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Economic inequality and growth before the industrial revolution: A case study of the Low Countries (14th-19th centuries)

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Abstract

This paper studies a collection of data on economic inequality in fifteen towns in the Southern and Northern Low Countries from the late Middle Ages until the end of the nineteenth century. By using a single and consistent source type and adopting a uniform methodology, it is possible to study levels of urban economic inequality across time and place comparatively. The results indicate a clear growth in economic inequality in the two centuries prior to the industrial revolution and the onset of sustained economic growth per capita. The general occurrence of this rise throughout regions with dissimilar economic trajectories contradicts the existence of a straightforward trade-off between growth and inequality as conjectured by Simon Kuznets (1955). Instead, the results presented lend support to the 'classical' economists' explanation of inequality as the consequence of a changing functional distribution of income favouring capital over labour in the long run.

Keywords: Income Inequality, Pre-Industrial, Economic Growth, super Kuznets curve.
JEL classification: D310, D330, N330, N930, O110.

1. Inequality in history

The growth of income inequality in many countries of the Western world over the last thirty years—aggravated by the financial and economic crisis of 2007–2008, and widely popularised by the 99% slogan of the Occupy movement—has significantly bolstered the centrality of inequality to debates in economics, social sciences, and policy making (recent overviews in Wilkinson & Pickett 2009, Milanovic 2011, Stiglitz 2012, Piketty 2013). Nevertheless, inequality's somewhat unexpected return to public consciousness and research agendas has confronted social scientists and policymakers alike with the finding that most knowledge of its fundamental causes and effects is still limited and often highly contested. As a result, some economists have turned to the past for more insight into the underlying logic of inequality movements through time. In particular, the long-term relationship between inequality and modern economic growth has been central to much historical investigation. This strand of economic history has essentially devoted itself to resolving the question of whether the so-called 'great levelling' of inequality during the second half of the twentieth century was, in fact, a peculiar exception to a long-standing economic rule.

The current paper addresses the issue of the relationship between inequality and growth for the long formative period of Western, capitalist economies. It aims to determine the extent to which pre-industrial levels of inequality were affected by economic and

demographic growth, and by the long-term emergence of a capitalist economy. Given the scarcity of sources that allow for the reconstruction of income and wealth inequality at any point in time before the twentieth century, empirical studies on changes in inequality during this period are relatively thin on the ground (Van Zanden 1995; Alfani 2010; Milanovic, Lindert et al. 2011; Santiago-Caballero 2011; Hanus 2013; Alfani 2014). This empirical scarcity has allowed two different models of the relationship between income inequality and 'economic modernity' (i.e., the high standard of living, sustained economic growth per capita, and technological progress in industrial production that have characterised 'Western' economies since the 1800s) to persistently co-exist as largely rival interpretations of the fundamental transitions in European social and economic history. One has interpreted historical inequality primarily as a temporary result of economic growth, while the other has emphasised the secular growth of inequality as a result of structural social and political change.

The current paper aims to test the applicability of these explanatory models on the development of income inequality in the Low Countries between the fourteenth and nineteenth centuries. Among the regions with the highest levels of economic performance and urbanization in Europe throughout the entire period studied, yet with large regional contrasts within its boundaries, the Low Countries offers an ideal test case for exploring the relationship between growth and inequality (Gelderblom & Jonker 2014).

The first section of the article presents the theoretical and explanatory background of the existing historiography on pre-industrial levels of inequality and connects these to the principal strands of economic theory on the subject. In the second section the source material is introduced, as well as the methodology with which it has been approached. In the third section the main results are presented, while the fourth and final section offers a new interpretative framework based on quantitative and qualitative research methods.

1.1. Inequality as a consequence of growth

The most systematic and influential modelling of the relationship between economic growth and inequality was presented first by Simon Kuznets in his 1954 presidential address to the American Economic Association (Kuznets 1955). Based on cross-sectional data on the level of inequality in countries at different stages of their economic development, Kuznets proposed an association between growth and inequality in the shape of an inverted U-curve. According to this association, modern economic growth was positively correlated with rising levels of inequality during its take-off phase, as a growing share of the population gradually shifted from economic sectors with low productivity and income (e.g., agriculture) towards sectors with higher productivity (e.g., industry). When Western economies eventually settled again at a new, higher equilibrium with higher productivity levels—around World War I—inequality set upon a prolonged decline during much of the remainder of the twentieth century.

This relationship between economic growth and inequality—rising during take-off and diminishing with economic maturity—has since served as a guiding hypothesis for the majority of (historical) research on the topic. The empirical work by Peter Lindert and Jeffrey

Williamson has shown that in both Britain and the United States (although with different timing) income inequality rose during the initial stages of the industrial revolution—and possibly even before that, although at a slower pace (Lindert & Williamson 1976, Williamson & Lindert 1980, Lindert & Williamson 1982, Lindert & Williamson 1983, Lindert 2000). This basically refuted the earlier findings by Lee Soltow, who had asserted that there was no long-term change in inequality before the twentieth century (Soltow 1968, Soltow 1989). Lindert and Williamson found evidence for their early inequality 'upswing' in the imputation of inequality levels from 'social tables' detailing the average income levels of different social groups as estimated by contemporary observers, which they combined with data on earnings differentials and inequality of housing values for the eighteenth and nineteenth centuries. The general model they invoked in order to explain this growth of inequality focused upon the effects of two underlying processes associated with early industrialization: unbalanced technological change (causing growing income differentials between different economic sectors, and driving up the skill premium for human capital), and demographic growth (causing the wage-profit ratio to rise as a result of increasing labour abundance) (Kaelble & Thomas 1991).

Although few other studies have been able to gather as much empirical evidence in support of the early upswing as Lindert's and Williamson's, the same inequality pattern and mechanisms at work have also been confirmed for countries other than Britain and the United States, including Sweden and Prussia (Morrison 2000). In a recent paper surveying the inequality estimates from 'social tables' around the world gathered by Milanovic, and Lindert and Williamson, Jorgen Modalsli has even argued for a general confirmation of the Kuznets upswing among modernising economies through world history (Milanovic, Lindert et al. 2007; Milanovic, Lindert et al. 2011; Modalsli 2011).

In only partial agreement with this association of modern economic growth with rising inequality there has been Jan Luiten Van Zanden. He has demonstrated how inequality in Holland rose during phases of economic growth well before the take-off of industrialisation, but how this was directly associated with early modern spells of economic growth as well (Van den Berg & Van Zanden 1993, Van Zanden 1995, Soltow & Van Zanden 1998). Moreover, the growing skill premium on the salaries of educated professionals evident throughout the period under scrutiny suggested the validity of an explanatory model similar to that invoked by Lindert and Williamson: the unbalanced distribution of the fruits of early economic growth as a result of differentials in human capital and skills. Yet the model favoured by Van Zanden differs from Lindert's and Williamson's in its primary focus upon the functional distribution of income. According to Van Zanden, the main dynamic of growing inequality resulted from the falling factor price of labour (i.e., declining real wages) and the rising price of capital during economic expansion in merchant capitalism (Van Zanden 1995, Soltow & Van Zanden 1998). The result was a 'super Kuznets curve' tracing growing inequality as a result of the declining price of labour during 'early modern' economic growth, and reversing only when 'modern' economic growth became associated with the disappearance of excess labour supplies in the nineteenth and twentieth centuries.

