

**Department of Economics
and
Institute for Policy Analysis
University of Toronto
150 St. George Street
Toronto, Ontario M5S 3G7
Canada**

**The Usury Doctrine and Urban Public Finances in Late-Medieval Flanders (1220-1550):
Rentes (Annuities), Excise Taxes, and Income Transfers from the Poor to the Rich**

Working paper no. 288 (MUNRO: no. 31)

Repec Handle: tecipa-288

11 June 2007

Revised: 17 August 2007

Revised: 21 January 2008

by

John Munro

Copyright © by John Munro 2007-08
Department of Economics
University of Toronto

Author's e-mail: munro5@chass.utoronto.ca

<http://www.economics.utoronto.ca/munro5>

On-line version: <http://www.economics.utoronto.ca/index.php/index/research/workingPaperDetails/288>

JEL Classifications: B11; D31; E25; E31; E42; E43; E44; E62; H2; H31; H71; J10; J31; J45; J81; N93;
052

The Usury Doctrine and Urban Public Finances in Late-Medieval Flanders (1220-1550): Rentes (Annuities), Excise Taxes, and Income Transfers from the Poor to the Rich

Abstract: The objectives of this study are three-fold. The first is to rebut Charles Kindleberger's famous dictum that usury 'belongs less to economic history than to the history of ideas'; and in particular to demonstrate that the resuscitation of the anti-usury campaign from the early 13th century led to a veritable financial revolution in late-medieval French and Flemish towns: one that became the 'norm' in modern European states from the 16th century (in England, from 1693): a shift in public borrowing from interest-bearing loans to the sale of annuities, usually called *rentes* or *renten*. That anti-usury campaign had two major features: (1) the decrees of the Fourth Lateran Council of 1215, which provided harsh punishments – excommunication -- for both unrepentant usurers and princes who failed to suppress them; and (2) the establishment of the two mendicant preaching orders: the Franciscans (1210) and the Dominicans (1216), whose monks preached hellfire and eternal damnation against all presumed usurers – including, of course, anyone who received any interest on government loans. There is much evidence that from the 1220s, many financiers in many French and Flemish towns, fearing for their immortal souls, preferred to accept far lower returns on buying *rentes* than the interest they would have earned on loans. These *rentes*, based on 8th-century Carolingian *census* contracts, had two basic forms: (1) life-annuities, by which a citizen purchased from the government, with a lump sum of capital, an annual income stream lasting a lifetime, or the lifetime of his wife as well; (2) perpetual annuities, by which the annual income stream was indeed perpetual, or until such time as the government chose to redeem the *rentes*, at par. Initially, some theologians opposed sales of *rentes* as subterfuges to cloak evasion of the usury doctrine. But in 1250-1, Pope Innocent IV declared them to be non-usurious contracts, essentially because they were not loans. Subsequent popes in the 15th century confirmed his views and the non-usurious character of *rentes*, on two conditions: (1) that the buyer of the *rente* could never demand redemption or repayment, and (2) that the annual annuity payments (and any ultimate redemptions) be in accordance with actual rent contracts: i.e., that the funds be derived from the products of the land. Ecclesiastical authorities soon agreed that taxes on the consumption of the products of the land (and sea) met this test: i.e., taxes on beer and wine (which always accounted for the largest share), bread, textiles, fish, meat, dairy products, etc.

The second objective of this paper is to measure the importance of *renten* in the civic finances of Flemish towns, in terms of both revenues and expenditures: from the annual town accounts Ghent (14th century only), and Aalst (1395-1550), where they had far greater importance. The related third objective is to measure the burden of the excise taxes for master building craftsmen in Aalst, in tables that measure the values of the excise tax revenues expressed in *real* terms: first, in the equivalent number of 'baskets of consumables' (which form of the base of the Consumer Price Index), and second their value in terms of the annual money-wage incomes of master masons (for 210 days). This provides an entirely new look at the late-medieval 'standard of living' controversy – with indications that this consumption-tax burden sometimes rose from about 13,200 to almost 30,000 days' wage income, for a town of perhaps 3600 inhabitants (but obviously less dramatic on a per capita basis). That tax burden rose the most strongly when, by other indications, real wages (RWI = NWI/CPI) were also finally rising; and thus possibly these real wage gains were largely eliminated. That per capita tax burden would have been all the greater if, in the course of the 15th century, Aalst had experienced the same decline as did small towns of Brabant, to the east, on the order of 25%, and some other Flemish towns, in which the population decline varied from 9% to 28 %.

In earlier publications I had challenged the widespread view that the era following the Black Death, with a radical change in the land:labour ratio, came to be a 'Golden Age' of the artisan and labourer. I contended instead that frequent inflations eroded or eliminated wage gains, and thus that periodic rises in real wages were due essentially to steep deflations combined with pronounced wage-stickiness. As I also calculated, English artisans in the 1340s had earned real wages that were about 50% of the Flemish; but by the 1480s, they had narrowed that gap (with much less inflation) to about 80%. That gap was probably even smaller, until the 1640s, when England's Parliament finally imposed similar excise taxes on consumption.

JEL Classifications: B11; D31; E25; E31; E42; E62; H2; H31; H71; J10; J31; J45; J81; N93; 052

The Usury Doctrine and Urban Public Finances in Late-Medieval Flanders (1220-1550): Rentes (Annuities), Excise Taxes, and Income Transfers from the Poor to the Rich¹

John H. Munro
University of Toronto

The medieval origins of the ‘financial revolution’ in government borrowing: usury and *rentes*

The establishment of permanent funded national debts in many European states from the sixteenth to eighteenth centuries, often collectively called the ‘financial revolution’, owed their true origin to a much earlier medieval innovation in the public finances of medieval Flemish and Artesian towns, from the 1220s, which in turn was a response to the Church’s recent and much revived anti-usury campaign. The essence of this so-called ‘financial revolution’ in establishing a permanent funded national debt, requires a clarification of each of its three main components.² First it was ‘public’ because the debt was the responsibility of the government itself, and not, as had so often been the case in medieval and early modern Europe, the personal obligation of the prince. Second, this public debt was based not on loans, or on any other forms of borrowing, but instead on the sale of perpetual though redeemable annuities, a financial instrument that called a *rente* (*renten* in Dutch) in the Netherlands, France, and Germany (*juros* in Spain).³

¹ I dedicate this essay to the late Professor Stephan (Larry) Epstein (1960-2007), of the London School of Economics, who had done so much to enlighten us about public finances and the state in late-medieval, early modern Europe. See in particular, Stephan R. Epstein, *Freedom and Growth: the Rise of States and Markets in Europe, 1300-1750* (London: Routledge, 2000). I also wish to acknowledge financial support from the Social Sciences and Humanities Research Council of Canada, in funding my research in the late-medieval Low Countries: for 1993-1996, 1996-1999, 1999-2003, 2003-2007, and 2007-11 (410-2007-0106).

² For England, see in particular: Peter G. M. Dickson, *The Financial Revolution in England: a Study in the Development of Public Credit, 1688-1756* (London, 1967); and also Henry Roseveare, *The Financial Revolution, 1660 - 1760* (London: Longman, 1991); and Patrick O’Brien, ‘Fiscal Exceptionalism: Great Britain and its European Rivals—From Civil War to Triumph at Trafalgar and Waterloo, in Patrick O’Brien and Donald Winch, eds., *The Political Economy of British Historical Experience, 1688–1914* (Oxford and New York: Oxford University Press, 2002), pp. 245–65; Patrick O’Brien and P. Hunt, ‘The Rise of a Fiscal State in England, 1485-1815’, *Historical Research*, 66 (1993), 129-76; Patrick O’Brien, ‘The Political Economy of British Taxation’, *Economic History Review*, 2nd ser., 41:1 (Feb. 1988), 1-32; John Brewer, *The Sinews of Powers: War, Money, and the English State, 1688-1783* (Cambridge, Mass: Harvard University Press, 1990).

³ For the Netherlands and France, see James D. Tracy, *A Financial Revolution in the Habsburg Netherlands: Renten and Renteniers in the County of Holland, 1515 - 1565* (Berkeley-London: Berkeley University Press, 1985); Richard Bonney, ed., *The Rise of the Fiscal State in Europe, c. 1200-1815* (Oxford, 1999); John Munro, ‘The Medieval Origins of the Financial Revolution: Usury, *Rentes*, and Negotiability’, *The International History Review*, 25:3 (September 2003), 505-62; Marjolein ‘t Hart, Joost Jonker, and Jan Luiten van Zanden, eds., *A Financial History of the Netherlands* (Cambridge and New York: Cambridge University Press, 1997); Marjolein ‘t Hart, ‘“The Devil or the Dutch”: Holland’s Impact on the Financial Revolution in England, 1643-1694’, *Parliaments, Estates and Representatives*, 11:1 (June 1991), 39-52; Wantje Fritschy, ‘A “Financial Revolution” Revisited: Public Finance in Holland During the Dutch Revolt, 1568 - 1648’, *The Economic History Review*, 2nd ser., 56:1 (February 2003), 57-89. For France, See Richard

Because these *rentes* or annuities were perpetual obligations (unless the state chose to redeem them), the public debt was ‘permanent’ – in stark contrast to earlier forms of state borrowing, which were almost always very short-term, and usually with a specific maturity date. Finally, that public debt was ‘funded’ in the sense that the governments concerned formally authorized (usually by legislation) that specific excise or consumption taxes be used to make the annual annuity payments and, when necessary, to redeem these annuities or *rentes*.

Whether the issue is medieval or more modern forms of European public finance, and related forms of taxation, historians may justly assume one constant: that the primary if not exclusive reason for such public borrowing was financing either warfare or the military defence of the state. Although financing public works may have played a relatively greater role in late-medieval urban finances, the costs of urban defence were still almost always a major issue. Certainly in the late-medieval and early-modern Low Countries, the towns were also responsible for their share of the costs for territorial defences of the feudal principalities in this region (subsequently unified as the Habsburg Netherlands).

That English historians have so frequently used the term ‘financial revolution’ to refer their own country’s establishment of a permanent funded debt between 1693 and 1752, itself a product of both the Glorious Revolution (1688) and of wars more costly than England had ever before fought, implies that England had initiated this financial innovation, and during this very era.⁴ James Tracy, however, has demonstrated beyond any question that, as a system of national public finance, this so-called ‘financial revolution’, i.e., one based on the sale of *rentes* or annuities, was to be found much earlier, in the sixteenth-century Habsburg Netherlands, and was then transmitted to England from the Dutch ‘Republic of the United

Bonney, *The King's Debts: Finance and Politics in France, 1589-1661* (Oxford, 1981); Philip T. Hoffman, Gilles Postel-Vinay, and Jean-Laurent Rosenthal, *Priceless Markets: The Political Economy of Credit in Paris, 1660-1870* (Chicago, 2000), p. 7; . David Weir, ‘Tontines, Public Finance, and Revolution in France and England, 1688 - 1789’, *Journal of Economic History*, 49:1 (March 1989), 95-124; François Velde and David Weir, ‘The Financial Market and Government Debt Policy in France, 1746 - 1793’, *Journal of Economic History*, 52:1 (1992), 1-39. For nineteenth-century European public finance based on annuities or *rentes* (not bonds, despite the title), see Niall Ferguson, ‘Political Risk and the International Bond Market between the 1848 Revolution and the Outbreak of the First World War’, *The Economic History Review*, 2nd ser., 59:1 (February 2006), 70-112. For Spain (Aragon-Catalonia and Castile), see n. 6 below.

⁴ See the sources in n. 2, above. After the Glorious Revolution of 1688, and the overthrow of James II (1685-88), Parliament invited William III of Orange, the *Stadhouder* of the (Dutch) United Provinces, to rule jointly as William III (r. 1689-1702) with his wife Mary (r. 1689-1694), the daughter and heir of James II. But William brought with him his ongoing war with Louis XIV (r. 1643-1715) of France, a war that England was then ill equipped to finance. The culmination of the English ‘Financial Revolution’ was ‘Pelhams’ Conversion’ (1749-1757) by which the Chancellor of the Exchequer Sir Henry Pelhams consolidated all of the outstanding issues of the now British public debt, chiefly in perpetual annuities, in the Consolidated Stock of the Nation (Consols), which trade to this day on the London Stock Exchange. See the very influential article on the role of the Glorious Revolution: Douglass North and Barry Weingast, ‘Constitutions and Commitment: The Evolution of Institutions Governing Public Choice in Seventeenth-Century Britain’, *Journal of Economic History*, 49: 4 (Dec. 1989), 803–32; and see recent attacks on their views in: Nathan Sussman and Yishay Yafeh, ‘Institutional Reforms, Financial Development and Sovereign Debt: Britain, 1690 - 1790’, *Journal of Economic History*, 66:4 (Dec. 2006), 882-905; David Stasavage, ‘Partisan Politics and Public Debt: The Importance of the “Whig Supremacy” for Britain’s Financial Revolution’, *European Review of Economic History*, 11:1 (April 2007), 123-53.

Provinces’.⁵ One might cavil, however, that in the Habsburg Netherlands this form of public finance was still the responsibility of the provincial governments, and that a stronger ‘national’ case could be made for Habsburg Spain, from at least the reign of Emperor Charles V (also Emperor of the Netherlands).⁶ Nevertheless, the issue is not the actual form of the government so responsible but the nature of this form of public finance; and in that respect, Tracy, Van Werveke, and several other historians had noted that public civic borrowing based on the sale of *rentes/renten* was being practised in the towns of northern France (chiefly Artois) and Flanders from at least the 1220s, albeit on a small scale.⁷

The thirteenth-century anti-usury campaigns: usury as a mortal sin against Natural Law

What none had noted, however, was the role of the anti-usury campaign in instigating or promoting this quite revolutionary form of medieval public finance, for reasons that have to be found in a brief examination of the medieval usury doctrine, as it had evolved by the thirteenth century. Because the usury doctrine itself goes back to the very earliest days of the Christian Church, in many respects one inherited from Greek, Roman, and Jewish civilisations, one may argue that it had always provided a hindrance to any European governments, whether those of towns or principalities, that had sought to meet its financial obligations by borrowing. But until the full evolution of the usury doctrine and especially before the consequent intensification in the anti-usury campaign in the early thirteenth century, this doctrine had been more of a nuisance than a real obstacle in public borrowing.

Certainly the concept of ‘usury’ and the full evolution of the doctrine have both been misunderstood by a majority of historians. Before the sixteenth century (for reasons to be noted later, in Appendix B), the term usury had never meant excessive interest: it meant any interest at all, any payment beyond the actual loan, beyond the principal sum that had been borrowed (except under very special and narrow circumstances).

⁵ Tracy, *A Financial Revolution* (in n. 3 above), James Tracy, ‘Taxation and State Debt’, in Thomas Brady, Heiko Oberman, and James Tracy, eds., *Handbook of European History, 1500 - 1600: Late Middle Ages, Renaissance and Reformation*, 2 vols. (Leiden: E.J. Brill, 1994-95), vol. I: *Structures and Assertions*, pp. 563-88; James Tracy, ‘On the Dual Origins of Long-Term Urban Debt in Medieval Europe’, in Karel Davids, Marc Boone, and Paul Janssens, eds., *Urban Public Debts: Urban Government and the Market for Annuities in Western Europe, 14th-18th Centuries*, Studies in European Urban History (1100-1800) vol. 3 (Turnout: Brepols, 2003), pp. 13-26; James Tracy, *Emperor Charles V, Impresario of War: Campaign Strategy, International Finance, and Domestic Politics* (Cambridge and New York: Cambridge University Press, 2002).

⁶ See the arguments in Munro, ‘The Medieval Origins of the Financial Revolution’, pp. 505-62. For Spain, see Yvan Roustit, ‘La consolidation de la dette publique à Barcelone au milieu du XIVe siècle’, *Estudios de historia moderna*, 4:2 (1954), 15-156; Juan Gelabert, ‘Castile: 1504 - 1808’, in Richard Bonney, ed., *The Rise of the Fiscal State in Europe, c. 1200-1815* (Oxford, 1999), pp. 207-212; Gabriel Tortella and Francisco Comín, ‘Fiscal and Monetary Institutions in Spain (1600-1900)’, in Michael Bordo and Roberto Cortés-Conde, eds., *Transferring Wealth and Power from the Old to the New World: Monetary and Financial Institutions in the 17th Through the 19th Centuries* (Cambridge: Cambridge University Press, 2002), pp. 140-48.

⁷ See n. 3 above, and nn. 31-37 below.

⁸ Nor, contrary to many views (‘conventional wisdom’), did usury apply only to so-called consumption loans. Nevertheless, if the actual meaning of the term had not changed, the severity of ecclesiastical opposition to usury did evolve: first, from a sin condemned when practised by the clergy to one practised by any Christian (thus it did not apply to Jews); from a sin against charity to a sin against justice, and finally to a truly mortal sin against Natural Law – and thus a sin directly against God Himself.

The core of the Scholastic usury doctrine: the Roman law concept of the loan as a *mutuum*

The core argument against usury was one based firmly on Roman Law, whose codification took place during the reign of Emperor Justinian I (527 - 565 CE).⁹ Derived from Roman concepts of property rights, the essential Roman Law principle concerning a loan was the following: that the ownership of the money in a loan contract, in effect the ownership of the capital and thus of all the property rights attached to the use of that capital, was transferred from the lender, as the original owner, to the borrower, who became the sole owner for the entire duration of the loan contract. Given the very great importance that medieval European society continued to give to the Justinian Code, it was included in the earliest compilation of canon law, the *Concordia discordantium canonum*, commonly known as Gratian’s *Decretum*, compiled between 1130 and 1140.¹⁰

That principle can well be seen in the very exact term for a loan, found in both Roman and medieval Latin, and thus the term used in both the Justinian Code and Gratian’s canon-law *Decretum*: the *mutuum* – literally, ‘what was thine becomes mine’. Consequently, usury was a sin, well beyond any concept of violating Christian principles concerning charity, because it was theft of property; and that concept – ‘usury as theft’ – can be found in virtually all later-medieval Scholastic and canon law literature. Indeed, it can be found even before the publication of the Justinian Code, as early as the fourth century, in a statement attributed to Bishop St. Ambrose of Milan (339-97 CE): ‘if someone takes usury, he commits violent robbery (*rapina*), and he shall not live’. That seemingly harsh view is, in fact, based on very similar words

⁸ For these circumstances see Munro, ‘Origins of the Financial Revolution’, pp. 506-13; Appendix B on the usury doctrine.

⁹ The codification of Roman law under Emperor Justinian I (527 - 565 CE). Chiefly compiled by the lawyer Tribonian, the *Corpus iuris civilis* consists of: the *Code* (12 books) in 528-29 CE; the *Digest* (50 books) and *Institutes* (4 books) of CE 529-33; and the *Novellae post codicem constitutiones*, most of which were completed by Tribonian’s death, in 542 CE. Note that, for Roman citizens, usury – lending money for a specified rate of interest – had been prohibited by the *Lex Genucia*, in 322 BCE. Under Roman law, *mutuum* contracts themselves could therefore not specify interest, and permitted the repayment only of the exact sum lent; but Roman law did permit auxiliary contracts (*stipulatio*) to specify interest payments under certain conditions, with supposedly ‘moderate’ interest rates. See Odd Langholm, *Economics in the Medieval Schools: Wealth, Exchange, Value, Money and Usury According to the Paris Theological Tradition, 1200 - 1350*, Studien und Texte zur Geistesgeschichte des Mittelalters, vol. 19 (Leiden and New York, 1992), p. 37; John T. Noonan, *The Scholastic Analysis of Usury* (Cambridge, Mass., 1957), pp. 22-33, 39-40, 51-81.

¹⁰ *Decretum Gratiani* D. 88, c.11, cited in Odd Langholm, *The Aristotelian Analysis of Usury* (Bergen and Oslo; and New York, 1984), pp. 71-72. The *Decretum* also incorporated decrees of the Second Lateran Council (1139). Though not officially sanctioned by the papacy of this era, the *Decretum* ‘became the first part of the body of canon law in the law curriculum’; and it was finally ratified as part of the *Corpus iuris canonici* by Pope Gregory XIII in the Roman edition of 1582. See Kenneth Pennington, ‘Gratian’, in Joseph Strayer, et al., eds., *Dictionary of the Middle Ages*, 13 vols., vol. V (New York, 1985), pp. 656-58.

in Ezekiel, in the Old Testament.¹¹ And similar if less harsh views can also be found in the fifth-century ecclesiastical palea *Ejiciens*. Both St. Ambrose's brutal stricture and this palea are quoted, with a strong emphasis on their importance, in Gratian's *Decretum*. Furthermore, as early as 1165, the Bolognese canon lawyer Paucapalea had correlated the Justinian Code entries on the *mutuum* with Gratian's entry on *usura* in the *Decretum*; and, in 1187, Huguccio, an even more renowned Bolognese canon lawyer, had explicitly enunciated the arguments on the transfer of ownership rights in a *mutuum* to justify the usury doctrine.¹² If not yet fully a sin against natural law, usury was, in this context of ownership rights, a sin against commutative justice – the equality of exchange – in that the lender, in exacting usury (interest), had received a greater value on the redemption of the loan than he had originally given.

Indeed, that principle on the ownership of capital still remains valid in modern financial jurisprudence, and provides the fundamental distinction between equity investments and loan investments. That, in essence, also explains why the only investment contract that the Church found to be sinful, as usury, was the *mutuum* or loan contract, while the Church always readily accepted both profit and rent as fully licit returns on any equity investments. For, obviously those who invested in partnership contracts or *commenda* contracts in some commercial enterprise or venture always fully retained the ownership of their capitals so invested.¹³ The very same was true of anyone who, having invested in physical property, then lent the use of that property (land, buildings, animals, etc.), receiving in return a rental income.

The Role of Aristotle: Natural Law and the 'sterility of money'

It is now a commonplace in the literature to ascribe the full fruition of the medieval Scholastic usury doctrine to the thirteenth-century reintroduction of Aristotle's principal treatises: first, the *Nicomachean Ethics*, translated from Greek in to Latin, in 1246-47, and revised in the 1260s, when, second, his renowned treatise on *Politics* was also translated. Both works had a most profound influence on the two major theologians of this era: St. Albert the Great, or Albertus Magnus (b. 1193 or 1206 - d. 1280), and his most

¹¹ Odd Langholm, *The Legacy of Scholasticism in Economic Thought: Antecedents of Choice and Power* (Cambridge and New York, 1998), p. 59: 'Si quis usuram accipit, rapinam facit; vita non vivit'. (From *De bono mortis*, 12:56, CSEL 321/1, p. 752). See Ezekiel 18.13: He who 'hath given forth upon usury, and hath taken increase: shall he live? He shall not live .. he shall surely die'. *The Holy Bible: King James Version* (1611), p. 711.

¹² See Langholm, *Legacy of Scholasticism*, p. 59; Odd Langholm, *The Aristotelian Analysis of Usury* (Bergen and Oslo; and New York, 1984), pp. 71-2.

¹³ In typical and traditional partnership contracts from Graeco-Roman times, each partner was entitled to a share of the profits that was in proportion to their individual capital investments; and they were similarly liable for losses and debts, in the same proportion. In the typical *commenda* contract, which was always drawn up for only one maritime venture (and did not apply to land-based trade), in which one partner supplied all the capital, and the other partner supplied all the enterprise and labour, the investor received 75 percent of the profits and thus the active sea-going merchants received only 25 percent. If the venture was a failure, without any profit, the investor received nothing, but he also enjoyed 'limited liability' in that he was not liable for any of the losses, debts, or other liabilities that the active sea-going merchant had incurred in this or in any other related ventures. See Robert S. Lopez and Irving Raymond, eds., *Medieval Trade in the Mediterranean World: Illustrative Documents Illustrative Documents Translated with Introductions and Notes*, Records of Civilization, Sources, and Studies no. 51 (New York and London, 1955), Part III: 'Commercial Contracts and Commercial Investments', pp. 157-238.

famous student, St. Thomas Aquinas (1225- 1274).¹⁴ The importance of Aristotle's treatises for the usury doctrine was based on the assumption that money, in the natural order, had only one function: as a medium of exchange. From that premise flowed two essential components of the medieval usury doctrine : first, the concept of the 'sterility of money', and second, the concept that, because of that essential sterility, usury was a sin against Natural Law, as can be seen in this quotation from his *Politics*:¹⁵

The most hated sort [of money-making], and with the greatest reason, is usury, which makes a gain out of money itself, and not from the natural use of it. For money was intended to be used in exchange, but not to increase at interest. And this term usury [τόκος], which means the birth of money from money, is applied to the breeding of money because the offspring resembles the parent. Whereof of all modes of making money this is the most unnatural.

Nevertheless, one must clearly recognize that the true and fundamental basis of the usury doctrine, concerning the transfer of ownership of money in the *mutuum* loan contract, long predated the reintroduction of Aristotle's treatises into western Europe. Furthermore, Aristotle's 'sterility of money' argument did not subsequently become the major feature of usury doctrine, for many theologians and canon lawyers came to recognize that 'money', as investment capital, is not in fact 'sterile'. But the 'sterility of money' concept had the great virtue of being so easy for the public to grasp, when the Church and its agents conducted a much more intense anti-usury campaign in the thirteenth and fourteenth centuries.

Finally, St. Thomas Aquinas himself made another major contribution to the anti-usury doctrine by resolving any lingering doubts about the differences between usury, in *lending money*, and rent, in *lending property*, by distinguishing between the role of fungibles and non-fungibles in such a loan (*mutuum*), without specific references to the core issue of the ownership of capital. Money (coins), and similar fungibles, such as wine and grain, were necessarily totally consumed (and in St. Thomas's view, destroyed) in their use, so that repayment, or redemption of the loan, necessarily involved their replacement with different but exactly identical objects, i.e., objects of essentially identical value.¹⁶ Nobody – or very few — would rationally borrow money (coins) in order to hoard it; and, as Aristotle had stipulated, money had only one use: as a medium of exchange, a mechanism of payment in trade. In contrast, the repayment of a loan of non-fungibles – such as the leasing of property, buildings, farm animals, etc. – involved not their replacement but the return of the very same objects, which were, in their use, subject to 'wear and tear', thus further justifying the fully licit payment of rent.

At the same time, however, one may note that, since rents were also calculated on the basis of time – so much rent per month or year – another common Scholastic argument, namely, that 'usury was the Theft of Time, which belongs to God alone', was clearly illogical. The utility of that argument was, however, that

¹⁴ See in particular Noonan, *Scholastic Analysis of Usury*, pp. 38-39, 52-53.

¹⁵ Benjamin Jowett, trans. and ed., *The Politics of Aristotle: Translated Into English*, 2 vols., vol. I: *Introduction and Translation* (Oxford, 1885), p. 19: *Politics*, Book I.10. 1258b. For the significance of Aristotle's *Politics* and Nichomachean *Ethics*, see Langholm, *Aristotelian Analysis of Usury*, pp. 5-21, 54-61; Langholm, *The Legacy of Scholasticism*, pp. 21-22.

¹⁶ That did involve some problems that only a few theologians recognized: namely, the repayment of loans, made in silver coins, with debased silver coins of the same nominal value but therefore of inferior real value. On this important but neglected issue, see Thomas Sargent and François Velde, *The Big Problem of Small Change* (Princeton and Oxford: Princeton University Press, 2002), pp. 69-99.

it clearly appealed more to laymen, and especially to the large mass of the uneducated public, as a much more readily understandable and thus convincing explanation why usury was truly a mortal sin.

The anti-usury campaign: the role of Lateran Councils and the mendicant preaching orders

The origins of the revived and indeed harshly vigorous (almost virulent) ‘campaign against usury’, which was to prove so important in altering the character of medieval urban public finances, had begun almost a full century before the re-introduction of Aristotle’s treatises and the publication of St. Thomas Aquinas’ *Summa Theologica* (ca. 1265-74). One may well contend that this campaign had begun with the Third Lateran Council of 1179, which, after endorsing all of the Second Lateran Councils prohibitions against usury (1139), issued the formal sanction or penalty of excommunication – i.e., complete banishment from the Church – for all usurers who did not repent and restore their ill-gotten ‘stolen’ gains. It also forbade them to receive a Christian burial if they ‘died in sin’, as unrepentant usurers.¹⁷

The next and Fourth Lateran Council, of 1215, apart from reiterating all of the prohibitions against usury, and the prescribed punishments for this sin, provided two additional features of great importance. First, it issued a vicious, excoriating diatribe against Jews, for their supposed ‘treachery’ and ‘cruel oppression’ in extorting ‘oppressive and excessive interest’, in engaging in licensed pawn broking.¹⁸ The prohibitions against usury, it must be noted, applied only to Christians; and the only non-Christians in western Europe who were able to engage in lending were Jews.¹⁹ While both ecclesiastical and secular regulations did limit the interest rates that Jewish money-lenders were allowed to charge, sometimes the legal limit interest reached 25 percent (reflecting the high risk factor of non-payment): or up to 43.33 percent in pawnbroking (2d per week).²⁰ By so associating Jewish money-lenders with usury, the Council certainly

¹⁷ John Gilchrist, *The Church and Economic Activity in the Middle Ages* (New York, 1969), pp. 182-83: Canon 25: ‘Seeing that almost everywhere the crime of usury has taken such hold that many pass over other professions to devote themselves to the business of usury, as if it were lawful, and thus disregard the strict scriptural prohibition, we decree that notorious [publicly known] usurers are not to be admitted to the communion of the altar, nor, if they die in that sin, to receive Christian burial.’

¹⁸ See Constitution 67, from the Fourth Lateran Council (1215), translated and published in Gilchrist, *Church and Economic Activity*, pp. 182-83, in particular this passage: ‘The more that Christians are restrained from the practice of usury, the more are they oppressed in this matter by the treachery of the Jews, so that in a short time they will exhaust the resources of Christians...’; and thus, ‘we ordain in this decree that if in the future ... Jews extort from Christians oppressive and excessive interest, the society of Christians shall be denied them until they have made suitable satisfaction for their excesses’. This passage is evidently a source of the common erroneous view that the Church opposed only ‘excessive’ interest.

¹⁹ The Muslim presence was almost non-existent, especially in commerce and finance; and, in any event, Muslims themselves were prohibited by the Koran from usurious lending practices (the Arabic term is *raba*). See Haym Soloveitchik, ‘Usury, Jewish Law’, and Seth Ward, ‘Usury, Islamic Law’, both in Joseph Strayer, et al., eds. *Dictionary of the Middle Ages*, vol. XII (New York, 1989), pp. 339-41. Jewish law, however, permitted exacting usury from gentiles. See n. 11, above (Ezekiel 18:13).

²⁰ On licensed Jewish money-lenders, see Joseph Shatzmiller, *Shylock Reconsidered: Jews, Moneylending, and Medieval Society* (Berkeley, Los Angeles, and London, 1990); and Maristella Botticini, ‘A Tale of “Benevolent” Governments: Private Credit Markets, Public Finance, and the Role of Jewish Lenders in Medieval and Renaissance Italy’, *Journal of Economic History*, 60:1 (March 2000), 164-89;

made it appear to be all the more a heinous, and not just mortal, sin to a largely anti-Semitic public. And thus these provisions proved to be a very powerful weapon in the new revival of the anti-usury campaign. Second, the Fourth Lateran Council made annual confessions obligatory for all; and that of course meant confessions of usury, another powerful weapon for what became the prime agency for the anti-usury campaign: the new mendicant preaching orders.

The first of these was the Order of Friars Minor or Franciscans (St. Francis of Assisi), founded c. 1206-10; and the second was the Order of Friars Preacher or Dominicans (St. Dominic), founded in 1216, the very year after Lateran IV. Of the two, the Dominicans became the even more hostile foe of usury. In the thirteenth century this Order would boast such leading theologians in the anti-usury campaigns as St. Albertus Magnus and St. Thomas Aquinas.²¹ Obviously the far more powerful agents in this campaign were those mendicant friars who were sent out to preach to the chiefly illiterate and uneducated public. Not content with the formal statements and strictures issued by the Lateran Councils, the Dominican and Franciscan friars concocted their own lurid *exempla* – diabolic and utterly horrifying stories about the ghastly fates awaiting usurers in the eternal fires of Hell, thereby convincing most of the public that usurers were amongst the very worst of all evildoers.²² That usurers so richly deserved this horrid fate was certainly the view of the famed Florentine Dante Alighieri (1265-1321), who, in his *Commedia (Divine Comedy)*, placed usurers in the lower depths of Hell, the Seventh Circle (*Inferno*), as ‘the last class of sinners that are punished in the burning sands’.²³ In their inflammatory preaching, with such enormous public appeal, the mendicant preachers also convinced secular governments of their God-ordained duty to enforce the usury ban vigorously during the later Middle Ages.²⁴

Daniel Bornstein, ‘Law, Religion, and Economics: Jewish Moneylenders in Christian Cortona’, in John Marino and Thomas Kuehn, eds., *A Renaissance of Conflicts: Visions and Revisions of Law and Society in Italy and Spain*, Centre for Reformation and Renaissance Studies, Essays and Studies vol. 3 (Toronto, 2003), pp. 241-56. In late thirteenth-century Flanders, Lombards (north Italians) were also allowed to engage in pawn-broking, at rates up to 18 percent. See Raymond de Roover, *Money, Banking, and Credit in Mediaeval Bruges: Italian Merchant Bankers, Lombards, and Money-Changers: A Study in the Origins of Banking* (Cambridge, Mass., 1948), pp. 99-148.

²¹ See Noonan, *Scholastic Analysis of Usury*, pp. 38-39, 52-53; Ralph McInery, ‘Aquinas, St. Thomas’, in Joseph Strayer, et al., eds., *Dictionary of the Middle Ages*, vol. I (New York, 1982), pp. 353-66.

²² See in particular, Jacques Le Goff, ‘The Usurer and Purgatory’, in Center for Medieval and Renaissance Studies, UCLA, ed., *The Dawn of Modern Banking* (New Haven, 1979), pp. 29-34, contending that the friars linked usurers ‘with the worst evildoers, the worst occupations, the worst sins, and the worst vices’.

²³ Canto XVII of *Inferno*, in Dante Alighieri, *The Divine Comedy*, Carlyle-Okey-Wicksteed translation, ed. C.H. Grandagent (New York: Modern Library Editions, 1950), p. 93. Set in the year 1300, it was probably written between 1304 and 1321.

²⁴ See LeGoff, ‘Purgatory’, pp. 29-34. No longer would one find open and direct references to interest payments that had been fairly common in commercial contracts of the twelfth century. For Genoese examples, see Lopez and Raymond, *Medieval Trade in the Mediterranean World*, no. 66, pp. 158-59 (Genoa, 16 July 1161; and John Pryor, ed., *Business Contracts of Medieval Provence: Selected Notulae from the Cartulary of Giraud Amalric of Marseilles, 1248*, Pontifical Institute of Mediaeval Studies, Studies and Texts no. 54 (Toronto, 1981).

Finally, the mendicant preaching orders and others engaged in the anti-usury campaign received much valued additional support from the famous *Decretales* that Pope Gregory IX (1227-1241) issued in 1234.²⁵ Amongst its many detailed provisions are the following: first, that usurers were forever to be classed as *infames*: ineligible to hold public office, honours, or to testify in court. To enforce that provision, all princes were commanded to expel usurers from their realms and never readmit them; and landlords were forbidden to rent property to those lending money at interest. Indeed, clerics who permitted Church burials of usurers were to be classed as usurers themselves. The wills and testaments of usurers were to be held invalid; and the heirs of usurers who failed to make restitutions were also to be held as usurers and *infames*.

