192] D. North, "Institutions, Ideology, and Economic Performance," *Cato Journal* 11, no. 3, (1992): 477.

registry. A more telling argument is the 'political' one that Irish real estate was at greater risk of appropriation, given that much of it had been confiscated and redistributed only in the last century, to a much greater extent than in England.[193] Thus from a lender's perspective, 'regime change' was a significant risk on the security offered. Whilst these considerations may be considered valid at the beginning of the period, when the RoD was not yet established and some confiscations of Jacobite land were relatively recent, they do not, in my opinion, hold much validity for the bulk of the period and if anything by the mid-eighteenth-century Irish real estate was better secured than English and the risk premium should thus have been in the opposite direction. Improved perceived security of Irish real estate may however explain the reduction in the risk premium from 2.5%/3% to 2% by 1714 shown in Figure 10.

So, if the quality of the title of real estate was not the reason for the persistent risk premium what other reasons could be posited? It could be that Irish borrowers were more likely to default and less likely to pay interest on time than English ones. I believe we can set aside any cultural differences or attitudes as to the honouring of debt, which would appear to me to be unlikely given the similarities between the English and Irish societies involved. [194] However, it might be the case that there was a difference in the quality of the security itself. In this case relative security would be linked to the likelihood that Irish rents, which underlay the valuation of the security and the ability of the borrower to repay, were less secure than English ones. This seems somewhat unlikely in the case of loans backed by urban property in say, Dublin, given the rapid growth in the city and its population, but could have been the case in relation to rural Ireland, if for instance, Ireland was more susceptible to variation in harvest levels and agricultural production than England. It would also be the case if Irish property was more likely to be encumbered, in the sense of multiple

[193] Crotty, *Agricultural*, 8-11.
[194] Imprisonment for debt prevalence statistics do not provide any useful information, since most debt imprisonment was for unsecured loans rather than mortgages, see Twomey, *Financial*, 41.

mortgages or jointures or rent charges, than English property.[195] Roebuck did make the point that Irish landowners generally let their land on longer leases than in England and may have been disadvantaged as a result in an era of increasing food prices.[196] However, this does not, in itself, imply that Irish land was a riskier asset than English land and indeed it could be argued that long leases provided greater predictability of income and thus stronger security to a mortgage.

I explored a number of potential avenues to assess the likelihood of Irish securities being inherently more risky than English ones. Firstly, it would be ideal if we had comparable statistics for mortgage default for England and Ireland. Unfortunately, no such statistics are available and I saw no anecdotal evidence to suggest a systemic difference. Similarly, I found no evidence to support a suggestion that rent default levels were higher in Ireland than Britain. Finally, on the question of a greater level of encumbrance on Irish property than its English equivalent, it is true that in the middle of the following century it was found necessary to establish in Ireland the Irish Encumbered Estates Court to assist in the sale of properties where the owners could no longer meet their obligations for mortgage repayments.[197] There was no English equivalent to this institution, though any reader of Charles Dickens' Bleak House will be aware that English estates were also encumbered by mortgages and complex legal procedures. Also the Encumbered Estates Court was set up some 50 years' after the end of the period under consideration and as a result of a specific event, the Great Famine. I thus have no strong evidence to suggest that, in the eighteenth century, Irish mortgages were inherently riskier than English ones.

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[195] For a (admittedly inconclusive) discussion of the level of indebtedness of Irish landowners see D. Large, "The Wealth of the Greater Irish Landowners, 1750-1815," *Irish Historical Studies* 15, no. 57 (1966): 21-47.

[196] P. Roebuck, "Landlord Indebtedness in Ulster in the Seventeenth and Eighteenth Centuries," in *Irish Population, Economy and Society*, J.M. Goldstrom and L.A. Clarkson (eds.), (Oxford: Clarendon Press, 1981): 144-7.

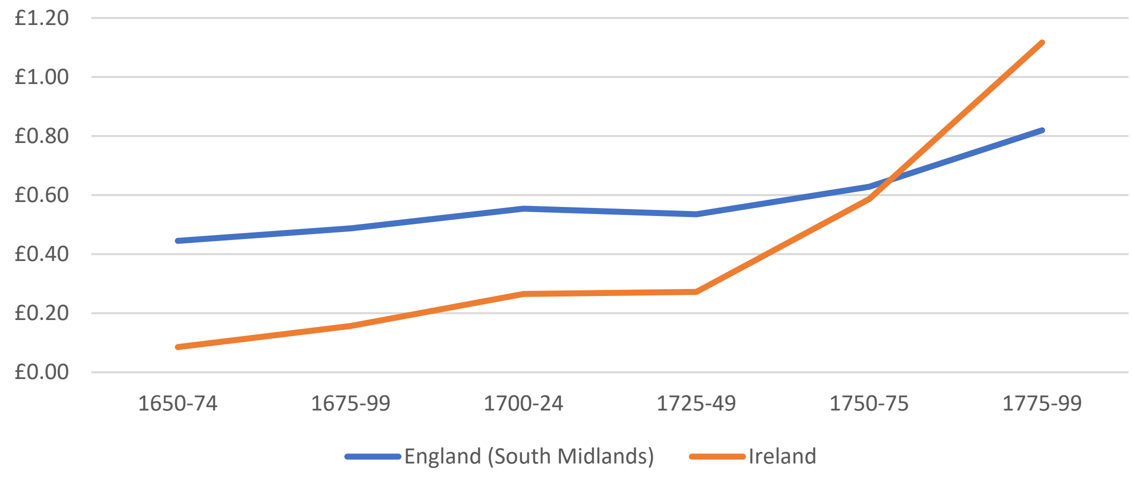
[197] See Roebuck, *Indebtedness,* 153-4 for a discussion of the differences between Irish and English landowner experiences as regards indebtedness and encumbrances, where he makes the valid point that higher interest rates in Ireland compared to England would have led to a vicious circle where indebtedness grew.

Neoclassical economic theory would lead you to conclude that mortgage rates would tend to converge in the two countries if the underlying risks were the same. However, that requires the active participation by English principals in the Irish mortgage market. We have already seen that English lenders were poorly placed to do the deeper due diligence that mortgage lending requires than, say investment in stock and therefore did not participate significantly in the Irish market. Thus there was no pressure for market rates to converge for that reason.