These attempts to model the historical relationship between growth and inequality in economic history have had two enduring consequences. First and foremost, the

aforementioned studies have in common a strong focus on the experience of growth. By attributing the growth of inequality to the processes inherent in early industrialization (Lindert and Williamson) or mercantile-capitalist expansion (Van Zanden), these studies have largely ignored the dynamics of pre-modern inequality outside of the context of growth, as well as the influence of extra-economic processes on levels of inequality.[1] Since both early industrialising England and seventeenth-century Holland were exceptional in the economic growth they attained, these explanatory models implicitly seem to assume a low and stable level of inequality to have prevailed in the less dynamic economies of early modern Europe. A second important conclusion common to this approach has been the temporary character of historical rises in inequality. Most explicitly this is the case in the model of Lindert and Williamson, who argue that growth in inequality is linked only to a transitory stage of growth, and is therefore not a structural feature of the 'early modern' or 'modern' economy as such. In this assumption the literature on the historical validity and roots of the Kuznets curve differs markedly from the alternative 'classical' approaches to inequality.

1.2. 'Classical' interpretations of inequality in the long run

In the dominant nineteenth-century theories of political economy, such as David Ricardo's theory of distribution, Adam Smith's factor price model, and Karl Marx's laws of capitalist accumulation, explaining changes in inequality was an integral component of their macro-economic models. In these 'classical' models inequality was primarily determined by the price of the principal factors of production: land, labour, and capital (or just labour and capital in the case of Marx). Although the opinions of Marx and Smith on how the division of labour and the capitalist expansion resulting thereof would eventually affect the respective factor shares of labour and capital were fundamentally opposed, they did agree on the fact that the level of inequality within a given economy is determined by the price of labour relative to capital, and by the initial endowments of these two factors of production (i.e., who owns capital, who has only labour to sell).

Not only were growing or declining levels of inequality a more structural feature of capitalist expansion in such classical, macro-economic models, but the emphasis upon the price of production factors inevitably directed attention towards their initial endowments within society. For Smith, Ricardo, and Marx factor endowments presented themselves as external to the laws of economic growth, determined as they were by historical processes of political or otherwise extra-economic developments. Most influentially, for instance, Marx saw initial factor endowments as the result of the gradual process of dispossessing the working class from their means of production through diverse political processes of proletarianization (most famously the English 'enclosures'). In contrast, from the *marginalist revolution* of the late nineteenth century onwards, (neo-classical) economics has focused primarily on the personal distribution of income, thereby excluding distinctly historical and

[1] To be sure, this has been noted repeatedly by Peter Lindert in later publications, in which he calls for a deeper understanding of inequality changes beyond the Kuznets curve. An important exception is also presented by the recent, long-term work of Guido Alfani on Italy, which does not follow this pattern: Alfani 2010; Alfani 2014.

political contributions to initial starting positions as explanatory parameters in analyses of changes in inequality.

As a result, in much of pre-industrial economic history concerned with the issue of inequality, only (neo-)marxist studies have retained considerable attention for the functional distribution of income and the initial endowment of factors of production throughout twentieth-century historiography. Most famously, for instance, the sociologist Charles Tilly examined how the proletarian population in continental Europe grew continuously throughout the early modern period (Tilly 1984). Social and economic historians such as Keith Wrightson, Christopher Friedrichs, Bas Van Bavel, Catharina Lis, and Hugo Soly have drawn upon this proletarianization process to account for the growing levels of economic insecurity, poverty, and inequality among the masses of early modern England, the Low Countries, and the German territories (Friedrichs 1975, Lis & Soly 1979, Wrightson & Levine 1979, Lis 1986, Wrightson 2002, Van Bavel 2010).

Unfortunately, by neglecting the question of how these changes in the functional distribution of income influenced the personal distribution of income, this historiography has largely failed to connect to the findings of economic historians of the nineteenth and twentieth centuries. In light of the current study of inequality in the Low Countries, it is quite exemplary of this failure that the huge, concerted effort to unveil the 'class structure' of the Southern Netherlands at the eve of the French Revolution, undertaken during the 1970s and 1980s, hardly left any mark at all on the social and economic historiography of the period (for instance De Belder 1974, an overview in Vanhaute 1999). Even before the project had been completed, most historians had lost interest in the rather sterile projection of nineteenth-century stratification terminology upon urban societies whose sheer social complexity seemed to resist such straightforward classifications.

1.3. Recent developments in economics

Recent trends in how today's rising levels of inequality are approached in economics again lead towards a closer re-integration of the 'classical' interest in the functional distribution of income with the 'neo-classical' focus on the personal distribution of income. Thomas Piketty has led the effort to gather data on the long-run evolution of top 1% income shares in a large number of countries, and has identified in these a general U-shaped pattern of declining and then rising inequality over the course of the twentieth century (Piketty, Postel-Vinay et al. 2006; Atkinson, Piketty et al. 2011; Piketty 2013). Importantly, the drastic decline in inequality from the second quarter of the twentieth century onwards has drawn attention to the importance of *wealth shocks* in reversing an upward inequality trend. The impact of the large-scale destruction of wealth among the top 1% incomes during World War I and World War II, as well as the effects of a new political consensus for redistribution (for instance, through inheritance taxes) in its aftermath, have again refocused attention upon the share of capital in income, and on the political ways in which its initial endowments came about, as two fundamental determinants of inequality changes.

This re-valuation of the importance of the functional distribution of income in affecting the personal distribution of income offers new opportunities and challenges for economic historians of the pre-industrial period. If changes in the wealth-income ratio have

indeed driven the most important developments in the overall level of *modern* inequality, then how did inequality behave during the *pre-modern* period in which the foundations of capital-driven economic growth were laid? Or, to phrase the matter differently, was the high level of inequality in early nineteenth-century Western Europe—with which Piketty begins his analysis—a persistent feature of the pre-industrial world, or on the contrary, a more recent consequence of the formation of a capitalist economy during the preceding centuries (as Marx thought)? These new, or at least resurfacing, questions call for a general re-assessment of the issue of pre-industrial inequality, and how it corresponds (or not) to 'Kuznetsian' or classical explanatory models.