Well before Gregory IX's issue of these *Decretales* – which really just confirmed and codified the Church's now well established doctrines – and not long after the establishment of the two mendicant preaching orders, the anti-usury campaign had already borne fruit in a very fundamental change in urban public finances: with the first successful issue of *rentes*, in the 1220s.

The origins and evolution of the *rente* contracts

As indicated above, the vital importance of the *rente* contract in the medieval 'financial revolution', involving urban public finances, was its essential character: that it was not a loan, or any other related form of borrowing, even though it did indeed constitute part of the public debt. Instead, it represented the town government's sale of a future stream of urban income that was paid to the purchaser in return for a lump sum of capital, paid in full at the time of purchase. This peculiar form of public finance has no known antecedent in the ancient world. It first appears in private rather than public finance: as a *census* contract that some Carolingian monasteries had been issuing from about the early eighth century. In order to secure bequests of lands from the laity, monasteries had guaranteed the donor that, in return for surrendering all property rights to the land, the donor would receive an annual usufruct income (*redditus*) from the lands donated, i.e., 'fruits' of that property, delivered either in 'kind', as a share of the harvest, or later, more commonly in money, for the rest of his or her life, and sometimes also for the lives of designated heirs.²⁶ Because that annual income was quite obviously deemed to be part of the rental value of the land, the *census* contract more

²⁵ For a good summary of the usury doctrine and the related clerical punishments, see James Brundage, 'Usury', *Dictionary of the Middle Ages*, vol. 12 (New York, 1989), pp. 335-39; and also Lawrin Armstrong, 'Usury', in Joel Mokyr, et al, eds., *The Oxford Encyclopedia of Economic History*, 5 vols. (New York, 2003), vol. 5, pp. 183-85.

²⁶ Abbott Payson Usher, *The Early History of Deposit Banking in Mediterranean Europe*, vol. I: *The Structure and Functions of the Early Credit System: Banking in Catalonia: 1240-1723*, Harvard Economic Studies, vol. 75 (Cambridge, Mass., 1943; reissued New York, 1967), p. 146, citing Theo. Sommerlad, *Die Wirtschaftliche Tätigkeit der deutschen Kirche* (Leipzig, 1905), vol. II, p. 171: reference to Abbey of St. Gallen, 816 CE; Tracy, 'On the Dual Origins', pp. 13-16, citing (p. 14) the seminal work of Bruno Kuske, *Das Schuldenwesen der deutschen Städte im Mittelalter*, Zeitschrift für die gesamte Staatswissenschaft, Ergänzungsheft XII (Tübingen, 1904), pp. 12-24 (whose earliest example is for the Abbey of St. Gallen, in Hergau, 'um 700'). Raymond Van Uytven, *Stadsfinanciën en stadseconomie te Leuven: van de XII^e tot het einde der XVI^e eeuw* (Brussels, 1961), p. 196, citing M. Van Haften, 'Lijfrente', *Winkler Prins Encyclopaedie*, 18 vols. (Amsterdam, 1947-54), vol. XIII, p. 165 (footnote), in which he had contended that the ancient Greek city state of Miletus (ca. 200 BCE) had used a similar *census* contract. But there is no evidence to substantiate this claim; and Van Haften's revised entry on 'Lijfrente', in the *Grote Winkler Prins*, vol. XII (Amsterdam-Brussels, 1971), pp. 351-52 does not repeat this unfounded assertion.

commonly came to be known as *rente*, from which the now common financial term *rentier* has been derived.²⁷

In the realm of medieval private finance, that Carolingian contract developed into two somewhat different contracts: (1) the *bail à rente*, more closely related to the Carolingian contract: the sale of real estate or some form of immobile property in return for a perpetual annual income (normally hereditary); and its variant, (2) the *constitution de rente*, also known as the *rente à prix d'argent*: by which a property holder sold, for a specified lump sum of money, the right to receive a fixed annual income from his property or other real assets, though the property itself remained under his ownership.²⁸ Long before its use in public finance, this contract had become a widespread vehicle for private investment in the agricultural economies of Mediterranean western Europe (Italy and Aragon in particular): one by which small peasant landholders received needed capital by 'selling' such contracts to wealthy bourgeois merchants and financiers, who received in return this form of perpetual *rente* income.²⁹ The property-holding seller or issuer of the *rente* contract was known as the *débirentier*, who normally pledged all of his goods and assets to meet the annual payment, on penalty of forfeiture; and the buyer of the contract, the one receiving the future stream of income, was known as the *crédirentier*. The transfer of this contract to the realm of public finance meant that the city government assumed the role of the *débirentier* seller or issuer of the *rentes* (and, in theory at least, similarly obliged to pledge urban assets as collateral for the annuity payments).

Those towns that sold or issued these *rente* contracts used, from the very beginning, two distinct forms: (1) perpetual hereditary rents, known as *rentes héritables* (*erfelijk renten*, *erfrenten*, and later called *losrenten*, in Flemish/Dutch); and (2) life-rents, known as *rentes viagères* (French) and *lijffrenten* (Flemish), which were normally extinguished on the death of the holder. Some of the latter were issued, however, for two or three designated lives, i.e., to be transferred to a spouse, child, or some other close relative. Frequently the designated recipient of the annuity income was an infant, who thus earned income over a far longer life-span than that left to the actual investor. In general, through the centuries, the annual 'annuity' payments on single life-rents, though always far lower than interest rates on voluntary short-term loans, were always much higher than those on perpetual or hereditary rents, sometimes double, perhaps reflecting the fact that the latter, by their very nature inheritable and also assignable, ultimately proved to be more marketable, certainly by the sixteenth century.³⁰

²⁷ See Noonan, *Scholastic Analysis of Usury*, pp. 154-70 (quotation on p. 155).

²⁸ See Bernard Schnapper, *Les rentes au XVI siècle: histoire d'un instrument de crédit*, S.E.V.P.E.N., École Pratique des Hautes Études: Centre de recherches historiques: Affaires et gens d'affaires, vol. 12 (Paris, 1957), pp. 50-61; Herman Van der Wee, 'Monetary, Credit, and Banking Systems', in E.E. Rich and Charles Wilson, eds., *The Cambridge Economic History of Europe*, Vol. V: *The Economic Organization of Early Modern Europe* (Cambridge: Cambridge University Press, 1975), pp. 303-05.

²⁹ See David Herlihy, *Medieval and Renaissance Pistoia, 1200-1430* (New Haven, 1967), pp. 136-45, and Table 18, with graph 3: median price of a perpetual rent of one *stai* of wheat); p. 241 (church revenues in perpetual rents); Pryor, *Business Contracts of Medieval Provence: see censuales*, in *notulae* 55 (pp. 168-71), 93 (pp. 230-31).

³⁰ See Georges Bigwood, *Le régime juridique et économique du commerce de l'argent dans la Belgique du moyen âge*, Academie Royale de Belgique, Classe des Lettres, vol. XIV, 2 vols. (Brussels, 1921-22), vol. I, pp. 120-23; and Appendix A, below; Munro, 'Medieval Origins of the Financial Revolution', pp. 505-62; Tracy, *A Financial Revolution*, pp. 108-38; Herman Van der Wee, 'Anvers et les innovations de la

The first documented and successful urban sale *rentes* took place in or just before 1228: at Troyes, one of the major towns of Champagne Fairs, which then governed the commerce between north-western Europe and Italy. That transaction involved the sale of a series of several *rentes viagères* to a group of Artesian financiers from Arras and St. Quentin.³¹ Subsequently, in December 1232, Troyes sold another set of 32 *rentes viagères*, 26 of them to Rheims financiers, who may have resold them to local citizens. Because a very important feature of this new form of public finance was its transferability, if by no means outright negotiability, we must note a very important feature of this transaction: that they buyers (*crédirentiers*) were explicitly permitted to sell their *rentes* to third parties. Furthermore, if they still held them on their death, some *rentes* were then, by contract provisions, to be transferred to wives (if they outlived the husbands), who were entitled to receive half of the annual income for the rest of their lifetime.³²

At almost the same time, in 1235, Auxerre also sold *rentes viagères*, chiefly also to Rheims financiers, whose town government was possibly also then selling *rentes*, despite some prior ecclesiastical opposition.³³ While Arras, deemed to be the most important financial centre in northern France, may have sold *rentes* before this time, our earliest evidence comes only from the first extant financial accounts, for the period October 1241 to February 1244, which record the sale *rentes viagères*, with a total value of £2,500 *parisis*, for one or two lives. The ‘rate of return’, the annual annuity payments, was reckoned at 1/6.5, which in modern terms means 15.38 percent; and the annual annuity payments accounted for almost 75 percent of Arras’s expenditures in servicing its total debt during these years.³⁴ Subsequently, many other northern French towns (Artesian, Picard, and Flemish) began issuing *rentes* from just after the mid-century: Douai, in or about 1250; Roye, in 1260; Calais, in 1263; Saint-Riquier, in 1268; and Saint-Omer, in 1271.³⁵

technique financière aux XVIe et XVIIe siècles’, *Annales: E.S.C.*, 22 (1967), 1067-89, republished as ‘Antwerp and the New Financial Methods of the 16th and 17th Centuries’, in Herman Van der Wee, *The Low Countries in the Early Modern World*, trans. by Lizabeth Fackelman, Variorum Series (Aldershot, 1993), pp. 145-66; Van der Wee, ‘Monetary, Credit, and Banking Systems’, pp. 290-393;

³¹ Tracy, ‘On the Dual Origins’, pp. 16, citing in particular (in n. 19) Pierre Bougard and Carlos Wyffels, *Les finances de Calais au XIIIe siècle* (Brussels, 1966).

³² Pierre Desportes, *Reims et les Rémois au XIIIe et XIVe siècles* (Paris, 1979), pp. 127-29; Tracy, ‘Dual Origins’, pp. 16-17 (I am much indebted to James Tracy to this reference).

³³ Desportes, *Reims et les Rémois*, p. 128; similarly cited in Tracy, ‘On the Dual Origins’, pp. 16-17. For the ecclesiastical opposition, see below, p. 13 and nn. 47-50.

³⁴ Pierre Bougard, ‘L’apogée de la ville (1191-1340)’, in Pierre Bougard, Yves-Marie Hilaire, and Alain Nolibos, *Histoire d’Arras*, Collection Histoire des villes du Nord - Pas de Calais (Arras, 1988), pp. 61-62. Tracy, ‘On the Dual Origins’, pp. 16-17 cites Desportes, *Reims et les Rémois*, for a somewhat different figure of £2,610 *parisis* (a year). Note that in medieval Europe, percentages were always expressed as fractions.

³⁵ Tracy, ‘On the Dual Origins’, pp.16-19; Tracy, *Financial Revolution*, pp.13-15; Hans Van Werveke, *De Gentsche stadsfinanciën in de middeleeuwen*, Koninklijke Academie voor Wetenschappen, Letteren, en Schone Kunsten van België, Klasse der Letteren, Jaargang XXXIV (Brussels, 1934), pp. 164-71, 282-90.

The relationship between urban *rentes* and the anti-usury campaign in the thirteenth century

What did this evidently important financial innovation in urban public finances, in the sale of the various *rente* contracts, have to do with the anti-usury campaign? The first direct evidence of such a link comes from an event that Pierre Desportes has recorded in his history of Rheims during the thirteenth century: that, in 1234, after ecclesiastical authorities, in so vigorously pursuing this campaign, threatened the Rheims *bourgeoisie* with dire consequences for their suspected ‘usures’, provoking a ‘véritable terreur’, so much so that those who had been financing the town government quickly came to prefer ‘les achats de rentes aux prêts proprement dits’.³⁶ Furthermore, in 1254 Innocent IV relieved the monks of Saint-Rémi and the commune of Beauvais of any obligation to pay interest owing to their creditors, ‘notwithstanding their obligations’.³⁷

In his study of thirteenth-century Flanders (both francophone and Flemish regions), Georges Bigwood asserted that ‘the struggle against usury was energetically and remorselessly conducted’ by the Church, town governments (citing Douai, in particular, from 1247), and the counts of both Flanders and Artois.³⁸ To be sure, from 1281, Count Guy de Dampierre and successor counts of Flanders had licensed Italian ‘Lombard’ merchants to maintain regulated pawn-broking ‘tables’, with, to all appearances, interest charges contained in their transactions. But such pawn-broking could be interpreted as a discounted sale and repurchase of goods, rather than as genuine usury. Even so, Raymond de Roover has contended that ‘the lombards in Flanders as elsewhere lived in constant fear of a sudden reversion to repressive methods and under the permanent threat of expulsion and spoliation’.³⁹ David Nicholas has also observed that in the thirteenth century ‘the Flemings seem to have been more concerned than the Italians to avoid the imputation of usury’.⁴⁰

The continuous risks of debt repudiation for ‘usurious’ lenders was demonstrated during the financial crises that the Flemish towns were experiencing in the 1290s.⁴¹ In November 1291, the Parlement de Paris issued a formal decree cancelling Flemish communal debts deemed to be usurious ‘ou soupetenneuse d’usure’, while also stipulating the punishment of civic ‘administrateurs par lesquelz la commune aura estre

³⁶ Quotation from Desportes, *Reims et les Rémois*, pp. 126, and 131, also cited in Tracy, in ‘Dual Origins’, pp. 16-17.

³⁷ Desportes, *Reims*, p. 126.

³⁸ Bigwood, *Régime juridique et économique*, vol. I, pp. 567-603. For example, in July 1288 the Synod at Liège excommunicated all manifest usurers and forbade acceptance of their donations (p. 580). Some of his views are challenged, but not entirely successfully, in Carlos Wyffels, ‘L’usure en Flandre au XIII^e siècle’, *Revue belge de philologie et d’histoire/Belgisch tijdschrift voor filologie en geschiedenis*, 69:4 (1991), 853-71.

³⁹ De Roover, *Money, Banking, and Credit in Mediaeval Bruges*, pp. 99-148; Wyffels, ‘L’usure’, pp. 866-67; Bigwood, *Régime juridique*, vol. I, pp. 319-88, 639-48. In 1280-81, eight Yprois citizens and two Lombards were condemned for usury; but Lombards also lent funds to the towns, at rates up to 18 percent.

⁴⁰ David Nicholas, *The Metamorphosis of a Medieval City: Ghent in the Age of the Arteveldes, 1302-1390* (Lincoln, 1987), p. 122 (though referring in fact to the fourteenth-century private transactions).

⁴¹ See Nicholas, *Medieval Flanders*, pp. 180-94.

dommagé' by such usuries.⁴² In February 1294, King Philip IV ordered his bailiffs in Ghent to take any measures necessary to protect the town's victims of 'usurious transactions'.⁴³ Shortly after, in January 1296, Pope Boniface VIII, evidently under pressure from Philip IV, issued a decree to relieve Bruges from the 'vicious usurious obligations' (*per usurariam pravitatem de solvendis*) owed to the prominent Arras financiers Robert and Baldwin Crespin, 'beyond the principal sums owed to them'.⁴⁴ At the same time, Count Guy de Dampierre also appealed for papal assistance in releasing him from the 'usurious loans' owed to these very same Arras bankers.⁴⁵

Quite possibly, as some may argue, the real purpose of these harsh measures was not to eliminate usury as such, but rather to enhance the ability of severely indebted town governments and princes to extort new loans at much lower rates of interest, with the implied threat of the renunciation or abrogation of existing loans. The risk that such measures might have severely injured their ability to secure new financing – i.e., if potential lenders had refused to co-operate and to offer new loans – had the town governments and princes not had available that alternative source in the form of the relatively new *rente* contracts. If most investors were not as frightened and timid as those of Rheims had supposedly been in 1230s, to invest only in *rentes*, a fair proportion of them now probably preferred to hold a more balanced investment portfolio that consisted of both high-interest short term loans and *rentes*, both life- and perpetual-rents, with much lower but both financially, legally, and morally 'safer' rates of return.⁴⁶

These *rentes* were, of course, 'safer' in these respects only if they were not deemed to be a subterfuge for usury. At the very beginning of their financial history, about 1220, the future of the *rentes*, in any form, did not look to be very secure. In 1218, in that very same city of Rheims, which later became so prominent in resorting to this new financial instrument, the city's Archbishop had forbidden the town (or the *Hôtel-Dieu*) to sell any *rentes viagères* for reasons that may have involved the usury question – though the document does not supply the actual reason.⁴⁷ But if suspicions of usury were the issue, the Archbishop had no papal or canon-law authority to issue a ban on these grounds. As indicted earlier, Rheims' town government was evidently selling *rentes*, in lieu of accepting interest-bearing loans, during that bitter ecclesiastical anti-usury campaign of the 1230s, even if the licit nature of *rentes* still remained unclear. In the following decade, the Italian canonist Geoffrey of Trani (Gottofredo da Trani, d. 1245), who also taught at Bologna, levied the

⁴² Bigwood, *Régime juridique*, vol. II, doc. no. 17, pp. 299-300.

⁴³ *Ibid.*, vol. II, doc. no. 19, pp. 303-04 (26 Feb 1294): 'plures pecuniarum quantitates extorquere nitantur per usurariam pravitatem'.

⁴⁴ *Ibid.*, vol. I, pp. 578-83; vol. II, doc. no. 21, p. 306 (21 Jan 1296), imposing those penalties prescribed by the Lateran councils.

⁴⁵ Bigwood, *Régime juridique*, vol. II, doc. no. 15, pp. 293-98, for a partial list of Count Guy's loans to the Crespin brothers. See also Michael M. Fryde, 'Public Credit, with Special Reference to North-Western Europe', in Michael Postan et al., eds., *The Cambridge Economic History of Europe*, Vol. III: *Economic Organization in the Middle Ages* (Cambridge: Cambridge University Press, 1963), p. 495.

⁴⁶ See Munro, 'Medieval Origins', pp. 220-45; and Appendix A.

⁴⁷ Desportes, *Reims et les Rémois*, pp. 127-28 and n. 226. The proposed sale of a *rente viagère* for £45 *parisis*, to Hugues, *coûtre* of the church of Rheims, for an annual payment of 50 *sols parisis* (thus: 5.55 percent).

specific charge of usury against those who purchased *rentes*, on the grounds that they were guilty of an ‘immoral hope’ that the value of their annual annuity payments over time would exceed their costs in purchasing the *rentes*. Shortly after, about 1250, the Dominican canonist Guillaume de Rennes, in his gloss on the *Summa* of Raymond de Peñafort, agreed with Geoffrey that the *rente* contract was indeed immoral and illegitimate, even if not in itself intrinsically (*ex forma*) usurious.⁴⁸

The very next year (c. 1250-51), however, a fully contrary and official pronouncement came from the ultimate Christian source, the papacy, when Innocent IV (1243-1254) declared that *rentes* were not loans but legitimate contracts of sale, and thus not usurious, provided that the annual payments were based on ‘real’ properties and the income from such properties – a contentious issue that would not be fully resolved for two more centuries.⁴⁹ Shortly after (c. 1253), one of the most eminent theologians of the day, Henry of Susa (or Hostiensis, later Cardinal Archbishop of Ostia, 1261-1271) fully supported Innocent IV, in carefully rejected all of Geoffrey of Trani’s arguments against the *rentes*.⁵⁰

Nevertheless, their views had not yet gained universal acceptance. For, in 1276, Henry of Ghent, the leading theologian in the Paris faculty, reiterated Geoffrey of Trani’s views that *rentes* promised gains well beyond the principal sum, especially perpetual *rentes*, offering the purchaser ‘immoral hopes to gain’. In any event, he further contended, the sale of *rentes* was in actuality the ‘sale of money [itself], which is non-vendible’.⁵¹ But even within his own University of Paris, Henry of Ghent found no support; for by this time, almost all theologians had accepted the contrary view: that the *census* or *rente* contract was a fully licit agreement of ‘purchase and sale’ (*emptio in forma*) of future streams of income or usufruct from property, provided that Innocent IV’s stipulations were fully observed.⁵² In the late thirteenth and early fourteenth

⁴⁸ Geoffrey of Trani (Goffredo da Trani), *Summa super titulis decretalium*. For this and many other similar canonical sources (esp. in n. 49), I am indebted to Lawrin Armstrong, *Usury and Public Debt in Early Renaissance Florence: Lorenzo Ridolfi on the Monte Comune*, Studies and Texts no. 144 (Toronto: Pontifical Institute of Mediaeval Studies, 2003), pp. 53-84, and p. 400. See also Lawrin Armstrong, ‘The Politics of Usury in Trecento Florence: The *Questio de Monte* of Francesco da Empoli’, *Mediaeval Studies*, 61 (1999), 1-44.

⁴⁹ Innocent IV, *Apparatus seu commentaria super libris quinque decretalium*, ad X 5.19.6, *In Civitate* (Frankfurt, 1570; reprinted Frankfurt, 1968). See Fabiano Veraja, *Le origini della controversia teologica sul contratto di censo nel 13 secolo*, *Storia ed economia* 7 (Rome, 1960), pp. 30-43; Schnapper, ‘Les rentes chez les théologiens’, pp. 966-67; Langholm, *Economics in the Medieval Schools*, p. 97; and Philippe Godding, ‘Wilhelmi Bont Lovaniensis de redditibus perpetuis et ad vitam (1451)’, *Tijdschrift voor rechtsgeschiedenis/Revue d’histoire du droit/The Legal History Review*, 58 (2000), 261-62;

⁵⁰ Veraja, *Origini della controversia*, pp. 43-47: *Summa aurea* or *Summa super titulis decretalium* (ca. 1253); and *Commentaria in V librum decretalium*, ad X.5.19.6, *In civitate* (ca. 1270).

⁵¹ Veraja, *Origini della controversia*, pp., 50-52, 55-81, 106-11, 125-31; Schnapper, ‘Les rentes chez les théologiens’, pp. 969-72; Langholm, *Economics in the Medieval Schools*, pp. 249-73. Henry of Ghent (d. 1293) had issued his *Quodlibets* in response to questions from the Flemish Beguines on the morality of investing in *rentes*. He advised them to use their funds instead to purchase real estate or other property that they could then lease out for annual rents, to achieve the same financial goals.

⁵² In 1278, almost immediately after Henry of Ghent has issued his *Quodlibets*, Giles of Lessines justified the return on *census* contracts in this very same context. See Veraja, *Origini della controversia*, pp.

centuries numerous Scholastic treatises – *inter alia*, from Gervais de Mont Saint-Eloi, Matthew d’ Aquasparta, Godfrey of Fontaines, Richard of Middleton, and Alexander Lombard – fully endorsed the *census* and the various related *rente* contracts.⁵³

The governing principle of this theological discussion was that, since the *census* and *rente* contracts had no provisions for repayment, as did the *mutuum* (and on a stipulated date), they were – to repeat the point made earlier — not true loan contracts, the sole form of usury. As the later theologian Leonardus Lessius contended, *ubi non est mutuum, ibi non est usura* (‘where there is no loan, there is no usury’).⁵⁴ Thus, in full accordance with that principle, anyone who purchased a *rente*, i.e., the *crédirentier*, could never ever demand redemption – repayment of the principal sum -- so long as the seller or *débirentier* continued to honour the obligation to make the annual annuity payments. For, if such redemption rights were ever granted, their *rentes* would be nothing more than a devious and most sinful device to cloak a usurious loan. Otherwise, any *crédirentier* who wished to regain some or all of the principal had to find some third party willing to buy the *rente*, with its annual income, but often at some discount.⁵⁵ As noted earlier, from the beginning, *rentes*, or more specifically perpetual rents, and the annuity and other privileges attached to them, could be sold and transferred to third parties, though full and legally sanctioned negotiability would not be established until the early sixteenth century.⁵⁶

As the history of the *rente* contracts fully reveal, *rentes* were indeed often redeemed, but, only at the option, the exclusive option, of the issuer and seller of *rentes*, i.e., the *débirentiers*. That usually, if not always, was a right that pertained to perpetual rents – i.e., to *erfelijk renten* or *rentes héritables*. Town and princely governments usually chose to redeem such *rentes* only when it was profitable to do so, particularly when interest real interest rates declined, allowing them to refinance their *rentes* at lower costs. Obviously such choices injured the financial interests of the *crédirentiers*, who usually preferred to maintain the real value of their investments. Whether or not town and princely governments, as *débirentiers*, always had the

89-99; Noonan, *Scholastic Analysis of Usury*, pp. 155-57; Langholm, *Economics of Medieval Schools*, pp. 310-17.

⁵³ Veraja, *Origini della controversia*, pp. 69-73, 101-24, 131-62; and conclusions, pp. 163-95; Schnapper, ‘Les rentes chez les théologiens’, pp. 969-7; Langholm, *Economics in the Medieval Schools*, p. 283; Noonan, *Scholastic Analysis of Usury*, pp. 154-70.

⁵⁴ Leonardus Lessius (Theologian at the University of Leuven, 1554-1623), *De justitia et jure* (Paris, 1606), Liber 2, cap. 21, dub 2, n. 9, cited in Raymond de Roover, *Leonardus Lessius als economist: de economische leerstellingen en van de latere scholastiek in de Zuiddelijke Nederlanden*, Mededelingen van Koninklijke Academie voor Wetenschappen, Letteren en Schone Kunsten van België, Klasse der Letteren, XXXI (Brussels, 1969), p. 11; and on *renten*, p. 26.

⁵⁵ See Schnapper, *Les rentes au XVI siècle*, pp. 50-61.

⁵⁶ For the more complicated issue of the legal recognition of full negotiability, see Munro, ‘Medieval Origins of the Financial Revolution’, pp. 542-62, and other sources in n. 30 above; and John Munro, ‘English “Backwardness” and Financial Innovations in Commerce with the Low Countries, 14th to 16th Centuries’, in Peter Stabel, Bruno Blondé, and Anke Greve, eds., *International Trade in the Low Countries (14th - 16th Centuries): Merchants, Organisation, Infrastructure*, Studies in Urban, Social, Economic, and Political History of the Medieval and Early Modern Low Countries (Marc Boone, general editor), no. 10 (Leuven-Apeldoorn: Garant, 2000), pp. 105-67.

completely independent right to redeem *rentes* without consulting the *crédirentiers* became an issue of considerable debate during the later Middle Ages.

Finally, in 1416, the outstanding issues concerning the validity of *rentes*, and especially those concerning redemption, were brought before the Council of Constance (1414-18) for a final resolution. All those consulted, seven jurists and four theologians, confirmed the fully licit nature of *rentes*, as a non-usurious contract, and the exclusive right of the *débirentier* to redeem *rentes* at any time, but with one major provision: that such redemptions did not involve any reduction in (nominal, not real) capital values. All of these conclusions of the Council, and the earlier views of Innocent IV, were finally confirmed by three papal bulls that finally removed any remaining doubts and any remaining taint of usury for the *rente* contracts: those of Martin V (*Regimini*, 1425), Nicholas V (*Sollicitudo pastoralis*, 1452), and finally, Calixtus III (*Regimini*, 1455).⁵⁷ Nevertheless, for *rente* contracts to be fully licit and acceptable to the papacy, three further conditions had to be met: that the *rentes* had to be tied to real estate, or other real property - i.e., that payments related to such *rentes* must in essence be a form of rental income; that the annual return or annuity payments could not exceed ten percent of the capital sum (almost never observed); and, once more, that the *débirentier* alone had the exclusive right to redeem the *census* or *rente* contracts.⁵⁸

***Rentes* in the public finances of later-medieval Flemish towns: Douai, Bruges, and Ghent**

If a continuing public debate about the licit nature of *rentes* and the moral ‘taint of usury’ were not fully and finally resolved until the promulgation of those three papal bulls in the early to mid-fifteenth century, we may better understand why the role of these financial instruments in public finance – urban and territorial – did not really become prominent until the fifteenth century in the finances of west European towns. There were, however, several other legal issues of lesser importance and also the very major issue of fully-fledged, legally-sanctioned negotiability that were also not fully resolved, as noted earlier, until the early sixteenth century: important issues that have been analysed in other publications.⁵⁹ But no one can really question the growing importance of *rentes* in both urban and territorial public finances from the later fifteenth and sixteenth centuries: throughout the Low Countries, south and north; France, for northern urban

⁵⁷ Schnapper, ‘Les rentes chez les théologiens’, pp. 977-87; Schnapper, *Les rentes au XVIe siècle*, pp. 65-59; Noonan, *Scholastic Analysis of Usury*, pp. 160-61, 206-08, 230-37; Van der Wee, ‘Monetary, Credit, and Banking Systems’, pp. 304-05. The bull of Martin V (1425, confirmed by Calixtus III in 1455, in *Extravagantes communes*, 3.5.2 *Regimini*) had been restrictive in limiting the validity of *rentes* to those based on real estate (fixed, real properties). Thus the crucial bull was that of Nicholas V in 1452, which recognized the validity of *rentes* based merely on the assets or patrimony of the vender. That bull in turn had been influenced by the *quodlibet* that Willem II Bont of Leuven issued in 1451: as a refutation of Henry of Ghent’s treatise, so that, in conclusion, the purchase of all such rents – *de redditibus perpetuis et ad vitam est omni iure licita et nullo modo usuraria*. See Godding, ‘Wilhelmi Bont Lovaniensis de redditibus’, pp. 262-67. The maximum rates actually ranged from 1/10 (10.0 percent) to 1/14 (7.14 percent).

⁵⁸ See in particular Usher, *Early History of Deposit Banking*, p. 137, thereby denying any link between *rentes* and the usury question: ‘Although the sale of rent-charges began in the thirteenth century, the practice was not explicitly recognized by the Church until 1425’; Van der Wee, ‘Monetary, Credit, and Banking Systems’, pp. 303-04. In 1569, Pope St. Pius V issued the bull *Cum onus*, which revalidated the fifteenth-century bulls. Noonan, *Scholastic Analysis of Usury*, p. 237; Schnapper, *Les rentes au XVIe siècle*, pp. 117-20.

⁵⁹ See nn. 30 and 56, above.

public finances, but also royal, national finances; in the Rhineland and other regions of western Germany; and in the Spanish union of Castile and Aragon (beginning in Catalonia, in the 1330s). The reasons for and nature of that diffusion – and why such forms of urban public finance were not, however, to be found in southern France and in Italy – have also been fully discussed in many other publications.⁶⁰

This current study must therefore be focused on the role of *renten* in the public finances and taxation in only the late medieval Flemish towns (up to the mid sixteenth century), limitations imposed in part by the current status of the very labourious and very voluminous research that I have so far conducted. Thus, the historical analysis of this ‘financial revolution’ requires us to return to the Flemish towns of the mid-thirteenth century, which were then part of the kingdom of France.

In Flanders, the francophone town of Douai (the leading textile producer, in the mid thirteenth century) was evidently the first to sell *rentes*. One financial document, dated about 1250, provides a substantial list of ‘les rentes que li ville doit a hiretage’: i.e., *rentes héritables*, while another document, more accurately dated to March 1270, lists the town’s current obligations for current life-rents: *rentes viagères*. Douai continued to sell issue *rentes héritables*, even after being incorporated directly into the French kingdom, in 1305, but the king (Philip IV) forbade the town to sell any *rentes viagères* without royal permission. Those that were sold were marketed chiefly in Arras, Tournai, and Valenciennes, and were transferable to the spouses and offspring (sometimes grandchildren) of the buyers.⁶¹

In the northern, Flemish-speaking zone, the leading industrial city of Ghent was certainly selling *renten*, from at least 1275: but evidently only *lijfrenten*, then amounting to £1,600 *parisis*. The Ghent town government also found most of its purchasers in Arras, whose financiers had agreed to convert Ghent’s short term debts into these much longer-term *rentes*.⁶² Then, three years later, in July 1288, Ghent’s town government began selling perpetual or *erfelijk renten*, after Count Guy de Dampierre (1278-1304) had issued an ordinance authorizing all the Flemish town governments to sell and to redeem such *renten* whenever they chose to do so, while also guaranteeing the principal values and annuity payments on these *renten*.⁶³

⁶⁰ See nn. 3 and 6 above; and especially Munro, ‘Medieval Origins’, pp. 505-62; Tracy, *Financial Revolution in the Habsburg Netherlands*; and especially Tracy, ‘On the Dual Origins’, pp. 13-24; see also Roustit, ‘La consolidation de la dette publique à Barcelone au milieu du XIVe siècle’, pp. 15-156; Antonio Furio, ‘La dette dans les dépenses municipales’, in D. Menjot and M. Sánchez Martínez, *La fiscalité des villes au Moyen Age (Occident médiéval)*, vol. 3: *La redistribution de l’impôt* (Toulouse, 2002), pp. 321-50.

⁶¹ Georges Espinas, *Les finances de la commune de Douai, des origines au XVe siècle* (Paris, 1902), p. 314, n. 3; and p. 315-56. For perpetual rents, see pp. 314-21; for life-rents, see pp. 321-46. See also Georges Espinas, *La vie urbaine de Douai au moyen âge* (Paris, 1913).

⁶² Van Werveke, *Gentsche stadsfinanciën*, pp. 289-90.

⁶³ Ordinance of 1 July 1288: ‘ke li eschevins puissent vendre a leur bourgeois ki aisiet en second et a autre gent, rentes sur le vile devant dite, pour convertir les deniers en paiements des debts de le vile ke ele doit à ore, leskeles rentes on puis racater kant le vile en iert aisie’: in Charles-Louis Diericx, ed., *Mémoires sur les lois et coutumes et les privilèges des Gantois, depuis l’institution de leur commune jusqu’à la révolution de l’an 1540*, 2 vols. (Ghent, 1817-18), cited in Van Werveke, *Gentsche stadsfinanciën*, pp. 289-90; see also pp. 164-71. The guarantees, however, probably did not extend beyond using his coercive powers to ensure that the town governments made their annual payments. From October 1288 to 1290, a total of 118 *erfrenten brieven*, with a yearly average of £2,046 *parisis*, with an annuity rate of 10 percent (£1

Meanwhile, the other leading Flemish town of Bruges had become heavily indebted to Arras bankers, in particular the renowned Crespin family, who collectively held almost half of Bruges's financial obligations: as of 1298, £157,093 *parisis* of a total of debt of £346,880 *parisis*, of which £124,307 were in 'usurious loans' and £32,787 in *lijfrenten* or *rentes viagères* (20.9 percent).⁶⁴ Issues of *erfelijk renten* or *rentes héritables* do not appear to have been of any great importance: just 3.14 percent of the value of *lijfrenten*, in 1297-98.⁶⁵

During this period, the leading Flemish towns were engaged in a serious conflict with their count, Guy de Dampierre, whose mother, Countess Marguerite de Constantinople (r.1244-78, d. 1280) had provoked the conflict, in 1275, by deposing Ghent's oligarchic civic government, the so-called XXXIX. In response, the Flemish town governments then secured support from the French king, whose Parlement de Paris restored the Ghent government, though imposing external financial audits. In 1289, Philip IV (1285-1314) placed Ghent under his personal protection, while also installing the Bailiff of Vermandois as the governor of Flanders. Two years later, in November 1291, Ghent's town government had secured from the Parlement de Paris a judicial decision that permitted all the Flemish towns to suspend further payments to all those holding *rentes à vie* who had already received more than their original investment, 'jusques à tant que la commune sera délivrée des debtes'.⁶⁶ Possibly connected to this decree was Ghent's decision to suspend all further issue of *rentes*.