But was there a driver that kept Irish rates high? We have seen above that following Allen's reasoning, there is also a link between mortgage rates and the valuation of land within a local risk/return hierarchy. Mortgage rates are a function of the actual and anticipated return, a risk premium on mortgages vis-a-vis land and relative taxes and administration. If the risk premium and taxes and administration do not change over time, then mortgage rates are a function of the return on land. Rates of return on Irish land were significantly above English land as Figure 15 shows.[198] The eighteenth century was truly a period of phenomenal growth in rents from agricultural land in Ireland and as a result the market could support higher mortgage rates. Another way of looking at this is to state that Irish borrowers could afford to pay higher rates on their mortgages given the high rates of return they enjoyed on their land ownership. This was not the case in England, and in my view, is the main reason why Irish rates remained persistently higher than English ones.

[198] English data from Allen, *Price*, Table 2. For some of the Irish data see the attached excel database.

Fig. 15 English v Irish Rents (GB£ per English statute acre)



Conclusions – Impact on Irish economy

Having established the pattern of mortgage rates across the century and their correlations, the remaining questions relate to their impact on the Irish economy. Lower interest rates are generally viewed as a positive encouragement for the funding of private investment initiatives, for instance, agricultural improvement, mercantile ventures or industrial development. The higher interest rates prevalent in Ireland compared to England cannot have assisted in the deployment of these initiatives in Ireland and this was understood by local businessmen. For instance, James Laffan of Kilkenny, in a pamphlet of 1785 calculated that the annual cost of running a ship of £1,000 capital value was £197 in Ireland compared to £158 in England, the difference being caused solely by the interest rate differential.[199] The fact that mortgage finance was important to mercantile/industrial development is supported by the rationale for the establishment of the first English registry of deeds in the West Riding of Yorkshire. The motive for establishing the register in West Yorkshire was that this was:

> 'the principal place in the north for the cloth manufacture and most of the traders therein are freeholders, and have frequent occasions to

[199] Laffan, *Artihmetic,* 15-16.

> 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'.[200]

If mortgage finance in England was viewed at the time as key to industrial development, some more modern commentators have also stressed its importance.[201] Similarly it was also used in the development of the growing Irish linen industry.[202] However, it must be remembered that interest rates are only one of a number of economic factors that influenced industrial development and Ireland's failure to industrialise cannot be attributed solely to higher rates.[203]

It was perhaps the mercantile and shipbuilding sectors which were the most impacted by the interest rate differential. The degree to which Irish entrepreneurs were handicapped by the Navigation Acts and Ireland's somewhat peculiar position within them is a matter of longstanding academic debate.[204] Surely, if any nation was best placed geographically to exploit the new Atlantic trading world it was Ireland, but Ireland's contribution to the Atlantic trade was largely restricted to acting as England's floating larder for provisioning of the

[200] Preamble to 2 & 3 Anne c. 4 (1703) cited in Howell, *Failure*, 372.
[201] For the importance of credit to the developing industries of the Eighteenth Century see J. Smail, "The Culture of Credit in Eighteenth-Century Commerce: The English Textile Industry," *Enterprise & Society* 4, no. 2 (2003): 299-325, though he concentrates on short-term discounting rather than longer-term mortgages. See D.T. Jenkins, *The West Riding Wool Textile Industry, 1770–1835: A Study of Fixed Capital Formation,* (Edington: Pasold Research Fund, 1975): 193,203 for the importance of mortgage finance for sourcing fixed capital. However, C.E. Heim and P. Mirowski, "Interest Rates and Crowding-Out During Britain's Industrial Revolution." *The Journal of Economic History*, 47, no. 1 (1987): 129 ignore mortgage finance completely. For a more nuanced view of crowding-out which allows for mortgage finance see G. Clark, "Debt, deficits, and crowding out: England, 1727—1840," *European Review of Economic History* 5, no. 3 (2001): 403-36.
[202] See W.H. Crawford, *The Domestic Linen Industry in Ulster*, (Belfast: Ulster Historical Foundation, 2021): 32-3, for an example of how an entrepreneur used mortgage finance in his development of a bleachgreen business in County Down in the period 1715 to 1726. There are many examples of mortgages related to commercial activity in the Register, such as RoD 304933 of 1793 where cotton manufacturing machinery, including spinning jennies, and premises are mortgaged by, and to, Dublin cotton manufacturers. See also RoD 335603 of 1794 between paper manufacturers at a lower interest rate than typical for the period and RoD 305239 of the same year where a distiller mortgages his business premises.
[203] For a considered view of the importance of interest rates to the English economy of the time see Pressnell, *Interest*, 210, but note that, if the Irish experience is any guide, he is incorrect to state that mortgages were 'unobtainable' for long periods in the American and Napoleonic wars since for each year in the database there are a number of mortgages granted at that period, Pressnell, *Interest*, 184.
[204] Connolly, *Divided*, 346.

English fleet and the West Indies. Even this trade was dominated by English and Scottish vessels. Prior calculated that in the seven years to 1727, Irish ships carried only 21% of the trade into and out of Irish ports, compared to 61% for English vessels and 10% for Scottish.[205] Thus, the Irish economy lacked vertical integration and was unable to exploit the full profits of its production.

Another economic consequence relates to the Penal Laws, which can, in economic terms, be viewed as promoting 'rent-seeking' through the restrictions on access to the land and credit markets. Rent-seeking in this context is the manipulation of laws and institutions to make secure, sometimes monopolistic profits. In this case, the monopoly concerned relates not to individuals but to the Protestant elite. It is generally regarded as injurious to overall economic wealth and development since it is an inefficient distribution of resources and does nothing to encourage productivity growth.[206]

The 40 years after 1760 were ones where the usury rate was dominant, that is that very few transactions occurred at rates lower than 6%. During this period, the 'natural' rate of interest, if it had been unconstrained by usury would have been higher than 6%, as evidenced by the rates of return on annuities/rent charges. This natural interest rate is consistent with, and a consequence of, a risk/return hierarchy when land investments were yielding well in excess of 6%. If you were earning 8% from your land, you could afford to borrow at 6%.