2. Objectives and methodology

2.1. The Low Countries as a case study

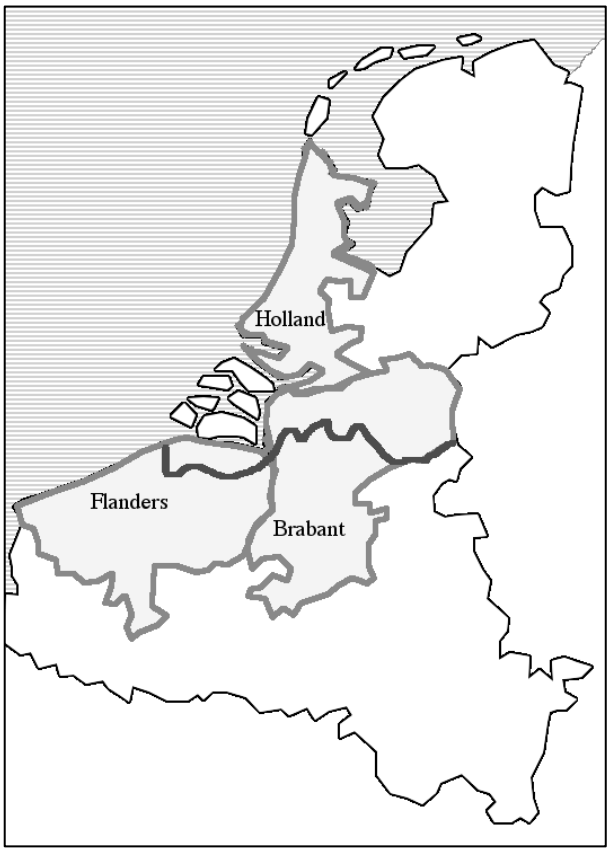
The current paper aims to add to the available evidence on inequality for the pre-industrial period by examining the distribution of the rental value of houses in seven towns in the Southern Low Countries ('Belgium') and published data on eight other towns in the Northern Low Countries ('the Netherlands') during the late medieval, early modern, and modern periods. In doing so, it hopes to provide more depth to the sketchy picture of inequality developments in the pre-industrial period, by contrasting the trends in inequality in regions with divergent economic trajectories throughout most of this era.

Already around the end of the medieval period, and through the early modern era, the Low Countries would be among the most densely populated and highly urbanized areas in Europe. During the high middle ages the core of (urban) economic development was situated in the Southern provinces, particularly in the centres of urban textile (woollens) production such as Ghent, and in the main commercial hub for long-distance trade: Bruges (Murray 2005, Blockmans 2010). Around the end of the fifteenth century, political strife and geographic vagaries relocated the dominant commercial (and to a lesser extent industrial) activities northwards towards Antwerp and its surroundings (a recent interpretation of this relocation is available in Gelderblom 2013). During the first half of the sixteenth century Antwerp would become the principal hub for trade in North-Western Europe, serving as a staple market for English textiles and Portuguese spices, but also stimulating industrial production within its own walls and hinterlands (Van Der Wee 1963). After the closure of the Scheldt, following the Spanish re-possession of Antwerp in 1585 during the Eighty-Year War, the focal point of international trade routes would shift northwards again, this time towards Amsterdam and the rest of the Maritime Dutch provinces. In the Southern Low Countries this would mark the end of a period of economic and urban growth, although a successful economic reconversion (towards regional trade in the case of Flanders; and high-quality luxury goods in the case of Brabant) would postpone a deeper process of secular economic decline until the second half of the seventeenth century.

Nevertheless, from the end of the sixteenth century onwards, a pronounced contrast in the economic fortunes of the Northern and Southern Low Countries emerged. Whereas in the latter region the weight of rural proto-industry (linen) grew and urban production figures

slowly dwindled, the towns in Holland were increasingly connected to new avenues of international trade (as in Amsterdam) and further expanded their industrial textile production (as in Leiden or Alkmaar) (De Vries & Van Der Woude 1997, Emmer & Gommans 2012). Economic fortunes would reverse for both regions again during the eighteenth century. In Holland the economy would stagnate at a high level of living standard, and remain relatively unchanged until its late industrialization around the end of the nineteenth century (Mokyr 1976). Yet in the Southern Low Countries, a new phase of rapid demographic growth from the middle of the eighteenth century went hand-in-hand with commercial expansion, retail growth, and modest forms of labour concentration in the form of (non-mechanised) workshops (*manufactures*) based on considerable numbers of wage labourers (Dejongh & Segers 2001). Proper industrialization would start only from the beginning of the nineteenth century in Ghent and Aalst, and approximately two or three decades later in Bruges and Kortrijk. As Flanders was among the earliest industrializing areas on the Continent, the contrast with Holland—which was among the latest—is again particularly clear.

Map 1. The Low Countries in the early modern period



Note: The white area represents the Low Countries; the horizontal line in the middle represents the border between the Northern and Southern Netherlands (end of sixteenth century); the three principal provinces (to which the case studies presented here pertain) are shown in grey.

2.2. The sources

A critique of recent methodological approaches

This paper examines the changes in the personal distribution of income between the fourteenth and nineteenth centuries for a total of twelve urban case studies in the Southern and Northern Low Countries. In explaining the long-term changes established, particular attention will be paid to the applicability of a 'Kuznetsian' relationship between inequality and economic growth, and shifts in the underlying functional distribution of income. By contrasting long-term inequality patterns in the economically stagnant region of the Southern Low Countries with those in the growing economy of the Northern Low Countries (especially Holland), the paper will argue that the neo-classical approach to inequality holds little explanatory value for the pre-industrial period. The focus of neo-classical theories of inequality on the effects of imbalanced economic or technological growth cannot sufficiently explain the patterns of change in inequality before the industrial revolution. By contrast, classical macro-economic approaches considering both the structural effects of capitalist expansion on inequality, as well as the prior political and extra-economic processes that shaped the initial factor endowments of capital, land, and labour, seem more apt for explaining the long-term rise of inequality from the late medieval times until the end of the nineteenth century.

In order to obtain a better understanding of the changes in economic inequality in the Low Countries over a long time period, preference has been given to archival sources that are readily comparable across time and space. Fiscal sources assessing the rental value of houses in late medieval and early modern towns in the Low Countries offer precisely such an opportunity. In relying on extensive fiscal source material, this study goes against a recent historiographical current that has added ambitious new evidence on pre-industrial inequality based on a relatively small archival foundation.