The subsequent events may explain why Ghent did not, in fact, resume the sale of *rentes* for another four decades. In 1296-97, Count Guy de Dampierre rashly sought to remove the French royal presence from Flanders: he again abolished the Ghent XXXIX oligarchy, and then formed an alliance with Philip IV's chief enemy, Edward I (1272-1307) of England, which country was also a major source of the wools so necessary for Flanders' textile-based economy. In retaliation, Philip IV invaded Flanders, in June 1297, defeating the Flemish forces at the Battle of Furnes, and then occupying half the county. In 1299-1300, a French royal army again invaded, and occupied the remainder of the county, while also imprisoning Count Guy. In 1302, when oppressive rule from the French occupiers had provoked a major rebellion, the urban guild militias, aided by the count's forces, won an astonishing victory over the French cavalry at the Battle of Kortrijk. For many Belgian historians that marked the first step towards Flemish independence – though certainly not

parisis for each £10 *par.*)

⁶⁴ See Alain Derville, 'La finance Arrageoise: usure et banque', in Marie-Madelaine Castellani and Jean-Pierre Martin, eds., *Arras au moyen âge: histoire et littérature* (Arras, 1994), pp. 40-41: based upon the municipal accounts in Carlos Wyffels and Jan de Smet, eds., *De rekeningen van de stad Brugge, 1280 - 1319*, 2 vols. (Ghent, 1965 - 1971), Vol. I: 1280 - 1302 (evidently based doc. no. 10, for 14 Sept 1297 - 23 Dec. 1298, pp. 509-675). The total financial obligations were 13.62 times as much as Bruges's revenues that year: £25,460.75 *parisis*; though my calculations of the data differ from those of Derville.

⁶⁵ In the account for Sept. 1297 to Dec. 1298, the total payments made to holders of *rentes viagères* or *lijfrenten* (*redditus ad vitam*) amounted to £3,154 5s 11d *parisis* (225 persons, including Robert and Baldwin Crespin and Jehan Boinebroke); but payments for *rentes héritables* (*redditu hereditario* or *rente yretaule*) were only £99 (4 persons). Wyffels and De Smet, *Rekeningen van de stad Brugge*, vol. I, p. 551.

⁶⁶ See Bigwood, *Le régime juridique*, vol. II, doc. no. 17, pp. 299-300; Bernard Schnapper, 'Les rentes chez les théologiens et les canonistes du XIIIe au XVIe siècles', in Georges Vedel (Centre National de la Recherche Scientifique), ed., *Études d'histoire du droit canonique dédiées à Gabriel le Bras*, 2 vols. (Paris, 1965), vol. I, pp. 965-95, especially p. 972.

immediately. In 1305, Philip IV's armies finally forced the Flemings to accept defeat, by the Truce of Ath-sur-Orge, which subjected Flanders to enormous indemnities, and to the loss of the major francophone towns of Lille, Douai, and Orchies. Further Franco-Flemish conflicts then ensued, so that peace was not achieved until 1319-20.⁶⁷ There is no evidence that, during this protracted era of conflicts, any of the Flemish towns resorted to the use of *renten* to finance their wars or to pay these heavy indemnities.

Thus, after more than four decades, and not until the mid 1320s – in 1325-26, to be more exact – the city government of Ghent finally resumed its sale of *renten*, which now consisted almost exclusively of *erfelijk renten*. It also resumed its annual annuity payments on those suspended *renten* from the 1290s.⁶⁸ At this time, Ghent was also in the midst of yet another civil war, the so-called Revolt of Maritime Flanders (1323-28), in which Ghent wisely refused to participate, thereby gaining considerable power and economic ascendancy in Flanders.⁶⁹ We may well wonder what had happened to the holders of Ghent's civic *renten* in the intervening three decades. If the city, as the seller of the *renten* and thus as legal *débirentier* had pledged its assets (properties and tax incomes) to honour its commitment to make the annual payments, had any *rentier* sued the town government for non-payment? There is no evidence that any such law suits had been launched.⁷⁰ But obviously the Ghent town government well knew that, unless it honoured its commitments to pay the arrears on previously issued *renten*, it would have little success in selling any new issues.

In virtually every succeeding year of the fourteenth century, Ghent continued to sell small but respectable amounts of such *renten*. The most remarkable financial event to be observed in the Ghent town accounts took place in the fiscal year 1346-47, towards the end of the revolutionary 'Artevelde era' (1335-1349), when Ghent, governed by a weaver-led guild regime, dominated Flanders, to the exclusion of the count (Louis de Nevers, 1322-46); and in doing so, it was antagonizing the other leading Flemish towns.⁷¹ In that year, which was also just on the eve of the Black Death, the Ghent civic government marketed a remarkably large amount of *lijffrenten*: in total worth £21,295 *parisis* (£1,774.583 *groot* Flemish), almost

⁶⁷ David Nicholas, *Medieval Flanders* (London and New York, 1992), pp. 186-202, 212-24; David Nicholas, *Town and Countryside: Social, Economic, and Political Tensions in Fourteenth-Century Flanders* (Bruges, 1971); Nicholas, *Metamorphosis*, pp. 1-16; Henri Nowe, *La bataille des éperons d'or* (Brussels, 1945), pp. 13-113.

⁶⁸ Jules Vuylsteke, ed., *Gentsche stads- en baljuwsrekeningen, 1280 - 1336/ Comptes de la ville de Gand, 1280 - 1336*, in the series *Oorkondenboek der stad Gent*, eerste afdeeling: *Rekeningen [Cartulaire de la ville de Gand, première série: Comptes]* (Gent: F. Meyer-Van Loo, 1900); and Van Werveke, *De Gentsche stadsfinanciën*, pp. 235-36; 353-53.

⁶⁹ The war ended when Philip VI's French armies defeated the rebel forces of Bruges and Ypres (at Cassel, August 1328). See Nicholas, *Medieval Flanders*, pp. 209-17.

⁷⁰ For legal actions undertaken against some sixteenth-century defaulting Dutch towns, see Tracy, *Financial Revolution*, pp. 28-107.

⁷¹ For the political events, see David Nicholas, *The Van Arteveldes of Ghent: the Varieties of Vendetta and the Hero in History* (Ithaca: Cornell University Press, 1988), pp. 19-98; Nicholas, *Medieval Flanders*, pp. 219-24; and Hans Van Werveke, *Jacques Van Artevelde* (Brussels, 1943), pp. 37-110. Jacob Artevelde himself had been assassinated in July 1345.

thirty times the value of the *erfelijk renten* sold that year.⁷² These political circumstances may explain the other remarkable feature of this financial experiment: that virtually all of these *renten* were sold outside the county of Flanders, in the neighbouring duchy of Brabant, especially in the major drapery towns of Brussels and Leuven.⁷³ In view of the fact that *lijfrenten*, if indeed for one life only, were extinguished on the death of the holders, one may well speculate on how much the Ghent civic government enjoyed a reduction in its public debt from the ensuing and highly fortuitous Black Death of 1348.

Subsequently, in the fourteenth century, Ghent marketed just two further issues of *lijfrenten*, in far more modest amounts: £2,311 *parisis* (= £193.583 *groot*) in 1349-50, shortly after the overthrow of the weaver-dominated regime; and even less, just £1,232 *parisis* (£102.667) in 1355-56. Some of these had been sold in Mons (Bergen), in the nearby francophone but Imperial county of Hainaut. There is, however, no conclusive evidence that during the fourteenth century Ghent or other Flemish towns were unduly dependent on external sources in financing civic debts.⁷⁴

In sum, in only two periods of the fourteenth century were revenues from public borrowing significant in Ghent (see Table 1). The first was the previously noted resumption of *renten* sales in the mid-1320s, with the latter phase of the Revolt of Maritime Flanders (1323-28), when revenues from public borrowing accounted for 11.46 percent of Ghent's total income; but only 4.06 percent in the form *renten*, and the rest came from loans. The second was the aforementioned Artevelde era, with such disruptive civil wars, from 1336 to 1350. In 1336-40, 43.83 percent of total civic income came from public borrowing, but now only 2.19 percent came from *renten* sales. Conversely, in 1346-50, 27.56 percent of total civic income came from public borrowing, of which, this time *renten* sales accounted for 16.14 percent. In the later fourteenth century, from 1361 to 1390, when only the only form of annuities that the city sold were *erfelijk renten*, they accounted for an average of only 3.0 percent of total civic revenues during these three decades (followed by a long gap in the accounts, to 1400).⁷⁵

In these same decades, however, when Ghent usually experienced annual deficits, payments on the civic public debt accounted for an average of 20.70 percent of total expenditures.⁷⁶ Over the fourteenth-

⁷² The transactions involving the sale of *renten* are contained in the annual civic treasurer's accounts, in the Stadsarchief Gent, *stadsrekeningen*, Series 400, which have been published in the sets of documents listed as the sources for Table 1. Note that £12 *parisis* = £1 *groot* Flemish.

⁷³ From: Napoleon De Pauw and Julius Vuylsteke, eds., *De rekeningen der stad Gent: Tijdvak van Jacob Van Artevelde, 1336 - 1349*, 3 vols. (Ghent: Ad Hoste, 1874 -85), vol. III, pp. 21- 22. Payments made on these *lijfrenten* in 1347-48: pp. 190-96.

⁷⁴ De Pauw and Vuylsteke, *De rekeningen der stad Gent*, vol. III, pp. 397-445; A. Van Werveke, *Gentse stads- en baljuwsrekeningen (1351-1364)* (Brussels, 1970), pp. 226-42; 369-41 (account for 1358-59). See also: See also Van Werveke, *De Gentsche stadsfinanciën*, pp. 282-90; Fryde, 'Public Credit', pp. 430-543; Tracy, *Financial Revolution*, pp. 13-15.

⁷⁵ See Table 1, below.

⁷⁶ See Table 1. Tracy, *Financial Revolution*, p. 14, states 'between 1346 and 1356;' but clearly the annual issues extended long beyond that year, certainly up to the next Ghent (Artevelde) revolt of 1379 and beyond. My statistical analyses of the public finances from the town accounts of Ghent (from 1400-1550), Bruges (1302-1550), Ypres (1408-1550), and Kortrijk (1393-1550) will be presented in future publications

century as a whole (or, rather from 1320 to 1390, when civic accounts are available), the percentages of total expenditures in the form of debt payments ranged from an initial high, for the first half of the fourteenth century, of 37.20 percent in 1321-25; and in the second half of the century, the maximum shares of total civic expenditures in debt payments were 41.28 percent in 1361-65, and 44.31 percent in 1366-70. The lowest shares of total expenditures in debt payments were just 2.21 percent in 1351-55, and then shares of about 4.5 percent of total expenditures in each of the quinquenniums from 1376-80 to 1386-90 (Table 1b). Clearly the role of *renten* in Ghent's fourteenth-century civic finances had not yet assumed the major role that it would in the fifteenth and sixteenth centuries.⁷⁷

Financing *rentes* with excise taxes on food consumption, drink, and other household necessities in late-medieval Flemish towns

The most important issue to be examined now is the question: precisely how did the Flemish (and other) urban governments finance the annual annuity payments – obviously the term ‘interest payments’ is quite inappropriate – and also any redemptions of *renten*? As indicated earlier, the papal acceptances of *renten* as fully licit, non-usurious contracts depended in part on their link with income from real property. As an examination of the Flemish town accounts for the late-medieval and early modern eras reveals, and as independent analyses of Bruno Kuske and James Tracy confirm, the annual payments (and redemptions) came from two different sources, each linked to the specific corresponding type of the two major kinds of *rentes*.⁷⁸ The payments for the perpetual rents – the *rentes héritables* or *erfelijk renten* – were usually derived from the rental incomes from actual real estate or some other form of immobile property, and thus in accordance with the three fifteenth-century papal bulls.

For the *rentes viagères (à vie)* or *lijfrenten*, payments normally came from the *accijnzen* or excise taxes that the town levied on the inhabitants' consumption of various foodstuffs (alcoholic beverages, grain, flour, bread itself, meat and dairy products, herring, and other species of fish), textile products (wool, cloth, linen), and building products (wood, iron, coal and other fuels). Note that, in accordance with the principles established by the fifteenth-century papal bulls on *rentes*, all of these commodities were products of the land (and the sea): certainly they were all the fruits of ‘real property’ (real estate). The obvious significance of this form of public-finance related taxation was that it was essentially very regressive, in representing a far greater burden on the poor than on the middle classes, let alone the rich. Most governments today do not tax

(given the enormous amount of labour involved in some further archival research and especially in the statistical analyses).

⁷⁷ See the previous note. For currently available publications on fifteenth-century Ghent (though only to the 1450s), see especially Marc Boone, *Geld en macht: de Gentse stadsfinanciën en de Bourgondische staatsvorming (1384-1453)* Verhandelingen der Maatschappij voor Geschiedenis en Oudheidkunde te Gent, vol. XV (Ghent, 1990), pp. 60-67, 163, and Table 11 (sales of *lijf-* and *erfrenten*, but only for the years 1453-1461), available only in a microfiche. This book regrettably pays almost no attention to this form of civic finances. But see also the important article of Marc Boone, ‘*Plus deuil que joie: Les ventes de rentes par la ville de Gand pendant la période bourguignonne: entre intérêts privés et finances publiques*’, *Credit Communal: bulletin trimestriel*, 176 (1991-92), 3-24. Somewhat surprisingly there are no studies on Ghent itself in Marc Boone, Karel Davids, and Paul Janssens, eds., *Urban Public Debts: Urban Government and the Market for Annuities in Western Europe (14th-18th Centuries)*, Studies in European Urban History vol. III (Brepols: Turnhout, 2003); but for Flanders and Holland in this volume see nn. 88-93, below.

⁷⁸ Kuske, *Schuldenwesen der deutschen Städte*, pp. 27-45; Tracy, ‘Dual Origins’, pp. 14-17.

the consumption of vital necessities, especially foodstuffs for home preparation: as opposed to packaged ‘junk foods’, and food and drink purchased and consumed within restaurants and bars.

More generally most if not all towns (and later, many territorial or national governments) collected such tax income not from the specific excise taxes levied on individual urban consumers, but rather from the annual or even monthly sale of the *pachten* or tax farms. Tax-farming was the major feature and indeed major curse of public finances in medieval and early-modern Europe. Most governments were almost always in urgent need of ready cash, and could ill afford to wait until tax receipts slowly percolated from the citizenry into the civic or territorial treasury. Indeed, as the theologian Giles of Lessines had observed (in 1278): ‘future things over a period are not estimated of such value as things collected in an instant [in the present]’.⁷⁹ Usually, these tax farms were sold at auction, to the highest bidder; and we must therefore assume that the sales values underestimate the actual tax burden on the urban citizenry, since the tax farmers obviously hoped to make a profit, over and beyond the amounts that they paid to the city. On the other hand, if the bids were truly competitive, such auctions would have reduced the extent of ‘economic rent’ that the tax farmers could have extracted from urban consumers.

The two most important commodities, by far, on which these excise-taxes were levied were beer and (secondly) wine. Of course, they also represent the principal exception to the just-enunciated dictum that most modern governments do not tax the consumption of foodstuffs. On the contrary, virtually all governments, past and present, have levied very heavy taxes on alcoholic beverages; and the modern justification is that they are ‘sin taxes’, taxes on ‘morally dubious’ luxuries that anyone can now choose to avoid. But of course, from the point of view of any government, past or present, the highly addictive nature of alcohol has meant that most consumers (or those lacking will power) cannot avoid the consumption of such beverages, for which, therefore, demand is very highly inelastic and thus virtually guaranteed to produce high tax revenues.

Apart from the arguably irrelevant moral considerations about ‘sin taxes’ involved in late-medieval public finances, one may well contend that beer and wine, especially beer in northern Europe, were in fact vital necessities, because most other beverages, water and milk, especially, were so generally unsafe to drink. Most sources of water for urban public consumption came from highly polluted rivers, streams, and lakes. Indeed, the single most important cause of the remarkable drop in European and North American mortalities in the later nineteenth-centuries was the introduction of urban systems of water-purification and related sanitation systems.⁸⁰ Those innovations in turn were the product of the almost identical discovery of the bacterial transmission of diseases in the mid-1870s: first, in 1876, from the researches of the German microbiologist Robert Koch (1843-1910); and then, in 1878, from those of the French biologist Louis Pasteur

⁷⁹ See Veraja, *Origini della controversia*, pp. 89-99; Noonan, *Scholastic Analysis of Usury*, pp. 155-57; Langholm, *Economics of Medieval Schools*, pp. 310-17: ‘.. a present and assembled thing is estimated at a higher value than a future and divided one’ (i.e., in terms of future annuity payments). On the demand side, that observation explains the reality of interest; on the supply side, it is the opportunity cost of foregone alternative investments.

⁸⁰ See Louis P. Cain and Elcye J. Rotella, ‘Death and Spending: Urban Mortality and Municipal Expenditure on Sanitation’, *Annales de démographie historique*, 101:1 (2001), 139-54; and also Michael Haines, ‘The Urban Mortality Transition in the United States, 1800-1940’, *Annales de démographie historique*, 101:1 (2001), 33-64. Possibly the introduction into western Europe, of first coffee, reputedly by the Ottoman Turkish siege of Vienna in 1529 (certainly by 1600), and then of tea, by the Dutch, in 1655 (from Ceylon), provided an effective alternative, in that both required boiling water, which action would kill the harmful bacteria.

(1822-1895).⁸¹

The importance of beer especially in late-medieval consumer expenditures can be demonstrated from various household and institutional budgets, which are also important for this study, in that they are major components of the cost-of-living or Consumer Price Indexes [CPI] that will be used to measure the burden of these excise taxes. For fifteenth-century England, the best known budget is the set of household accounts of William Savernak, in Bridport, Dorsetshire for the years 1453-1460, which allocated a share of 23 percent to beer (with barley malt), compared to 20 percent for cereal grains and 37 percent for meat, dairy products, and fish combined.⁸² In the well-known Phelps Brown and Hopkins 'Basket of Consumables' Price Index [CPI], the share allocated to beer is almost identical: 22.5 percent.⁸³ Subsequently, Steve Rappaport allocated a 20-percent share for beer and ale, in his consumer price index for early-modern London.⁸⁴ For the southern Low Countries (the Antwerp-Lier region in Brabant), Herman Van der Wee chose a slightly lower share for beer: 17.1 percent, even though in principle he sought to adopt the same weights employed in the Phelps Brown and Hopkins price index.⁸⁵ His choice was influenced by the accounts for Lier's Beguinage Infirmary (1586-1600), which indicate that, on average, beer accounted for 16 percent of total foodstuffs expenditures (while wine accounted for only 1 percent).⁸⁶ Van der Wee also observed that the annual per capita beer

⁸¹ Pasteur's 1878 paper on micro-organisms in various beverages led to the 'pasteurization' process of heating milk to kill harmful bacteria in milk. See the website for Louis Pasteur et l'Institut Pasteur: <http://www.pasteur.fr/pasteur/histoire/histoireUS/index.html>. In 1876, Robert Koch had demonstrated that the bacterium *Bacillus anthracis* causes anthrax, a disease of animals also transmissible to humans. He subsequently discovered the two bacteria that cause tuberculosis and cholera. In 1905, he won the Nobel prize in medicine.

⁸² See K.L. Wood-Legh, *A Small Household of the Fifteenth Century* (Manchester, 1956).

⁸³ E. H. Phelps Brown and Sheila V. Hopkins, 'Seven Centuries of the Prices of Consumables, Compared with Builders' Wage Rates', *Economica*, 23:92 (November 1956), 296-314; reprinted in E.M. Carus-Wilson, ed., *Essays in Economic History*, 3 vols. (London, 1954-62), vol. II, pp. 168-78, 179-96, and in E.H. Phelps Brown and Sheila V. Hopkins, *A Perspective of Wages and Prices* (London, 1981), pp. 13-39 (with indexes not in the original). They allocated, in addition to the 22.5% for drink, 20.0% for cereal grains, 12.5% for dairy products (butter and cheese), 21.0% for meat (mutton and pork), totalling 80.0% for foodstuffs. The remaining 20% of the household budget consisted of 7.5% for fuels and 12.5% for textiles.

⁸⁴ Steve Rappaport, *Worlds Within Worlds : The Structures of Life in Sixteenth-Century London* (Cambridge-New York, 1989), p. 125 (Table 5.1).

⁸⁵ Herman Van der Wee, 'Prijzen en lonen als ontwikkelingsvariabelen: Een vergelijkend onderzoek tussen Engeland en de Zuidelijke Nederlanden, 1400-1700', in *Album aangeboden aan Charles Verlinden ter gelegenheid van zijn dertig jaar professoraat* (Wetteren: Universum, 1975), pp. 413-47; reissued in English translation (but without the tables) as 'Prices and Wages as Development Variables: A Comparison Between England and the Southern Netherlands, 1400-1700', *Acta Historiae Neerlandicae*, 10 (1978), 58-78; republished in Herman Van der Wee, *The Low Countries in the Early Modern World*, trans. by Lizabeth Fackelman (Cambridge and New York: Cambridge University Press and Variorum, 1993), pp. 223-41.

⁸⁶ See Herman Van der Wee, 'Voeding en Dieet in het Ancien Régime', *Spiegel Historiae*, 1 (1966), 94-10, republished in translation: as 'Nutrition and Diet in the Ancien Régime', in Herman Van der Wee, *The Low Countries in the Early Modern World*, trans. by Lizabeth Fackelman (Cambridge and New York,

consumption in Lier (near Antwerp) was about 310 litres in 1472 – well more than double the Belgian per capita consumption in 1958 (115 litres).⁸⁷ According to statistical analyses of Richard Unger, the mean annual per capita beer consumption in various towns of the fifteenth- and sixteenth century Low Countries was as follows: in Antwerp, 319 litres; Bruges, 263 litres; Leuven, 257 litres; Leiden, 255 litres; Haarlem, 236 litres; and Ghent, 202 litres. Unger further notes that beer was not just a beverage but an important and highly nutritious component in household cuisine.⁸⁸ Finally, and most recently, Robert Allen's independently constructed price-index base for early-modern northern Europe (1500 - 1900) also allocates a 20.6 percent share to beer and ale, in his household budget, representing an estimated average annual per capita consumption of 182 litres.⁸⁹

Clearly the burden of excise taxes on beer consumption was a very heavy one for the average lower-class or working-class household in the late-medieval Low Countries (and for northern Europe in general).⁹⁰

1993), pp. 279-87. In this Lier Beguignage expenditure accounts, the allocation of food consumption shares are: 44% for bread, 16% for beer, 1% only for wine, 20% for meat, 3% for fish, and 10% for dairy products. But note, however, that fuels and textiles are not included. See also Herman Van der Wee, *The Growth of the Antwerp Market and the European Economy (fourteenth-sixteenth centuries)*, 3 vols. (The Hague: Martinus Nijhoff, 1963), Vol. I: *Statistics*, Appendix 47: Budget of the Infirmary of the Béguignage of Lier for Foodstuffs, 1526-1602), pp. 534-38.

⁸⁷ Van der Wee, 'Nutrition and Diet', pp. 282-84, and Figure 151; and p. 286 (on water consumption). See also Erik Aerts, *Het bier van Lier: de economische ontwikkeling van de bierindustrie in een middelgrote Brabantse stad, einde 14de - begin 19de eeuw* (Brussels, 1996).

⁸⁸ Richard Unger, *A History of Brewing in Holland, 900 - 1900: Economy, Technology, and the State* (Leiden, 2001), Table III-4, pp. 90-1, noting also that the daily beer ration for English and Hanseatic sailors was then about 5 litres. For Leuven, see also Van Uytven, *Stadsfinanciën en stadseconomie*, pp. 313-36, especially p. 335; and Raymond Van Uytven, 'Beer Consumption and the Socio-Economic Situation in the Franc of Bruges in the Sixteenth Century': English translation of 'Het bierverbruik en de sociaal-economische toestand in het Brugse Vrije in de zestiende eeuw', *Handelingen van het Genootschap voor Geschiedenis, gesticht onder de benaming 'Société d'emulation' te Brugge*, 131 (1994), 5-34; republished in Raymond Van Uytven, *Production and Consumption in the Low Countries, 13th - 16th Centuries*, Variorum Collected Studies Series CS 714 (Aldershot: Ashgate-Variorum, 2001), XII, 1-24; Aerts, *Het bier van Lier*. Furthermore, according to T.R. Gourvish and Richard Wilson, 'beer was the largest item of working-class expenditure, ranking well above amounts spent on meat or bread', around 1870. Citing evidence of Victorian observers, they estimate that 'between 14 and 25 percent of working-class incomes was spent on beer', with a mean per capita beer consumption, in England and Wales, during the years 1875-79, of about £4.36 in expenditures, and 40.5 gallons (184.12 litres) in physical consumption, which, however, fell to 29.4 gallons (133.66 litres) per person annually, in 1910-13. See T.R. Gourvish and Richard G. Wilson, *The British Brewing Industry, 1830 - 1980* (Cambridge and New York, 1994), tables 2.1, p. 30, table 2.5, p. 34, and data and quotation on p. 36.

⁸⁹ Robert Allen, 'The Great Divergence in European Wages and Prices from the Middle Ages to the First World War', *Explorations in Economic History*, 38:4 (October 2001), 411-47, Table 3, p. 421. For southern Europe, the equivalent average annual per capita alcoholic consumption in was 68.25 litres of wine.

⁹⁰ It is interesting to note, as well, that in late-eighteenth century England, beer (sum of beer, malt, and hops) accounted for 24.6% of the 'Major Taxes' (about 90% of the presumed total) collected, while wine

The burden of consumption taxes on wine, however, may have been correspondingly and relatively lighter for the working and artisanal classes, if we may assume that they drank principally beer, and little wine. As just noted, the Lier Beguignage expenditures on food and drink indicate that wine accounted for only 1.0 percent of total expenditures. As Tables 6 and 7 below indicate, for Aalst's urban excise tax-farm revenues, the beer excise-tax farm normally accounted for four to five times the revenue acquired from the wine excise-farm for the 150-year period from 1396-1400 to 1546-50. Over this entire period, wine accounted for a mean of 11.93 percent of total excise-tax farm revenues, beer for 43.17 percent – and the total of the excise tax farms for the two beverages account for 55.11 percent of the total.⁹¹

Since we may further assume that most of those who purchased *rentes* from urban or territorial governments, came principally, if by no means entirely, from the wealthier strata of late-medieval and early-modern European societies, this highly regressive form of taxation to finance the payments on these various *rentes* presumably also meant a substantial transfer of income from the urban poor to the wealthy (who were not all necessarily urban). Even today, or certainly in the previous three centuries, the common term *rentier* – obviously directly derived from the very word *rente* – refers to those who live from investment income (rather than from 'earned income', such as wages or business profits), and often principally from their holdings of government debt; and the most common implication of this term, so often used with a negative connotation, is that such people come from the ultra-richer strata of society. Who would doubt, for example, that the Arras banking family of the Crespins, who held such a very large share of Bruges' public debt in the 1290s – in 'usurious' loans and *renten* – were not among the very richest to be found in north-western France (and Flanders) in this era?

While that assumption may well be generally valid for the late-medieval era, it was not necessarily true of all towns. For example, in the small town of Aalst (Alost), in eastern (Imperial) Flanders, the annual town accounts (*stadsrekeningen*) indicate that the urban market for *lijfrenten* was remarkably broad, especially for such a small and economically lesser town, whose early fifteenth-century population has been estimated at 3,600 to 4,000 (today's population: 76,800).⁹² One random sample, taken from the account for

accounted for only 4.63%. The sum of all taxes on alcohol and tobacco than accounted from 43.30% of all such English tax revenues (£6,917,000 out of £15,973,000). O'Brien, 'British Taxation', Table 5, p. 11. See also the following note, on beer and wine taxes.

⁹¹ See Table 6. In the Bruges annual town accounts, for the years 1308-1500 [Stadsarchief Brugge: Stadsrekeningen 1307/08 to 1499/1500], there is a very marked shift from a predominance of wine excise tax-farm revenues in the early fourteenth century to a predominance of beer excise-tax farms in the late fifteenth century – sometimes as much as 81% for beer and thus just 19% for wine, for the combined total of the farms on the two beverages. Over this entire period, the mean percentages for beer excise-tax farm revenues is 52.38%, and for wine, 47.62%. I have not yet calculated the total annual tax farm revenues for this entire, almost two-century long, period.

⁹² For the economy, demography, and society of Aalst and neighbouring Oudenaarde, the fundamental study is: Erik Thoen, *Landbouweconomie en bevolking in Vlaanderen gedurende de late Middeleeuwen en het begin van de Moderne Tijden. Testregio: de kasselrijen van Oudenaarde en Aalst (einde 13de – eerste helft 16de eeuw)*, Belgisch Centrum voor Landelijke Geschiedenis no. 90, 2 vols. (Ghent, 1988), Part I: 'De demografische evolutie', pp. 15-233 (but more on Oudenaarde). For the population figures, see also Peter Stabel, *De kleine stad in Vlaanderen: Bevolkingsdynamiek en economische functies van de kleine en secundaire stedelijke centra in het Gentse kwartier (14de - 16de eeuw)*, Verhandelingen van de Koninklijke Academie voor Wetenschappen, Letteren en Schone Kunsten van België, Klasse der Letteren,

February 1402-February 1403, lists annuity payments to 769 recipients. If they were all citizens of Aalst – and the accounts do not designate their residences – that number would represent almost 20 percent of the town's estimated total population (3,600 – 4,000), and perhaps 40 percent of the adult population. If so, by no means all of them could have been 'rich'.⁹³ But, as has just been shown for fourteenth-century Ghent, and has also been demonstrated for other late-medieval towns in the Low Countries, many purchasers of urban *renten* were non-residents, some from very distant towns. Some others were resident foreign merchants, though obviously more so in towns such as Ghent and Bruges, rather than in small towns such as Aalst.⁹⁴ For Bruges' annuity markets, Laurence Derycke found that in much of the fifteenth century, citizens were generally not in the majority, not until the early sixteenth century.⁹⁵ The breadth of the market for annuities varied, of course, by town, region, and period, and may have become broader by the eighteenth century, especially in the northern Netherlands.⁹⁶

But, as Laurence Derycke has demonstrated in a meticulous study on late fifteenth-century Bruges, the domestic 'annuity purchasers belonged to the same socio-economic strata as those from which the members of the urban government were recruited'. To be sure that included 'craftsmen', but principally the very wealthy craftsmen-entrepreneurs who were the guild leaders represented in the town government, which (since 1302) had allotted 16 of the 24 magistracies (seats) to the craft guilds.⁹⁷ As she also notes, those who were socially and economically considered to be *poorters* – merchants and wealthy property owners – were often technically also guild leaders. She contends that by the early fifteenth-century, the Bruges civic government was 'almost exclusively in the hands of the city's commercial and industrial elite,' which she calls

Jaargang 57, no. 156 (Brussels: Paleis der Academiën, 1995), p. n. 18, stating that Aalst had about 3,600 inhabitants in 1338 and possibly 4,000 in 1500; but see also Peter Stabel, *Dwarfs among Giants: The Flemish Urban Network in the Late Middle Ages*, Studies in Urban, Social, Economic and Political History of the Medieval and Modern Low Countries, no. 8 (Leuven-Apeldoorn: Garant, 1997), p. 41, indicating that Aalst's fifteenth-century population was '3,600 or more', which 'grew further in the middle of the 16th century'. See nn. 97 and 111 below.

⁹³ Aalst *Stadsrekeningen* (1395-1550) in Algemeen Rijksarchief Brussel, Rekenkamer, doc. nos. 31,412 - 31,553. The account no. for this year 1402-03 is: 31,487.

⁹⁴ In fifteenth-century Bruges, the *renten* roles indicate a very large number of foreign buyers: from almost all of the major towns in the Low Countries, the Hanseatic towns, and mercantile towns of Portugal and Italy. See Laurence Derycke, 'The Public Annuity Market in Bruges at the End of the 15th Century', in Marc Boone, Karel Davids, and Paul Janssens, eds., *Urban Public Debts: Urban Government and the Market for Annuities in Western Europe (14th - 18th Centuries)*, Studies in European Urban History (1100-1800) 3 (Turnout: Brepols, 2003), pp. 165-82.

⁹⁵ Derycke, 'Public Annuity Market', p. 167: the marked reduction in the number of foreign buyers was partly the goal of urban government policies.

⁹⁶ See the studies in Boone, Davids, and Janssens, *Urban Public Debts* (2003), cited in nn. 72, 88-89, 90-92; and see also Marc Boone, 'Plus deuil que joie', pp. 3-24, in n. 72 above..

⁹⁷ Especially in textiles, building trades, leather- and luxury-wares; butchers and brewers, etc. See Marc Ryckaert and A. Vandewalle, *Brugges: de geschiedenis van een Europese stad* (Tielt, 1999), pp. 41-42, cited in Derycke, 'Public Annuity Market', pp. 171-72; and also Marc Ryckaert, *Bruges: l'histoire d'une ville européenne* (Lannoo, 1999).

an ‘alliance of the *poorterij* on the one hand and the rich and powerful craft guilds on the other’, who held ‘an iron grip on the public finances’. For the ‘richer craft-guilds and the *poorterij* were time and again the socio-economic circles par excellence where enough money was available to buy public *renten*, as urban annuities were expensive and not attainable for everyone’. She contends in particular, that ‘the cheapest annuity that was sold on the occasion of the three issues [1472, 1489, 14592] studied cost 9 lb. gr, an amount that corresponded .. to the wage of a skilled mason for nine full months of labour’. Therefore, ‘the lower layers of the population were fully excluded from participation in the consolidated public debt.’ According to her analyses, only 20 percent of the buyers were responsible for 75 percent of the total revenues produced from annuity sales; and that the major purchasers were ‘the major office holders in the government, treasurers, and noblemen and those linked by marriage to noble families,’ including many of their widows.⁹⁸

Similar circumstances may be found in some sixteenth-century Dutch towns. In Dordrecht, over the century 1550-1650, 23 percent of those purchasing urban *renten* came from outside the city, according to Manon van der Heijden, whose research, for the much shorter period of 1549-1577, also indicates that 34 percent of the urban magistrates bought annuities.⁹⁹ For Amsterdam, in the years, 1578-1608, Martijn van der Burg and Marjolein t’Hart found that merchants accounted for 63 percent of purchases of urban debts and annuities; industrial entrepreneurs, for 21 percent; professionals (doctors, chemists, notaries), for 7 percent; office-holders, for 5 percent. But if, to that last group are added those from the other categories known to have held government offices, this category of urban magistrates would account for about 22 percent of the total annuities market.¹⁰⁰ Similarly, James Tracy had earlier demonstrated the overwhelming prominence of urban office-holders and their surviving widows as purchasers of *renten* in eight sixteenth-century Dutch towns: especially those whose occupations were ‘grain dealers, Baltic exporters, merchants, and shippers’ (along with some drapers, brewers, and professionals).¹⁰¹ From all these studies, therefore, we may safely assert that, even if not all buyers of urban *renten* in the late-medieval and early-modern Low Countries were ‘rich’, the preponderant majority of them most certainly were, and further that they also held an even greater

⁹⁸ Derycke, ‘Public Annuity Market’, pp. 171-77.