However, in this circumstance, capital holders would have been reluctant to lend money at uneconomic rates and the market failed to operate. Earlier in this paper I demonstrated that strong credit rationing would have occurred. This was shown by the high natural rates of interest in the rent charge data and the need for the Dublin Corporation to issue loans at the usury rate itself. This market failure would have had two consequences. Firstly, money would have been tight,

[205] Prior, *Absentees*, 52.
[206] See G. Tullock, "The Welfare Costs of Tariffs, Monopolies and Theft," *Economic Inquiry* 5 (1967): 224-32.

in the sense that the supply of capital would have been restricted and this would have limited the ability of entrepreneurs to borrow and further impeded economic growth. Secondly, capital holders, who would have been the landed elite or middlemen enjoying the hugely increased rents on land, would have few choices as to where to place their capital. In a country without deposit banks, with mortgages unattractive, commerce socially frowned upon and land a finite resource, there were few domestic investment opportunities. Investment in English securities was complicated, costly and dependent on social connections in England, although it became easier as the century progressed. There was only so much money that the Anglo-Irish elite could spend on consumption, and as a result, the main outlet for the excess wealth accumulated from increasing rents was the built environment.[207] Thus the later eighteenth century is the start of the golden age of the Irish country house and the rent rolls financed high status urban growth, making Dublin by 1800 the second largest city in the British Empire and the sixth largest city in Europe.[208]

Concluding Remarks and Future Research

To conclude, I trust the analysis presented above will have demonstrated the usefulness of the data contained within the Registry of Deeds. This paper has provided evidence that the impact of the South Sea Bubble was not confined to the London markets. Also that natural reductions in the rate of interest occurred at the beginning of the century, despite that fact that in Ireland, the British institutions so stressed by North and Weingast as being key to interest rate reductions, were not present. It was political stability, as the threat of Jacobite

[207] A similar argument can be made that, since Roman Catholics were forbidden to invest in land or to lend money on mortgage security, they were forced to invest in trade and as a result made profits from their entrepreneurship, T. Arkins, "The Commercial Aspect of the Irish Penal Code," *Studies: An Irish Quarterly Review* 1, no. 2 (1912): 266. See C.C. Trench, *Grace's Card: Irish Catholic Landlords 1690-1800*, (Dublin, Mercier: 1997) for the resilience of the Catholic Irish middle classes despite the disadvantages imposed upon them by the Penal Laws.

[208] See Curtis, *Incumbered*, 337 for a description of the Irish country house building boom of the latter part of the century and his conviction that rising rents meant that the majority of landlords could take these 'costs in stride'. For data on city size in 1800 https://www.statista.com/statistics/1022001/thirty-largest-cities-western-europe-1800, accessed 28 April 2024.

regime change lessened, rather than institutional changes, that led to this reduction in interest rates. In passing, I demonstrated that Dean Jonathan Swift was lacking in financial acumen.

Turning to the main conclusions as to the research questions posed, the data have shown that for the first 60 years of the century, interest rates fell to levels which were closer to, but still higher than, European comparators. For the remainder of the century, the market was moribund and effectively constrained to the usury rate of 6%. In the first period, rates moved in parallel with comparable English ones, despite the lack of direct integration between the markets. This can be attributed to the two markets reacting in similar ways to external stimuli such as wars.

Throughout the century, Irish rates remained stubbornly higher than English ones and this feature was not due to a conventional 'risk premium' difference between the two markets. The security of Irish mortgages was, if anything, stronger than that for English ones. Rather it was primarily driven by the specific risk/return hierarchy within the Irish markets, specifically the comparison between the phenomenal returns available on Irish land as rents grew from very low levels. This allowed borrowers to afford to pay higher interest rates than in England and encouraged mortgage lenders to seek higher returns, given the alternative of direct investment in real estate. The high and constrained rates of interest would have hindered the development of Ireland's mercantile and industrial sectors and contributed to why Ireland did not see the same development that occurred in eighteenth-century Britain. Capital was directed instead into the relative economic dead-ends of domestic building and agrarian production.

As regards future research, I hope to complete the time series of land rentals, which, when combined with data on urban development, will provide further important information on both national and provincial Irish economic growth in the economy of eighteenth-century Ireland.

Abbreviations

CARD: Calendar of Ancient Records of Dublin
ECCO: Eighteenth Century Collections Online
ILD: Irish Legislation Database
PRONI: Public Records Office of Northern Ireland
RoD: Register/Registry of Deeds

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Appendix

This appendix contains technical details and additional information as to the data gathered. Footnote references refer to the Bibliography in the main body of the text.

Data Mining – Mortgage data

In all years at least 40 cases were randomly gathered. Once this minimum had been achieved, then no further examples were actively sought for that particular year, though in the course of examining the Register, when additional data came to light it was not ignored. The number of cases per year varies considerably, due to the data collection process which is an ongoing one, searching for lease data as well as mortgages and due to the fact that earlier years were searched more frequently in order to obtain data for years prior to the establishment of the Registry in 1708.[1] Thus within the data, the number of interest rates collected per year can be as high as 173 for 1710, but is never less than 40. The number of cases is simply a by-product of the data mining process and should not be considered as an indicator of prevalence.

The number of cases, the average interest rate and the percentage of deals done at rates below the usury rate are shown in Table A.1.

[1] Data for mortgages for earlier years can be found in recitals of earlier deeds within the memorial text, and the earlier the date of the memorial, the more likely that pre-1708 data will be obtained.