The most fruitful of those advances in the research on pre-industrial economic inequality has been built upon the creative use of so-called 'social tables.' Based on a quantitative appraisal of 28 such social tables—contemporary estimates of the existing social classes in a given society, with estimates of their corresponding sizes and average incomes—Milanovic, Lindert, and Williamson have traced general inequality patterns in case studies as diverse as the Roman Empire in 14 AD and British India in 1947 (Milanovic, Lindert et al. 2011). Although they do not directly confront the relationship between economic growth and inequality, Milanovic et al. firmly deny the existence of any clear diachronic trend in inequality from the pre-industrial era until the present day: *"the variance of inequality among countries then and now is similar, and this variance is much greater than any difference in average inequality between them then and now."* On the other hand, by introducing the concept of the *'inequality extraction ratio'*, which essentially considers inequality relative to the level of average income, they nevertheless conclude that in growing economies the extraction ratio declines (while measured inequality may actually increase), whereas it rises in declining economies. By changing the assumptions regarding the way in which social tables reflect economic inequality, Modalsli has recently re-interpreted the data used by Milanovic

et al., and has taken the relationship between economic growth and inequality as its main point of focus (Modalsli 2011). According to his findings, there was indeed a positive relationship between both, implying greater inequality in countries with higher economic GDP/capita (in the pre-industrial period), and demonstrating a clear upswing in inequality prior to the industrial revolution.

However, there are certain issues with the data used by Milanovic et al. and Modalsli that could cast doubts over their suitability in supporting the Kuznets/Van Zanden thesis of an upswing in inequality associated with economic growth. Foremost among these is the fundamental assumption that between-group inequality among the various social groups listed by the contemporary authors of such social tables is always greater than the within-group inequality of each of these groups themselves. After all, according to Milanovic et al., *"their interest [of these authors] was in the salient income cleavages they observed around them"* (Milanovic, Lindert et al. 2011), or as Modalsli put it, if within-group dispersion was really bigger [than between-group inequality], then *"the compiler of the table would not have chosen the groups in this way, as they do not add to the 'structuring' of information about the society"* (Modalsli 2011). Yet accepting this assumption—which is required in order to render the inequality calculations reliable—is not as straightforward as it might initially appear.

The most obvious social stratifications devised by contemporary observers in medieval or early modern societies were not necessarily (or usually) motivated by the same concern for *economic* inequality as economists of the twenty-first century usually entertain. Social categories and stratifications in pre-modern times could very well derive their significance to contemporary writers from extra-economic schemes, functions, and classifications. This is obviously the case for such social groups as the nobility, the upper and lower gentry, peers, the army, clergymen, public office-holders, or even artisans—all of which occur frequently in the pre-industrial social tables used by Milanovic et al. Presumably these groups derived meaning as specific social categories not primarily through their economic function or position within society, but because of their extra-economic political, social, cultural, military, or specifically feudal significance (Mousnier 1969). In Max Weber's famous terminology, these would first and foremost be considered status groups—and can only, and at best, secondarily be seen as distinct economic categories (Weber 1978). To assume that these groups should have made economic sense in the same way that economic groups in today's class-based society do to twenty-first-century economists, therefore seems doubtful.

Confounding social, cultural, and political groups with economic classes runs the risk of projecting our own notions of economic inequality backwards upon unequal relations of a highly different nature. We then threaten to obscure, rather than illuminate, what little we know about the timing of changes in pre-industrial inequality. Indeed, most pre-industrial societies were highly unequal—but not necessarily in the strictly economic, market-based sense meant by economists today. If it is the history in the *longue durée* of this—economic inequality—that we are interested, then the stratifications built by contemporaries are rarely an ideal starting point, since the understandings of inequality they reflect are very different from today's.

This is not just an abstract, theoretical observation, but also an empirical one. When looking at the composition of economic inequality in sixteenth-century Bruges for instance, it becomes clear that the aforementioned assumption of Milanovic et al. does not always hold. For Bruges in 1583 we have not only the individual tax contributions at our disposal that we will use for the reconstruction of inequality throughout this article, but also a positioning of these individuals in four general social categories: the poor, the urban commoners, the professions and public office-holders, and the nobility. When using these categories (arguably the four most common 'social' groups of the time) to decompose the Theil coefficient of inequality, only 9% of the total level of urban inequality can be explained by between-group inequality, while the remaining 91% is caused by within-group inequality.[2] A similar observation with regard to the high levels of within-group inequality in social groups has been made for Italy (Alfani 2010, 542).

For the general purpose of reconstructing a first glimpse of general and even global patterns of inequality during the last two millennia, this is less of a problem than when the goal is to closely track changes over time within a single region and relate them to contemporaneous economic and social shifts. For these reasons, I believe it would be prudent not to draw any firm conclusions about the relationship between pre-industrial economic growth and inequality before we have a) more diachronic data that allow for an actual reconstruction of changes in inequality over time in the same place, and b) datasets that are more clearly comparable across time and space—preferably by making use of a single proxy for income inequality.

An alternative: cadastral surveys

Since direct income taxes are a relatively rare find for the pre-industrial period (and when available they often cover only a limited fraction of the population), such sources do not often allow a sufficiently broad reconstruction of changes over time. Information on wealth holdings, on the other hand, is easier to come by in some European regions, especially in the South (Herlihy 1973; Herlihy & Klapisch-Zuber 1985; Fynn-Paul 2005; Piketty, Postel-Vinay et al. 2006; Alfani & Barbot 2009; Alfani 2010; Van Zanden, Baten et al. 2013), but has so far proven relatively sketchy for the Low Countries (Zuijderduijn & De Moor 2012). As a result, many scholars have found it difficult to draw out long-term trends in inequality based on such disparate and often unique sources. The present article aims to overcome this problem by turning to a less ideal but more widely available and more easily comparable alternative: Fiscal sources detailing the (rental) value of houses. Throughout the late medieval and early modern period, as well as during much of the nineteenth century, the estimated value of houses was commonly used as a basis for personal taxation in cities—and thus explicitly taken as an external reflection of status and income. Today, both economists and economic historians generally agree that housing consumption is closely tied to permanent income (Hoffman, Jacks et al. 2002). This rests on the assumption that the income elasticity

[2] For a more detailed reference to the sources and methodologies used in this calculation, see Appendix A and infra.

of demand for housing is not only close to one, but also fixed through time (the issue was discussed at length by Williamson 1985 and Feinstein 1988).[3]

Nevertheless, some caveats in using these sources to produce reconstructions of economic inequality are in order. First of all, Engel effects generally cause the proportion of the budget spent on housing to decline with income, so that inequality estimates based on rental housing values are biased downwards, almost certainly underestimating the level of income inequality found when using these sources. A second caveat is that changes in the housing market could have an adverse effect on the level of inequality reflected in measurements based on the house rental value, without accurately reflecting changes in the income distribution. Periods of higher demographic pressure in the lower regions of the house rental value distribution, for instance, could boost prices at the bottom of the housing market independent of any concomitant changes in (permanent) incomes (Hanus 2010). Since neither the amplitude nor the direction of this effect can be reliably predicted, there is no straightforward way to compensate for this effect. It can nevertheless be assumed that in the long run such temporary distortions were offset by a reshuffling of the housing market, so that supply and demand found a new equilibrium, and again accurately reflected proportionate income levels.