⁹⁹ Manon van der Heijden, ‘*Renteniers* and the Public Debt of Dordrecht (1555-1572)’, in Marc Boone, Karel Davids, and Paul Janssens, eds., *Urban Public Debts: Urban Government and the Market for Annuities in Western Europe (14th - 18th Centuries)*, Studies in European Urban History (1100-1800) 3 (Turnout: Brepols, 2003), pp. 183-96.

¹⁰⁰ Martijn van der Burg and Marjolein t’Hart, ‘*Renteniers* and the Recovery of Amsterdam’s Credit (1578-1605)’, in Marc Boone, Karel Davids, and Paul Janssens, eds., *Urban Public Debts: Urban Government and the Market for Annuities in Western Europe (14th - 18th Centuries)*, Studies in European Urban History (1100-1800) 3 (Turnout: Brepols, 2003), pp. 197-216: with the remaining 4 percent classed as ‘others’. See also Van der Heijden, ‘Public Debt’, pp. 190-94: stating that in Dordrecht ‘urban officeholders and their kin were thus highly involved in urban finances’, and that in the century 1550-1650, an average of 58 percent of female buyers of *renten* were ‘related to the political elite’; and that 69 percent of the women were widows. For other studies on Dutch towns in this volume, see Wantje Fritschy, ‘Three Centuries of Urban and Provincial Public Debts: Amsterdam and Holland’, pp. 75-92; and Remi van Shaik, ‘The Sale of Annuities and Financial Politics in a Town in the Eastern Netherlands: Zutphen, 1400 - 1600’, pp. 108-26.

¹⁰¹ Tracy, *Financial Revolution*, chapter 5, ‘The *Renteniers*’, pp. 139-92; quotations on p. 171.

share of the aggregate urban public debt.¹⁰²

Later medieval and sixteenth-century Flanders: the role of *renten* Aalst's civic finances

The Flemish town that constitutes the major object of this study on late-medieval urban finances, *renten*, and excise taxes is the aforementioned Aalst, from the very late fourteenth to the mid sixteenth century. A small town near the border with the duchy of Brabant, to the east, Aalst had a far different financial history from that just seen in fourteenth-century Ghent. The role that *renten* played in Aalst's civic finances can be seen in Tables 2 - 9, for the period 1395-96 (first extant account) to 1550, when this study terminates.¹⁰³ While accounts for some years within this long 155-year era are missing, especially in the 1490s, there are fewer gaps in these accounts than in the Ghent accounts; and, even more important, almost all of the extant Aalst accounts are fully complete, while many of the fourteenth-century Ghent accounts have survived in only partial form.

Tables 2 - 7, all in quinquennial (five-year) means, provide the following data from the Aalst civic annual treasurer's accounts, for the period 1396 to 1550 (account year beginning Candlemas, or 2 February):

- **Table 2 (figure 1):** revenues from the annual sales of both *erfelijk renten* and *lijffrenten*, and as percentages of total civic revenues.
- **Table 3 (figure 2):** annual expenditures on both *erfelijk renten* and *lijffrenten* (annuity payments and redemptions); the proportional shares accounted for by each form of *renten*; and total *renten* payments as percentages of total civic expenditures.
- **Table 4 (figure 3):** Annual balance sheets of total incomes, total expenditures, and consequent surpluses or deficits, in both *livres parisis* and *ponds groot* Flemish (£12 *parisis* = £1 *groot*).
- **Table 5 (figure 4):** Total annual mean incomes from the sales of excise tax farms (*accijnzen*); annual payments for *renten* (both kinds) as percentages of total income from the tax farms and, for comparison, as percentages of total civic expenditures.
- **Table 6 (figure 5):** Annual mean incomes from the excise-tax farms on the consumption (sales) of wine, beer, woollen cloth, grain, and the total excise tax farms, in £ *parisis* (only), with an index based on mean values for 1451-75, the statistical base period used throughout this study.
- **Table 7 (figures 6 and 7):** Total revenues from the combined sale of the wine and beer excise-tax farms; total revenues from the sales of all excise-tax farms; and the shares of total civic incomes accounted for by both the sales of excise-tax farms and the sales of *renten*, in £ *parisis* and *groot*.

These six tables together permit an interesting comparison between the civic finances of Ghent and Aalst (in the periods indicated). Thus if *erfelijk renten* had been the predominant form of annuities that were sold in financing -- if only to a small extent -- the government of fourteenth-century Ghent, the exact

¹⁰² In assessing my most recent and successful Social Science and Humanities Research Council of Canada research grant application, for my project 'Warfare, taxation, depopulation, and living standards in the southern Low Countries', one anonymous referee asserted that 'It is not true that those receiving payments of the *renten* were only the "rich".' See n. 1 above.

¹⁰³ Sources: Aalst *Stadsrekeningen* (1395-1550) in Algemeen Rijksarchief Brussel, Rekenkamer, doc. nos. 31,412 - 31,553. For various reasons, I have set 1550 as the terminal date for my analysis of urban finances in the southern Low Countries; and I certainly so no valid reason to go beyond 1568, with the outbreak of the Revolt of the Low Countries against Spanish rule, so destructive for Flanders and Brabant.

opposite was true for Aalst, for the 155-year period of this study, from 1395 to 1550. Thus, *lijfrenten* were always vastly more important by an almost 25:1 ratio. In summary, over this 155-year period, *lijfrenten* accounted for 96.04 percent of the total sales value of annuities, and thus *erfelijk renten* accounted for only 3.96 percent. Together, over this same period, the sales of all *renten* provided (as an annual average) 11.86 percent of total civic revenues, ranging from an unusual low of 0.37 percent in 1511-15 (quinquennial mean) to a high of 25.42 percent in 1431-35 (years of strife). Over this same 150-year period, *erfelijk renten* accounted for a correspondingly small share, 2.37 percent, of the annual payments for *renten* obligations (i.e., both annuity payments and redemptions), while the *lijfrenten* thus accounted for 97.63 percent of those annuity expenditures. The difference, albeit small, between the relative proportions for sales revenue and expenditures, for these two forms of civic annuities, is readily explained by the fact that rate of return on *erfelijk renten* was always lower than that for *lijfrenten* – often only half that for *lijfrenten*; and both forms of *renten* evidently always had a much lower yield than interest on loans (information for which is understandably scarce, because of the usury prohibition).¹⁰⁴

As indicated in Table 5 (figure 4), on *renten*-related expenditures, the annual payments for both kinds of *renten* in Aalst (for both annuity payments and redemptions) accounted for an annual mean of 36.47 percent of total civic expenditures, over this 155-year period. Those shares of total civic expenditures ranged from a low 22.17 percent, at the end our period, in 1541-45 (and only 22.27 percent in 1546-50) to a high of 74.65 percent in 1436-40, during the very costly and economically disruptive Anglo-Burgundian war.

Of equal interest in this important table is the relationship between expenditures on *renten* and the revenues derived from the annual sale of excise-tax farms on consumption: especially if we assume that the major if not exclusive reason for those excise taxes was to finance such annuity expenditures. Thus, *renten*-related annual expenditures ranged from a low of 33.28 percent – again in 1541-45 – to a very unusual high of 110.55 percent if the sales value of the excise-tax farms, again in the years of the Anglo-Burgundian war: 1436-40; but that was the only quinquennium in this entire period in which *renten* expenditures exceeded such income from the excise-tax farms.

The next two tables, Table 6 and 7 (figures 5 and 6), provide more detailed information on the mean annual revenues from the various excise-tax farms: principally wine, beer, cloth (Aalst was a textile-town), and grains. It will be readily seen, as was previously noted, that together the wine and beer excise-tax farms usually accounted for well over half of the tax-farm revenues: ranging from an unusual low (in quinquennial means) of 44.96 percent in 1476-80 to a high of 67.95 percent in 1546-60. For the first half of the sixteenth century, the sum of the wine and beer tax-farms accounted for 63.1 percent of total excise-tax farm revenues. In the same period, as indicated in Table 7, the revenues from the sales of excise-tax farms accounted for a mean of 78.5 percent of total civic revenues. Over the entire 150 year period, that share of total civic revenues accounted for by the sales of the excise-tax farms averaged almost the same: 74.53 percent; and it ranged from a low of 50.16 percent in the civil war years of 1486-90 to a high of 84.74 percent in 1446-50, virtually matched by the 84.58 percent share in 1526-30.

The burden of taxation in Aalst: 1396 - 1550: a new look at the ‘standard of living’ controversy

The central issue of this study is a measurement of the burden of taxation – though only a partial measurement – in financing urban *renten*, specifically in later-medieval and early modern Flanders. The

¹⁰⁴ On the differences in yields on public debts in France and the medieval, early modern Low Countries, see Munro, ‘Medieval Origins’, pp. 524-40, and Appendix A below.

measurement of this taxation provides us, in turn, with another statistical mechanism to evaluate the still ongoing ‘standard of living’ debate in late-medieval and early modern western Europe, at least for the first part of the Price Revolution era. The major problem facing the economic historian in dealing with the statistical data of this era that involve monetary values is to convert the those ‘nominal’ values that are expressed in the current money-of-account (*livre paris* and *pond groot*) into some estimate of ‘real’ values, as statisticians and economists always do today with current values. The monetary problem was, in many ways, a much bigger one for this era, from the mid-fourteenth to mid-sixteenth centuries, involving two separate sets of factors, both concerning alternating cycles of inflation and deflation, finally culminating in the 130-year period of sustained inflation, throughout Europe known as the ‘Price Revolution’ (ca. 1520 - ca. 1650).¹⁰⁵

The first was coinage debasement (i.e., reductions in the precious-metal contents), almost always inflationary, followed by its opposite, coinage *renforcements*, usually deflationary, which provided monetary disturbances and price fluctuations that were far more severe in the southern Low Countries than in England, if generally less severe than those in late-medieval France.¹⁰⁶

Complicating these fluctuations in the price levels was a quite separate second set of factors: those that produced first monetary contraction and then monetary expansion. The problems of monetary contraction and consequent (further) deflation affected the Low Countries in three major periods: the late fourteenth, early fifteenth-century (ca. 1380 - ca. 1415), the mid fifteenth century (ca. 1440 - ca. 1475), and the late fifteenth-early sixteenth century (ca. 1495 - ca. 1510). That was then followed by a new form of monetary expansion, involving both precious metals (the South-German silver mining) boom and credit (i.e., innovations in financial institutions), which provided the true origins of the Price Revolution, long before any important influxes of silver came from the Spanish Americas (and also before any significant demographic expansion). The nature of these various monetary forces, and the economic characteristics and consequences of the cycles of inflation, deflation, and then inflation have been dealt with very extensively elsewhere and need not detain us further in this study.¹⁰⁷

The major issue that the economic historian must resolve is the proper method of ‘discounting’ the effects of inflation and deflation and thus of converting ‘nominal’ values into ‘real values’. In other words, a sharp rise in the aggregate value of the excise-tax farm revenues may be only the result of inflation and thus illusory. The following Tables 8 and 9 (figures 8 and 9) seek to provide that solution, and, at the same time, to provide a better method of measuring the burden of urban taxation in Aalst. The first, Table 8 (figure 8),

¹⁰⁵ See John Munro, ‘The Monetary Origins of the “Price Revolution:” South German Silver Mining, Merchant-Banking, and Venetian Commerce, 1470-1540’, in Dennis Flynn, Arturo Giráldez, and Richard von Glahn, eds., *Global Connections and Monetary History, 1470 - 1800* (Aldershot and Brookfield, Vt: Ashgate Publishing, 2003), pp. 1-34.

¹⁰⁶ See John Munro, ‘Wage-Stickiness, Monetary Changes, and Real Incomes in Late-Medieval England and the Low Countries, 1300 - 1500: Did Money Matter?’ *Research in Economic History*, 21 (2003), 185 - 297; John Munro, *Wool, Cloth and Gold: The Struggle for Bullion in Anglo-Burgundian Trade, 1340-1478* (Brussels: Editions de l'Université de Bruxelles; and Toronto: University of Toronto Press, 1973) and various studies in John H. Munro, *Bullion Flows and Monetary Policies in England and the Low Countries, 1350 - 1500*, Variorum Collected Studies series CS 355 (Aldershot, Hampshire; and Brookfield, Vermont: Ashgate Publishing Ltd., 1992).

¹⁰⁷ See sources cited in nn. 105-06, above.

presents the mean annual value of the revenues from the sale of all the excise-tax farms in Aalst (with nominal values in both *livres paris* and *pond groot*) in terms of fixed ‘baskets of consumables’, similar in nature to those that statisticians compile today to measure the Consumer Price Index (or cost of living index). For England, over a period of almost seven centuries (from 1264 to 1954), this statistical technique was pioneered (in 1956) by the English team of Henry Phelps Brown and Sheila Hopkins; and it is still the most widely used method of measuring changes in the English price level, at least until the Industrial Revolution era.¹⁰⁸ In essence their basket consists of fixed shares of foodstuffs and industrial goods: 80 percent and 20 percent, respectively (but the grain-weight itself – wheat, rye, barley, and peas – is only 20 percent). The base that they chose for their Consumer Price Index is the mean of all commodity prices for the quarter century 1451-1475. Obviously, such a weighted price index – despite many imperfections – is vastly superior to one based solely on wheat or rye: ‘for man lives not by bread alone’.

In 1975, Professor Herman Van der Wee adopted the Phelps Brown and Hopkins methodology, and the same statistical base (1451-75), selecting as far as possible the same commodities, in the same or similar quantities, to produce his own ‘basket of consumables’ Consumer Price Index for the Antwerp-Lier region of Brabant for the three centuries from 1400 to 1700.¹⁰⁹ I myself then followed Van der Wee’s methodology to construct a ‘basket of consumables’ Consumer Price Index for Flanders, from 1350 to 1500.¹¹⁰ Unfortunately, while there are ample grain prices for the following centuries, we do not possess adequate price data for the other commodities in this basket, either before 1350 or after 1500. To resolve this problem, I have utilized the Van der Wee Consumer Price Index for the first half of the sixteenth century (but converting prices in Brabant *grooten* into Flemish *grooten*, and using the Flemish price base of 1451-75), on the assumption that by 1500 the market economies of Flanders and Brabant had become sufficiently integrated – long after their coinages had been unified (in 1433-35) – to justify this technique, all the more so since Aalst was fairly close to Brabant, and not so distant from the Antwerp market (which indeed its textile industries then served).

One very major difference between our price indexes for the southern Low Countries and the Phelps Brown & Hopkins English price index must be noted. While the latter consists only of disembodied index numbers, with fixed expenditure shares for all commodities in the basket, our two price indexes can be expressed in both index numbers (on that same base of 1451-75) and in current nominal money-of-account values: i.e., in pence (d.) *groot* of Flanders and Brabant (£1.0 *groot* Flemish = £1.5 *groot* Brabant). The major benefit of this technique is that the commodity expenditure shares are not rigidly fixed, but vary with the changes in relative prices, and thus provide a better method of representing relative purchasing power.¹¹¹

¹⁰⁸ Phelps Brown and Hopkins, ‘Seven Centuries’, pp. 1-12. See n. 83 above.

¹⁰⁹ Van der Wee, ‘Prijzen en lonen als ontwikkelingsvariabelen’, pp. 413-47. See n. 85 above, and Table 11 below.

¹¹⁰ See John Munro, ‘Builders’ Wages in Southern England and the Southern Low Countries, 1346-1500: A Comparative Study of Trends in and Levels of Real Incomes’, in Simonetta Cavaciocchi, ed., *L’Edilizia prima della rivoluzione industriale, secc. XIII-XVIII*, Atti delle “Settimana di Studi” e altri convegni, no. 36, Istituto Internazionale di Storia Economica “Francesco Datini” (Florence: Le Monnier, 2005), pp. 1013-76; and Munro, ‘Wage-Stickiness’, pp. 185-297.

¹¹¹ I have in fact been able to use the working papers of the Phelps Brown and Hopkins project, now maintained in the Archives of the British Library of Political and Economic Science (London School of Economics), and have converted all of their commodity index numbers into monetary values (from 1264 to

The components of the Flemish and Brabantine commodity baskets, and their mean individual money-of-account values (in pence *groot*), for the base period 1451-1475, are presented in Table 11.

As Table 8 (figure 8) indicates, the quinquennial mean real value of the sales revenue from the aggregate excise-tax farms, as expressed in the number of Flemish ‘baskets of consumables’ of equivalent value, rose from 865.37 Flemish ‘baskets’ in 1396-1400 to a mid-century peak of 1,283.39 baskets – an almost 50 percent (48.3) increase – for the economically depressed post-Anglo-Burgundian war years of 1441-45. Thereafter, after temporarily declining, that real tax burden rose again to a new peak of 1,523.48 baskets in 1471-75: i.e., 76 percent higher than in 1396-1400; and that peak was surpassed at the end of the century, in 1496-1500, with an excise-tax burden of 1,593.471 baskets. In the sixteenth century, however, that excise-tax burden was evidently diminished, as the equivalent number of (Brabantine) ‘baskets of consumables’ steadily fell to a low of 599.319 baskets in 1521-25 (only 69.25 percent of the real tax burden in 1396-1400), but thereafter rising to 882.57 baskets at the very end of our period of statistical analysis, in 1546-50, representing about the same tax burden as that for 1396-1400, at the beginning of our period. The final column of Table 8 may provide the most effective means of measuring changes in the tax burden over this 155-year period: i.e., the index numbers, with a base of 1451-75, for the equivalent value of the aggregate tax-excite farms in terms of the Flemish basket of consumables (thus indicating, for example, that the burden in 1496-1500 was 27.1 percent higher than for the base period, 1451-75).

Monetary factors concerning inflation and deflation may explain some of the differences in these excise-tax burdens: i.e., in that nominal values of the excise taxes and thus of the farms were ‘sticky’, and thus did not smoothly change with the rise and fall of prices. Note, for example, that the fifteenth-century peaks were during periods of severe deflation (except in the years of civil strife and war, in the 1470s and 1480s). Conversely, the fall in the real values of the excise-tax farms during the initial phase of the Price Revolution may reflect a ‘stickiness’ of the nominal tax rates during the onset of prolonged inflation.

Table 9 (figure 9) presents an even better measure of the real tax burden, especially for middle and lower classes of Aalst’s urban society: the value of the excise-tax revenues as expressed in the equivalent value of the number of days’ wages for master masons and carpenters. These were building craftsmen who periodically obtained employment from the civic government for building projects, while also employed, in other periods of the year in institutional and other private construction projects. Some masters in the Aalst building trades, if by no means a majority, were more than just artisans. They were also industrial ‘contractors’ and entrepreneurs, who often earned substantial additional incomes from trading in construction materials – selling building supplies to town governments, and various institutions, such as hospitals, churches, guilds, etc. They also generally earned much higher wages – which have thus been excluded from this study. Perhaps an even better measure might have been to use the daily wages of their journeymen helpers, all the more so since journeymen (*knapen*) earned virtually all of their income from wages. But while the journeymen’s wages in, say Bruges, were virtually always one-half (50 percent) of the master’s wage, they varied in Aalst from about 43 percent (e.g., 3d/7d) to 50 percent (e.g., 4d/8d) or 57 percent (e.g., 4d/7d).¹¹²

1700), in pence sterling. I have also used them in my comparative study of real wages, in late-medieval England and the Low Countries, where I have also examined the statistical nature of this difference in the consumer price indexes. See Munro, ‘Builders’ Wages’, pp. 1013-76.

¹¹² On these issues, see Munro, ‘Wage Stickiness’, pp. 185-297; and Munro, ‘Wages in Southern England and the Low Countries’, pp. 1013-76. For the Aalst wage data, see the sources for the tables.

Some historians, however, have contended that masons and carpenters – or other similar building craftsmen – are not a good choice, as representatives of skilled artisans, since they do not necessarily rank all that high in the hierarchy of urban wages.¹¹³ But that objection misses the point – which is not to present such wages as though they truly ‘representative’ of the artisan labour force, and certainly not as the highest of such urban wages. There is one fundamental reason why all of use such builders’ wages: because they are, for most medieval and early modern towns and villages (and also English manorial estates), the only daily-wage labour statistics available in a verifiable and continuous series over many, many centuries. In medieval economic history, ‘beggars cannot be choosers’. We must also remember that most artisans and labourers worked for piece-work wages (never or rarely available in such continuous series); and thus building craftsmen also provide one of the few examples of daily wages, based on a working day from 8 hours in the winter to 12-14 hours in the summer, thus explaining why the records often distinguish between summer and winter wages.¹¹⁴

Such a measurement, based on builders’ wages, explains another very major reason for choosing the town accounts of Aalst: the fact that they provide, along with all of the aforementioned statistical data on *rentes* and excise-taxes, a very complete set of data on urban wages — providing, year after year, the wages (summer and winter) for specified artisans – from which I have chosen just the daily (summer) wages for master masons and carpenters. In contrast to these rich and so informative Aalst civic accounts, the Ghent accounts provide almost no such annual, useable wage data (except a very few years in the fourteenth century); and the individual wage data in the Bruges civic accounts cease in the 1480s, when the town treasurers chose to provide, thereafter, only the annual totals of wage expenditures (as do the later Ypres accounts). Conversely, while we have abundant wage data for Antwerp (1400-1700), we have virtually no civic records of revenues from excise tax farms until the later sixteenth century.¹¹⁵

In Table 9, the mean daily wages for these artisans are indicated, in pence *groot* Flemish, in the fifth (middle column), ranging from a mean of 7.2d in 1396-1400 to a nominal peak mean of 10.0d from the mid 1480s to the mid 1490s. For purposes of comparative analysis, this Table 9 also provides the estimated annual wage income (for a mean estimated employment year of 210 days) for these master masons and

¹¹³ See for example: Bruno Blondé, *De sociale structuren en economische dynamiek van 's-Hertogenbosch 1500-1550* (Antwerp: Stichting Zuidelijk Historisch Contact, 1987); and also Bruno Blondé, ed., *Labour and Labour Markets Between Town and Countryside, Middle Ages-19th century* (Turnhout: Brepols, 2001).

¹¹⁴ See John Munro, ‘Urban Wage Structures in Late-Medieval England and the Low Countries: Work-Time and Seasonal Wages’, in Ian Blanchard, ed., *Labour and Leisure in Historical Perspective, Thirteenth to Twentieth Centuries*, Vierteljahrschrift für Sozial- und Wirtschaftsgeschichte Beiheft series, no. 116 (Stuttgart: Franz Steiner Verlag, 1994), pp. 65-78; and Munro, ‘Wage-Stickiness’, pp. 185-297.

¹¹⁵ For published statistics on the available wage data for late-medieval Ghent, see Thoen, *Landbouweconomie*, Vol. II, Part IV: ‘Loonevolutie en loonarbeid’, pp. 941-79, especially Figure (graph) 43, p. 950; and also Appendix XVI, pp. 1317-26. For wages of building craftsmen in Bruges, Antwerp, and Mechelen, see the data provided in Munro, ‘Wage-Stickiness’, Tables 10-14, pp. 252-61; and also in Munro, ‘Builders’ Wages’, Tables 3-7, pp. 1053-1066; Van der Wee, ‘Prijzen en lonen’, pp. 413-47; and in Van der Wee, *Antwerp Market*, vol. I: *Statistics*, pp. 383-89; Synoptic Tables of Wages and Appendices 27-30, pp. 393-92; for beer excise taxes in Antwerp, in scattered years only from 1560 to 1600, see Appendix 43/5, p. 521. As Van der Wee notes (p. 510), ‘the town accounts of Antwerp have only been conserved in full from the last quarter of the sixteenth century’.

carpenters, again, in terms of the equivalent number Flemish (and Brabantine) ‘baskets of consumables’: i.e. the amount of real goods that these artisans could purchase yearly with their money wage income. That indeed is the true meaning of the often misunderstood term ‘real wages’.¹¹⁶ For reasons that I have supplied in depth in other publications, this measure of annual income in commodity baskets, along with the real-wage index (final column), are and must be presented in harmonic rather than arithmetic means.¹¹⁷

The most striking feature of this table is the very large number of days’ wages, for master masons and carpenters, whose aggregate money value provides the equivalent value of the annual tax-farms in Aalst. That number rise from an annual mean of 13,205.93 days wages in 1396-1400 (62.89 years wage income) to an initial peak, again in those depressed post-war years of 1441-45: when the excise-tax burden represented 20,201.43 days’ wages (96.2 years’ wage income, almost a century) for these artisans. But that burden was subsequently exceeded consistently in the years from 1466 to 1485: varying from 21,640.64 days’ wages in 1466-70 to a new peak of 24,419.60 days’ wages (116.3 years’ wage income) in 1471-75. While falling somewhat in the 1480s, but only because of a rise in nominal money wages, that tax burden again rose (to 21,442.91 days’ wages in 1496-1500) and never fell below 20,000 days wages in the first two decades of the sixteenth century, falling only briefly in the early fifteenth century, thereafter rising to a new and final peak of 29,949.60 days’ wages (142.6 days’ wages) in the final quinquennium of this study, 1546-50. The principal reason for this rising tax burden on such artisans should be obvious as well from Table 9: the fact that nominal money wages did not rise to keep pace with inflation, and sometimes even fell, during this first phase of the Price Revolution, while, at the same time, the nominal value of the excise taxes did rise, if not as much as the price level, at least more in accordance with inflation.

For the early fifteenth century, when, as noted earlier, Aalst had between 3,600 and 4,000 inhabitants, this highly regressive excise-tax burden must have been a very heavy one indeed for adult master artisans, let alone their far less well paid journeymen labourers.¹¹⁸ However, as Table 9b indicates, that tax burden appears to have been far less draconian, if measured on a per capita basis (for a population of 3,600): thus ranging from 3.668 days’ wages in 1396-1400 to the onerous peak of 8.319 days’ wages in 1546-50. If instead we measure the burden in terms of the estimated number of employed adult males (taken as one-quarter of that population), the burden correspondingly rises from 14.673 days’ wages in 1396-1400 to 33.277

¹¹⁶ For an explanation and justification for the choice of a mean employment year of 210 days, see Munro, ‘Wage-Stickiness’, pp. 185-297; Munro, ‘Builders’ Wages’, pp. pp. 1013-761; and especially Van der Wee, *Growth of the Antwerp Market*, Vol. I: *Statistics*, Appendix 48, pp. 540-44 (for Antwerp and Lier, in the period 1437-1600).

¹¹⁷ The harmonic mean is ‘the reciprocal of the arithmetic mean of the reciprocals of the individual numbers in a given series’; and it is always somewhat less than the arithmetic mean. For the statistical explanation, see F.C. Mills, *Introduction to Statistics* (New York, 1956), pp. 108-12, 401; and Harold S. Sloan and Arnold J. Zurcher, *A Dictionary of Economics*, 3rd edn, (New York: Barnes and Noble, 1953), pp. 149-50. The mathematical equation is: $HM = 1 / [\sum (1/r_1 + 1/r_2 + 1/r_3 + \dots + 1/r_n)] / N$. The letter ‘r’ indicates the prices or wages in a series, so that 1/r means the reciprocal of that price or wage for each year in the series. For an explanation of why harmonic and not arithmetic means must be used in such historical studies, see, Munro, ‘Builders’ Wages’, pp. 1013-76. The usual method of presenting real wages as index number employs the formula: $NWI/CPI = RWI$: i.e. the nominal wage index divided by the consumer price index provides the real wage index numbers. For reasons too complicated to examine here, those results are inferior the method employed here, using the values of actual consumer baskets.

¹¹⁸ For Aalst’s population, see n. 90 above.

days' wages in 1546-1550: i.e, with a work-week of six days, about 5.5 weeks' wages.

One may now ask if there were any alternative forms of late-medieval taxation that were less regressive than these urban excise taxes, which were obviously an indirect tax. For my research indicates that this was indeed, as to be expected, the almost exclusive form of taxation used to finance annuity (*rente*) payments in late-medieval Flemish towns, and elsewhere. Let us also recall that the various papal edicts that had accepted *rentes* as non-usurious contracts had virtually stipulated this very form of taxation in financing annuities. The alternative form of taxation to be found in many other jurisdictions was, of course, direct taxes, of which the most predominant form was a property tax: both hearth taxes (on residences) in towns and villages, and a land tax on rural estates and farms. These were certainly far less regressive in that their assessments were based to some degree on market values, so that those with more expensive properties paid more taxes (normally a larger share of their incomes) than did those with cheaper properties. Furthermore, as indicated in Table 10, on populations and taxes in fifteenth-century Brabant, those considered sufficiently indigent to be classed as 'poor hearths' escaped this taxation entirely, while even the poorest who consumed bread and beer, etc., had to pay the excise taxes. Note in particular, in Table 10, the rise in the proportion of tax-exempt 'poor hearths' in the duchy of Brabant (combined with demographic decline), between 1437 and 1480, especially in the smaller towns: from 9.2 percent in 1437 to 28.1 percent of total hearths in 1480 (no data for 1496). This provides yet another statistical indicator to challenge the commonplace notion of a 'Golden Age' of artisans (and peasants) in the fifteenth century.

Another recent study on Flemish taxation – taxation in the Flemish countryside, from the late thirteenth to eighteenth centuries – now permits us to make another and most valuable comparative observation.¹¹⁹ As Tim Soens and Erik Thoen have demonstrated, the levels of taxation – again, chiefly direct taxation – were far, far lower in the Flemish countryside, and far less regressive, at least before the seventeenth century; and, furthermore, they have concluded that very few if any rural inhabitants purchased urban commodities subject to these excise taxes. Beer, for examples, was a widespread object of production and consumption in rural households, as were most foodstuffs.¹²⁰ Thus, if the tax burden between town and countryside widened in the later middle ages and sixteenth century, that gap may have provided yet another incentive for some artisans to seek industrial employment in the countryside: a contention that is indeed widespread in the now extensive literature on the 'proto-industrialisation' debate.¹²¹

¹¹⁹ Tim Soens and Erik Thoen, 'The Impact of Central Government Taxation on the Flemish Countryside (end 13th - 18th Centuries): Some Reflections', in Simonetta Cavaciocchi, ed., *La fiscalità nell'economia europea, Seccoli XIII - XVIII/Fiscal Systems in the European Economy from the 13th to the 18th Centuries*, XXXIS Settimana du Studi (Florence: Le Monnier, 2008).

¹²⁰ See Aerts, *Bier van Lier*; Judith M. Bennett, *Ale, Beer and Brewsters in England: Women's Work in a Changing World, 1300-1600* (Oxford University Press, 1996).

¹²¹ See, for example: Franklin F. Mendels, 'Proto-Industrialization: The First Phase of the Industrialization Process', *The Journal of Economic History*, 32 (March 1972), 241-61; Donald C. Coleman, 'Proto-Industrialization: A Concept Too Many', *Economic History Review*, 2nd ser. 36 (August 1983), 435-48; L. A. Clarkson, *Proto-Industrialization: The First Phase of Industrialization?*, Studies in Economic and Social History Series (London, 1985), pp. 9-57; Eckart Schremmer, 'Proto-Industrialisation: A Step Towards Industrialisation?' *Journal of European Economic History*, 10 (1981), 653-70; Sheilagh C. Ogilvie and Markus Cerman, eds., *European Proto-Industrialization* (Cambridge and New York: Cambridge University Press, 1996); P. Kriedte, H. Medick, J. Schlumbohm, *Industrialization Before Industrialization* (Cambridge, 1977); Sheilagh Ogilvie, 'Guilds, Efficiency, and Social Capital: Evidence from German Proto-

The late-medieval ‘standard of living’ debate: the role of demographic and monetary factors

The evidence in these tables, especially table 9, provides us – as promised earlier – with important new insights into the ongoing controversy about real incomes and living standards in late-medieval western Europe, especially after the Black Death. The still prevailing opinion amongst medieval economic historians, deeply influenced by the Postan and Duby schools, using fundamentally a Ricardian theory, is that the Black Death and subsequent, if periodic, declines in population, amounting to perhaps 40 percent by the fifteenth century, so altered the land:labour ratio that the marginal productivity of labour ‘must’ have risen substantially, as did, therefore, real wages.¹²² For, according to Classical economic theory, the real wage is determined by the marginal product of labour – though more precisely it is determined by its *marginal revenue product*. For an even simpler explanation, one may contend that such a decline in population and thus in aggregate demand led to the abandonment of relatively infertile, high-cost ‘marginal lands’, so that the foodstuffs needed to feed such a smaller population were largely produced at much lower costs on lands that were far more fertile, and closer to markets (and thus with lower Ricardian economic rent). Since the living standards of the later-medieval urban lower classes were largely determined by food prices – accounting for about 80 percent of household budgets, as indicated earlier – those lower agricultural costs and thus food prices, and (presumably) lower rents would largely explain the rise in their real wages and thus also in their real incomes.

In several publications on real incomes in late-medieval England and the Low Countries, I have challenged these theoretical notions, which I find simplistic and unhistorical.¹²³ In particular, I have sought to demonstrate that real wages for urban craftsmen generally fell – not rose – in the aftermath of the Black Death, for about three decades, when inflation and the real cost of living rose more than did money-wages. By the late fourteenth centuries, in both regions, real wages had not only recovered from the pre-1340 levels, but then experienced a sustained rise to reach an unprecedented peak in the mid-fifteenth century. I had contended that this ultimate rise in real wages is chiefly explained, not by changes in labour productivity, but by the combination of sustained deflation and institutional ‘wage stickiness’. Thus, with deflation and the even sharper fall in the cost of living, the purchasing power of stable (‘sticky’) money wages rose, especially in England but also in the southern Low Countries (both Flanders and Brabant) during especially the mid-fifteenth century: from the mid 1440s to the mid 1470s, and peaking in both principalities in the quinquennium 1461-65. But otherwise, in the fifteenth century (except for the late 1490s), real wages suffered

Industry’, *The Economic History Review*, 2nd ser., 57:2 (May 2004), 286-333.

¹²² See Michael Postan, ‘Some Economic Evidence of Declining Population in the Later Middle Ages’, *Economic History Review*, 2nd ser. 2 (1950), 130-67, reprinted in his *Essays on Medieval Agriculture and General Problems of the Medieval Economy* (Cambridge, 1973), pp. 186 - 213 (with the revised title of ‘Some Agrarian Evidence of Declining Population in the Later Middle Ages’); Michael Postan, *The Medieval Economy and Society: An Economic History of Britain, 1100-1500* (Cambridge, 1972); Georges Duby, *Rural Economy and Country Life in the Medieval West*, trans. Cynthia Postan (London, 1962), Book IV: pp. 289-360. See also John Munro, ‘Postan, Population, and Prices in Late-Medieval England and the Low Countries’, in John Drendel, ed., *Michael Postan, Georges Duby, and the Malthusian Paradigm of Crisis in the Later Middle Ages* (Leiden: E. J., Brill, forthcoming). See also the next note.

¹²³ For the following, see in particular Munro, ‘Wage-Stickiness’, pp. 185-297; and Munro, ‘Builders’ Wages in Southern England and the Southern Low Countries’, pp. 1013-76. For another valuable perspective, specifically on Flanders, see Thoen, *Landbouweconomie*, vol. I, part II: ‘Het algemeen kader van prijzen en levensduurte’, pp. 234-99.

a very considerable deterioration, chiefly because of warfare, coinage debasements, and consequent inflations. In this current study, Table 9, on nominal and real wages in Aalst provides additional evidence for this thesis. Note the long-term ‘wage stickiness’ for building craftsmen in Aalst (if not quite as ‘sticky’ as builders’ wages in Bruges, Mechelen, and Antwerp);¹²⁴ and note therefore that in Aalst, as elsewhere in the southern Low Countries, real wages rose only when consumer prices fell, and thus fell when those consumer prices rose.