Table A.1 Yearly Summary

Year	n	Average Rate	% under usury	Year	n	Average Rate	% under usury	Year	n	Average Rate	% under usury
1700	3	8.7%	67%	1734	44	5.9%	7%	1767	40	5.8%	15%
1701	10	8.6%	70%	1735	45	5.9%	7%	1768	42	6.0%	5%
1702	12	10.0%	0%	1736	51	6.0%	4%	1769	42	5.9%	10%
1703	10	9.6%	27%	1737	49	6.0%	4%	1770	41	5.9%	15%
1704	6	7.9%	17%	1738	61	5.9%	8%	1771	43	5.9%	14%
1705	8	7.6%	38%	1739	49	5.9%	18%	1772	43	5.9%	9%
1706	14	8.0%	0%	1740	47	5.9%	17%	1773	42	5.9%	12%
1707	14	8.0%	0%	1741	45	5.9%	13%	1774	45	5.9%	11%
1708	135	8.0%	9%	1742	43	5.9%	15%	1775	41	6.0%	0%
1709	157	7.9%	10%	1743	47	5.8%	19%	1776	46	5.9%	9%
1710	173	7.9%	15%	1744	45	5.9%	13%	1777	45	5.9%	9%
1711	152	7.8%	18%	1745	43	5.9%	12%	1778	44	6.0%	0%
1712	110	7.8%	21%	1746	47	5.8%	15%	1779	47	6.0%	0%
1713	67	7.7%	27%	1747	47	5.9%	11%	1780	40	6.0%	3%
1714	88	7.6%	35%	1748	46	5.6%	43%	1781	40	6.0%	5%
1715	65	7.5%	46%	1749	43	5.7%	36%	1782	40	6.0%	0%
1716	66	7.4%	48%	1750	47	5.6%	40%	1783	40	6.0%	3%
1717	71	7.2%	54%	1751	40	5.7%	33%	1784	40	6.0%	0%
1718	88	7.3%	45%	1752	40	5.5%	46%	1785	40	6.0%	5%
1719	113	7.1%	57%	1753	41	5.6%	34%	1786	40	6.0%	3%
1720	66	7.2%	44%	1754	40	5.7%	30%	1787	41	6.0%	2%
1721	69	7.7%	23%	1755	42	5.6%	36%	1788	40	6.0%	3%
1722	49	6.9%	20%	1756	40	5.7%	35%	1789	40	6.0%	0%
1723	47	6.7%	30%	1757	40	5.8%	20%	1790	43	6.0%	5%
1724	47	6.7%	34%	1758	40	5.7%	25%	1791	40	5.9%	8%

1725	48	6.7%	32%	1759	40	6.0%	5%	1792	41	5.7%	17%
1726	50	6.7%	28%	1760	40	6.0%	5%	1793	40	6.0%	3%
1727	62	6.8%	27%	1761	41	5.8%	15%	1794	40	6.0%	3%
1728	96	6.7%	26%	1762	41	5.8%	17%	1795	40	6.0%	3%
1729	53	6.8%	19%	1763	45	5.8%	16%	1796	40	6.0%	3%
1730	54	6.8%	26%	1764	42	6.0%	2%	1797	40	6.0%	0%
1731	51	6.8%	18%	1765	40	5.9%	10%	1798	40	6.0%	0%
1732	49	6.1%	12%	1766	44	5.9%	16%	1799	40	6.0%	0%
1733	54	6.0%	2%								

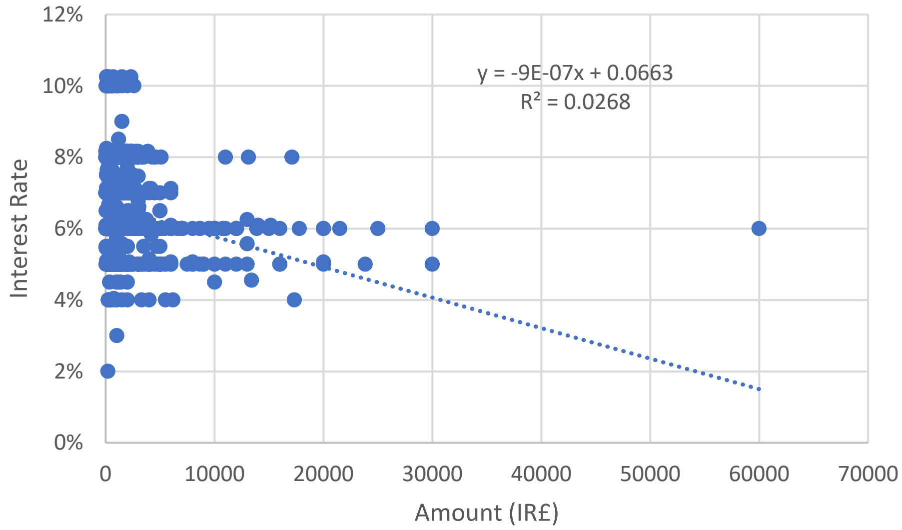
Note for convenience I have labelled the data gathered as relating to mortgages, and indeed the vast majority of data does consist of interest rates on mortgages. I have included, in a few cases, interest rates on debts formalised in the courts, related to marriage contracts or secured by personal bonds (typically of twice the value of the debt). There is no discernible difference between interest rates on mortgages and those other forms of debt included in the main database.

Mortgage Data – Key Features
The mortgage data is contained within an excel files not published at this time. A summary of the key features of the data is shown in Table A.2 below.

Fig. A.2 Key Data	17th Century	18th Century
Number	45	4,995
Total Amount	£25,024	£3,753,884
Average Amount	£556	£760
% Rural Security	87%	60%
% Urban Security	11%	34%
% Combined/Other	2%	6%
% Security Connacht	14%	5%
% Security Leinster	28%	57%
% Security Munster	47%	24%
% Security Ulster	12%	15%
Average Interest Rate	9.49%	6.52%