A third caveat when tracing long-term patterns in inequality over time by using rental housing values is the fact that information is available only for (heads of) households, and not for individual family members. Economic historians have recently drawn attention to the effect of different household sizes on the habitual measurements of income or wealth inequality (Hanus 2013). Since most sources providing information on socio-economic inequality take the household as their basic unit of analysis, the results are only valid in so far as inter-household inequality is the measure in which we are most interested. If, however, historical household sizes differ according to socioeconomic position, this implies that the inequality measures will be biased. And if, furthermore, demographic changes over time affected this bias differentially, the results of comparisons over time and space might be distorted as well. A careful comparison between census data and the rental values of houses for one particular eighteenth-century Netherlandish town with a fortunate archival situation (Nivelles) confirms the existence of this bias, but also reveals that any changes through time were most likely offset by the growing tendency of families to share housing facilities, so that the total number of individuals per taxed house remained more or less constant.

For all these reasons, the housing taxes available do not appear to be precisely ideal, but are by and large suitable for tracing changes in income inequality through time. A total of 58 fiscal records of housing valuations has been gathered for the purpose of this study, each detailing (almost) all dwellings in each of the towns studied (an overview in Appendix A). Local officials ordered the redaction of these sources for the purpose of obtaining a justifiable distribution of the fiscal burden. Within the urban fiscal context of the Low Countries, tax exemptions were generally rare and only applied frequently to the real estate occupied by the regular clergy, and—until the seventeenth century—some of the dwellings inhabited by the

[3] For cities in the Low Countries, Hanus 2010 and Hanus 2013 tested the relationship between taxed house rents and income in the sixteenth century (and arrived at some important qualifications, considered in the next paragraph), while Ryckbosch 2012 tested the association between housing value and wealth in the eighteenth century.

higher aristocracy (Janssens, Verboven et al. 1990).[4] The composition of these (proto-)cadastral ledgers indicates that officials (usually clerks and land surveyors) meticulously followed clear routes through town, and, street by street, noted each house they encountered, including those that were vacant or exempted from taxes (see, for instance, the collection instructions in the ordinance issued in Brabant on November 21, 1576 (Lameere & Simon 1902–1910)).

Some of the preserved instructions and guidelines for tax collectors indicate that the value of houses was to be based on actual lease or sale contracts, but it seems unlikely that all valuations were consistently based on such written evidence—the more so since written lease contracts were not always mandatory (Deneweth 2008). An exceptionally detailed register of housing valuations in the town of Aalst, dating from 1672, lists the precise dimensions of each house (width, depth, and number of stories), along with the number and types of rooms within (kitchens, front and back rooms, bedrooms, etc.), as well as the presence of specific facilities (such as a gatehouse, baking oven, water well, workshop, or horse stables). It is quite likely that visual inspections taking into account such easily discernable and quantifiable features of dwellings formed the most common basis for the other early modern cadastral surveys as well. In the nineteenth-century surveys, houses were usually priced by referring to the known value of a limited number of 'typical' houses. Like the early modern surveys, these too were most often based on the ways in which the physical characteristics of the home reflected estimated market prices (Bigwood 1898, Hannes 1972, Verhelst 1982).

The rental values of houses recorded in the (proto-)cadastral surveys have been used to reconstruct approximate household distributions of income. Because of its widespread use, its straightforward interpretability, and its sensitivity to changes around the distribution's modus, the Gini coefficient has been chosen as the main tool for inequality measurement (Champernowne 1974, Allison 1978, Cowell 2000). Alternative inequality measurements based on the Entropy measurement family are available from the author upon request, but produce no substantially different results.

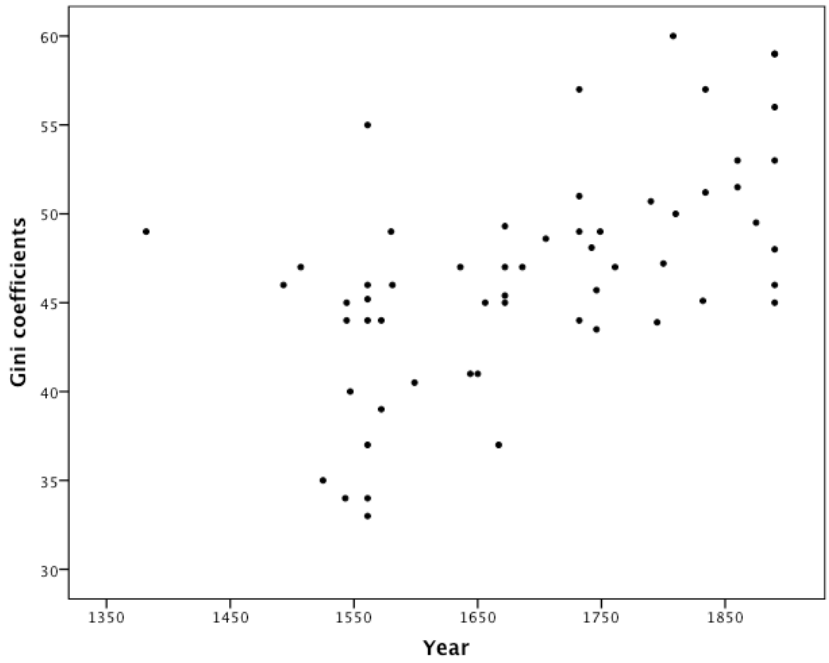
3. Results: a U-curve of inequality (14th-19th centuries)

When examining the Gini coefficients for the different cities across time in a first, preliminary way (Figures 1-3), the pattern of urban inequality that emerges throughout the Low Countries between 1400 and 1900 follows what could perhaps be described as a skewed 'U-curve'—especially when taking into account the downswing in inequality in some of the individual cities apparent in Figures 2 and 3. In so far as the fragmentary nature of the data inform us, income inequality was generally higher at the start of the period under scrutiny than during the sixteenth and seventeenth centuries. More strikingly, almost everywhere inequality was much higher at the end of the nineteenth century than it had been at any point in time since the late Middle Ages. Moreover, this high degree of nineteenth-century inequality was not the result of the industrial revolution, since it was already well under way

[4] Such exemptions for clergy and noblemen pertained only to their primary houses of residence and not to the real estate they leased out.