England, however, enjoyed a more prolonged and continuous, if by no means fully continuous, rise in real wages from the later fourteenth century into the early sixteenth century, principally because of a highly unusual degree of monetary stability: first between 1351 and 1464, when Edward IV debased the silver coinage by 20 percent; and thereafter from 1465 until 1526 (with Henry VIII’s first if relatively minor debasement).¹²⁵ Partly because of that difference, real wages in southern England, whose level, on the eve of the Black Death, had been only about 50 percent of those in urban Flanders (Bruges and Ghent), had risen rose to about 80 per cent of the urban Flemish level by the 1480s, when, as also noted earlier, the Bruges wage data cease to be presented in the annual town accounts.¹²⁶

But even some of those who still accept the view that the Black Death ultimately ushered in a ‘golden age’ for the artisan and labourer do evince some doubts.¹²⁷ Thus Ralph Davis has asserted that while, in late-medieval Europe, ‘the most powerful upward regulator of income per head was a calamitous drop in population’, nevertheless ‘the economy of modern Europe would never have come into existence on the basis of population decline’.¹²⁸ Of course, several economic historians have argued that the late-medieval population decline did not occur peacefully; that, in accompanying the ravages of plagues and warfare, was often extremely disruptive to the economy, especially to trade and commerce. We must also take account of the extremely high levels of physical violence, apart from warfare, in late-medieval society, especially in the Low Countries. In this region, the homicide rates were about 45.0 - 47.0 per 100,000 persons in the fourteenth and fifteenth centuries (vs a rate of 23.0 in late-medieval England), compared to just 0.9 per 100,000 in the Netherlands and Belgium during the late twentieth century.¹²⁹ The Nobel-prize winning economist Douglass

¹²⁴ See Munro, ‘Wage-Stickiness’, pp. 185-297.

¹²⁵ See Munro, ‘Wage-Stickiness’, pp. 185-297, and other sources in nn 102-103 above.

¹²⁶ See the evidence in Munro, ‘Builders’ Wages’, pp. pp. 1013-76.

¹²⁷ For the original ‘Golden Age’ view, though more correctly placed well after the Black Death, see James E. Thorold Rogers, *Six Centuries of Work and Wages: the History of English Labour* (London, 1903), p. 326: ‘the fifteenth century and the first quarter of the sixteenth were the Golden Age of the English labourer, if we are to interpret the wages which he earned by the cost of the necessities of life.’ See also, and from this same era, Gustav F. Steffen, *Studien zur Geschichte der englischen Lohnarbeiter*, 3 vols. (Stuttgart, 1901-05).

¹²⁸ Ralph Davis, *The Rise of the Atlantic Economies*, World Economic History series (London: Weidenfeld and Nicholson; Cornell: Cornell University Press, 1973), p. 16.

¹²⁹ Ted Robert Gurr, ‘Historical Trends in Violent Crime: a Critical Review of the Evidence’, *Crime and Justice: An Annual Review of Research*, 3 (1981), 295-353, esp. pp. 312-15, asserting that ‘there was a tremendous upsurge in violent crime in England (or at least in its cities) during the early fourteenth century’, i.e., well before the Black Death (with homicide rates of about 23/100,000). See also Manuel Eisner, ‘Long-Term Historical Trends in Violent Crime’, *Crime and Justice: A Review of Research*, 30 (2003), 83-242, esp.

North has more clearly discerned the key issues about the late-medieval European economies than have most historians, in stating that.¹³⁰

The decline of population, coupled with war, confiscation, pillage and revolution, reduced the volume of trade and stimulated a trend toward local self-sufficiency. The losses to society due to the decline in specialization and reduced division of labor certainly argues against a rise in the standard of living. This change was synonymous with increased transaction costs from using the market, a change which increased the incentives for independent groups to rely upon the coercive powers of government to organize economic activity.

To this we may add two very specific coercive powers of government: greatly increased taxation and coinage debasements, which are also, of course, a major form of taxation that so many medieval princes utilized, above all in financing warfare.¹³¹

Demography and the burden of taxation

What has not so far been clearly specified is the very adverse economic consequences in the relationship between depopulation and taxes, especially excise taxes. Thus the increasingly expensive warfare of late-thirteenth and early fourteenth-century western Europe, i.e. even before the even more expensive Hundred Years' War (1336-1453), created an ever increasing mountain of public debt (hence the Italian term, the *monte*) whose financial burdens had to be borne by a greatly reduced number of survivors, for no governments could afford to repudiate public debts and the interest or annuity payments that an ever smaller urban citizenry had to finance principally through consumption taxes. The fact that the level of excise taxes did not appreciably change in Bruges and Ghent after the Black Death had led the famed Belgian historian Hans Van Werveke to believe that the Black Death had largely spared mid-fourteenth century Flanders.¹³² He evidently did not consider the alternative: that a plague-reduced urban population had to bear, as well, a

Table 1, p. 99; for Europe as a whole, homicide rates dropped from a peak of 41 per 100,000 in the 15th century, to 1.4 in the 20th century (Table 2, p. 99); David Nicholas, 'Crime and Punishment in Fourteenth-Century Ghent', *Revue belge de philologie et d'histoire/ Belgisch tijdschrift voor filologie en geschiedenis*, 48 (1970), 289-334, 1141-76; reprinted in David Nicholas, *Trade, Urbanisation and the Family*, Variorum Collected Studies Series CS531 (Ashgate Publishing: Aldershot, 1996), no. VI [same pagination], esp. pp. 314-16, 1176: 'Crime was not the assassination of one's neighbor, but the failure to offer suitable atonement to his kindred'.

¹³⁰ Douglass North and Robert Thomas, *The Rise of the Western World: A New Economic History* (Cambridge, 1973), pp. 71-96 (quotation on p. 78), 93; 134-38; Douglass North, *Structure and Change in Economic History* (New York, 1981), chapters 1-5; Douglass North, 'Government and the Cost of Exchange in History', *Journal of Economic History*, 44 (1984), 255-64; Douglass North, 'Transaction Costs in History', *Journal of European Economic History*, 14 (1985), 557-76.

¹³¹ See my publications on coinage debasements and princely finances in n. 106 above.

¹³² Hans Van Werveke, *De Zwarte Dood in de zuidelijke Nederlanden, 1349-1351*, in *Mededelingen van de koninklijke Vlaamse Academie voor wetenschappen, letteren, en schone kunsten van België, Klasse der Letteren*, Vol. XII. no. 3 (Brussels, 1950). See the next note.

significant increase in the per capita burden of taxation, at a substantial cost to its living standards.¹³³

Thus the most serious and most misleading deficiency in this late-medieval standard of living debate, especially for urban society, has been the failure to take into account, in proper quantitative fashion, the role of taxation: in particular steep increases in excise or consumption taxes for the lower middle and working classes in all towns of the southern Low Countries. What is also especially revealing about Tables 8 and 9 is the contradictory evidence about real wages for master masons and carpenters in Aalst: that when, in the mid fifteenth century, they supposedly experienced a rise in their real wages, as computed by the normal method – i.e., by dividing the nominal money wage index by the consumer price index ($RWI = NWI/CPI$) – these artisans and their labourers also experienced a steep rise in the burden of the excise taxes. In so far as the real incomes of the Aalst building craftsmen are being measured, in this study, in terms the number of ‘baskets of consumables’ that could have been purchased with annual money wage incomes, one may wonder if any of these excise taxes had been included in the prices of the commodities contained in these baskets. If they had been, that presumably would have been true only those that were sold as final products, at retail outlets: such as butter, cheese, meat, fish, and textiles. The major items in the baskets, by value, were primary commodities, such as grains, and thus were not subject to these excise taxes, which would have been imposed instead on the products manufactured from them: e.g. bread and beer (whose wholesale or retail prices are not in the price indexes, but only their grain components). Furthermore, of these commodities just listed, only textiles figured prominently in the total value of all the Aalst excise-tax farms.

The issue of excise taxes also adds yet another dimension to the comparison of the actual levels of real wages in England and the Southern Low Countries: a factor that may well have narrowed the statistically evident gap between the real wages for urban building craftsmen even more, in these two countries. For England, unlike almost all of the continent (or continental towns), had not and did not experience excise taxes on consumption until as late as July 1643, when the Long Parliament, under the leadership of John Pym, shortly after the outbreak of the Civil War between Crown and Parliament, introduced this continental method of taxation.¹³⁴ By the late eighteenth-century (and presumably much earlier), the sum of excise and import-customs duties on such consumables accounted for about 78.8 percent of the ‘Major Taxes’ (accounting for over 90 percent of total taxes), while direct taxation (chiefly the land tax) account for only 21.2 percent.¹³⁵

¹³³ For a very cogent and convincing rebuttal of Van Werveke’s thesis, though not involving these specific issues, see Willem Blockmans, ‘The Social and Economic Effects of Plague in the Low Countries, 1349-1500’, *Belgisch tijdschrift voor philologie en geschiedenis/ Revue belge de philologie et d’histoire*, 58 (1980), 833-63. See also Georges Despy, ‘La ‘Grande Peste Noire de 1348’: a-t-elle touché le roman pays de Brabant?’ in Georges Despy, ed., *Centenaire du séminaire d’histoire médiévale de l’Université Libre de Bruxelles, 1876-1976* (Brussels, 1977), pp. 195-217.

¹³⁴ See Maurice Ashley, *Financial and Commercial Policy Under the Cromwellian Protectorate* (Oxford: Oxford University Press, 1934; revised edn: London: Frank Cass and Co. Ltd, 1962), chapter VII: ‘Taxes, ii. Excise’, pp. 62-71; Patrick O’Brien and Paul Hunt, ‘The Emergence and Consolidation of Excises in the English Fiscal System before the Glorious Revolution’, *British Tax Review*, 1 (1997), 35-58; O’Brien, ‘Political Economy of British Taxation’, pp. 1-32; William Ashworth, *Customs and Excise: Trade, Production and Consumption in England, 1640 - 1845* (Oxford and New York: Oxford University Press, 2003). Such taxation, of course, also helped make possible England’s ‘financial revolution’, following the 1688 ‘Glorious Revolution’. See n. 2 above.

¹³⁵ O’Brien, ‘Political Economy’, pp. 8-17, esp. Table 5, p. 11 (but my calculations from that table).

Of course a major reason why such excise taxes had not been necessary before the mid seventeenth century was the very high level of revenue that the English crown had gained from both export taxes, chiefly on wool and cloth, and the land taxes, along with such direct taxes as the levies of ‘fifteenths and tenths’¹³⁶ It is also interesting to note that an experiment in a progressive income tax, undertaken by Henry VIII, in the period 1513-1547, did not survive the reign of Elizabeth I (1558-1603).¹³⁷ At the same time, it must be observed that English import customs duties on wine, and then from 1660s, the era of the so-called ‘New Colonialism’, customs duties on such colonial imports as tea, sugar, rum, tobacco, linens, Indian cottons, timber, and iron, provided a consumption-tax burden that was equivalent in nature to urban excise taxes in continental towns.¹³⁸

It must here be stressed once again that in both these countries, and indeed in most of western Europe, excise taxes were principally, perhaps almost exclusively, an urban form of taxation, and thus may be used in comparing only urban industrial wages. But we lack sufficient data on most of the other taxes, just as we lack full data on urban household incomes, for which women (wives, daughters, resident widows) were presumably also important contributors, especially after the Black Death, in any attempt to measure inter-regional urban differences in ‘after-tax’ real incomes in later-medieval, early-modern western Europe.¹³⁹ Unfortunately, for Aalst in particular, we lack any significant data on female incomes, even for the important woollen textile industry, for which over 60 percent of the employment was probably then female (earning

¹³⁶ See John H. Munro, ‘Medieval Woollens: Textiles, Textile Technology, and Industrial Organisation, c. 800 - 1500’, in David Jenkins, ed., *The Cambridge History of Western Textiles*, 2 vols. (Cambridge and New York: Cambridge University Press, 2003), Vol. I, pp. 181-227; W. M. Ormrod, ‘The Crown and the English Economy, 1290 - 1348,’ in Bruce M.S. Campbell, ed., *Before the Black Death: Studies in ‘Crisis’ of the Early Fourteenth Century* (Manchester and New York, 1991), pp. 149 - 83. Even in 1640, over 85 percent of the value of English exports came from wool and textiles. For London’s finances in this period, see Vanessa Harding, ‘The Crown, the City, and the Orphans: the City of London and its Finances, 1400 - 1700’, in Marc Boone, Karel Davids, and Paul Janssens, eds., *Urban Public Debts: Urban Government and the Market for Annuities in Western Europe (14th - 18th Centuries)*, Studies in European Urban History (1100-1800) 3 (Turnout: Brepols, 2003), pp. 51-60.

¹³⁷ Roger Schofield, *Taxation Under the Early Tudors, 1485 - 1547* (Oxford: Blackwell Publishing, 2004).

¹³⁸ See O’Brien, ‘British Taxation’, Table 5, p. 11; and other sources cited in n. 131 above.

¹³⁹ See P. Jeremy and P. Goldberg, *Women, Work, and Life Cycle in a Medieval Economy: Women in York and Yorkshire, c.1300 - 1520* (Oxford: Clarendon Press, 1992); Susan Bardsley, ‘Women’s Work Reconsidered: Gender and Wage-Differentiation in Late Medieval England’, *Past & Present*, no. 165 (November 1999), 3-29; Lee Soltow, *Income and wealth inequality in the Netherlands, 16th-20th century* (Amsterdam: Het Spinhuis, 1998); Tine de Moor and Jan Luiten van Zanden, *Vrouwen en de geboorte van het kapitalisme in West-Europa* (Meppel, 2006); Jan Luiten Van Zanden, ‘Wages and the Standard of Living in Europe, 1500 - 1800’, *European Review of Economic History*, 3:2 (August 1999), 175-97, in which he states (p. 178): ‘This [artisan’s household] budget is made up of different sources of income, of which wage income is only one. But we assume it was an important source (and not a marginal one) for the European working classes of the early modern period. Moreover, the wage rate is exogenous for the household: it cannot influence its level in the short or the long run. This means that a rationally acting household will adapt its strategy to this given wage-level’: i.e., will adjust the family’s non-wage forms of income accordingly.

piece-work incomes).¹⁴⁰

But the plight of these urban artisan and labouring consumers may have been even worse, since these statistics do not take account of the *per capita* burden: i.e., of the effects population decline throughout the fifteenth century. Another common mistaken belief, concerning medieval demography, one still found in the current literature, is that western Europe suffered a major fall in population only after the first phase of Black Death (from 1348, and into the 1360s), and the corresponding belief that Europe's population began to recover from at least the mid fifteenth century.

Recent studies indicate however, for both the southern Low Countries (except the Antwerp region) and England, that general demographic recovery did not commence until the early sixteenth century, perhaps not until the 1520s.¹⁴¹ As Table 10 indicates, for the population of Brabant, the recorded number of 'hearths' for the entire duchy fell by 18.76 percent, from 1437 to 1496, despite the very significant (and expected) growth of Antwerp (by 91.5 percent), which became the commercial and financial capital of Europe from the 1460s. The population decline was the most severe for the small towns (i.e., those like Aalst) and villages, whose number of hearths fell by 25.14 and 26.35 percent, respectively. Finally, if we assume that population decline consists not just in the disappearance of households but also in a smaller average family size of those that survived, the demographic decline may have been much more serious than these grim data would indicate.

Unfortunately we lack any such comparable demographic data for Aalst (nothing beyond that already presented), but, thanks to Erik Thoen and Peter Stabel, we do have information on significant demographic decline for some but not all neighbouring towns in eastern Flanders. For example, Hulst's population (about the same as that of Aalst) had fallen from 3,600 in 1417 to 3,000 in 1469, a decline of about 17 percent. From the mid-fourteenth to the mid or later fifteenth century, the population of Dendermonde had fallen by about one half: from about 9,000 to about 4,500. But Kortrijk seems to have maintained a stable population of about 5,300 from 1440 to 1477; and Oudenaarde's population (with a thriving tapestry industry) actually grew from 5,700 in the 1440s to 6,200 in about 1500.¹⁴² Perhaps the worst Flemish demographic crisis took place in Ypres (Ieper), whose traditional woollen cloth industry suffered a greater decline than that of any other major Flemish city during the fifteenth century. According to estimates of Henri Pirenne, though disputed by some historians, Ypres' population had fallen from 10,523 in 1431 to 7,626 in 1491: a decline of 27.53 percent (but

¹⁴⁰ See Munro, 'Medieval Woollens', pp. 181-227: especially in wool-sorting, wool-preparation (cleansing and greasing), combing, card, spinning, warping (on the loom); while weaving, fulling, dyeing, and shearing were essentially male occupations.

¹⁴¹ For England, see Bruce M. S. Campbell, 'The Population of Early Tudor England: A Re-evaluation of the 1522 Muster Returns and the 1524 and 1525 Lay Subsidies', *Journal of Historical Geography*, 7 (1981), 145-54; Julian Cornwall, 'English Population in the Early Sixteenth Century', *Economic History Review*, 2nd ser. 23:1 (April 1970), 32-44; Ian Blanchard, 'Population Change, Enclosure, and the Early Tudor Economy', *Economic History Review*, 2nd ser. 23:3 (December 1970), 427-45.

¹⁴² See Thoen, *Landbouweconomie*, vol. I, pp. 1-233; Stabel, *Kleine stad*, pp. 17-24; Stabel, *Dwarfs among Giants*, pp. 38-43. According to estimates put forth by Walter Prevenier, 'La démographie des villes du comté de Flandre aux XIVe et XVe siècles: État de question: essai d'interprétation', *Revue du Nord*, 65: no. 257 (Apr - June 1983), p. 264 (Table D), Kortrijk had a population of 9,517 in 1469 (based on the Burgundian census); and Oudenaarde then had a population of 7,290. All of his estimates seem to be unduly high, and based on a high multiplier of 4.5 persons per household.

thereafter recovering to 9,563 in 1506).¹⁴³

Whether or not Aalst had suffered any demographic decline in the fifteenth century cannot, regrettably, be ascertained with any certainty.¹⁴⁴ If it did, then these data on the burden of excise taxes in Tables 8 and 9 still provide a very grim picture; and of course if there had been demographic decline, the per capita tax burden would have risen commensurately, with very possibly very significant reductions in real incomes for the urban working classes.¹⁴⁵ On the other hand, the urban excise-tax burden was not entirely negative for craftsmen and labourers in the building trades: for such taxes also financed much of their employment, in urban public works.

¹⁴³ Henri Pirenne, 'Les dénombrements de la population d'Ypres au XVe siècle (1412-1506)', *Vierteljahrschrift für Sozial und Wirtschaftsgeschichte* (1903), republished in Henri Pirenne, *Histoire économique de l'occident médiéval*, ed. Etienne Coornaert (Bruges: Declée de Brouwer, 1951), pp. 458-488, especially p. 467 (also presenting alternative figures of 10,736 inhabitants in 1412 and 9,390 in 1437). But see Prevenier, 'Démographie des villes', pp. 259-60, 270: who provides slightly different alternative estimates for Ypres' 1412 population: 10,782 and 10,489 inhabitants, and an estimate of perhaps 9,878 in 1469 (Table G: 2,195 hearths with an average family size of 4.5 persons).

¹⁴⁴ Peter Stabel believes that Aalst enjoyed relative stability during this century. See Stabel, *Dwarfs among Giants*, pp. 38-43. Prevenier, 'La démographie', Table D, p. 264 provides an estimate of Aalst's population in 1469 (extrapolated from the Burgundian census of that year): 3,962 inhabitants, about the same as other estimates for 1400. See n. 92 above.

¹⁴⁵ Conversely, of course, the evident growth in Aalst's population by the mid sixteenth century would have reduced the per capita tax burden indicated in Table 9.

APPENDICES:

Appendix A:

The differences in the rates of return or yields on perpetual rents and life-rents and loans

Whether or not the predominant form of *rentes* issued by late-medieval town governments was in life-rents (*rentes viagères*, *lijfrenten*) or perpetual rents (i.e., *rentes heritables*, *erfelijk renten*, *losrenten*) had some considerable significance for urban and also territorial public finances, primarily because the annual payment rates or the rate of return was so much higher on the former than on the latter. If not initially, the rates of return on *lijfrenten* normally came to be double those for *erfelijk renten*, even if the historic, long-term trend was falling for both. Thus, in late-thirteenth-century Flemish towns, the rates on *erfelijk renten* were typically 1/10 or 10 percent; and while they were 1/8 or 12.5 percent in late fourteenth-century Ghent, these rates fell to 6.25 percent (1/16) in the fifteenth and sixteenth centuries, in most towns of the Habsburg Netherlands. The late-thirteenth-century rate of return on *lijfrenten* was typically 12.5 percent (1/8), subsequently declining to 10 percent and sometimes even to as low as 8.0 percent (1/12.5). In fifteenth-century Zutphen, in the northern Netherlands, the rates or yields on *lijfrenten* were 10.0 percent (1/10), and those on *erfelijk* or *losrenten* (as perpetual rents were now more commonly known) generally had a yield of 6.25 (1/16) percent.¹⁴⁶ In early sixteenth-century Leiden, while the rates on perpetual annuities (*losrenten*) remained low at 6.25 percent (1/16), those on *lijfrenten* for two lives were 10.0 percent, and those for one life were as high as formerly, at 12.5 percent (1/8), and thus double the rate for *losrenten*.¹⁴⁷

The explanation for these differences is two-fold. In the first place, in European financial history, from ancient times to the very present, short-term rates or yields are always much higher than those for long-term investments: and none can be longer term than perpetual rents. Furthermore, those holding *lijfrenten* ran the risk of dying, most commonly with a non-transferable asset, in the near future, and hence demanded compensation for that risk of loss. Second, perpetual rents, being in their very nature both inheritable and transferable, were much more marketable than *lijfrenten*, so that purchasers were much more amenable to a lower rate of return. If town or territorial government benefited in the short run from lower financial service costs on perpetual rents, they were a perpetual obligation, unless the government chose to redeem them, while life-rents were, again by their nature, self-extinguishing on the death of the holder, without any further financial obligations from the issuing authorities. Any doubts or debates about which form of *renten* urban or territorial governments were laid to rest, in 1671, when Johann de Witt, the Grand Pensionary of the Republic of the United Provinces (Dutch Republic), employing an early form of probability theory, mathematically demonstrated that the sale of *lijfrenten* was very costly for the government, if the age of the designated nominee was not taken into account, especially if the one so named was an infant.¹⁴⁸ That certainly had an influence on England's so-called Financial Revolution when (from 1720), the government shifted totally from life or long term annuities (33 and 99 years) to perpetual annuities (forming the Consolidated Stock of the Nation, known as 'Consols', in 1752). In contrast, France's public debt in the eighteenth century

¹⁴⁶ Van Shaik, 'Zutphen', p. 112.

¹⁴⁷ See Van Werveke, *De Gentsche stadsfinanciën*, pp. 166-71; Tracy, *Financial Revolution*, p. 92, n. 57.

¹⁴⁸ Johan de Witt, *Waerdije van lijfrenten naer proportie van losrenten* (The Hague, 1671). He advocated that *lijfrenten* be sold instead at 7.143 percent (1/14), with higher rates for older buyers and lower rates for children. See James Riley, *International Government Finance and the Amsterdam Capital Market, 1740 -1815* (Cambridge, 1980), pp. 74-75, 110; Tracy, *Financial Revolution*, pp.206-08.

continued to be heavily based on *rentes viagères*; and, surprisingly, a considerable proportion of Holland's debt also remained in *lijfrenten*.¹⁴⁹

Whatever form of *rentes-renten* the urban or territorial governments chose to sell, its servicing costs were always far lower than the interest charges incurred in selling bonds or engaged in related forms of borrowing. Because of the usury laws, the historian finds it most difficult to collect valid information on interest rates. But it is most instructive to compare seventeenth-century French interest rates on loans with the rates of returns on *rentes*. From 1631 to 1657 the annual average rate on loans and other forms of short-term borrowing was 25.88 percent.¹⁵⁰ But by 1634, the rate of return on *rentes* had fallen from 8.33 percent (1/12) to just 5.56 percent (1/18).¹⁵¹ While the contrast in the rates of return may again be partly, if only partly explained, by the historic difference between yields on short and long-term investments, these exceptionally high French interest rates reflect two other very adverse factors encumbering these loans, both of which required compensation to the lender : the frequent high risk of government default; and the deep social opprobrium that the lender bore by engaging so openly in usury, a concept that is further developed in Appendix B.

APPENDIX B:

The impact of the usury doctrine for the late-medieval, early-modern European economy and its significance for the origins of the modern 'financial revolution'

Many readers, and certainly many current-day historians, will still have difficulty in believing that the medieval usury doctrine did play any significant role in this historic shift in urban and then territorial public finances: from interest bearing loans, bonds, and debenture to *rentes* or (in England) annuities. As the renowned economist and economic historian Charles Kindleberger so acidly commented, in his *Financial History of Western Europe*, usury 'belongs less to economic history than to the history of ideas'.¹⁵²

Furthermore, in reflecting on the later-medieval culmination of the usury doctrine, many historians have expressed their surprise that this anti-usury campaign, culminating in the many and voluminous Scholastic treatises of the later thirteenth and fourteenth centuries, chiefly Italian, should have occurred at the very time that the Italian-dominated Commercial Revolution, and one that was so clearly dependent on commercial loans, was reaching its fruition.

The Canonical Extrinsic Titles: the supposed 'exceptions' to the later-medieval usury doctrine.

¹⁴⁹ See Dickson, *Financial Revolution*, pp. 129-56, 177-98, 204-45, 522-33 and n. 2 above; Marjolein 't Hart, Joost Jonker, and Jan Luiten van Zanden, *Financial History of the Netherlands*; and other sources cited in n. 3 above.

¹⁵⁰ See Richard Bonney, *The King's Debts : Finance and Politics in France, 1589-1661* (Oxford, 1981), Table VII, pp. 315-16; and Julian Dent, *Crisis in Finance: Crown, Financiers, and Society in Seventeenth-Century France* (Newton Abbot, 1973), pp. 44-64. By 1648, the total of the outstanding royal *rentes* was £19.920 million *tournois*.

¹⁵¹ Martin Wolfe, *The Fiscal System of Renaissance France*, Yale Studies in Economic History (New Haven, 1972), pp. 233-35; Bonney, *The King's Debts* pp. 19, 57-58.

¹⁵² Charles Kindleberger, *A Financial History of Western Europe* (London, 1984), p. 41.

Many historians have also contended that even the Scholastic writers had permitted certain ‘exceptions’ to the usury doctrine that seemingly provided a legal and licit mechanism for charging interest: i.e., an amount to be paid on redemption, over and above the principal value. In the view of most such critics, these were simply a face-saving device by which Scholastic theologians, though clearly unable to challenge, let alone renounce the usury, doctrine sought to reconcile that doctrine with the ever more clear necessity of accepting interest on investment loans, again just when the Commercial Revolution was reaching its peak.

But the Church could not and did not ever recognize any valid distinction between investment and consumption loans: for, quite simply, usury was usury. The Church could not permit any dilution of this vital doctrine by permitting exceptions for investment loans, even if merchants and other entrepreneurs were obviously only too willing to pay interest (usury) to acquire the capital so necessary for their enterprises. Indeed, much of the Scholastic treatment of usury is at least implicitly directed to the question of investment, and not consumption, loans.

The so-called ‘exceptions’ were in fact known as *extrinsic* titles, and those that were in fact generally accepted by the later-medieval Church were in no way ‘exceptions’. The most important were the following: *poena*, *damnum emergens*, and the much disputed *lucrum cessans*. The first two, at least, constituted fully licit extra payments, beyond the principal of the loan, that were logically justified on the basis of commutative justice: i.e., to restore equality of exchange between lender and borrower. Thus, the lender, in specifying the exact period or duration of the loan in a contract, was fully entitled to receive the repayment on the exact and stipulated redemption date. For the first of these *extrinsic titles*, any borrower who was late in his repayment was thus obligated to pay the lender a fixed penalty known as *poena*. By the second title, *damnum emergens*, the lender was also entitled to compensation if he had unexpectedly found himself afflicted by a financial crisis that had been due to some sudden fortuitous disaster – such as the destruction of property by flood, fire, or war – and thus had badly needed possession of his now unavailable capital to replace the damaged property. But if either of these forms of compensation had been calculated and specified as obligatory payments before the principal had been lent, then they were invalid and hence usurious, and thus mortally sinful, for both the lender and the borrower.

That was also the general Scholastic verdict in rejecting the third and thus highly disputed title: *lucrum cessans*. That literally means ‘cessant gains’: more specifically foregone potential gains that the lender could have earned from alternative but legitimate investments – in commerce, industry, agriculture, etc. – had he not given the borrower these funds in a loan. For any modern economist, any such payments exacted on a loan would be equal to the lender’s opportunity cost. The most forceful medieval argument in favour of this proposed ‘extrinsic title’ was Hostiensis (Henry of Susa), Cardinal Bishop of Ostia (1261-71), who, in doing so, used the recently developed medieval Latin term *interesse* – i.e., the origin of our term ‘interest’ – to mean any legitimate title beyond the principal.¹⁵³

¹⁵³ The most widely cited text for the concept of *lucrum cessans* is the following observation by Henry of Susa (Cardinal Hostiensis) sometime before 1271: ‘If some merchant, who is accustomed to pursue trade and the commerce of fairs, and there profit from, has, out of charity to me, who needs it badly, lent money with which he would have done business, I remain obliged to his *interesse*, provided that nothing is done in fraud of usury... and provided that the said merchant will not have been accustomed to give his money in such a way to usury.’ Noonan, *Scholastic Analysis of Usury*, p. 118, citing Hostiensis [in modern form: *In Decretalium libros commentaria*, ad X 5.19.16, n.4, vol. V, fols. 58vb-59ra. (repr. in 2 vols. Turin, 1965)]. According to Noonan, Azo, a member of the twelfth-century Bologna law school, was the first to compress the Roman law term ‘quod interest’ – what remains, lies between, or differs from (from *intersum*) – into the substantive *interesse*, to mean any licit payment beyond the principal; and this concept was further

The obvious problem in accepting as licit this ‘extrinsic title’ was that it could easily be interpreted as a pre-determined and fixed compensation, which claim therefore violated the stipulated conditions of unexpected losses in any valid consideration of commutative justice. At the same time, many Scholastic theologians, certainly from the later thirteenth century, found this claim to be far too strong a repudiation of the Aristotelian concept of the ‘sterility of money’. For these reasons, most medieval canon lawyers, theologians — above all, St. Thomas Aquinas – popes, and other Church authorities refused to accept *lucrum cessans* as licit, certainly not before the mid seventeenth century.¹⁵⁴

Was the late-medieval usury doctrine and anti-usury legislation easily evaded?

Instead, the key and most realistic argument for doubting the real economic significance of the usury doctrine was the seeming ease with which it could be circumvented, with little risk of detection and thus a very low risk of prosecution in either secular or ecclesiastical courts, which seemed to have focused their zeal on ‘notorious’, ‘infamous’, and ‘publicly outrageous’ usurers. One such device was to cloak the loan in a sales contract that specified future payment. While such a transaction could have indeed been deemed usurious if the goods were actually sold on credit, a sales contract, carefully written, could have more easily been deemed a licit *venditio sub dubio*, if the stipulated future price was considered to be a fair market or ‘just price’, and a lower current cash price as ‘a discount gratuitously given by the seller’.¹⁵⁵

Undoubtedly, the far simpler and much more common device to circumvent the ban was to disguise the actual amount of the loan simply by augmenting the stipulated principal to be repaid – over and above the amount actually lent – by the amount of the required interest payments.¹⁵⁶ But a defaulting debtor might claim that he/she had been the victim of extortion in agreeing to a fraudulent contract, thus leaving both parties open to prosecution for violating the usury ban.

Apart from the threat or prospects of unpleasant and costly prosecutions, the participants would also

developed by his student Roland of Cremona; also see Langholm, *Economics in the Medieval Schools*, p. 88.

¹⁵⁴ See Noonan, *Scholastic Analysis of Usury*, pp. 118-21, 31-32, 249-68; and Langholm, *Economics in the Medieval Schools*, p. 51, for Robert of Courçon’s rejection of *lucrum cessans* in 1208; and p. 246, for St. Thomas Aquinas’ rejection (ca. 1266-73). According to Langholm, this doctrine was first judged fully acceptable by the Church only in 1642. See Langholm, *Aristotelian Analysis of Usury*, pp. 25-26; 98-110; and Langholm, *Legacy of Scholasticism*, p. 75, citing the 1642 treatise *De iustitia et iure* by Juan de Lugo of Salamanca, as one finally accepted by canon lawyers. For a prominent sixteenth-century treatise favouring *lucrum cessans*, by Leonardus Lessius of Leuven (1554-1623), see De Roover, *Leonardus Lessius* pp. 3-15, 23-27.

¹⁵⁵ Based upon Gregory IX’s decretal *Naviganti* (X 5.19.19: c. 1234); but the purchase of property or goods (by a de facto lender) and subsequent resale to the original owner (de facto borrower) at the same (let alone lower) price was denounced by most theologians as usurious. See Noonan, *Scholastic Analysis of Usury*, pp. 90-93. Furthermore, Raymond de Roover, *San Bernardino of Siena and San'Antonino of Florence: The Two Great Thinkers of the Middle Ages* (Boston, 1967), pp. 29-30, notes that most fifteenth-century theologians remained suspicious of *emptio-venditio* contracts with prices higher for future goods than for current goods, as contracts *in fraudem usurarum*.

¹⁵⁶ See for example, Wyffels, ‘L’usure en Flandre’, 855; but also noting that such cloaking was virtually impossible with demand loans (*à maniae*), pp. 859-71.

have known that they were guilty of both usury and fraud. Indeed the crucial issue is not the risk of prosecution, as such, but more the risk of social opprobrium in being considered a usurer; and the worst risk of all, and certainly the greatest soul-destroying fear, was that of damnation in Hell – the eternal punishment of the all-consuming flames of Hell. As Noonan has remarked, even if the Church normally chose to inflict excommunication only rarely on ‘flagrant’ or ‘notorious’ usurers, nevertheless ‘all hidden usury was still a mortal sin, and the ultimate punishment of [eternal] damnation still awaited all hidden usurers’. Thus, in not just Noonan’s view, but in the view of so many medieval ecclesiastical historians, ‘the real force of the usury law lay in its hold on men’s souls, and there no evasion was possible’. Particularly in both the medieval and early modern eras, when few dared defy the Church, and far fewer were actual atheists, Noonan was right to ask this question: ‘who will say that there is no meaning to the salvation or damnation of a man?’¹⁵⁷ Indeed, in two passages in the Gospels, familiar to any medieval preacher, Christ is quoted as asking: ‘For what shall it profit a man, if he shall gain the whole world, and lose his own soul?’¹⁵⁸ As for non-Christians, one must recall the virtually universal abhorrence of usury, and its prohibition in both the Hebrew Pentateuch and the Islamic Koran (as *riba*).¹⁵⁹ The hatred of usury seems to be one of the most universal concepts in all of human history.