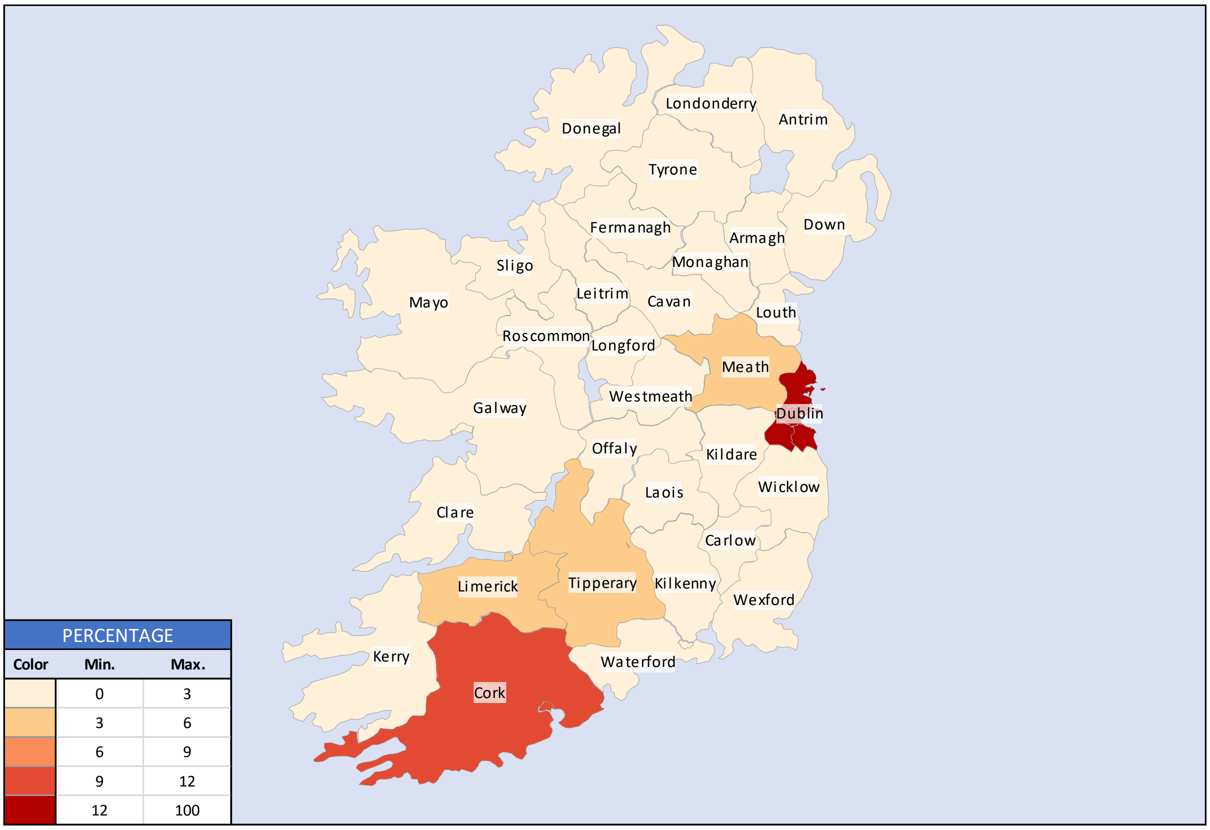
The relationship between interest rate and amount which was identified in the main body of the paper for specific time periods can also be seen when all the data is examined, though due to the noise created by diachronic variation and by including periods when the usury rate was dominant, the correlation is weak.

Figure A.1 Interest rate versus Amount



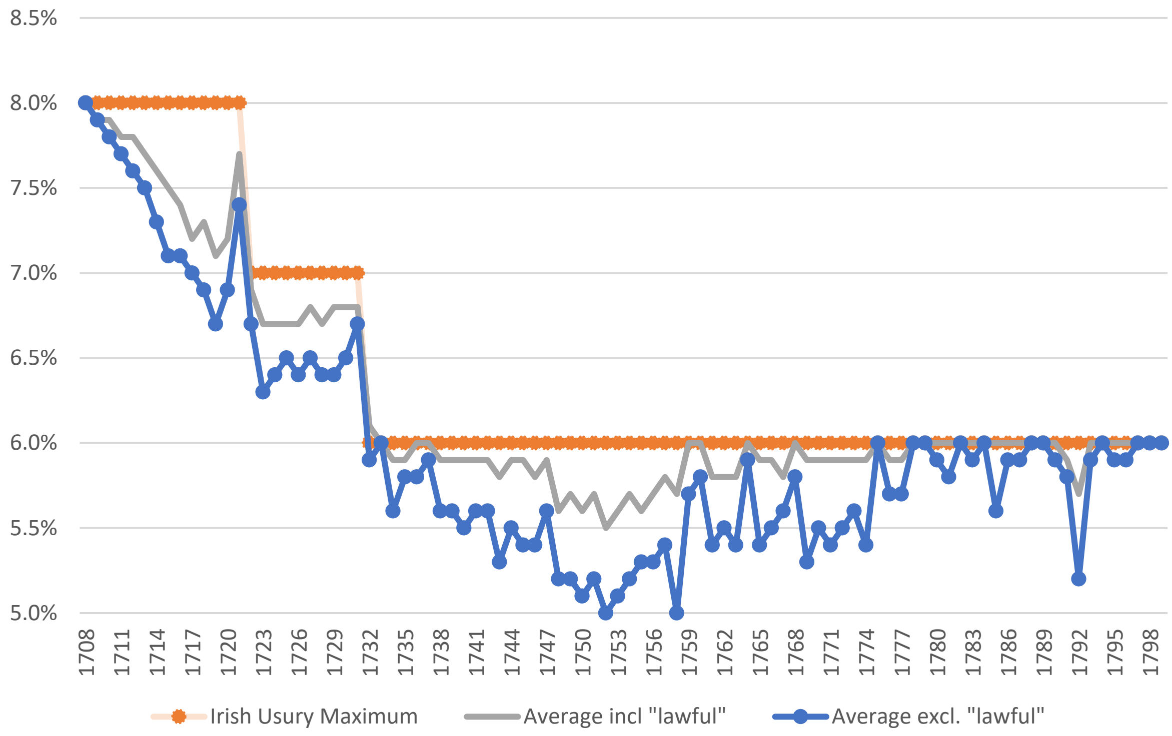
For a sample of data (n=2,445) the location by county of the security offered was also gathered and the prevalence by county is shown in the heat map Figure A.2 below. Note the concentration around Cork (11% of total) and Dublin (35%).

Figure A.2 Prevalence of Security Location as percentage of total



Mortgage Rates – with and without legal/lawful interest assumption
Within the main body of the paper an assumption is made that, when a memorial refers to 'legal' or 'lawful' interest, this means that the interest rate was at the usury rate then applicable. Although this appears a reasonable assumption it could be challenged since, as noted in the main body, there are some occasions when a 'legal' or 'lawful' interest is quoted as being below the usury rate. However, the main conclusions of the paper would not be changed if 'legal' or 'lawful' data were excluded as Figure A.3 shows the same trends, whatever the assumption, although there is more 'noise' in the data if the 'legal'/'lawful' data is excluded, given the smaller sample size.