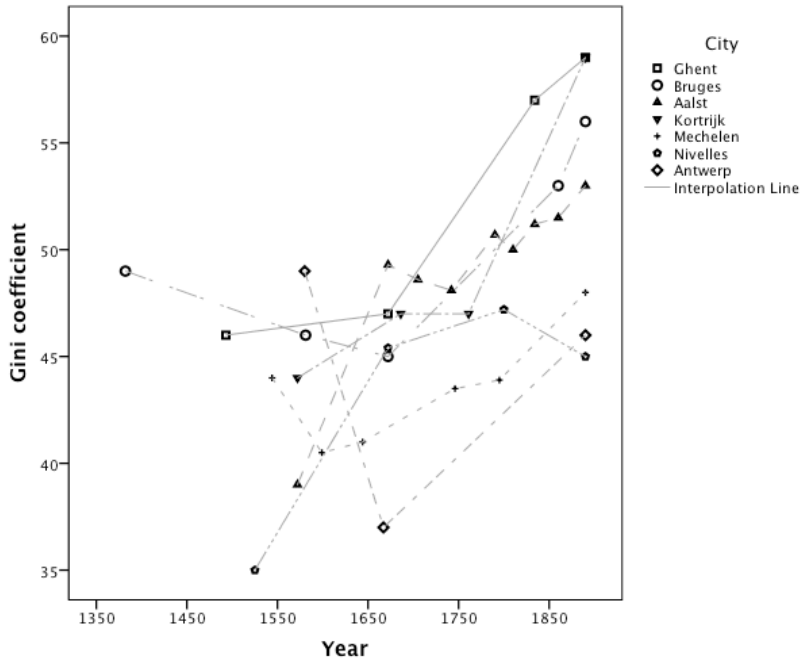
for at least half a century prior to its 'take-off'. This rise spanned periods of urban commercial growth (c.1600–c.1650; c.1750–c.1850) as well as of decline (c.1550–c.1600; c.1650–c.1750). This suggests not only that inequality was not as straightforwardly connected to the industrialisation process as neo-classical models predict, but also that its association with economic growth appears to be much more ambiguous.

Figure 1. Housing inequality at the urban level in the Low Countries, 14th-19th centuries



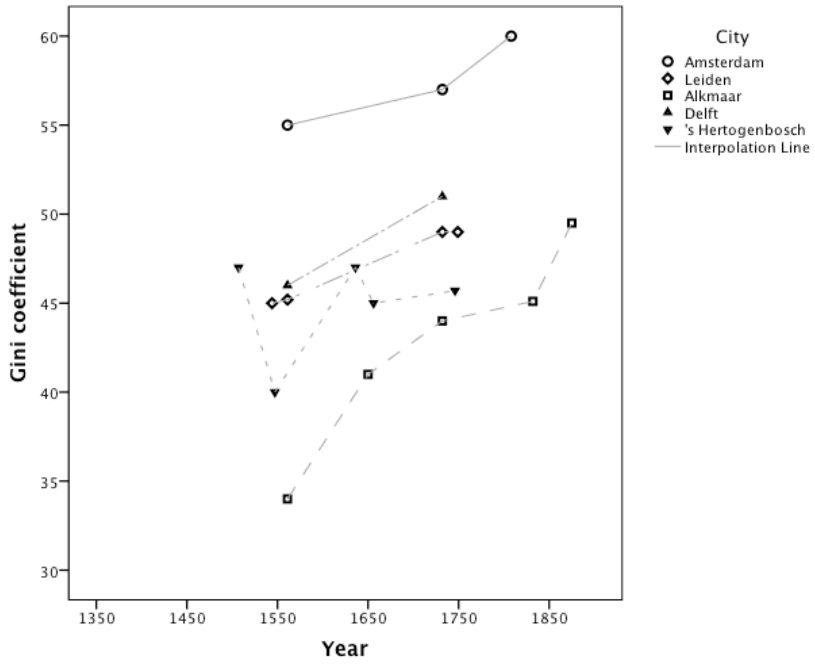
Sources: See Appendix A and Van den Berg & Van Zanden 1993, Van Zanden 1995.

Figure 2. Housing inequality in the Southern Low Countries (14th-19th centuries)



Sources: See Appendix A.

Figure 3. Housing inequality in the Northern Low Countries (15th-19th centuries)



Sources: Van den Berg & Van Zanden 1993, Van Zanden 1995

In order to further explore these results, their interpretation has been divided into three parts. In the first segment, a simple OLS regression is introduced in order to study some of the main determinants affecting income inequality in this dataset. In the second section I compare the experience of the Northern and Southern Low Countries during the early modern period in order to explore the relationship between growth and inequality. In the final interpretative section, I examine alternative factors that could explain changes in inequality in the Low Countries over time.

4. Interpretations

4.1. General determinants: regression analysis

In order to gain a first indication of the determinants of pre-industrial urban inequality in the Low Countries, the results from an OLS regression on the level of inequality are presented here (Table 1 and methodological remarks are in Appendix C). The Gini coefficients from towns in both the Northern and Southern Low Countries are taken as the dependent variable in the analysis. Since most variables commonly invoked in modern, econometric studies of inequality are not readily available for the pre-industrial era, only rather rough proxies have been included here as independent variables. Nevertheless, when taken together, these variables and dummies aim to shed some light on the validity of classical, neo-classical, or Marxist theoretical models in accounting for the changes in inequality from the fourteenth century onwards in the Low Countries. By looking at the effect of population size, economic growth, real wages, and functional, regional, and chronological proxies, at least some general characteristic can be discerned.

The same analysis has been undertaken with the delta values for population size and the Gini coefficient for each case study, with essentially the same results as those presented here. A more detailed overview of the variables employed and their underlying data sources can be found in Appendix C. For the entire region and period considered, there are 58 valid cases included in the model.

Table 1. Results from an OLS regression on the Gini coefficient in urban case studies of the Low Countries (15th-19th centuries)

	A		B	
	b (Std. Error)	β	b (Std. Error)	β
Population size	0.082 (0.017)	0.550 ***	0.043 (0.020)	0.289 **
Population change			- 0.025 (0.139)	- 0.021
GDP per capita			0.001 (0.001)	0.081
Real wage			0.390 (0.538)	0.107
Dutch Republic (dummy)			- 1.741 (1.552)	- 0.137
Port city (dummy)			3.140 (2.129)	- 0.186
Capital function (dummy)			7.887 (2.696)	0.393 ***
Pre 1550 (dummy)			- 5.376 (2.001)	- 0.303 **
Post 1750 (dummy)			4.549 (1.931)	0.344 **
F	24.259 ***		7.109 ***	
R^2	0.302		0.571	
N	58		58	

Sources: see Appendices A and C.
*Results are from an OLS regression with the Gini coefficient per town as the dependent variable. *** p < 0.01, ** p < 0.05, * p < 0.1.*
Standard assumptions appropriate to OLS regression have been met: there is no problematic multicollinearity (VIF = 1.95); the assumption of independent errors is met (Durbin-Watson = 1.834); and the residuals are normally distributed, without heteroscedasticity.

What are the main interpretations to be derived from this analysis? Clearly the strongest determinant of inequality at an urban level in this dataset is urban population size: larger cities tend to have higher levels of inequality. A more diverse economic structure, but also higher levels of immigration needed to sustain larger urban population sizes (in the context of

low or negative urban natural demographic growth) seem likely candidates to explain this effect. Since the towns under scrutiny generally tended to grow through time—and especially during the eighteenth and nineteenth centuries—this in itself partially helps to explain the growing inequality pattern established earlier. Given the wide variety of underlying causes potentially at the heart of this relationship between size and inequality, it is impossible to single out a unique cause.