The moral burden of legal interest payments on the public debts of Italian city republics

One of the most important aspects of the late-medieval moral debates and the consequent burden of guilt for many merchants concerns the question of legal interest on Italian civic debts in the form of forced loans (*prestanze, prestiti*): the chief form of public debt to be found in later medieval Florence, Venice, Milan, Siena, and Genoa. In Florence, it was and is known as the *Monte* (literally the mountain of public debt). The Church soon came to accept the validity or licit nature of interest paid on this form of public debt (the Italian counterpart to the northern *rentes*), for three reasons. First, and most obvious, the ‘loans’ were involuntary and truly forced upon those citizens financially able to furnish such funds, on pain of confiscation, prison, or exile. For the Church, volition was a very important part of the usury doctrine, and thus to the guilt attached to its evasion. Second, the justification for these forced loans was the defence of the city state; and thus no true citizen could morally escape that honourable civic obligation to share in the costs of defending the commune. Third, the obvious alternative to forced loans was taxation: chiefly taxation of land and other forms of property (in effect, a wealth tax), which would have had at least the same financial burden for those compelled to subscribe to the *prestanze*.

These three reasons, which satisfied most theologians – though Franciscans perhaps more so than

¹⁵⁷ Noonan, *Scholastic Analysis*, pp. 35-36; cf. LeGoff, ‘The Usurer and Purgatory’, pp. 25-26. As the Dominican Domenico Pantaleoni (c.1362-1376) and the Franciscan St. Bernardino (c. 1430-44) both exclaimed, those who escaped convictions in ecclesiastical courts, for lack of concrete evidence, would nevertheless ‘be found guilty of usury in the confessional and before God (*quoad deum*)’ Cited in Julius Kirshner, ‘Storm over the *Monte Comune*: Genesis of the Moral Controversy over the Public Debt of Florence’, *Archivum Fratrum Praedicatorum*, 53 (1983), p. 256.

¹⁵⁸ St. Mark 8:36, in *The Holy Bible: King James Version* (1611); see also St. Matthew 16:26: ‘For what is a man profited, if he shall gain the whole world, and lose his own soul?’ Less forceful is the text in *The Holy Bible: Revised Standard Version* (1952). Mark 8:36: ‘For what does it profit a man, to gain the whole world and forfeit his life?’; Matthew 16:26 in the RSV is virtually identical to Mark 8:36.

¹⁵⁹ See Exodus 22:25, Leviticus 25:37; and especially Ezekiel 18 :8-13 (see n. 11 above); Soloveitchik, ‘Usury, Jewish Law’, pp. 339-40; Ward, ‘Usury, Islamic Law’, pp. 340-41.

Dominicans - also explains why these Italian Republics preferred forced loans to the sale of *rentes*. Another related reason is that in the sale of *rentes*, and other similar forms of public annuities, in northern France, the Low Countries, Germany, and Catalonia (later Castile, and the kingdom of Spain itself) anyone, citizen or not of that town or principality, was entitled to buy these annuities and receive the annual incomes attached to them, either directly from the state or in a secondary market. The Italian city states, however, insisted on restricting both the forced loans and the interest payments on them uniquely to the citizens of the Republic (with very few exceptions) – and thus not become reliant on foreign investors.

The debate that did arise – what Julius Kirshner called ‘the storm over the Monte’ – concerned the licit nature of interest payments paid not to those who originally furnished the loans but to those who had purchased these *prestanze* certificates, and thus the income attached to them, in the secondary market. That debate, much analysed in many other publications, need not concern us here.¹⁶⁰ But what is so very indicative of strong moral convictions about the sin of usury was the guilt that many Italian merchants incurred in accepting fully licit interest on the public debt when they themselves were the original subscribers to the *prestanze* or shares of the *Monte*. Many of them were clearly troubled by the contentions of some fourteenth-century theologians who contended that anyone who had willingly subscribed to loans, forced or not, ‘out of greed’, *hoping* for interest payments, should be treated as ‘plain usurers’.¹⁶¹

One major example to be cited is the early fifteenth-century will of Angelo Corbinelli, a very wealthy Florentine merchant, which Lawrin Armstrong has recently analysed in a publication on this very subject. In that Last Will and Testament (dated 1419), Corbinelli confessed that he was ‘uneasy in his conscience’ about the income earned from credits in the Florentine *monte*, accounting for thirty percent of his assets, even though these credits were solely ‘on account of *prestanze*’ that he and his parents had been forced to purchase. His will therefore stipulated that ‘if a declaration or decision is made by the Roman church or a general council’ [the Council of Constance] that should determine the illicit nature of such income, then his ‘heirs shall act in every respect in conformity with the decree, decision, determination or conclusion of the Roman church’.¹⁶²

¹⁶⁰ Both Dominicans and Franciscans condemned any participation in secondary markets for *crediti di monte* as ‘unnatural and nutritive of sin’, *in fraudem usurarum*, or else expressed severe reservations, counselling all citizens ‘to refrain from such investments’. See Julius Kirshner, ‘The Moral Theology of Public Finance: A Study and Edition of Nicholas de Anglia’s *Quaestio disputata* on the Public Debt of Venice’, *Archivum Fratrum Praedicatorum*, 40 (1970), 47-72; Julius Kirshner, ‘“Ubi est ille?”: Franco Sacchetti on the *monte comune* of Florence’, *Speculum: A Journal of Medieval Studies*, 59 (1984), 556-84; Kirshner, ‘Storm Over the *Monte*’, pp. 219-52; Armstrong, ‘Politics of Usury’, pp. 1-44; Armstrong, *Usury and Public Debt*, p. 80.

¹⁶¹ At the same time, these theologians conceded that civic governments had every right to exact forced loans and to pay an annual compensation in the form of *dampnum*, *interesse*, *provisione*, or *donum*. See In particular Armstrong, ‘The Politics of Usury’, pp. 1-44; Armstrong, *Usury and the Public Debt*, pp. 53-111.

¹⁶² Lawrin Armstrong, ‘Usury, Conscience and Public Debt : Angelo Corbinelli’s Testament of 1419’, in John Marino and Thomas Kuehn, eds., *A Renaissance of Conflicts: Visions and Revisions of Law and Society in Italy and Spain*, Centre for Reformation and Renaissance Studies, Essays and Studies vol. 3 (Toronto, 2003), pp. 173-240, acknowledging Prof. Kirshner’s discovery of the document in the Florentine state archives (ASF).

While the majority of the literature on this debate concerns late-medieval Florence, very similar, and similarly heated, debates may also be found in late-medieval Genoa and Venice; and even if the majority opinion was favourable to the payment of interest on original subscribers to forced loans, the nature of these debates left many very troubled.¹⁶³ Thus, for example, Julius Kirshner cites some ‘well-documented cases of investors who, because of scruples of conscience, were hesitant about purchasing shares in the public debt’, the Genoese public debt known as the *comperi*.¹⁶⁴

Some other late-medieval evidence for the impact of the usury doctrine on merchants

Some concrete evidence of the actual economic and social impact of the intensification of the anti-usury campaign in later-medieval Genoa has been provided by Francesco Galassi. In essence, he concluded, from regression analyses of substantial data in wills and other notarial documents, that merchants, financiers, and other businessmen evidently sought ‘fire insurance’ or ‘passports to Heaven’, by increased donations to the Church, some clearly in the form of restitution of illicit gains from usurious transactions.¹⁶⁵ Richard Goldthwaite, in analysing records of fifteenth-century Florentine banks, comments on a significant peculiarity: ‘the lack of a cash account, which ... resulted from what was perhaps the strongest external constraint imposed on the banker, the usury doctrine’. Contending that the risk of disclosure was not trivial, he provides examples of usury prosecutions brought against Florentine bankers, such as Lorenzo di Buonaccorso Pitti in 1493.¹⁶⁶ He also relates a significant anecdote concerning the famous merchant-banker Francesco Datini of Prato. When Datini had asked an associate for advice about opening a Florentine bank in 1398, he received the reply that he ‘risked the ruin of his reputation as a merchant by entering this business, since no banker could avoid usurious contracts’.¹⁶⁷

¹⁶³ For Venice, see Julius Kirshner, ‘The Moral Theology of Public Finance: A Study and Edition of Nicholas de Anglia’s *Quaestio disputata* on the Public Debt of Venice’, *Archivum Fratrum Praedicatorum*, 40 (1970), 47-72; Frederic C. Lane, ‘Investment and Usury’, *Explorations in Entrepreneurial History*, 2:2 (1964), 3-15, republished in *Venice and History: the Collected Papers of Frederic C. Lane* (Baltimore, 1966), pp. 56-68. For Genoa, see Julius Kirshner, ‘Conscience and Public Finance: A *Quaestio Disputata* of John of Legnano on the Public Debt of Genoa’, in Edward Mahoney, ed., *Philosophy and Humanism: Renaissance Essays in Honor of Paul Oskar Kristeller* (New York, 1976), pp. 439-40; Julius Kirshner, ‘The Moral Controversy Over Discounting Genoese Paghe, 1450 - 1550’, *Archivum Fratrum Praedicatorum*, 47 (1977), 109-67.

¹⁶⁴ Kirshner, ‘Conscience and Public Finance’, p. 450. See also Lane, ‘Investment and Usury’, p. 64: Usury’s ‘greatest importance was its moral influence’, while also noting that from 1254 the Venetian government had enacted civil legislation against usury.

¹⁶⁵ Francesco L. Galassi, ‘Buying a Passport to Heaven: Usury, Restitution, and the Merchants of Medieval Genoa’, *Religion*, 22 (October 1992), 313-26.

¹⁶⁶ Richard Goldthwaite, ‘Local Banking in Renaissance Florence’, *Journal of European Economic History*, 14:1 (Spring 1985), 13-16, 31-37, noting also that interest paid on time deposits was always a *discrezione*; and Reinhold Mueller, *Money and Banking in Medieval and Renaissance Venice*, vol. II: *The Venetian Money Market, Banks, Panics, and the Public Debt, 1200 - 1500* (Baltimore and London, 1997), p. 13. See also Raymond de Roover, *The Rise and Decline of the Medici Bank, 1397-1494* (Cambridge, Mass., 1963), pp. 77-141.

¹⁶⁷ Goldthwaite, ‘Local Banking’, pp. 13, 32.

That very statement is echoed in one of the most eloquent historical comments on the social costs of the usury doctrine: from Lawrence Stone, in commenting about sixteenth-century English society.¹⁶⁸

Money will never become freely or cheaply available in a society which nourishes a strong moral prejudice against the taking of any interest at all – as distinct from objection to the taking of extortionate interest. If usury on any terms, however reasonable, is thought to be a discreditable business, men will tend to shun it, and the few who practise it will demand a high return for being generally regarded as moral lepers.

The continuing hostility against usury in early-modern Protestant England and Holland

We have been led to believe that, after Elizabeth I's Parliament of 1571 had amended the usury laws to permit interest up to 10 percent -- so that henceforth usury came to mean any interest charges above that limit, the public hostility to 'normal' interest had waned. But such a view is far from the historic truth. Even her statute used hostile language in stating (in an almost contradictory fashion) in its preamble: that 'forasmuch as all Usurie being forbydden by the lawe of God'.¹⁶⁹ In fact, Elizabeth had merely restored her father's statute of 1545 (Henry VIII), which had then been repealed under the even more Protestant regime of Edward VI, in 1552, 'forasmuche as Usurie is by the worde of God utterly prohibited, as a vyce moste odyous and detestable'.¹⁷⁰

Furthermore, Calvin and Luther, the two major initiators and leaders of the Protestant Reformation, did not really have the more 'liberal' views commonly attributed to them on the usury issue. Only grudgingly did they accept interest payments, only on investment loans, and only to a maximum of five percent.¹⁷¹ Calvin himself clearly voiced his disapproval in stating that 'it is a very rare thing for a man to be honest and at the same time a usurer'.¹⁷² He had also contended that all habitual usurers should be expelled from the Church;¹⁷³ and indeed in Holland, the Calvinist synod of 1581 had decreed that no banker should ever be admitted to communion service.¹⁷⁴ Subsequently, in the seventeenth century, an English Puritan minister observed that

¹⁶⁸ Lawrence Stone, *The Crisis of the Aristocracy, 1558 - 1641* (Oxford, 1965), p. 529; also cited, for similar purposes, in Geoffrey Parker, 'The Emergence of Modern Finance in Europe, 1500 - 1750', in Carlo Cipolla, ed., *The Fontana Economic History of Europe, Vol. II: The Sixteenth and Seventeenth Centuries* (London, 1974), p. 539.

¹⁶⁹ 13 Elizabeth I, c. 8 (1571): in Great Britain, Record Commission (T. E. Tomlins, J. Raithby, et al.), eds., *Statutes of the Realm*, 6 vols. (London, 1810-22), vol. IV:1, p. 542.

¹⁷⁰ Statute 37 Henrici VIII, c. 9 (1545) and Statute 5-6 Edwardi VI c. 20, in *Statutes of the Realm*, vol. III, p. 996; vol. IV:1, p. 155.

¹⁷¹ See Roland Bainton, *The Reformation of the Sixteenth Century* (Boston, 1952), pp. 247-50, noting few differences between Luther and Calvin on this issue.

¹⁷² Georgia Harkness, *John Calvin: The Man and His Ethics* (New York, 1958), pp. 201-10.

¹⁷³ Noonan, *Scholastic Analysis of Usury*, pp. 365-67.

¹⁷⁴ Parker, 'Emergence of Modern Finance', p. 538.

‘Calvin deals with usurie as the apothecarie doth with poyson’;¹⁷⁵ and early in that century the renowned Sir Francis Bacon (1561-1626) had contended that ‘Usury is the certainest Meanes of Gaine, though one of the worst.’¹⁷⁶ According to Richard Tawney, so well known for his *Religion and the Rise of Capitalism*, the English Puritan clergy continued to preach against the ‘soul-corrupting taint of usury’ to the very eve of the English Civil War (1642-51).¹⁷⁷

It is similarly important, in the early-modern history of usury laws and the origins of England’s own ‘financial revolution’, to note that, although Elizabeth I had set the maximum interest rate at 10 percent, in 1571, subsequent Parliaments lowered that legal maximum rate, evidently in accordance with the long-term decline in real interest rates: to 8 per cent in 1623, to 6 per cent in 1660, and finally to 5 per cent in 1713, the rate that continued to prevail until Parliament finally abolished the usury laws in 1854.¹⁷⁸ Hence another point of significance about England’s own ‘financial revolution’, in establishing its own permanent funded national debt: that it was fully based on the sale of annuities, and not of loan instruments (bonds and debentures) and was thus also fully exempt from these usury laws, with such a low legal maximum.¹⁷⁹

¹⁷⁵ Cited in Tawney, Richard, *Religion and the Rise of Capitalism: A Historical Study* (London, 1926), p. 94; see also pp. 61-115.

¹⁷⁶ Daniel Coquillette, ‘The Mystery of the New Fashioned Goldsmiths: From Usury to the Bank of England (1622-1694)’, in Vito Piergiovanni, ed., *The Growth of the Bank as Institution and the Development of Money-Business Law*, Comparative Studies in Continental and Anglo-American Legal History vol. 12 (Berlin, 1993), pp. 94-99, citing also a similar statement from John Blaxton, *The English Usurer* (1634).

¹⁷⁷ Thomas Wilson, *A Discourse Upon Usury By Way of Dialogue and Orations* [1572], with an historical introduction by Richard H. Tawney (New York, 1925), pp. 106-34, esp. p. 117; Tawney, *Religion and the Rise of Capitalism*, pp. 91-115, 132-39, 178-89.

¹⁷⁸ R. D. Richards, *The Early History of Banking in England* (London, 1929; reissued 1958), pp. 19-20; and statute 17-18 Victoria c. 90 (1854).

¹⁷⁹ See nn. 2, 4, above, and Dickson, *The Financial Revolution in England*, table 7, p. 80. Note that in 1711 and 1712, the English Exchequer had sold redeemable debentures with an interest rate of 6.0%. But thereafter all annuities were issued at 5% or less; and what is known as Pelham’s Conversion consolidated the national debt, as Consols, in, first, 3.5% annuities (1752-57), and then 3.0% annuities (from 1757), which, in 1888, were converted into 2.75% annuities, and then into 2.5% annuities in 1903, the rate that prevails to this day for Consols sold on the London Stock Exchange. On 7 June 2007, the market price of 2.5% Consols was £51.28, to provide a yield of 4.875% (i.e., 2.5/51.28).

List of References:**PRIMARY SOURCES:****Archival Sources:**

Algemeen Rijksarchief België (Archives Générales du Royaume), Rekenkamer/Chambre de Comptes, reg. nos. 31,412 - 31,553: Aalst *Stadsrekeningen* (1395-1550)

Stadsarchief Gent, Stadsrekeningen 1349/50-1499/1500, Reeks 400: nos. 7 - 35.

Stadsarchief Brugge: Stadsrekeningen 1307/08 to 1499/1500

Published Documents and related Primary Sources:

Alighieri, Dante, *The Divine Comedy*, Carlyle-Okey-Wicksteed translation, ed. C.H. Grandagent, Modern Library Editions (New York, 1950).

Bible, The Holy: King James Version (1611).

Bible, The Holy: Revised Standard Version (1952): an authorized revision of the American Standard Version (1901).

De Witt, Johan, *Waerdije van lijfrenten naer proportie van losrenten* (The Hague, 1671).

De Pauw, Napoleon, and Julius Vuylsteke, eds., *De rekeningen der stad Gent: Tijdvak van Jacob Van Artevelde, 1336 - 1349*, 3 vols. (Ghent: Ad Hoste, 1874 -85); Vol. I: 1336 - 1339; Vol. II: 1340 - 1345; Vol. III: 1345 - 1349.

Diericx, Charles-Louis, ed., *Mémoires sur les lois et coutumes et les privilèges des Gantois, depuis l'institution de leur commune jusqu'à la revolution de l'an 1540*, 2 vols. (Ghent, 1817-18).

Great Britain, Record Commission (T. E. Tomlins, J. Raithby, et al.), eds., *Statutes of the Realm*, 6 vols. (London, 1810-22).

Innocent IV, *Apparatus seu commentaria super libris quinque decretalium*, ad X 5.19.6, *In Civitate* (Frankfurt, 1570; reprinted Frankfurt, 1968).

Jowett, Benjamin, trans. and ed., *The Politics of Aristotle: Translated Into English*, 2 vols., vol. I: *Introduction and Translation* (Oxford, 1885).

Nicholas, David, and Walter Prevenier, eds., *Gentse stads- en baljuwsrekeningen (1365 - 1376)*, Koninklijke Academie van België, Koninklijke Commissie voor Geschiedenis (Brussels, 1999).

Van Werveke, Alfons, ed., *Gentse stads- en baljuwsrekeningen (1351 - 1364)*, Koninklijke Academie voor Wetenschappen, Letteren en Schone Kunsten van België, Koninklijke Commissie voor Geschiedenis (Brussels, 1970), with an introduction by Hans Van Werveke.

Verlinden, Charles, and E. Scholliers, et al, eds., *Documents pour l'histoire des prix et des salaires en Flandre et en Brabant/Dokumenten voor de geschiedenis van prijzen en lonen in Vlaanderen en Brabant*, 4 vols. Rijksuniversiteit te Gent: Werken Uitgegeven door de Faculteit van de Letteren en Wijsbegeerte nos. 125 [vol. I], 136 [vol. II.i], 137 [Vol.II.ii](Bruges, 1959 - 65).

Vuylsteke, Jules, ed., *Gentsche stads- en baljuwsrekeningen, 1280 - 1336/Comptes de la ville de Gand, 1280 - 1336*, in the series *Oorkondenboek der stad Gent*, eerste afdeling: *Rekeningen [Cartulaire de la ville de Gand, première série: Comptes]* (Gent: F. Meyer-Van Loo, 1900).

Vuylsteke, Julius, ed., *De rekeningen der stad Gent: Tijdvak van Philips van Artevelde, 1376 - 1389* (Ghent: Ad. Hoste, 1893).

Wilson, Thomas, *A Discourse Upon Usury By Way of Dialogue and Orations* [1572], with an historical introduction by Richard H. Tawney (New York, 1925)

SECONDARY SOURCES:

Aerts, Erik, *Het bier van Lier: de economische ontwikkeling van de bierindustrie in een middelgrote Brabantse stad, einde 14de - begin 19de eeuw* (Brussels, 1996).

Allen, Robert, 'The Great Divergence in European Wages and Prices from the Middle Ages to the First World War', *Explorations in Economic History*, 38:4 (October 2001), 411- 47.

Armstrong, Lawrin, 'Usury, Conscience and Public Debt : Angelo Corbinelli's Testament of 1419', in John Marino and Thomas Kuehn, eds., *A Renaissance of Conflicts: Visions and Revisions of Law and Society in Italy and Spain*, Centre for Reformation and Renaissance Studies, Essays and Studies vol. 3 (Toronto, 2003), pp. 173-240.

Armstrong, Lawrin, 'Usury', in Joel Mokyr, et al, eds., *The Oxford Encyclopedia of Economic History*, 5 vols. (New York, 2003), vol. 5, pp. 183-85.

Armstrong, Lawrin, 'The Politics of Usury in Trecento Florence: The *Questio de Monte* of Francesco da Empoli', *Mediaeval Studies*, 61 (1999), 1-44.

Armstrong, Lawrin, *Usury and Public Debt in Early Renaissance Florence: Lorenzo Ridolfi on the Monte Comune*, Studies and Texts no. 144 (Toronto: Pontifical Institute of Mediaeval Studies, 2003).

Ashley, Maurice, *Financial and Commercial Policy Under the Cromwellian Protectorate* (Oxford: Oxford University Press, 1934; revised edn: London: Frank Cass and Co. Ltd, 1962).

Bainton, Roland, *The Reformation of the Sixteenth Century* (Boston, 1952).

Bardsley, Susan, 'Women's Work Reconsidered: Gender and Wage-Differentiation in Late Medieval England', *Past & Present*, no. 165 (November 1999), 3-29.

Bennett, Judith M , *Ale, Beer and Brewsters in England : Women's Work in a Changing World, 1300-1600* (Oxford University Press, 1996).

Bigwood, Georges, *Le régime juridique et économique du commerce de l'argent dans la Belgique du moyen âge*, Academie Royale de Belgique, Classe des Lettres, vol. XIV, 2 vols. (Brussels, 1921-22).

Blanchard, Ian, 'Population Change, Enclosure, and the Early Tudor Economy', *Economic History Review*, 2nd ser. 23:3 (December 1970), 427-45.

Blockmans, Willem, 'The Social and Economic Effects of Plague in the Low Countries, 1349-1500', *Belgisch tijdschrift voor philologie en geschiedenis/ Revue belge de philologie et d'histoire*, 58 (1980), 833-63.

Blondé, Bruno, *De sociale structuren en economische dynamiek van 's-Hertogenbosch 1500-1550* (Antwerp: Stichting Zuidelijk Historisch Contact, 1987).

Blondé, Bruno, ed., *Labour and labour markets between town and countryside, Middle Ages-19th century* (Turnhout: Brepols, 2001).

Bonney, Richard, *The King's Debts : Finance and Politics in France, 1589-1661* (Oxford, 1981).

Bonney, Richard, ed., *The Rise of the Fiscal State in Europe, c. 1200-1815* (Oxford, 1999).

Boone, Marc, 'Plus deuil que joie: Les ventes de rentes par la ville de Gand pendant la période bourguignonne: entre intérêts privés et finances publiques', *Credit Communal: bulletin trimestriel*, 176 (1991-92), 3-24.

Boone, Marc, *Geld en macht: de Gentse stadsfinanciën en de Bourgondische staatsvorming (1384-1453)* Verhandelingen der Maatschappij voor Geschiedenis en Oudheidkunde te Gent, vol. XV (Ghent, 1990).

Bougard, Pierre, 'L'apogée de la ville (1191-1340)', in Pierre Bougard, Yves-Marie Hilaire, and Alain Nolibos, *Histoire d'Arras*, Collection Histoire des villes du Nord - Pas de Calais (Arras, 1988), pp. 61-62.

Bougard, Pierre, and Carlos Wyffels, *Les finances de Calais au XIIIe siècle* (Brussels, 1966).

Brewer, John, *The Sinews of Powers: War, Money, and the English State, 1688-1783* (Cambridge, Mass: Harvard University Press, 1990).

Brundage, James, 'Usury', *Dictionary of the Middle Ages*, vol. 12 (New York, 1989), pp. 335-39.

Cain, Louis P., and Elcye J. Rotella, 'Death and Spending: Urban Mortality and Municipal Expenditure on Sanitation', *Annales de démographie historique*, 101:1 (2001), 139-54.

Campbell, Bruce M. S., 'The Population of Early Tudor England: A Re-evaluation of the 1522 Muster Returns and the 1524 and 1525 Lay Subsidies', *Journal of Historical Geography*, 7 (1981), 145-54.

Clarkson, L. A., *Proto-Industrialization: The First Phase of Industrialization?*, Studies in Economic and Social History Series (London, 1985).

Coleman, Donald C., 'Proto-Industrialization: A Concept Too Many', *Economic History Review*, 2nd ser., 36:3 (August 1983), 435-48.

Coquillette, Daniel, 'The Mystery of the New Fashioned Goldsmiths: From Usury to the Bank of England

(1622-1694)', in Vito Piergiovanni, ed., *The Growth of the Bank as Institution and the Development of Money-Business Law*, Comparative Studies in Continental and Anglo-American Legal History vol. 12 (Berlin, 1993), pp. 94-99.

Cornwall, Julian, 'English Population in the Early Sixteenth Century', *Economic History Review*, 2nd ser. 23:1 (April 1970), 32-44.

Davis, Ralph, *The Rise of the Atlantic Economies*, World Economic History series (London: Weidenfeld and Nicholson; Cornell: Cornell University Press, 1973).

De Moor, Tine, and Jan Luiten van Zanden, *Vrouwen en de geboorte van het kapitalisme in West-Europa* (Meppel, 2006)

De Roover, Raymond, *The Rise and Decline of the Medici Bank, 1397-1494* (Cambridge, Mass., 1963).

De Roover, Raymond, *Money, Banking, and Credit in Mediaeval Bruges: Italian Merchant Bankers, Lombards, and Money-Changers: A Study in the Origins of Banking* (Cambridge, Mass., 1948).

De Roover, Raymond, *San Bernardino of Siena and San'Antonino of Florence: The Two Great Thinkers of the Middle Ages* (Boston, 1967).

De Roover, Raymond, *Leonardus Lessius als economist: de economische leerstellingen en van de latere scholastiek in de Zuikdelijke Nederlanden*, Mededelingen van Koninklijke Academie voor Wetenschappen, Letteren en Schone Kunsten van België, Klasse der Letteren, XXXI (Brussels, 1969).

Dent, Julian, *Crisis in Finance: Crown, Financiers, and Society in Seventeenth-Century France* (Newton Abbot, 1973).

Derville, Alain, 'La finance Arrageoise: usure et banque', in Marie-Madelaine Castellani and Jean-Pierre Martin, eds., *Arras au moyen âge: histoire et littérature* (Arras, 1994), pp. 37-52.

Derycke, Laurence, 'The Public Annuity Market in Bruges at the End of the 15th Century', in Marc Boone, Karel Davids, and Paul Janssens, eds., *Urban Public Debts: Urban Government and the Market for Annuities in Western Europe (14th-18th Centuries)*, Studies in European Urban History vol. III (Brepols: Turnhout, 2003), pp. 165-81.

Desportes, Pierre, *Reims et les Rémois au XIIIe et XIVe siècles* (Paris, 1979).

Despy, Georges, 'La 'Grande Peste Noire de 1348': a-t-elle touché le roman pays de Brabant?' in Georges Despy, ed., *Centenaire du seminaire d'histoire médiévale de l'Université Libre de Bruxelles, 1876-1976* (Brussels, 1977), pp. 195-217.

Dickson, Peter G. M. , *The Financial Revolution in England : a Study in the Development of Public Credit, 1688-1756* (London, 1967).

Duby, Georges, *Rural Economy and Country Life in the Medieval West*, trans. Cynthia Postan (London, 1962).

Eisner, Manuel, 'Long-Term Historical Trends in Violent Crime', *Crime and Justice: A Review of Research*, 30 (2003), 83-242.

Epstein, Stephan R., *Freedom and Growth : the Rise of States and Markets in Europe, 1300-1750* (London: Routledge, 2000).

Espinas, Georges, *La vie urbaine de Douai au moyen âge* (Paris, 1913).

Espinas, Georges, *Les finances de la commune de Douai, des origines au XV^e siècle* (Paris, 1902).

Ferguson, Niall, 'Political Risk and the International Bond Market between the 1848 Revolution and the Outbreak of the First World War', *The Economic History Review*, 2nd ser., 59:1 (February 2006), 70-112.

Fritschy, Wantje, 'Three Centuries of Urban and Provincial Public Debts: Amsterdam and Holland', in Marc Boone, Karel Davids, and Paul Janssens, eds., *Urban Public Debts: Urban Government and the Market for Annuities in Western Europe (14th - 18th Centuries)*, Studies in European Urban History (1100-1800) vol. 3 (Turnout: Brepols, 2003), pp. 75-92.

Fritschy, Wantje, 'A "Financial Revolution" Revisited: Public Finance in Holland During the Dutch Revolt, 1568 - 1648', *The Economic History Review*, 2nd ser., 56:1 (February 2003), 57-89.

Fryde, Michael M., 'Public Credit, with Special Reference to North-Western Europe,' in Michael Postan et al., eds., *The Cambridge Economic History of Europe*, Vol. III: *Economic Organization in the Middle Ages* (Cambridge, 1963), pp. 430-541.

Galassi, Julius Kirshner, 'Buying a Passport to Heaven: Usury, Restitution, and the Merchants of Medieval Genoa', *Religion*, 22 (October 1992), 313-26.

Gelabert, Juan, 'Castile: 1504 - 1808', in Richard Bonney, ed., *The Rise of the Fiscal State in Europe, c. 1200-1815* (Oxford, 1999), pp. 207-212.

Gilchrist, John, *The Church and Economic Activity in the Middle Ages* (New York, 1969).

Godding, Philippe, 'Wilhelmi Bont Lovaniensis de redditibus perpetuis et ad vitam (1451)', *Tijdschrift voor rechtsgeschiedenis/Revue d'histoire du droit/The Legal History Review*, 58 (2000), 261-62 (in French).

Goldthwaite, Richard, 'Local Banking in Renaissance Florence,' *Journal of European Economic History*, 14:1 (Spring 1985), 5 -55.

Gourvish, T.R., and Richard G. Wilson, *The British Brewing Industry, 1830 - 1980* (Cambridge and New York, 1994).

Gurr, Ted Robert, 'Historical Trends in Violent Crime: a Critical Review of the Evidence', *Crime and Justice: An Annual Review of Research*, 3 (1891), 295-353.

Haines, Michael, 'The Urban Mortality Transition in the United States, 1800-1940', *Annales de démographie historique*, 101:1 (2001), 33-64.

Harding, Vanessa, 'The Crown, the City, and the Orphans: the City of London and its Finances, 1400 - 1700', in Marc Boone, Karel Davids, and Paul Janssens, eds., *Urban Public Debts: Urban Government and the Market for Annuities in Western Europe (14th - 18th Centuries)*, Studies in European Urban History (1100-1800) 3 (Turnout: Brepols, 2003), pp. 51-60.

Harkness, Georgia, *John Calvin: The Man and His Ethics* (New York, 1958).

Hart, Marjolein 't, ' "The Devil or the Dutch": Holland's Impact on the Financial Revolution in England, 1643-1694' *Parliaments, Estates and Representatives*, 11:1 (June 1991), 39-52.

Hart, Marjolein 't, Joost Jonker, and Jan Luiten van Zanden, eds., *A Financial History of the Netherlands* (Cambridge and New York: Cambridge University Press, 1997)

Herlihy, David, *Medieval and Renaissance Pistoia, 1200-1430* (New Haven, 1967).

Hoffman, Philip T., Gilles Postel-Vinay, and Jean-Laurent Rosenthal, *Priceless Markets: The Political Economy of Credit in Paris, 1660-1870* (Chicago, 2000).

Jeremy, P. , and P. Goldberg, *Women, Work, and Life Cycle in a Medieval Economy: Women in York and Yorkshire, c.1300 - 1520* (Oxford: Clarendon Press, 1992).

Kriedte, Peter, H. Medick, J. Schlumbohm, *Industrialization Before Industrialization* (Cambridge, 1977).

Kindleberger, Charles, *A Financial History of Western Europe* (London, 1984).

Kirshner, Julius, 'The Moral Theology of Public Finance: A Study and Edition of Nicholas de Anglia's *Quaestio disputata* on the Public Debt of Venice', *Archivum Fratrum Praedicatorum*, 40 (1970), 47-72.

Kirshner, Julius, 'The Moral Controversy Over Discounting Genoese Paghe, 1450 - 1550', *Archivum Fratrum Praedicatorum*, 47 (1977), 109-67.

Kirshner, Julius, 'Conscience and Public Finance: A *Quaestio Disputata* of John of Legnano on the Public Debt of Genoa', in Edward Mahoney, ed., *Philosophy and Humanism: Renaissance Essays in Honor of Paul Oskar Kristeller* (New York, 1976), pp. 439-40.

Kirshner, Julius, 'Storm over the *Monte Comune*: Genesis of the Moral Controversy over the Public Debt of Florence', *Archivum Fratrum Praedicatorum*, 53 (1983), 219-76.

Kuske, Bruno, *Das Schuldenwesen der deutschen Städte im Mittelalter*, Zeitschrift für die gesamte Staatswissenschaft, Ergänzungsheft XII (Tübingen, 1904).

Lane, Frederic C., 'Investment and Usury', *Explorations in Entrepreneurial History*, 2:2 (1964), 3-15, republished in *Venice and History: the Collected Papers of Frederic C. Lane* (Baltimore, 1966), pp. 56-68.

Langholm, Odd, *The Legacy of Scholasticism in Economic Thought: Antecedents of Choice and Power* (Cambridge and New York, 1998).

Langholm, Odd, *Economics in the Medieval Schools: Wealth, Exchange, Value, Money and Usury According*

to the Paris Theological Tradition, 1200 - 1350, Studien und Texte zur Geistesgeschichte des Mittelalters, vol. 19 (Leiden and New York, 1992).

Langholm, Odd, *The Aristotelian Analysis of Usury* (Bergen and Oslo; and New York, 1984).

Le Goff, Jacques, 'The Usurer and Purgatory', in Center for Medieval and Renaissance Studies, UCLA, ed., *The Dawn of Modern Banking* (New Haven, 1979).

Lopez, Robert S., and Irving Raymond, eds., *Medieval Trade in the Mediterranean World: Illustrative Documents Illustrative Documents Translated with Introductions and Notes*, Records of Civilization, Sources, and Studies no. 51 (New York and London, 1955).

Luiten, Jan Van Zanden, 'Wages and the Standard of Living in Europe, 1500 - 1800', *European Review of Economic History*, 3:2 (August 1999), 175-97.

McInery, Ralph, 'Aquinas, St. Thomas', in Joseph Strayer, et al., eds., *Dictionary of the Middle Ages*, vol. I (New York, 1982), pp. 353-66.

Mendels, Franklin F., 'Proto-Industrialization: The First Phase of the Industrialization Process', *The Journal of Economic History*, 32 (March 1972), 241-61.