Fig. A.3 Irish Mortgage Interest Rates 1708 onwards

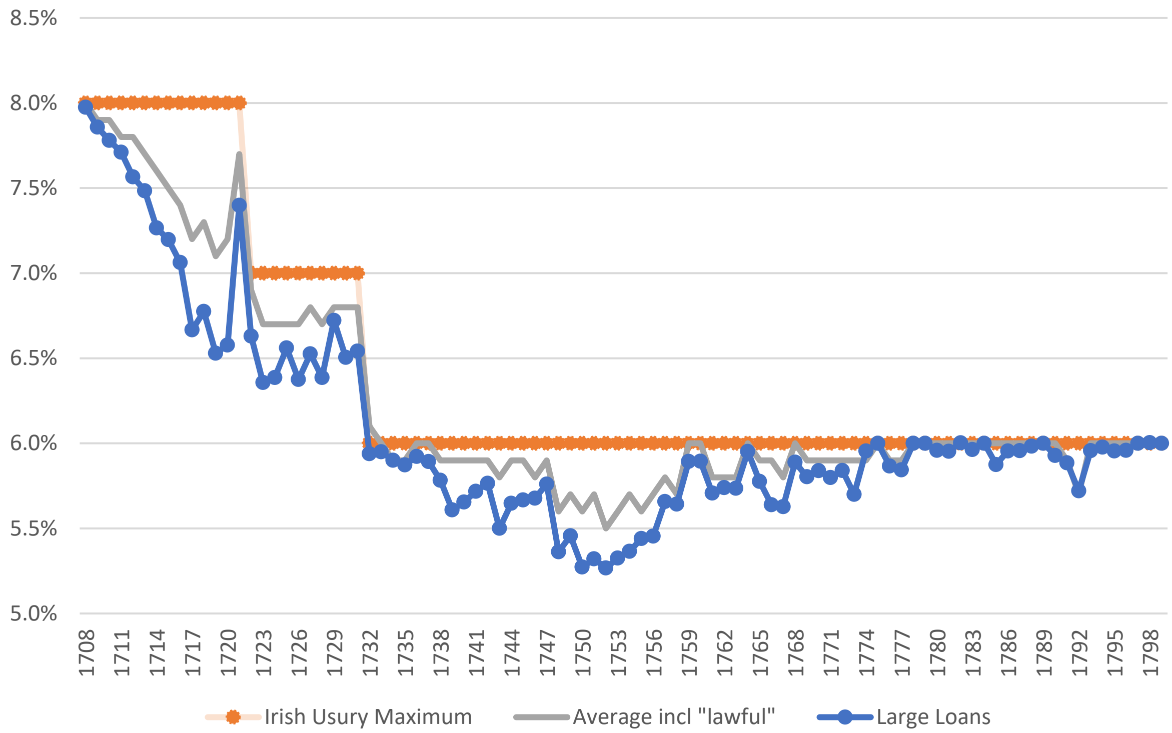


Mortgage Rates – Larger Loans

Given the strong linkage between the size of the loan and the interest rate charged it is also possible that the trend line may be distorted by the proportion of small versus larger loans (for instance if the sample contains a disproportionate number of smaller loans in a particular year then the overall average will be inflated). I therefore examined the trend line for larger loans, over IR£300, and this is shown in Figure A.4, where the patterns can be seen to be similar.[2]

[2] Source: data attached.

Fig. A.4 Irish Mortgage Rates - Large Loans



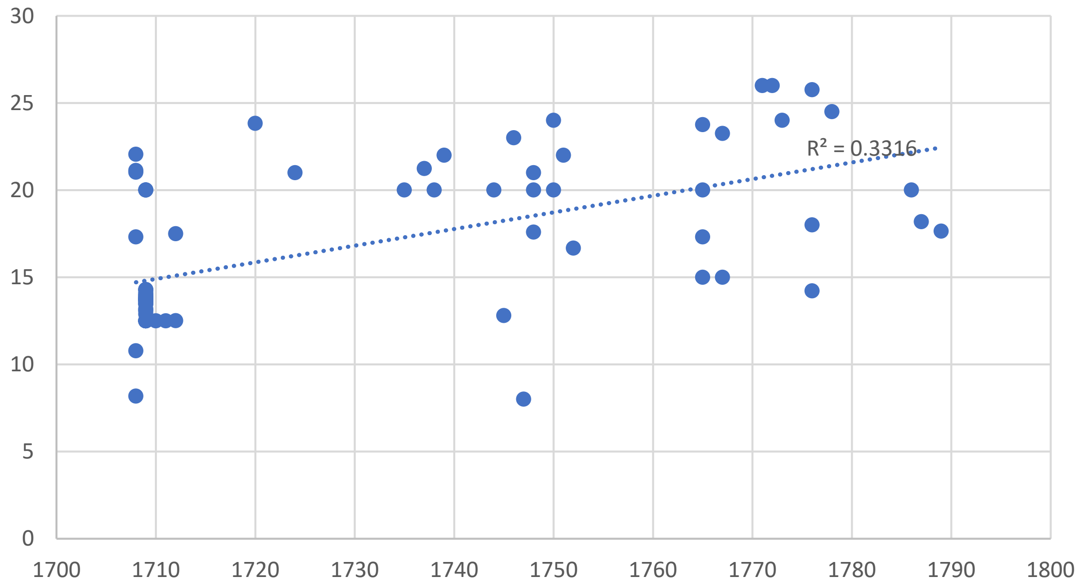
Years' Purchase

On average, the number of years' purchase average 21 (n=23) when the years are explicitly stated and 17 (n=85) when implicit and explicit data is included.[3] The development over time is shown in Figure A.5. Whilst more data would be needed to construct a mathematically sound equation, there does appear to be a general trend over time for an increase in years' purchase.[4]

[3] See attached database for the data concerned. Note the preponderance in the 'inferred' data to earlier periods, given that many of the memorials of sales of land by the Hollow Blades Company in 1709 contain information about rents and sale prices, but this is not the case in most other sales, thus the average is lower when inferred data in included.

[4] But note the lack of any data for the 1790's.