Even though population size is a rather strong predictor of inequality in this model, the addition of a number of other independent variables nevertheless improves the explanatory value of the model. Perhaps somewhat surprisingly, the (at first sight) most obvious explanatory variables do not significantly account for differences in inequality. Economic growth (measured in terms of regional GDP per capita) and the real wage level (measured in terms of subsistence baskets for a mason labourer) do not seem to affect the level of inequality per town over and above the effect captured by population size. Strikingly, dummy variables for the towns in the Northern Low Countries (as opposed to the Southern Low Countries), and for towns with a maritime port, do seem to indicate slightly depressing effects upon local inequality levels, but are not sufficiently significant.

By contrast, if a town carried the administrative or political functions of a capital city, this tended to increase the local level of inequality. This suggests that political factors had an important role to play, in both direct and indirect ways. Equally clear is the effect of time, whereby cases prior to the middle of the sixteenth century had a significantly lower level of inequality, while cases after the middle of the eighteenth century tended to have higher Gini coefficients. The fact that this effect is clear, even though the model controls for population size and GDP per capita, indicates that a time-effect is captured here that cannot be solely attributed to processes of demographic and/or economic growth. Moreover, the significance of the 'pre 1550' dummy indicates that such influences on inequality were already at play well before the first beginnings of industrialisation or modern economic growth in the Low Countries. This last finding stresses the idea of a secular growth in inequality, and less that of a (skewed) U-curve described above.

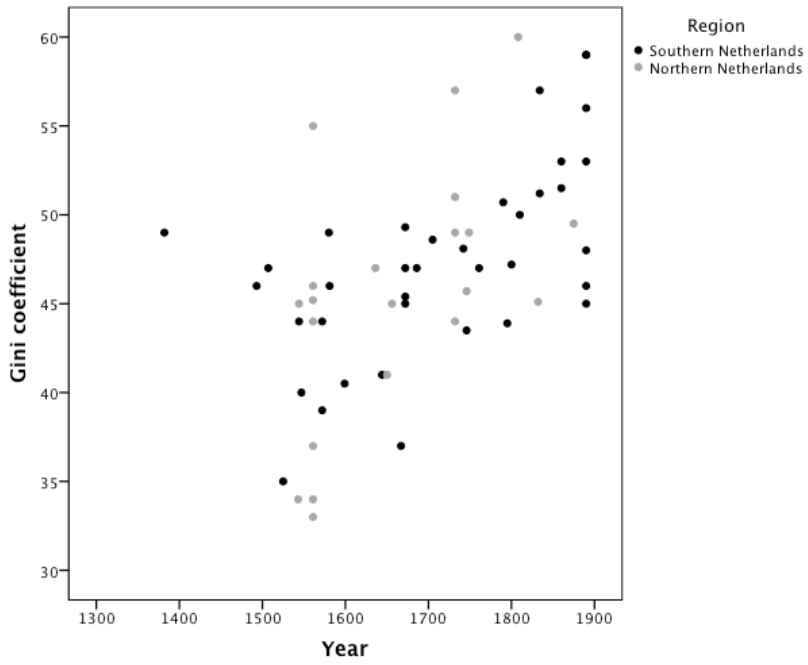
4.2. The influence of economic growth: some remarks

The regression analysis presented above indicates that economic growth might not be as straightforward a predictor of inequality for the pre-industrial period as sometimes assumed. It can be instructive, in this respect, to pay particular attention to the differences in inequality levels between the towns in the Southern Low Countries (currently 'Belgium') and the Northern Low Countries (currently 'the Netherlands'). As mentioned above, both regions set out on very different paths of economic development from the 1580s onwards: while the North embarked upon the success story of the Dutch Republic and its 'first modern economy', long stagnation until the middle of the eighteenth century hit the South.

Nevertheless, for the sixteenth until the eighteenth centuries, a period for which we have overlapping data from both the Northern and Southern Low Countries, the trend of rising inequality appears to be similar in both regions. Not only the trend, but also the absolute level of inequality in the Northern Low Countries remains broadly comparable to that in the Southern Low Countries (Figure 4). Even in the seventeenth century, during the

heyday of Holland's economic miracle, the level of inequality in towns such as Leiden and Alkmaar did not greatly surpass that in Aalst (a Flemish town of comparable size). Only the high degree of inequality in Amsterdam appears as an outlier, which is easily attributable to the much greater size of its urban population (at the end of the seventeenth century its population was at least five times as large as that of Ghent, the largest city in the Southern Low Countries examined here).

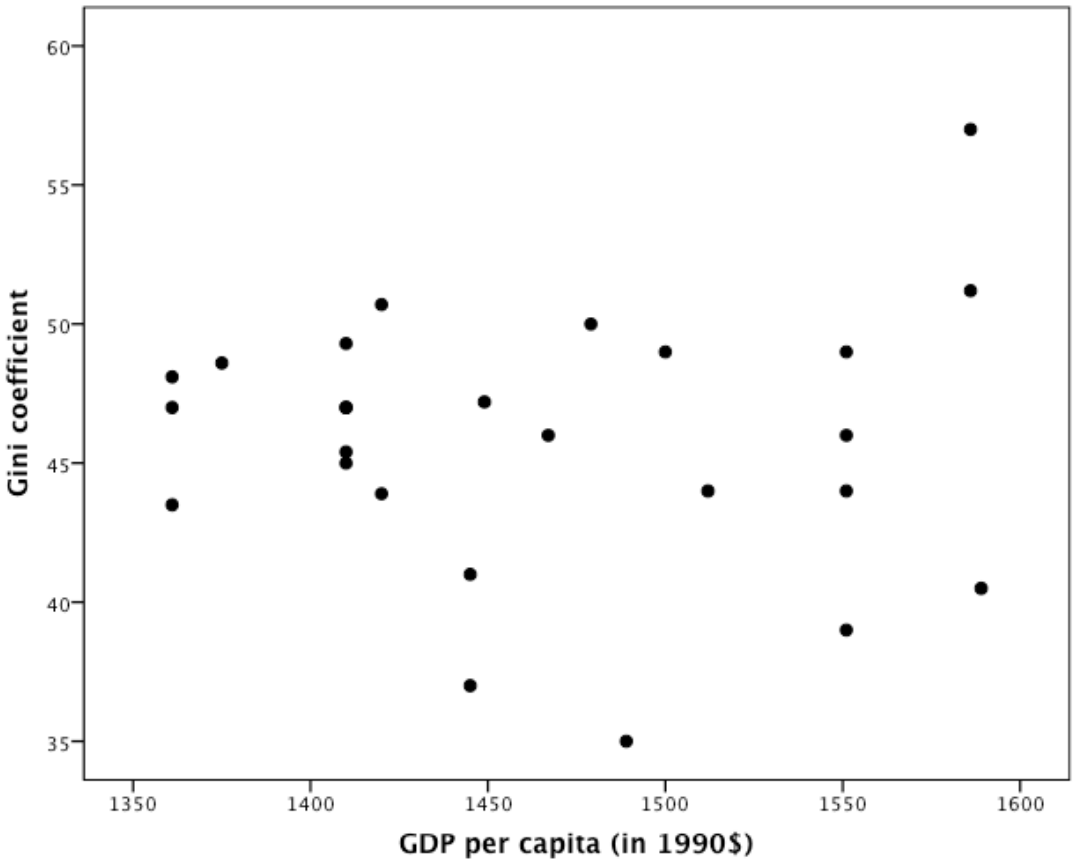
Figure 4. Housing inequality in the Northern and Southern Low Countries compared (14th-19th centuries)