Mills, F.C., *Introduction to Statistics* (New York, 1956).

Mueller, Reinhold, *Money and Banking in Medieval and Renaissance Venice*, vol. II: *The Venetian Money Market, Banks, Panics, and the Public Debt, 1200 - 1500* (Baltimore and London, 1997).

Munro, John, 'Urban Wage Structures in Late-Medieval England and the Low Countries: Work-Time and Seasonal Wages', in Ian Blanchard, ed., *Labour and Leisure in Historical Perspective, Thirteenth to Twentieth Centuries*, Vierteljahrschrift für Sozial- und Wirtschaftsgeschichte Beiheft series, no. 116 (Stuttgart: Franz Steiner Verlag, 1994), pp. 65-78.

Munro, John H., 'English "Backwardness" and Financial Innovations in Commerce with the Low Countries, 14th to 16th Centuries', in Peter Stabel, Bruno Blondé, and Anke Greve, eds., *International Trade in the Low Countries (14th - 16th Centuries): Merchants, Organisation, Infrastructure*, Studies in Urban, Social, Economic, and Political History of the Medieval and Early Modern Low Countries (Marc Boone, general editor), no. 10 (Leuven-Apeldoorn: Garant, 2000), pp. 105-67.

Munro, John H., 'Wage-Stickiness, Monetary Changes, and Real Incomes in Late-Medieval England and the Low Countries, 1300 - 1500: Did Money Matter?' *Research in Economic History*, 21 (2003), 185 - 297; and various studies in John H. Munro, *Bullion Flows and Monetary Policies in England and the Low Countries, 1350 - 1500*, Variorum Collected Studies series CS 355 (Aldershot, Hampshire; and Brookfield, Vermont: Ashgate Publishing Ltd., 1992).

Munro, John H., 'The Monetary Origins of the "Price Revolution.": South German Silver Mining, Merchant-Banking, and Venetian Commerce, 1470-1540', in Dennis Flynn, Arturo Giráldez, and Richard von Glahn, eds., *Global Connections and Monetary History, 1470 - 1800* (Aldershot and Brookfield, Vt: Ashgate Publishing, 2003), pp. 1-34.

Munro, John H., 'The Medieval Origins of the Financial Revolution: Usury, *Rentes*, and Negotiability', *The International History Review*, 25:3 (September 2003), 505-62.

Munro, John H., 'Wages in Southern England and the Southern Low Countries, 1346 -1500: A Comparative Study of Trends in and Levels of Real Incomes', in Simonetta Cavaciocchi, ed., *L'Edilizia prima della rivoluzione industriale, secc. XIII-XVIII*, Atti delle "Settimana di Studi" e altri convegni, no. 36, Istituto Internazionale di Storia Economica "Francesco Datini" (Florence: Le Monnier, 2005), pp. 1013-76.

Nicholas, David, 'Crime and Punishment in Fourteenth-Century Ghent', *Revue belge de philologie et d'histoire/Belgisch tijdschrift voor filologie en geschiedenis*, 48 (1970), 289-334, 1141-76; reprinted in David Nicholas, *Trade, Urbanisation and the Family*, Variorum Collected Studies Series CS531 (Ashgate Publishing: Aldershot, 1996), no. VI [same pagination].

Nicholas, David, *The Metamorphosis of a Medieval City: Ghent in the Age of the Arteveldes, 1302 - 1390* (Lincoln, 1987).

Nicholas, David, *Medieval Flanders* (London and New York, 1992).

Nicholas, David, *Town and Countryside: Social, Economic, and Political Tensions in Fourteenth-Century Flanders* (Bruges, 1971).

Nicholas, David, *The Van Arteveldes of Ghent: the Varieties of Vendetta and the Hero in History* (Ithaca, 1988).

Noonan, John T., *The Scholastic Analysis of Usury* (Cambridge, Mass., 1957).

North, Douglass, *Structure and Change in Economic History* (New York, 1981).

North, Douglass, and Robert Thomas, *The Rise of the Western World: A New Economic History* (Cambridge, 1973).

North, Douglass, 'Government and the Cost of Exchange in History', *Journal of Economic History*, 44 (1984), 255-64.

North, Douglass, 'Transaction Costs in History', *Journal of European Economic History*, 14 (1985), 557-76.

North, Douglass, and Barry Weingast, 'Constitutions and Commitment: The Evolution of Institutions Governing Public Choice in Seventeenth-Century Britain', *Journal of Economic History*, 49: 4 (Dec. 1989), 803-32.

Nowe, Henri, *La bataille des éperons d'or* (Brussels, 1945).

O'Brien, Patrick, 'The Political Economy of British Taxation', *Economic History Review*, 2nd ser., 41:1 (Feb. 1988), 1-32

O'Brien, Patrick, 'Fiscal Exceptionalism: Great Britain and its European Rivals—From Civil War to Triumph at Trafalgar and Waterloo', in Patrick O'Brien and Donald Winch, eds., *The Political Economy of British Historical Experience, 1688-1914* (Oxford and New York: Oxford University Press, 2002), pp. 245-65.

O'Brien, Patrick, and P. Hunt, 'The Rise of a Fiscal State in England, 1485-1815', *Historical Research*, 66 (1993), 129-76.

O'Brien, Patrick, and Paul Hunt, 'The Emergence and Consolidation of Excises in the English Fiscal System before the Glorious Revolution', *British Tax Review*, 1 (1997), 35-58

Ogilvie, Sheilagh C., and Markus Cerman, eds., *European Proto-Industrialization* (Cambridge and New York: Cambridge University Press, 1996).

Ogilvie, Sheilagh, 'Guilds, Efficiency, and Social Capital: Evidence from German Proto-Industry', *The Economic History Review*, 2nd ser., 57:2 (May 2004), 286-333.

Ormrod, W. M., 'The Crown and the English Economy, 1290 - 1348,' in Bruce M.S. Campbell, ed., *Before the Black Death: Studies in 'Crisis' of the Early Fourteenth Century* (Manchester and New York, 1991), pp. 149 - 83.

Parker, Geoffrey, 'The Emergence of Modern Finance in Europe, 1500-1750', in Carlo Cipolla, ed., *The Fontana Economic History of Europe*, Vol. II: *Sixteenth and Seventeenth Centuries* (New York, 1974), pp. 527-94.

Pennington, Kenneth, 'Gratian', in Joseph Strayer, et al., eds., *Dictionary of the Middle Ages*, 13 vols., vol. V (New York, 1985), pp. 656-58.

Phelps Brown, E. Henry, and Sheila V. Hopkins, 'Seven Centuries of the Prices of Consumables, Compared with Builders' Wage Rates', *Economica*, 23:92 (November 1956), 296-314: reprinted in E.M. Carus-Wilson, ed., *Essays in Economic History*, 3 vols. (London, 1954-62), vol. II, 168-78, 179-96, and in E.H. Phelps Brown and Sheila V. Hopkins, *A Perspective of Wages and Prices* (London, 1981), pp. 13-39 (with indexes not in the original).

Pirenne, Henri, 'Les dénombrements de la population d'Ypres au XVe siècle (1412-1506)', *Vierteljahrschrift für Sozial und Wirtschaftsgeschichte* (1903), republished in Henri Pirenne, *Histoire économique de l'occident médiéval*, ed. Etienne Coornaert (Bruges: Declée de Brouwer, 1951), pp. 458-488.

Postan, Michael, *The Medieval Economy and Society: An Economic History of Britain, 1100-1500* (Cambridge, 1972).

Postan, Michael, 'Some Economic Evidence of Declining Population in the Later Middle Ages', *Economic History Review*, 2nd ser. 2 (1950), 130-67, reprinted in his *Essays on Medieval Agriculture and General Problems of the Medieval Economy* (Cambridge, 1973), pp. 186 - 213 (with the revised title of 'Some Agrarian Evidence of Declining Population in the Later Middle Ages').

Prevenier, Walter, 'La démographie des villes du comté de Flandre aux XIVe et XVe siècles: État de question: essai d'interprétation', *Revue du Nord*, 65: no. 257 (Apr - June 1983), 255-75.

Pryor, John, ed., *Business Contracts of Medieval Provence: Selected Notulae from the Cartulary of Giraud Amalric of Marseilles, 1248*, PIMS, Studies and Texts 54 (Toronto, 1981).

Rappaport, Steve, *Worlds Within Worlds : The Structures of Life in Sixteenth-Century London* (Cambridge-

New York, 1989).

Richards, R. D., *The Early History of Banking in England* (London, 1929; reissued 1958).

Riley, James, *International Government Finance and the Amsterdam Capital Market, 1740-1815* (Cambridge, 1980).

Rogers, James E. Thorold, *Six Centuries of Work and Wages: the History of English Labour* (London, 1903).

Roustit, Yvan, 'La consolidation de la dette publique à Barcelone au milieu du XIVe siècle', *Estudios de historia moderna*, 4:2 (1954), 15-156.

Ryckaert, Marc, and A. Vandewalle, *Brugge: de geschiedenis van een Europese stad* (Tielt, 1999).

Ryckaert, Marc, *Bruges, L'histoire d'une ville européenne* (Lannoo, 1999).

Sargent, Thomas, and François Velde, *The Big Problem of Small Change* (Princeton and Oxford: Princeton University Press, 2002), pp. 69-99.

Schnapper, Bernard, *Les rentes au XVI siècle: histoire d'un instrument de crédit*, S.E.V.P.E.N, École Pratique des Hautes Études: Centre de recherches historiques: Affaires et gens d'affaires, vol. 12 (Paris, 1957)

Schnapper, Bernard, 'Les rentes chez les théologiens et les canonistes du XIIIe au XVIe siècles', in Georges Vedel (Centre National de la Recherche Scientifique), ed., *Études d'histoire du droit canonique dédiées à Gabriel le Bras*, 2 vols. (Paris, 1965), vol. I, pp. 965-95.

Schofield, Roger, *Taxation Under the Early Tudors, 1485 - 1547* (Oxford: Blackwell Publishing, 2004).

Schremmer, Eckart, 'Proto-Industrialisation: A Step Towards Industrialisation?' *Journal of European Economic History*, 10 (1981), 653-70.

Sloan, Harold, and Arnold Zurcher, *A Dictionary of Economics*, 3rd edn, (New York: Barnes and Noble, 1953).

Soens, Tim, and Erik Thoen, 'The Impact of Central Government Taxation on the Flemish Countryside (end 13th - 18th Centuries): Some Reflections', in Simonetta Cavaciocchi, ed., *La fiscalità nell'economia europea, Seccoli XIII - XVIII/Fiscal Systems in the European Economy from the 13th to the 18th Centuries*, XXXIS Settimana du Studi (Florence: Le Monnier, 2008).

Soltow, Lee, *Income and wealth inequality in the Netherlands, 16th-20th century* (Amsterdam: Het Spinhuis, 1998)

Stasavage, David, 'Partisan Politics and Public Debt: The Importance of the "Whig Supremacy" for Britain's Financial Revolution', *European Review of Economic History*, 11:1 (April 2007), 123-53.

Sussman, Nathan, and Yishay Yafeh, 'Institutional Reforms, Financial Development and Sovereign Debt: Britain, 1690 - 1790', *Journal of Economic History*, 66:4 (Dec. 2006), 882-905.

Soloveitchik, Haym, 'Usury, Jewish Law', in Joseph Strayer, et al., eds. *Dictionary of the Middle Ages*, vol.

XII (New York, 1989), pp. 339-40.

Sommerlad, Theo, *Die Wirtschaftliche Thätigkeit der deutschen Kirche*, 2 vols. (Leipzig, 1905).

Stabel, Peter, *De kleine stad in Vlaanderen: Bevolkingsdynamiek en economische functies van de kleine en secundaire stedelijke centra in het Gentse kwartier (14de - 16de eeuw)*, Verhandelingen van de Koninklijke Academie voor Wetenschappen, Letteren en Schone Kunsten van België, Klasse der Letteren, Jaargang 57, no. 156 (Brussels: Paleis der Academiën, 1995)

Stabel, Peter, *Dwarfs among Giants: The Flemish Urban Network in the Late Middle Ages*, Studies in Urban, Social, Economic and Political History of the Medieval and Modern Low Countries, no. 8 (Leuven-Apeldoorn: Garant, 1997).

Steffen, Gustav F., *Studien zur Geschichte der englischen Lohnarbeiter*, 3 vols. (Stuttgart, 1901-05).

Stone, Lawrence, *The Crisis of the Aristocracy, 1558 - 1641* (Oxford, 1965).

Tawney, Richard, *Religion and the Rise of Capitalism: A Historical Study* (London, 1926).

Thoen, Erik, *Landbouweconomie en bevolking in Vlaanderen gedurende de late Middeleeuwen en het begin van de Moderne Tijden. Testregio: de kasselrijen van Oudenaarde en Aalst (einde 13de – eerste helft 16de eeuw)*, Belgisch Centrum voor Landelijke Geschiedenis no. 90, 2 vols. (Ghent, 1988).

Tortella, Gabriel, and Francisco Comín, 'Fiscal and Monetary Institutions in Spain (1600-1900)', in Michael Bordo and Roberto Cortés-Conde, eds., *Transferring Wealth and Power from the Old to the New World: Monetary and Financial Institutions in the 17th Through the 19th Centuries* (Cambridge: Cambridge University Press, 2002), pp. 140-48.

Tracy, James D., *A Financial Revolution in the Habsburg Netherlands: Renten and Renteniers in the County of Holland, 1515 - 1565* (Berkeley-London: Berkeley University Press, 1985)

Tracy, James D., 'Taxation and State Debt', in Thomas Brady, Heiko Oberman, and James Tracy, eds., *Handbook of European History, 1500 - 1600: Late Middle Ages, Renaissance and Reformation*, 2 vols. (Leiden, 1994-95), vol. I: *Structures and Assertions*, pp. 563-88.

Tracy, James D., *Emperor Charles V, Impresario of War: Campaign Strategy, International Finance, and Domestic Politics* (Cambridge and New York: Cambridge University Press, 2002).

Tracy, James D., 'On the Dual Origins of Long-Term Urban Debt in Medieval Europe', in Karel Davids, Marc Boone, and V. Janssens, eds., *Urban Public Debts: Urban Government and the Market for Annuities in Western Europe, 14th-18th Centuries*, Studies in European Urban History (1100-1800) vol. 3 (Turnout: Brepols, 2003), pp. 13-26.

Unger, Richard, *A History of Brewing in Holland, 900 - 1900: Economy, Technology, and the State* (Leiden, 2001).

Usher, Abbott Payson, *The Early History of Deposit Banking in Mediterranean Europe*, vol. I: *The Structure and Functions of the Early Credit System: Banking in Catalonia: 1240-1723*, Harvard Economic Studies, vol.

75 (Cambridge, Mass., 1943; reissued New York, 1967).

Van der Burg, Philip T. , and Marjolein 't Hart, 'Renteniers and the Recovery of Amsterdam's Credit (1578-1605)', in Marc Boone, Karel Davids, and Paul Janssens, eds., *Urban Public Debts: Urban Government and the Market for Annuities in Western Europe (14th - 18th Centuries)*, Studies in European Urban History (1100-1800) vol. 3 (Turnout: Brepols, 2003), pp. 197-216.

Van der Heijden, Manon, 'Renteniers and the Public Debt of Dordrecht (1555-1572)', in Marc Boone, Karel Davids, and Paul Janssens, eds., *Urban Public Debts: Urban Government and the Market for Annuities in Western Europe (14th - 18th Centuries)*, Studies in European Urban History (1100-1800) 3 (Turnout: Brepols, 2003), pp. 183-96.

Van der Wee, Herman, *The Growth of the Antwerp Market and the European Economy (fourteenth-sixteenth centuries)*, 3 vols. (The Hague: Martinus Nijhoff, 1963).

Van der Wee, Herman, 'Voeding en Dieet in het Ancien Régime', *Spiegel Historiae*, 1 (1966), 94-101, republished in translation: as 'Nutrition and Diet in the Ancien Régime', in Herman Van der Wee, *The Low Countries in the Early Modern World*, trans. by Lizabeth Fackelman (Cambridge and New York, 1993), pp. 279-87.

Van der Wee, Herman, 'Prijzen en lonen als ontwikkelingsvariabelen: Een vergelijkend onderzoek tussen Engeland en de Zuidelijke Nederlanden, 1400-1700', in *Album aangeboden aan Charles Verlinden ter gelegenheid van zijn dertig jaar professoraat* (Wetteren: Universum, 1975), pp. 413-47; reissued in English translation (without the tables) as 'Prices and Wages as Development Variables: A Comparison Between England and the Southern Netherlands, 1400-1700', *Acta Historiae Neerlandicae*, 10 (1978), 58-78; republished in Herman Van der Wee, *The Low Countries in the Early Modern World*, trans. by Lizabeth Fackelman (Cambridge and New York: Cambridge University Press and Variorum, 1993), pp. 223-41.

Van der Wee, Herman, 'Monetary, Credit, and Banking Systems', in E.E. Rich and Charles Wilson, eds., *The Cambridge Economic History of Europe*, Vol. V: *The Economic Organization of Early Modern Europe* (Cambridge, 1975), pp. 290-392.

Van Haaften, M., 'Lijfrente', in the *Grote Winkler Prins*, vol. XII (Amsterdam-Brussels, 1971), pp. 351-52.

Van Haaften, M., 'Lijfrente', *Winkler Prins Encyclopaedie*, 18 vols. (Amsterdam, 1947-54), vol. XIII, p. 165.

Van Uytven, Raymond, *Stadsfinanciën en stadseconomie te Leuven: van de XII^e tot het einde der XVI^e eeuw* (Brussels, 1961).

Van Uytven, Raymond, 'Beer Consumption and the Socio-Economic Situation in the Franc of Bruges in the Sixteenth Century': English translation of 'Het bierverbruik en de sociaal-economische toestand in het Brugse Vrije in de zestiende eeuw', *Handelingen van het Genootschap voor Geschiedenis, gesticht onder de benaming 'Société d'emulation' te Brugge*, 131 (1994), 5-34; republished in Raymond Van Uytven, *Production and Consumption in the Low Countries, 13th - 16th Centuries*, Variorum Collected Studies Series CS 714 (Aldershot: Ashgate-Variorum, 2001), XII, 1-24.

Van Werveke, Hans, *De Gentsche stadsfinanciën in de middeleeuwen*, Koninklijke Academie voor Wetenschappen, Letteren, en Schone Kunsten van België, Klasse der Letteren, Jaargang XXXIV (Brussels,

1934).

Van Werveke, Hans, *Jacques Van Artevelde* (Brussels, 1943).

Van Werveke, Hans, *De Zwarte Dood in de zuidelijke Nederlanden, 1349-1351*, in *Mededelingen van de koninklijke Vlaamse Academie voor wetenschappen, letteren, en schone kunsten van België, Klasse der Letteren*, Vol. XII. no. 3 (Brussels, 1950).

Velde, François, and David Weir, 'The Financial Market and Government Debt Policy in France, 1746 - 1793', *Journal of Economic History*, 52:1 (1992), 1-39.

Veraja, Fabiano, *Le origini della controversia teologica sul contratto di censo nel 13 secolo*, Storia ed economia 7 (Rome, 1960).

Ward, Seth, 'Usury, Islamic Law', in Joseph Strayer, et al., eds. *Dictionary of the Middle Ages*, vol. XII (New York, 1989), pp. 340-41.

Weir, David, 'Tontines, Public Finance, and Revolution in France and England, 1688 - 1789', *Journal of Economic History*, 49:1 (March 1989), 95-124

Wilson, Charles, *England's Apprenticeship, 1603 - 1763*, The Social and Economic History of England (ed. Asa Briggs) (London: Longmans, Green and Co. Ltd, 1965).

Wolfe, Martin, *The Fiscal System of Renaissance France*, Yale Studies in Economic History (New Haven, 1972).

Wood-Legh, K.L. , *A Small Household of the Fifteenth Century* (Manchester, 1956).

Wyffels, Carlos, and Jan de Smet, eds., *De rekeningen van de stad Brugge, 1280 - 1319*, 2 vols. (Ghent, 1965 - 1971), Vol. I: 1280 - 1302.

Wyffels, Carlos, 'L'usure en Flandre au XIII^e siècle', *Revue belge de philologie et d'histoire/Belgisch tijdschrift voor filologie en geschiedenis*, 69:4 (1991), 853-71.

**Table 1. Ghent's Civic Revenues and Expenditures:
Loans, Erfelijck Renten and Lijfrenten, in quinquennial means
1321-25 to 1386-90**

**in pounds groot Flemish: converted from ponden payment at £40 payement = £1 groot
= £ 12 parisis**

Part A: CIVIC INCOMES

Quinquen- nium ending 15 Aug	Loan Revenues in £ groot Flemish	Erfelijck Renten Sales in £ groot Flemish	Lijfrenten Sales in £ groot Flemish	Total Debt Revenues in £ groot Flemish	Total Civic Revenues in £ groot Flem	Debt Revenues as Percent of Total Revenues	Renten as Percent of Total Revenues
1321-25	0.000	0.000	0.000	0.000	1,323.250	0.00%	0.00%
1326-30	122.923	67.528	0.000	190.451	1,662.320	11.46%	4.06%
1331-35	0.000	70.475	0.000	70.475	2,065.094	3.41%	3.41%
1336-40	1,053.501	55.373	0.000	1,108.874	2,529.937	43.83%	2.19%
1341-45	320.689	28.226	0.000	348.915	2,457.024	14.20%	1.15%
1346-50	457.958	55.566	591.503	1,105.027	4,009.796	27.56%	16.14%
1351-55	0.000	75.893	0.000	75.893	1,551.240	4.89%	4.89%
1356-60	7.083	67.252	33.459	107.794	1,377.152	7.83%	7.31%
1361-65	7.079	89.435	0.000	96.514	3,025.826	3.19%	2.96%
1366-70	14.030	67.825	0.000	81.855	2,450.375	3.34%	2.77%
1371-75	12.692	73.128	0.000	85.820	2,094.843	4.10%	3.49%
1376-80	7.375	69.344	0.000	76.719	2,594.754	2.96%	2.67%
1381-85	109.794	13.500	0.000	123.294	2,249.442	5.48%	0.60%
1386-90	58.650	120.850	0.000	179.500	2,119.692	8.47%	5.70%

Table 1 b.

**Ghent's Civic Revenues and Expenditures:
Loans, Erfelijck Renten and Lijfrenten:**

**in quinquennial means, 1321-25 to 1386-90
in pounds groot Flemish: converted from ponden payment at £40 payment
= £ groot = £12 parisis**

Part B:		CIVIC EXPENDITURES						
Quinquen- nium: year end: 15 Aug	Total Civic Revenues in £ groot Flemish	Loan Payments £ groot Flemish	Erfelijck Renten Payments in £ groot Flemish	Lijfrenten Payments in £ groot Flemish	Total debt Payments in £ groot Flemish	Total Civic Expenditures in £ groot Flemish	Deficit or Surplus in £ groot Flemish	Debt Payments as Per Cent of Total Expenditures
1321-25	1,323.250	495.745	0.000	0.000	495.745	1,332.629	-9.380	37.20%
1326-30	1,662.320	312.183	3.950	0.000	316.133	1,591.546	70.775	19.86%
1331-35	2,065.094	222.120	163.343	0.000	385.464	2,048.972	16.122	18.81%
1336-40	2,529.937	221.763	3.031	0.000	224.795	2,647.171	-117.235	8.49%
1341-45	2,457.024	262.717	0.000	0.000	262.717	2,277.962	179.062	11.53%
1346-50	4,009.796	437.484	106.900	0.000	544.384	4,079.552	-69.756	13.34%
1351-55	1,551.240	0.000	0.000	30.950	30.950	1,399.930	151.310	2.21%
1356-60	1,377.152	72.164	0.000	6.000	174.517	1,354.878	22.274	12.88%
1361-65	3,025.826	210.735	0.000	1,087.500	1,298.235	3,077.658	-51.832	42.18%
1366-70	2,450.375	1,095.574	0.000	0.000	1,095.574	2,472.405	-22.030	44.31%
1371-75	2,094.843	500.685	0.000	0.000	500.685	2,088.092	6.751	23.98%
1376-80	2,594.754	136.770	0.444	0.000	137.214	2,891.748	-296.994	4.75%
1381-85	2,249.442	132.500	0.000	0.000	132.500	3,022.917	-773.475	4.38%
1386-90	2,119.692	96.638	0.000	0.000	96.638	2,201.708	-82.017	4.39%

Sources:

Stadsarchief Gent, Stadsrekeningen, series 400: nos. 1 - 10.

Jules Vuylsteke, ed., *Gentsche stads- en baljuwsrekeningen, 1280 - 1336/ Comptes de la ville de Gand, 1280 - 1336*, in the series *Oorkondenboek der stad Gent*, eerste afdeeling: *Rekeningen* [*Cartulaire de la ville de Gand*, première série: *Comptes*] (Gent: F. Meyer-Van Loo, 1900).

Napoleon De Pauw, and Julius Vuylsteke, eds., *De rekeningen der stad Gent: Tijdvak van Jacob Van Artevelde, 1336 - 1349*, 3 vols. (Ghent: Ad Hoste, 1874 -85); Vol. I: 1336 - 1339; Vol. II: 1340 - 1345; Vol. III: 1345 - 1349.

Alfons Van Werveke, ed., *Gentse stads- en baljuwsrekeningen (1351 - 1364)*, Koninklijke Academie voor Wetenschappen, Letteren en Schone Kunsten van België, Koninklijke Commissie voor Geschiedenis (Brussels, 1970), with an introduction by Hans Van Werveke.

David Nicholas, and Walter Prevenier, eds., *Gentse stads- en baljuwsrekeningen (1365 - 1376)*, Koninklijke Academie van België, Koninklijke Commissie voor Geschiedenis (Brussels, 1999).

Julius Vuylsteke, ed., *De rekeningen der stad Gent: Tijdvak van Philips van Artevelde, 1376 - 1389* (Ghent: Ad. Hoste, 1893)

Table 2.

**Aalst's Civic Revenues and Expenditures: the Roles of Erfelijk- and Lijfrenten
in quinquennial means: 1396-1400 to 1546-50**

**Values in livres parisis: £12 ponden parisis (parijs) = £1 pond groot Flemish
= 240d groot Flemish**

A. INCOME							
Quin- quennium	Sales of Erfelijk renten in £ parisis	Sales of Lijfrenten in £ parisis	Total Sales of Renten in £ parisis	Percentage of Sales in Erfelijk Renten	Percentage of Sales in Lijf- renten	Total Civic Revenues in £ parisis	Renten sales as percent of Total Revenues
1396-1400	57.271	1,029.550	1,086.821	5.27%	94.73%	6,451.544	16.85%
1401-05	59.858	1,753.688	1,813.546	3.30%	96.70%	7,989.056	22.70%
1406-10	62.163	2,135.467	2,197.629	2.83%	97.17%	9,454.124	23.25%
1411-15	62.263	1,695.425	1,757.688	3.54%	96.46%	9,896.420	17.76%
1416-20	62.263	1,020.300	1,082.563	5.75%	94.25%	8,374.606	12.93%
1421-25	62.663	1,369.125	1,431.788	4.38%	95.62%	9,868.297	14.51%
1426-30	63.163	1,738.000	1,801.163	3.51%	96.49%	9,439.929	19.08%
1431-35	65.224	2,369.664	2,434.888	2.68%	97.32%	9,524.328	25.56%
1436-40	63.606	2,082.500	2,146.106	2.96%	97.04%	8,857.402	24.23%
1441-45	62.750	507.000	569.750	11.01%	88.99%	9,544.042	5.97%
1446-50	61.742	0.000	61.742	100.00%	0.00%	8,852.196	0.70%
1451-55	60.807	681.930	742.737	8.19%	91.81%	7,906.593	9.39%
1456-60	60.812	151.200	212.012	28.68%	71.32%	8,555.021	2.48%
1461-65	60.192	578.220	638.412	9.43%	90.57%	10,263.073	6.22%
1466-70	61.172	154.800	215.972	28.32%	71.68%	10,079.193	2.14%
1471-75	65.092	1,825.174	1,890.266	3.44%	96.56%	12,641.842	14.95%
1476-80	39.055	2,501.100	2,540.155	1.54%	98.46%	12,983.309	19.56%
1481-85	0.000	2,722.000	2,722.000	0.00%	100.00%	12,335.733	22.07%
1486-90	65.442	3,504.000	3,569.442	1.83%	98.17%	15,359.642	23.24%
1491-95*							
1496-1500	41.679	234.000	275.679	15.12%	84.88%	12,071.073	2.28%

Quinquennium	Sales of Erfelijk renten in £ parisis	Sales of Lijfrenten in £ parisis	Total Sales of Renten in £ parisis	Percentage of Sales in Erfelijk Renten	Percentage of Sales in Lijfrenten	Total Civic Revenues in £ parisis	Renten sales as percent of Total Revenues
1501-05	41.679	230.400	272.079	15.32%	84.68%	11,552.635	2.36%
1506-10	41.679	0.000	41.679	100.00%	0.00%	10,842.610	0.38%
1511-15	41.679	0.000	41.679	100.00%	0.00%	11,268.611	0.37%
1516-20	41.679	480.000	521.679	7.99%	92.01%	11,107.796	4.70%
1521-25	41.679	2,172.600	2,214.279	1.88%	98.12%	11,927.638	18.56%
1526-30	41.429	920.400	961.829	4.31%	95.69%	13,466.349	7.14%
1531-35	41.429	849.600	891.029	4.65%	95.35%	12,361.563	7.21%
1536-40	41.429	570.400	611.829	6.77%	93.23%	13,019.779	4.70%
1541-45	41.429	2,274.200	2,315.629	1.79%	98.21%	16,068.092	14.41%
1546-50	41.429	2,104.800	2,146.229	1.93%	98.07%	18,460.720	11.63%
Totals	1,552.755	37,655.543	39,208.297	3.96%	96.04%	330523.214375	11.86%

* Aalst town accounts registers are missing for these years.

Source: Algemeen Rijksarchief België (Archives Générales du Royaume), Rekenkamer/Chambre de Comptes, reg. nos. 31,412 - 31,532.

Table 3. Aalst's Civic Revenues and Expenditures: the Roles of Erfelijk- and Lijfrenten and Excise-Tax Farms in quinquennial means: 1396-1400 to 1546-50
Values in livres parisis: £12 ponden parisis (parijs) = £1 pond groot Flemish = 240d groot Flemish

Part B:		EXPENDITURES					
Years in: Quin- quenniums	Erfelijk Renten Payments in £ parisis	Lijfrenten Payments in £ parisis	Total Renten Payments in £ parisis	Erfelijk Renten payments as percent of total Renten payments	Lijfrenten payments as percent of total Renten payments	Total Civic Expenditures in £ parisis	Renten Payments as % of Total Civic Expenditures
1396-1400	21.450	3,437.600	3,459.050	0.62%	99.38%	6,435.398	53.75%
1401-05	7.443	5,107.475	5,114.918	0.15%	99.85%	8,249.803	62.00%
1406-10	14.961	5,070.233	5,085.194	0.29%	99.71%	10,036.296	50.67%
1411-15	23.621	5,147.650	5,171.271	0.46%	99.54%	9,999.580	51.71%
1416-20	29.985	5,313.775	5,343.760	0.56%	99.44%	8,480.138	63.02%
1421-25	29.544	5,254.613	5,284.156	0.56%	99.44%	9,984.741	52.92%
1426-30	27.750	5,424.400	5,452.150	0.51%	99.49%	9,307.833	58.58%
1431-35	27.873	5,631.645	5,659.518	0.49%	99.51%	9,505.509	59.54%
1436-40	26.046	6,690.200	6,716.246	0.39%	99.61%	8,976.923	74.82%
1441-45	24.342	5,316.800	5,341.142	0.46%	99.54%	9,946.515	53.70%
1446-50	24.342	5,041.310	5,065.652	0.48%	99.52%	8,659.860	58.50%
1451-55	24.342	4,248.685	4,273.027	0.57%	99.43%	8,106.093	52.71%
1456-60	24.342	3,749.397	3,773.738	0.65%	99.35%	8,519.534	44.30%
1461-65	24.342	3,246.120	3,270.462	0.74%	99.26%	10,368.026	31.54%
1466-70	24.342	2,896.930	2,921.272	0.83%	99.17%	10,436.382	27.99%
1471-75	24.342	3,669.985	3,694.327	0.66%	99.34%	13,539.956	27.28%
1476-80	24.342	4,365.120	4,389.462	0.55%	99.45%	13,399.528	32.76%
1481-85	24.342	3,889.760	3,914.102	0.62%	99.38%	14,593.865	26.82%
1486-90	24.342	3,761.375	3,785.717	0.64%	99.36%	19,596.654	19.32%
1491-95*							

Years in: Quin- quenniums	Erfelijk Renten Payments in £ parisis	Lijfrenten Payments in £ parisis	Total Renten Payments in £ parisis	Erfelijk Renten payments as percent of total Renten payments	Lijfrenten payments as percent of total Renten payments	Total Civic Expenditures in £ parisis	Renten Payments as % of Total Civic Expenditures
1496-1500	24.342	4,084.838	4,109.179	0.59%	99.41%	13,280.307	30.94%
1501-05	24.342	3,868.230	3,892.572	0.63%	99.37%	11,929.568	32.63%
1506-10	24.342	3,361.100	3,385.442	0.72%	99.28%	11,244.321	30.11%
1511-15	25.450	3,148.513	3,173.963	0.80%	99.20%	11,580.223	27.41%
1516-20	409.559	2,649.740	3,059.299	13.39%	86.61%	11,829.040	25.86%
1521-25	333.944	2,985.600	3,319.544	10.06%	89.94%	13,556.191	24.49%
1526-30	249.605	3,758.670	4,008.275	6.23%	93.77%	15,208.093	26.36%
1531-35	306.745	3,825.440	4,132.185	7.42%	92.58%	14,185.161	29.13%
1536-40	300.033	3,850.110	4,150.143	7.23%	92.77%	14,824.634	27.99%
1541-45	359.880	3,640.500	4,000.380	9.00%	91.00%	18,216.665	21.96%
1546-50	563.402	4,420.290	4,983.692	11.30%	88.70%	22,303.229	22.35%

* Aalst town accounts registers are missing for these years.

Source: Algemeen Rijksarchief België (Archives Générales du Royaume), Rekenkamer/Chambre de Comptes, reg. nos. 31,412 - 31,532.