Fig. A.5 Stated and Inferred Years' Purchase



Irish Currency

Irish pounds were different from the lawful money of Great Britain and traded at a discount throughout the period. However, no silver or gold Irish coins were minted in the eighteenth century and the coins which circulated were largely foreign.[5] The government issued tables for converting coins such as the gold French pistole or the old Peruvian piece of eight into Irish pounds.[6] The Irish currency was thus a virtual money of account. The Irish pound to English pound exchange rate, after a substantial revaluation of the Irish pound in 1701, was relatively stable throughout the century until the abandonment of the convertibility of the currency into gold in 1797.[7] The exchange rate was generally close to IR£13 to GBP£12 or in then current terms, 13 Irish shillings were equal to 12 British.[8]

Many of the memorials do not explicitly describe the nature of the currency lent, though often it is described as being 'sterling', which I have assumed refers to being in Irish currency. However, on occasions it is explicitly described as being the lawful money of Great Britain, in which case I have assumed an exchange rate of IR£ 1.08 to GB£ 1. In a small number of cases, amounts are specified in guineas which I have assumed to be worth IR£ 1.15.

[5] See S. James, *An Essay towards an Historical Account of Irish Coins and of the Currency of Foreign Monies in Ireland*, (Dublin: Anon, 1749). Copper coins were minted, notably the infamous Wood's halfpenny, but were irrelevant for mortgage transactions denominated in pounds, see Dickson, *Foundations*, 72-5.
[6] James, *Coins*, 68.
[7] There was a revaluation of the English pound in 1717 and of the Irish pound in 1737: Cassidy, *Exchange*, 32.
[8] O'Grada, *Pound,* 148.

Data Mining - Lease data
The year attributed to the lease is that of signature of the original document, and where a lease specifies a change in rent to occur after a term of years then the new rent is treated as a new data point. Where a lease specifies a change in rent to occur at a specific event such as the cessation of war with France, the same approach applies.

The amount of rent is that shown, including the value of duties (services or items to be given in addition to the monetary rent) if known but excluding receivers'/collection fees. Only leases where the area is described in acres are included. Leases where the area is described in square feet are excluded since they are urban in nature and the intention is to capture rents for agricultural land. Much of the data is expressed in rents per Irish or Plantation measure acre. English or Statute acres are assumed to be equal to 0.617 of an Irish acre. Scotch or Cunningham acres are assumed to be 0.796 of an Irish acre. Where no measure is stated, it is generally assumed to be Irish, since these constitute the highest percentage of cases in most counties.[9] Where land is described as unprofitable or bog or mountain, it is ignored when calculating the rent per acre.

When an initial payment or fine has been paid, the opportunity cost of the capital amount of such payment is added to the rent, using the legal/lawful interest rate applicable for that year. So, for instance, if a tenant paid an initial amount or fine of IR£200 in 1750 (when the legal/lawful interest rate was 6%), and an ongoing rent of IR£100 per year, the effective rent used would IR£112 (that is IR£100 plus 6% of £200).[10] Fines or payments on renewals or falls of lives were ignored. Where a Griffiths valuation comparator is available, the comparison is made with the value per acre at the level of a specific townland, using the valuation for land excluding buildings and including unprofitable land such as bog or mountain, since the Griffiths valuation includes such land. [11]

Advertising Data
The advertisements can also provide some information on relative supply and demand towards the end of the century when demand from borrowers exceeded supply from lenders, as shown in Figure A.6.[12]

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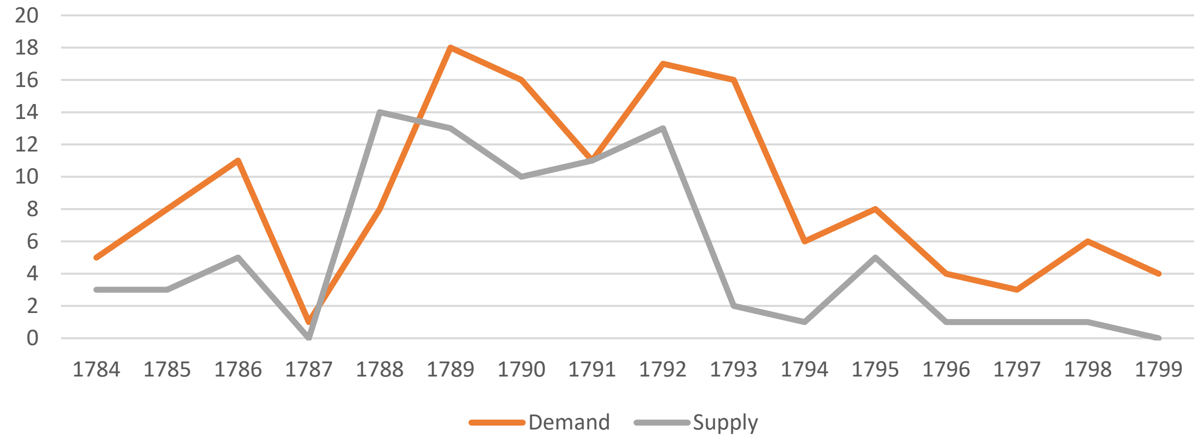
[9] In a sample of the 18th century data (n=992), 83% were specified as Irish/Plantation, 11% as English/Statute and 6% as Scotch/Cunningham. However, in Ulster and Cork there are significant numbers of cases where the land is measured in Cunningham or English acres and therefore data is only included for these counties if the measure is explicitly stated.
[10] If the duration of the lease was very short, then the initial fine was amortised over the duration of the lease rather than the procedure above – so for instance in the example above if the duration was 10 years, then the effective rent would be IR£120 – that is IR£100 + IR£200/10.
[11] Griffiths' valuation was a state-sponsored survey of land in Ireland undertaken and published in the mid-nineteenth century and thus comparisons which are based on the percentage of the Griffiths' valuation should reduce the noise caused by varying land quality to some degree.
[12] After the end of the Napoleonic wars and up to the Great Famine the ratio flipped so that lending advertisements exceeded borrowing.

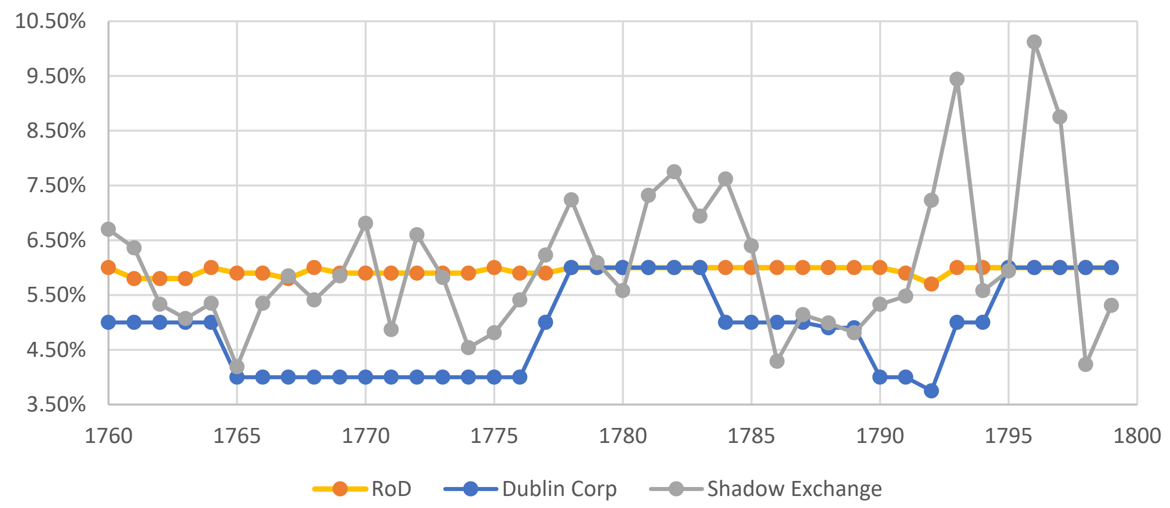
Fig. A.6 Number of Advertisements Demanding or Offering Mortgages



Short-term Interest Rates

A further source of Irish interest rates for the latter half of the century are the shadow interest rates recently produced by Cassidy for the period post 1760, by examining the rates implicit within bills between Dublin and London and these are shown in Figure A.7.[13]

Fig. A.7 Dublin Corporation Policy v RoD v Shadow - from 1760



The shadow rates are much more volatile than either the Corporation or RoD rates, reflecting the shorter-term nature of the discounting concerned. There are some similarities with the Corporation rates, for instance the increase in the late 1770's, but divergences too, particularly in the early 1790's. Overall the RoD and

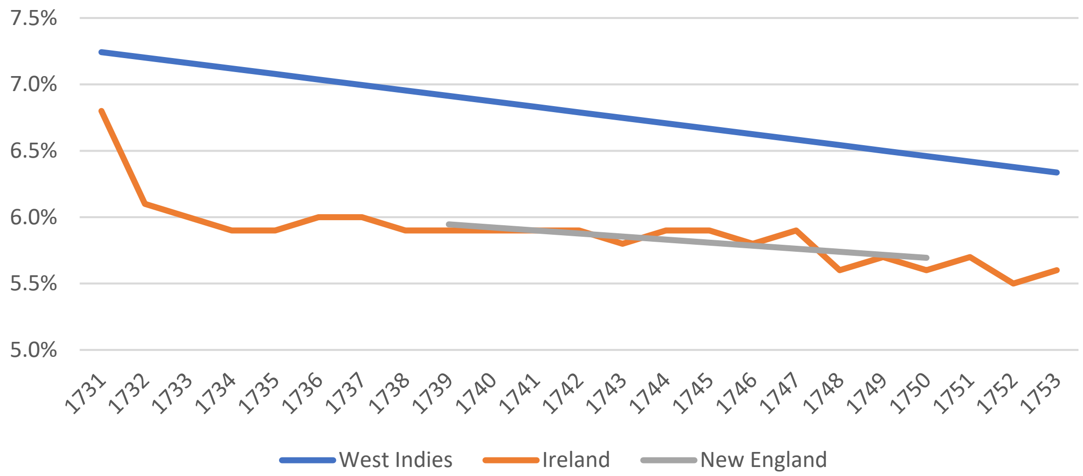
[13] Cassidy, *Exchange*. Unfortunately given the constraints of the usury rate no analysis of the consistency between the short and long-term rates can be undertaken (as was completed in Weiller and Mirowski, *England*).

shadow interest rates have similar average levels over the whole period, 6.1% for the shadow rates and 5.9% for the RoD and there is no consistent yield curve shape.

Colonial Interest Rates

The indicatory data on loans in the British West Indies and New England as shown in Figure A.8.[14] The average Irish rates are broadly comparable with those in New England but there is a somewhat higher 'risk premium' against English rates for Irish/New England rather than West Indian security, although the influence of the different usury rates needs to be borne in mind.[15]

Fig. A.8 Interest Rate Comparison - West Indies (smoothed) and New England (smoothed) and Ireland (annual)



Comparison of Returns

In order to compare the long-term returns to an investor of lending money on mortgage with investing in land and then leasing, the following approach has been taken for each of three periods of 30 years starting in the 1710's, 1740's and 1770's. The gross return on mortgage lending is simply the average interest rate on mortgages which commenced in the decade concerned. The gross return on land is composed of two components: a yearly return on investment assuming that the value of the initial investment is a 20 times multiple of rent (equivalent to 5% yearly) and the capital gain or loss over the period. The capital gain is

[14] Source Irish data attached and Smith, *Merchants*, Table 1, and J. Gwyn, "Money Lending in New England: The Case of Admiral Sir Peter Warren and His Heirs 1739- 1805," *The New England Quarterly* 44, no. 1 (1971): 127. Note the small sample size for the West Indian and New England data. See M. Berg and P. Hudson, *Slavery, Capitalism and the Industrial Revolution,* (Cambridge: Polity Press, 2023) for a general discussion of West Indian mortgages.

[15] The usury rate in Ireland for most of the period dealt with in Figure A.8 was 6%, as it was in Massachusetts, whereas in the West Indies it was 8%, Gwyn, *Warren*, 119 and Smith, *Merchants*, 445. Whether it is appropriate to speak of a 'risk premium' between disconnected markets is a moot point.

calculated using the increase in rents over the 30 year period expressed as a percentage of the rental of the same townland under Griffiths' valuation.
The use of rents described as percentages of Griffiths controls for the quality of land and location, at the cost of reducing the number of available observations, since not all of the leases in the RoD provide the exact location of the land concerned.