Table 4. Aalst's Civic Revenues and Expenditures: the Roles of Erfelijck- and Lijfrenten and Excise-Tax Farms in quinquennial means: 1396-1400 to 1546-50

Values in livres parisis and pond groot: £12 ponden parisis (parijs) = £1 pond groot Flemish = 240d groot Flemish

Part C: Annual Balance Sheets of Income and Expenditures						
Years: Quin- quennium	Total Civic Revenues in £ parisis	Total Civic Revenues in £ groot	Total Civic Expenditures in £ parisis	Total Civic Expenditures in £ groot	Surplus or Deficit in £ parisis	Surplus or Deficit in £ groot
1396-1400	6,451.544	537.629	6,435.398	536.283	16.146	1.345
1401-05	7,989.056	665.755	8,249.803	687.484	-260.747	-21.729
1406-10	9,454.124	787.844	10,036.296	836.358	-582.172	-48.514
1411-15	9,896.420	824.702	9,999.580	833.298	-103.160	-8.597
1416-20	8,374.606	697.884	8,480.138	706.678	-105.531	-8.794
1421-25	9,868.297	822.358	9,984.741	832.062	-116.444	-9.704
1426-30	9,439.929	786.661	9,307.833	775.653	132.096	11.008
1431-35	9,524.328	793.694	9,505.509	792.126	18.819	1.568
1436-40	8,857.402	738.117	8,976.923	748.077	-119.521	-9.960
1441-45	9,544.042	795.337	9,946.515	828.876	-402.473	-33.539
1446-50	8,852.196	737.683	8,659.860	721.655	192.336	16.028
1451-55	7,906.593	658.883	8,106.093	675.508	-199.500	-16.625
1456-60	8,555.021	712.918	8,519.534	709.961	35.487	2.957
1461-65	10,263.073	855.256	10,368.026	864.002	-104.953	-8.746
1466-70	10,079.193	839.933	10,436.382	869.698	-357.188	-29.766
1471-75	12,641.842	1,053.487	13,539.956	1,128.330	-898.114	-74.843
1476-80	12,983.309	1,081.942	13,399.528	1,116.627	-416.219	-34.685
1481-85	12,335.733	1,027.978	14,593.865	1,216.155	-2,258.133	-188.178
1486-90	15,359.642	1,279.970	19,596.654	1,633.055	-4,237.013	-353.084

Years: Quin- quennium	Total Civic Revenues in £ parisis	Total Civic Revenues in £ groot	Total Civic Expenditures in £ parisis	Total Civic Expenditures in £ groot	Surplus or Deficit in £ parisis	Surplus or Deficit in £ groot
1491-95*						
1496-1500	12,071.073	1,005.923	13,280.307	1,106.692	-1,209.234	-100.770
1501-05	11,552.635	962.720	11,929.568	994.131	-376.933	-31.411
1506-10	10,842.610	903.551	11,244.321	937.027	-401.711	-33.476
1511-15	11,268.611	939.051	11,580.223	965.019	-311.611	-25.968
1516-20	11,107.796	925.650	11,829.040	985.753	-721.244	-60.104
1521-25	11,927.638	993.970	13,556.191	1,129.683	-1,628.553	-135.713
1526-30	13,466.349	1,122.196	15,208.093	1,267.341	-1,741.743	-145.145
1531-35	12,361.563	1,030.130	14,185.161	1,182.097	-1,823.598	-151.967
1536-40	13,019.779	1,084.982	14,824.634	1,235.386	-1,804.855	-150.405
1541-45	16,068.092	1,339.008	18,216.665	1,518.055	-2,148.573	-179.048
1546-50	18,460.720	1,538.393	22,303.229	1,858.602	-3,842.509	-320.209

* Aalst town accounts registers are missing for these years.

Source: Algemeen Rijksarchief België (Archives Générales du Royaume), Rekenkamer/Chambre de Comptes, reg. nos. 31,412 - 31,532.

Table 5. Aalst's Civic Revenues and Expenditures: the Roles of Erfelijk- and Lijfrenten and Excise-Tax Farms, in quinquennial means: 1396-1400 to 1546-50
Values in livres parisis: £12 parisis (parijs) = £1 pond groot (gros) Flemish
= 240d groot Flemish

Part D:

Quinquennium	Total Excise Tax Farm Revenues in £ parisis	Total Renten Payments in £ parisis	Renten Payments as Percentage of Excise-Tax Revenues	Total Civic Expenditures in £ parisis	Renten Payments as percent of Total Civic Expenditures
1396-1400	4,754.133	3,459.050	72.76%	6,435.398	53.75%
1401-05	5,852.596	5,114.918	87.40%	8,249.803	62.00%
1406-10	5,752.817	5,085.194	88.39%	10,036.296	50.67%
1411-15	6,805.663	5,171.271	75.98%	9,999.580	51.71%
1416-20	6,419.275	5,343.760	83.25%	8,480.138	63.02%
1421-25	6,427.100	5,284.156	82.22%	9,984.741	52.92%
1426-30	6,668.567	5,452.150	81.76%	9,307.833	58.58%
1431-35	6,484.288	5,659.518	87.28%	9,505.509	59.54%
1436-40	6,084.429	6,716.246	110.38%	8,976.923	74.82%
1441-45	7,878.556	5,341.142	67.79%	9,946.515	53.70%
1446-50	7,500.927	5,065.652	67.53%	8,659.860	58.50%
1451-55	5,894.123	4,273.027	72.50%	8,106.093	52.71%
1456-60	6,960.540	3,773.738	54.22%	8,519.534	44.30%
1461-65	8,185.102	3,270.462	39.96%	10,368.026	31.54%
1466-70	8,439.850	2,921.272	34.61%	10,436.382	27.99%
1471-75	9,157.350	3,694.327	40.34%	13,539.956	27.28%
1476-80	9,001.283	4,389.462	48.76%	13,399.528	32.76%
1481-85	8,179.250	3,914.102	47.85%	14,593.865	26.82%
1486-90	7,704.100	3,785.717	49.14%	19,596.654	19.32%

Quinquennium	Total Excise Tax Farm Revenues in £ parisis	Total Renten Payments in £ parisis	Renten Payments as Percentage of Excise-Tax Revenues	Total Civic Expenditures in £ parisis	Renten Payments as percent of Total Civic Expenditures
1491-95*					
1496-1500	10,129.869	4,109.179	40.56%	13,280.307	30.94%
1501-05	9,449.630	3,892.572	41.19%	11,929.568	32.63%
1506-10	9,074.767	3,385.442	37.31%	11,244.321	30.11%
1511-15	9,486.219	3,173.963	33.46%	11,580.223	27.41%
1516-20	9,109.030	3,059.299	33.59%	11,829.040	25.86%
1521-25	8,257.570	3,319.544	40.20%	13,556.191	24.49%
1526-30	11,389.250	4,008.275	35.19%	15,208.093	26.36%
1531-35	9,772.260	4,132.185	42.28%	14,185.161	29.13%
1536-40	9,980.120	4,150.143	41.58%	14,824.634	27.99%
1541-45	12,058.925	4,000.380	33.17%	18,216.665	21.96%
1546-50	13,477.319	4,983.692	36.98%	22,303.229	22.35%

* Aalst town accounts registers are missing for these years.

Source: Algemeen Rijksarchief België (Archives Générales du Royaume), Rekenkamer/Chambre de Comptes, reg. nos. 31,412 - 31,532.

Table 6. Receipts from the Annual Auctions of Excise-Tax Farms in Aalst: on Wine, Beer, and Other Consumer Products in £ parisis 1396-1400 to 1546-1550 in quinquennial means

Years	in quinquennial means: 1396-1400 to 1546-1550						Cloth ExciseTax Farm in £ parisis	Grain Excise Tax Farms in £ parisis	Total Excise Tax Farm Revenues in £ parisis	Index: Mean of 1451-75= 100
	Wine Excise Tax Farm in £ parisis	Wine Excise Tax Farm as % of total	Beer Excise Tax Farm in £ parisis	Beer Excise Tax Farm as % of total	Total of Wine & Exise Tax Farms	Wine & Beer % of total				
1396-1400	1,067.400	22.45%	1,793.733	37.73%	2,861.133	60.18%	334.900	801.400	4,754.133	61.523
1401-05	1,103.925	18.86%	2,167.675	37.04%	3,271.600	55.90%	264.663	756.175	5,852.596	75.738
1406-10	792.317	13.77%	2,323.833	40.39%	3,116.150	54.17%	291.167	817.483	5,752.817	74.447
1411-15	1,034.425	15.20%	2,370.320	34.83%	3,404.745	50.03%	832.500	856.933	6,805.663	88.072
1416-20	982.200	15.30%	2,051.200	31.95%	3,033.400	47.25%	881.375	842.200	6,419.275	83.072
1421-25	982.725	15.29%	2,118.375	32.96%	3,101.100	48.25%	908.500	861.750	6,427.100	83.173
1426-30	771.700	11.57%	2,824.700	42.36%	3,596.400	53.93%	881.200	678.350	6,668.567	86.298
1431-35	885.430	13.66%	2,387.150	36.81%	3,272.580	50.47%	848.290	675.680	6,484.288	83.913
1436-40	601.500	9.89%	2,456.675	40.38%	3,058.175	50.26%	932.500	566.292	6,084.429	78.738
1441-45	702.475	8.92%	2,951.975	37.47%	3,654.450	46.38%	1,504.275	825.775	7,878.556	101.956
1446-50	804.110	10.72%	2,880.570	38.40%	3,684.680	49.12%	1,276.010	732.790	7,500.927	97.069
1451-55	717.180	12.17%	2,488.580	42.22%	3,205.760	54.39%	782.480	495.380	5,894.123	76.276
1456-60	624.330	8.97%	2,600.330	37.36%	3,224.660	46.33%	1,372.430	759.203	6,960.540	90.076
1461-65	649.825	7.94%	3,042.705	37.17%	3,692.530	45.11%	1,568.295	1,069.885	8,185.102	105.923
1466-70	693.870	8.22%	3,374.270	39.98%	4,068.140	48.20%	1,567.000	959.860	8,439.850	109.220
1471-75	789.660	8.62%	3,367.060	36.77%	4,156.720	45.39%	1,963.960	992.860	9,157.350	118.505
1476-80	886.880	9.85%	3,160.290	35.11%	4,047.170	44.96%	1,972.395	977.542	9,001.283	116.485
1481-85	900.170	11.01%	2,653.970	32.45%	3,554.140	43.45%	1,946.570	704.170	8,179.250	105.847
1486-90	718.000	9.32%	2,827.000	36.69%	3,545.000	46.01%	1,583.500	866.000	7,704.100	99.699
1491-95*										
1496-1500	1,161.813	11.47%	4,664.813	46.05%	5,826.625	57.52%	1,012.950	931.563	10,129.869	131.090

Years	Wine Excise Tax Farm in £ parisis	Wine Excise Tax Farm as % of total	Beer Excise Tax Farm in £ parisis	Beer Excise Tax Farm as % of total	Total of Wine & Exise Tax Farms	Wine & Beer % of total	Cloth ExciseTax Farm in £ parisis	Grain Excise Tax Farms in £ parisis	Total Excise Tax Farm Revenues in £ parisis	Index: Mean of 1451-75= 100
1501-05	1,140.020	12.06%	4,345.920	45.99%	5,485.940	58.05%	654.320	974.620	9,449.630	122.287
1506-10	1,045.887	11.53%	4,367.083	48.12%	5,412.970	59.65%	514.400	985.233	9,074.767	117.436
1511-15	1,138.900	12.01%	4,994.625	52.65%	6,133.525	64.66%	351.475	992.575	9,486.219	122.761
1516-20	1,325.680	14.55%	4,108.080	45.10%	5,433.760	59.65%	326.670	1,011.980	9,109.030	117.880
1521-25	1,030.700	12.48%	4,188.500	50.72%	5,219.200	63.21%	316.100	669.420	8,257.570	106.861
1526-30	1,366.640	12.00%	5,497.400	48.27%	6,864.040	60.27%	342.040	1,058.240	11,389.250	147.388
1531-35	1,413.120	14.46%	4,837.320	49.50%	6,250.440	63.96%	295.920	755.320	9,772.260	126.463
1536-40	1,145.880	11.48%	5,512.280	55.23%	6,658.160	66.71%	252.580	727.080	9,980.120	129.152
1541-45	1,423.120	11.80%	6,329.000	52.48%	7,752.120	64.29%	230.880	1,382.310	12,058.925	156.054
1546-50	1,497.605	11.11%	7,660.016	56.84%	9,157.621	67.95%	184.320	1,479.720	13,477.319	174.410
Totals	29,397.486	11.93%	106,345.448	43.17%	135,742.934	55.11%	26,193.664	26,207.789	246,334.907	

* Aalst town accounts registers are missing for these years.

Source: Algemeen Rijksarchief België (Archives Générales du Royaume), Rekenkamer/Chambre de Comptes, reg. nos. 31,412 - 31,532.

Table 7.

Aalst: Excise-Tax Farm Revenues and Total Civic Revenues

Receipts from the Annual Auctions of Excise-Tax Farms on Wine, Beer, and Other Consumer Products

in £ parisis and £ groot Flemish: £1.0 groot = £12.00 parisis

As percentages of total civic revenues (compared renten sales as percentages of total revenues
in quinquennial means: 1396-1400 to 1546-1550)

Years	Total of Wine and Beer excise tax farms in £ parisis	Total of Wine and Beer excise tax farms in £ groot	Wine & Beer as % of total tax farm revenues	Total Excise Tax Farm Revenues in £ parisis	Total Tax Farm Revenues in £ groot Flemish	Total Civic Revenues in £ parisis	Total Civic Revenues in £ groot Flemish	Excise Tax Farms as percent of total Revenues	Renten Sales as percent of total Revenues
1396-1400	2,861.133	238.428	60.18%	4,754.133	396.178	6,451.544	537.629	73.69%	16.85%
1401-05	3,271.600	272.633	55.90%	5,852.596	487.716	7,989.056	665.755	73.26%	22.70%
1406-10	3,116.150	259.679	54.17%	5,752.817	479.401	9,454.124	787.844	60.85%	23.25%
1411-15	3,404.745	283.729	50.03%	6,805.663	567.139	9,896.420	824.702	68.77%	17.76%
1416-20	3,033.400	252.783	47.25%	6,419.275	534.940	8,374.606	697.884	76.65%	12.93%
1421-25	3,101.100	258.425	48.25%	6,427.100	535.592	9,868.297	822.358	65.13%	14.51%
1426-30	3,596.400	299.700	53.93%	6,668.567	555.714	9,439.929	786.661	70.64%	19.08%
1431-35	3,272.580	272.715	50.47%	6,484.288	540.357	9,524.328	793.694	68.08%	25.56%
1436-40	3,058.175	254.848	50.26%	6,084.429	507.036	8,857.402	738.117	68.69%	24.23%
1441-45	3,654.450	304.538	46.38%	7,878.556	656.546	9,544.042	795.337	82.55%	5.97%
1446-50	3,684.680	307.057	49.12%	7,500.927	625.077	8,852.196	737.683	84.74%	0.70%
1451-55	3,205.760	267.147	54.39%	5,894.123	491.177	7,906.593	658.883	74.55%	9.39%
1456-60	3,224.660	268.722	46.33%	6,960.540	580.045	8,555.021	712.918	81.36%	2.48%
1461-65	3,692.530	307.711	45.11%	8,185.102	682.092	10,263.073	855.256	79.75%	6.22%
1466-70	4,068.140	339.012	48.20%	8,439.850	703.321	10,079.193	839.933	83.74%	2.14%
1471-75	4,156.720	346.393	45.39%	9,157.350	763.113	12,641.842	1,053.487	72.44%	14.95%
1476-80	4,047.170	337.264	44.96%	9,001.283	750.107	12,983.309	1,081.942	69.33%	19.56%
1481-85	3,554.140	296.178	43.45%	8,179.250	681.604	12,335.733	1,027.978	66.31%	22.07%

Years	Total of Wine and Beer excise tax farms in £ parisis	Total of Wine and Beer excise tax farms in £ groot	Wine & Beer as % of total tax farm revenues	Total Excise Tax Farm Revenues in £ parisis	Total Tax Farm Revenues in £ groot Flemish	Total Civic Revenues in £ parisis	Total Civic Revenues in £ groot Flemish	Excise Tax Farms as percent of total Revenues	Renten Sales as percent of total Revenues
1486-90	3,545.000	295.417	46.01%	7,704.100	642.008	15,359.642	1,279.970	50.16%	23.24%
1491-95 *									
1496-1500	5,826.625	485.552	57.52%	10,129.869	844.156	12,071.073	1,005.923	83.92%	2.28%
1501-05	5,485.940	457.162	58.05%	9,449.630	787.469	11,552.635	962.720	81.80%	2.36%
1506-10	5,412.970	451.081	59.65%	9,074.767	756.231	10,842.610	903.551	83.70%	0.38%
1511-15	6,133.525	511.127	64.66%	9,486.219	790.518	11,268.611	939.051	84.18%	0.37%
1516-20	5,433.760	452.813	59.65%	9,109.030	759.086	11,107.796	925.650	82.01%	4.70%
1521-15	5,219.200	434.933	63.21%	8,257.570	688.131	11,927.638	993.970	69.23%	18.56%
1526-30	6,864.040	572.003	60.27%	11,389.250	949.104	13,466.349	1,122.196	84.58%	7.14%
1531-35	6,250.440	520.870	63.96%	9,772.260	814.355	12,361.563	1,030.130	79.05%	7.21%
1536-40	6,658.160	554.847	66.71%	9,980.120	831.677	13,019.779	1,084.982	76.65%	4.70%
1541-45	7,752.120	646.010	64.29%	12,058.925	1,004.910	16,068.092	1,339.008	75.05%	14.41%
1546-50	9,157.621	763.135	67.95%	13,477.319	1,123.110	18,460.720	1,538.393	73.01%	11.63%
Totals	135,742.934	11,311.911	55.11%	246,334.907	20,527.909	330,523.214	27,543.601	74.53%	11.86%

* Aalst town accounts registers are missing for these years.

Source:

Algemeen Rijksarchief België (Archives Générales du Royaume), Rekenkamer/Chambre de Comptes, reg. nos. 31,412 - 31,532.

For the sources for the consumer baskets, see sources for Table 11.

Table 8: Values of the Sales of Excise Tax Farms in Aalst: in pounds parisis and groot Flemish and in the equivalent value of the Flemish Basket of Consumables, for the Flemish price index in quinquennial means, 1396-1400 to 1546-50

Years: Quin- quenniums	Mean Value of of Total Excise Tax Farm Revenues in £ parisis	Mean Value of of Total Excise Tax Farm Revenues in £ groot Flem	Value of Flemish Basket of Consumables in d groot Flem Mean: 126.295d	Flemish Price Index for the Basket Mean of 1451-75=100	Value of Total Excise Tax Farms in Flemish Baskets of Consumables	Index of Total Excise Tax Farms in Flemish Baskets of Consumables Mean of 1451-75=100
1396-1400	4,754.133	396.178	115.304	91.298	865.368	69.040
1401-05	5,852.596	487.716	111.810	88.531	1,057.126	84.339
1406-10	5,752.817	479.401	132.939	105.261	961.134	76.681
1411-15	6,805.663	567.139	120.370	95.309	1,122.510	89.555
1416-20	6,419.275	534.940	135.616	107.381	900.551	71.847
1421-25	6,427.100	535.592	141.680	112.182	925.372	73.828
1426-30	6,668.567	555.714	148.741	117.773	896.667	71.537
1431-35	6,484.288	540.357	155.989	123.512	838.614	66.906
1436-40	6,084.429	507.036	177.022	140.166	752.781	60.058
1441-45	7,878.556	656.546	143.350	113.504	1,283.387	102.390
1446-50	7,500.927	625.077	138.904	109.984	1,092.793	87.185
1451-55	5,894.123	491.177	127.434	100.902	934.272	74.538
1456-60	6,960.540	580.045	148.845	117.855	944.964	75.391
1461-65	8,185.102	682.092	112.030	88.705	1,477.210	117.854
1466-70	8,439.850	703.321	121.900	96.520	1,387.199	110.673
1471-75	9,157.350	763.113	121.264	96.017	1,523.476	121.545
1476-80	9,001.283	750.107	148.034	117.213	1,256.804	100.270
1481-85	8,179.250	681.604	198.097	156.853	897.013	71.565
1486-90	7,704.100	642.008	188.911	149.580	815.631	65.072
1491-95*			183.104	144.981		
1496-1500	10,129.869	844.156	126.617	100.255	1,593.471	127.129
1501-05	9,449.630	787.469	194.467	125.449	975.132	77.797
1506-10	9,074.767	756.231	177.960	114.801	1,028.189	82.030

Years: Quin- quenniums	Mean Value of of Total Excise Tax Farm Revenues in £ parisis	Mean Value of of Total Excise Tax Farm Revenues in £ groot Flem	Value of Flemish Basket of Consumables in d groot Flem Mean: 126.295d	Flemish Price Index for the Basket Mean of 1451-75=100	Value of Total Excise Tax Farms in Flemish Baskets of Consumables	Index of Total Excise Tax Farms in Flemish Baskets of Consumables Mean of 1451-75=100
1511-15	9,486.219	790.518	213.773	137.904	908.914	72.514
1516-20	9,109.030	759.086	232.933	150.264	782.595	62.437
1521-25	8,257.570	688.131	278.933	179.938	599.318	47.814
1526-30	11,389.250	949.104	276.733	178.519	824.594	65.787
1531-35	9,772.260	814.355	269.720	173.995	730.432	58.275
1536-40	9,980.120	831.677	287.773	185.641	696.081	55.534
1541-45	12,058.925	1,004.910	322.960	208.340	748.274	59.698
1546-50	13,477.319	1,123.110	309.133	199.420	882.569	70.413

* Aalst town accounts registers are missing for these years.

Sources:

Algemeen Rijksarchief België (Archives Générales du Royaume), Rekenkamer/Chambre de Comptes, reg. nos. 31,412 - 31,532.

For the sources for the consumer baskets, see sources for Table 11.

Table 9: Revenues from the Sale of Excise Tax Farms in £ groot Flemish and equivalent values of the number of days' wages for master masons, in quinquennial means, 1396-1400 to 1546-50

5- Year means	Total of Excise Tax Farm Revenues in £ groot Flemish	Value of Flemish Basket of Consumables in d groot Flemish	Flemish Price Index 126.295d Mean of 1451-75	Mean Daily Wage of Master Masons in d. groot Flemish	Value of Excise Farms in no. of days wages for master masons	Index: Value of Excise Tax Farms in no. days wages for masons	Income (210 days) for Master Masons In Baskets of Consumables: in harmonic means	Real Wage Index in Commodity Baskets Mean of 1451-75 = 100
1396-1400	396.178	115.304	91.298	7.200	13,205.926	65.715	12.749	100.762
1401-05	487.716	111.810	88.531	7.500	15,606.922	77.663	14.086	111.333
1406-10	479.401	132.939	105.261	7.500	15,340.844	76.339	11.848	93.638
1411-15	567.139	120.370	95.309	7.500	18,148.433	90.310	13.085	103.415
1416-20	534.940	135.616	107.381	7.700	16,673.442	82.970	11.880	93.891
1421-25	535.592	141.680	112.182	7.800	16,479.744	82.007	11.532	91.143
1426-30	555.714	148.741	117.773	7.900	16,882.447	84.010	11.159	88.198
1431-35	540.357	155.989	123.512	8.000	16,210.721	80.668	10.770	85.122
1436-40	507.036	177.022	140.166	7.900	15,403.618	76.651	9.404	74.323
1441-45	656.546	143.350	113.504	7.800	20,201.426	100.526	11.446	90.467
1446-50	625.077	138.904	109.984	7.700	19,482.926	96.951	11.540	91.204
1451-55	491.177	127.434	100.902	7.000	16,840.352	83.801	11.294	89.265
1456-60	580.045	148.845	117.855	7.900	17,621.620	87.689	11.123	87.914
1461-65	682.092	112.030	88.705	8.200	19,963.663	99.343	15.320	121.085
1466-70	703.321	121.900	96.520	7.800	21,640.641	107.688	13.432	106.163
1471-75	763.113	121.264	96.017	7.500	24,419.600	121.517	12.984	102.622
1476-80	750.107	148.034	117.213	8.000	22,503.206	111.980	11.349	89.696
1481-85	681.604	198.097	156.853	7.500	21,811.333	108.538	7.996	63.196
1486-90	642.008	188.911	149.580	10.000	15,408.200	76.674	9.012	71.225
1491-95*		183.104	144.981	10.000			11.469	90.646
1496-1500	844.156	126.617	100.255	9.400	21,552.912	107.252	15.519	122.657
1501-05	787.469	194.467	125.449	9.000	20,999.178	104.496	9.719	76.814

5- Year means	Total of Excise Tax Farm Revenues in £ groot Flemish	Value of Flemish Basket of Consumables in d groot Flemish	Flemish Price Index 126.295d Mean of 1451-75	Mean Daily Wage of Master Masons in d. groot Flemish	Value of Excise Farms in no. of days wages for master masons	Index: Value of Excise Tax Farms in no. days wages for masons	Income (210 days) for Master Masons In Baskets of Consumables: in harmonic means	Real Wage Index in Commodity Baskets Mean of 1451-75 = 100
1506-10	756.231	177.960	114.801	9.000	20,166.148	100.351	10.653	84.194
1511-15	790.518	213.773	137.904	8.900	21,317.346	106.079	8.748	69.144
1516-20	759.086	232.933	150.264	9.000	20,242.289	100.730	8.114	64.129
1521-25	688.131	278.933	179.938	9.000	18,350.156	91.314	6.776	53.553
1526-30	949.104	276.733	178.519	9.000	25,309.444	125.945	6.830	53.979
1531-35	814.355	269.720	173.995	8.200	23,834.780	118.607	6.390	50.507
1536-40	831.677	287.773	185.641	7.600	26,263.474	130.692	5.536	43.752
1541-45	1,004.910	322.960	208.340	8.200	29,412.012	146.360	5.337	42.181
1546-50	1,123.110	309.133	199.420	9.000	29,949.598	149.035	6.104	48.240

* Aalst town accounts registers are missing for these years.

Sources:

Algemeen Rijksarchief België (Archives Générales du Royaume), Rekenkamer/Chambre de Comptes, reg. nos. 31,412 - 31,532.

For the sources for the consumer baskets, see sources for Table 11.

Table 9b. Revenues from the Sale of Excise Tax Farms in £ groot Flemish and equivalent values of the number of days wages for master masons, in quinquennial means, 1396-1400 to 1546-50

Years in 5 - year means	Total of Excise Tax Farm Revenues in £ groot Flemish	Flemish Price Index 126.295d Mean of 1451-75=100	Mean Daily Wage of Master Masons in d. groot Flemish	Value of Excise Farms in no. of days wages for master masons	Per Capita Tax Burden for Presumed Population of 3600 in days' wages	Tax Burden for Employed Adult Males [900] per person in days' wages
1396-1400	396.178	91.298	7.200	13,205.926	3.668	14.673
1401-05	487.716	88.531	7.500	15,606.922	4.335	17.341
1406-10	479.401	105.261	7.500	15,340.844	4.261	17.045
1411-15	567.139	95.309	7.500	18,148.433	5.041	20.165
1416-20	534.940	107.381	7.700	16,673.442	4.632	18.526
1421-25	535.592	112.182	7.800	16,479.744	4.578	18.311
1426-30	555.714	117.773	7.900	16,882.447	4.690	18.758
1431-35	540.357	123.512	8.000	16,210.721	4.503	18.012
1436-40	507.036	140.166	7.900	15,403.618	4.279	17.115
1441-45	656.546	113.504	7.800	20,201.426	5.612	22.446
1446-50	625.077	109.984	7.700	19,482.926	5.412	21.648
1451-55	491.177	100.902	7.000	16,840.352	4.678	18.712
1456-60	580.045	117.855	7.900	17,621.620	4.895	19.580
1461-65	682.092	88.705	8.200	19,963.663	5.545	22.182
1466-70	703.321	96.520	7.800	21,640.641	6.011	24.045
1471-75	763.113	96.017	7.500	24,419.600	6.783	27.133
1476-80	750.107	117.213	8.000	22,503.206	6.251	25.004
1481-85	681.604	156.853	7.500	21,811.333	6.059	24.235
1486-90	642.008	149.580	10.000	15,408.200	4.280	17.120
1491-95	n.a.	144.981	10.000			
1496-1500	844.156	100.255	9.400	21,552.912	5.987	23.948
1501-05	787.469	125.449	9.000	20,999.178	5.833	23.332

Years in 5 - year means	Total of Excise Tax Farm Revenues in £ groot Flemish	Flemish Price Index 126.295d Mean of 1451-75=100	Mean Daily Wage of Master Masons in d. groot Flemish	Value of Excise Farms in no. of days wages for master masons	Per Capita Tax Burden for Presumed Population of 3600 in days' wages	Tax Burden for Employed Adult Males [900] per person in days' wages
1506-10	756.231	114.801	9.000	20,166.148	5.602	22.407
1511-15	790.518	137.904	8.900	21,317.346	5.921	23.686
1516-20	759.086	150.264	9.000	20,242.289	5.623	22.491
1521-25	688.131	179.938	9.000	18,350.156	5.097	20.389
1526-30	949.104	178.519	9.000	25,309.444	7.030	28.122
1531-35	814.355	173.995	8.200	23,834.780	6.621	26.483
1536-40	831.677	185.641	7.600	26,263.474	7.295	29.182
1541-45	1,004.910	208.340	8.200	29,412.012	8.170	32.680
1546-50	1,123.110	199.420	9.000	29,949.598	8.319	33.277

* Aalst town accounts registers are missing for these years.

Sources:

Algemeen Rijksarchief België (Archives Générales du Royaume), Rekenkamer/Chambre de Comptes, reg. nos. 31,412 - 31,532.
For the sources for the consumer baskets, see sources for Table 11.

Table 10

Population Decline and Poverty in the Duchy of Brabant, 1437 - 1496
The number of family hearths (households) and percentage of hearths without taxable income:
(‘poor hearths’) in 1437, 1480, and 1496

Area of Census in the duchy of Brabant	1437 no. of hearth	1437 per cent poor hearth	1480 no. of hearth	1480 per cent poor hearth	1496 no. of hearth	1496 per cent poor hearth	Percentage Change from 1437 to 1496
Brussels	6,376	10.5	7,414	7.9	5,750	17.1	-9.82%
Antwerp	3,440	13.5	5,450	10.5	6,586	12.5	91.45%
Leuven	3,579	7.6	3,933	18.3	3,069	n.a.	-14.25%
s'Hertogen-bosch	2,883	10.4	2,930	7.9	3,456	n.a.	19.88%
Sub-total Large Towns	16,278	10.5	19,727	14.8	18,861	n.a.	15.87%
Small Towns	14,159	9.2	12,216	28.1	10,600	n.a.	-25.14%
Villages	62,301	29.7	54,540	31.6	45,882	n.a.	-26.35%
Total Duchy	92,738	23.4	86,483	27.3	75,343	n.a.	-18.76%

Source:

Joseph Cuvlier, *Les dénombrements de foyers en Brabant, XIV - XVI siècle*, 2 vols. (Brussels, 1912-13), vol. I, pp. 432-3, 446-7, 462-77, 484-7; and also pp. cxxxv, clxxvii-viii, ccxxiii-xviii.

Table 11a.

Basket of Consumables: Commodity Price Indexes for Brabant and Flanders

mean of 1451-75 = 100

Commodity	BRABANT				
	Amount	Unit	Value in d gr. Brabant	Value in d gr. Flemish	Percent
Farinaceous					
Wheat					
Rye	126	litres	42.404	28.269	18.24%
Barley					
Peas					
Sub-total	126.000	litres	42.404	28.269	18.24%
Drink					
barley (or malt)	162.000	litres	39.712	26.475	17.08%
Total Farinaceous	288.000	litres	82.116	54.744	35.32%
Meat					
Pigs					
Sheep					
Beef	23.500	kg	54.704	36.469	23.53%
Sub-total			54.704	36.469	23.53%
Fish: Herrings	40.000	no.	9.988	6.659	4.30%
Sub-total			119.396	79.597	51.35%

Commodity	BRABANT		Unit	Value in d gr. Brabant	Value in d gr. Flemish	Percent
	Amount					
Dairy						
Butter	4.800		kg	19.728	13.152	8.48%
Cheese	4.700		kg	5.968	3.979	2.57%
Sub-total				25.696	17.131	11.05%
Food and Drink				172.504	115.003	74.19%
Industrial: Fuel						
Charcoal	162.000		litres	10.568	7.045	4.54%
Candles	1.333		kg	7.608	5.072	3.27%
Lamp Oil						
Sub-total				18.176	12.117	7.82%
Industrial: Textiles						
Canvas/Linen Shirting	1.800		metre	17.000	11.333	7.31%
Coarse Woollens	1.125		metre	24.844	16.563	10.68%
Sub-total				41.844	27.896	18.00%
TOTAL				232.524	155.016	100.00%

Table 11b. Basket of Consumables Commodity Price Indexes for Brabant and Flanders

mean of values for 1451-75 = 100

Commodity	FLANDERS			
	Amount	Unit	Value in in d groot Flemish	Percent of total
Farinaceous				
Wheat	45.461	litres	13.279	10.51%
Rye	36.369	litres	7.062	5.59%
Barley	18.184	litres	2.867	2.27%
Peas	24.243	litres	7.341	5.81%
Sub-total	124.257	litres	30.549	24.19%
Drink				
barley (or malt)	163.659	litres	25.805	20.43%
Total Farinaceous	287.917	litres	56.354	44.62%
Meat				
Pigs				
Sheep				
Beef		kg		
Sub-total				
Fish: Herrings		no.		
Sub-total				

Table 11b. Basket of Consumables Commodity Price Indexes for Brabant and Flanders
mean of values for 1451-75 = 100

Commodity	FLANDERS		Unit	Value in in d groot Flemish	Percent of total
	Amount				
Dairy					
Butter	13.610		kg	36.087	28.57%
Cheese	13.610		kg	8.578	6.79%
Sub-total	27.220			44.665	35.37%
Food and Drink				101.019	
Industrial: Fuel					
Charcoal			litres		
Candles			kg		
Lamp Oil					
Sub-total					
Industrial: Textiles					
Canvas/Linen			metre		
Shirting					
Coarse Woollens	1.225		metre	25.276	20.01%
Sub-total				25.276	20.01%
TOTAL				126.295	100.00%

Table 11b. Basket of Consumables Commodity Price Indexes for Brabant and Flanders**mean of values for 1451-75 = 100**

Commodity	FLANDERS			
	Amount	Unit	Value in in d groot Flemish	Percent of total

bu = bushels; lb. = pound avoirdupois (453.592 g); pt = pint; yd = yard; l. = litre; m. = metre

Sources:

Herman Van der Wee, 'Prijzen en lonen als ontwikkelingsvariabelen: Een vergelijkend onderzoek tussen Engeland en de Zuidelijke Nederlanden, 1400-1700', in *Album aangeboden aan Charles Verlinden ter gelegenheid van zijn dertig jaar professoraat* (Wetteren: Universum, 1975), pp. 413-47; reissued in English translation (without the tables) as 'Prices and Wages as Development Variables: A Comparison Between England and the Southern Netherlands, 1400-1700', *Acta Historiae Neerlandicae*, 10 (1978), 58-78; republished in Herman Van der Wee, *The Low Countries in the Early Modern World*, trans. by Lizabeth Fackelman (Cambridge and New York: Cambridge University Press and Variorum, 1993), pp. 223-41.

Charles Verlinden and E. Scholliers, et al, eds., *Documents pour l'histoire des prix et des salaires en Flandre et en Brabant/Dokumenten voor de geschiedenis van prijzen en lonen in Vlaanderen en Brabant*, 4 vols. Rijksuniversiteit te Gent: Werken Uitgegeven door de Faculteit van de Letteren en Wijsbegeerte nos. 125 [vol. I], 136 [vol. II.i], 137 [Vol.II.ii](Bruges, 1959 - 65).

Stadsarchief Gent, Stadsrekeningen 1349/50-1499/1500, Reeks 400: nos. 7 - 35: town accounts.