Sources: See Figure 1

Already two decades ago, Jan Luiten Van Zanden observed that during the early modern period growth in inequality appeared to have been the rule rather than the exception in the Northern Low Countries (Van Zanden 1995). Yet the comparison with the Southern Low Countries now demonstrates that this was probably not the result of a concomitant process of economic growth. Only when confronting the data for Holland—which was available to Van Zanden almost two decades ago when he first hypothesised his 'super Kuznets curve'—with the new data on inequality in the Southern Low Countries, does it become clear that economic growth was certainly no prerequisite for rising inequality in the early modern economy of the Low Countries. Moreover, when examining the relationship between regional levels of GDP per capita and inequality in the Southern Low Countries before the end of the nineteenth century, no relationship appears to be evident at all (Figure 5).

Figure 5. Relationship between (urban) housing inequality and (regional) GDP per capita (Southern Low Countries, 1350–1850)



Sources: See Figure 1

4.3. Time, politics, and capitalism

The comparison between the Northern and Southern Netherlands and the results from the regression analysis suggest that in explaining pre-industrial changes in inequality, too much attention has generally been paid to economic growth and decline, and not enough to less-easily quantifiable processes. Therefore in this last section, I will argue that there are strong indications of the influence of other explanatory variables. The most important of those is the (political) power of capital over labour, and its changes over time. By means of a diachronic analysis of inequality in the cities of the Southern Low Countries, I will argue that such changes are more apt at explaining changes in inequality than a Kuznetsian trade-off between growth and inequality. The focus in this section will be on explaining the rise of inequality in the pre-modern Southern Low Countries, since the relative lack of economic growth in that region during this period begs the question, What explanatory variables must be invoked to explain the similarity in the path of inequality as compared to the Northern Low Countries (where the growth in inequality appears to be over-explained)?

Burgundian prosperity (1350–1550)

The fourteenth and fifteenth centuries have often been described as a period of extraordinary 'Burgundian affluence' in the Flemish cities. The fifteenth-century chronicler Philippe de Commynes praised the richness of the region as 'promised lands' (*'terres de promissions'*), the result of the benevolence of its ruler Philip the Good (Van Der Wee 1963, Van Uytven 1963). In fact, almost everywhere in Europe real wages were at a high point following the relative scarcity of labour resulting from the drop in population caused by the ecological and epidemiological crisis of the late Middle Ages (Allen 2001). In the Southern Low Countries these high living standards were accompanied by a profound economic reconversion. During the fourteenth and fifteenth centuries the export-oriented (textile) industries in the Flemish cities became increasingly subject to corporatist organisation and regulation. The industrial basis of the region was transformed from a low-wage economy based on a high degree of labour division to a skill-intensive export industry in which the quality of labour formed the foundation of added value and economic gains (Van Der Wee 1988). This reconversion was followed through in Brabant during the sixteenth century, when Antwerp combined its role as a world-leading commercial staple market with high-level luxury production and processing industries. Although proto-industrial production of coarser textiles at lower wages also expanded in the countryside during this period, this activity was largely complementary to urban forms of production and did not adversely affect urban competitiveness or wages (Van Der Wee & D'haeseleer 1995).

Although our data on the inequality trends in this period are relatively scarce, the available evidence suggests that the economic reconversion towards a more skill-intensive and high-wage economy governed by the political, social, and economic structures of corporatism brought a reduction of economic inequality with it. In the only large city for which we have suitable data from such an early date (Bruges), the level of inequality declined from the end of the fourteenth century onwards. This decline seems to have continued until the seventeenth century, but probably occurred most severely during the fifteenth century. Since no data for this period are available for the smaller cities, it is hard to discern whether a similar evolution was evident there as well—yet the decline in inequality in the medium-sized towns of Mechelen and 's Hertogenbosch between c. 1500 and c. 1625 suggests that it certainly might have.

The price of labour, as well as its share in total income, was relatively high during this period, and since small-scale production by independent master-artisans dominated production relations, factor endowments of capital were less unequal than they had been before. This situation of relative equality would come increasingly under pressure as the second half of the sixteenth century proceeded, especially when price inflation and wage rigidity slowly undermined the purchasing power of growing urban and rural groups of wage labourers (Van Uytven 1958, Blondé & Hanus 2009).

Revival and prolonged decline (1550–1750)

After the severe economic disruptions caused by the Dutch Revolt and the resulting capital drain and new commercial barriers, the urban economy of Southern Netherlands revived

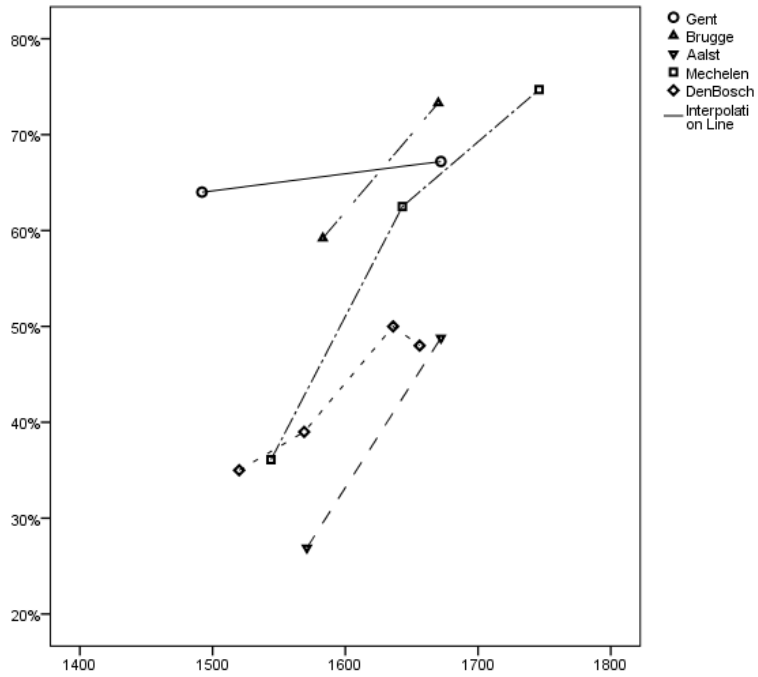
rapidly during the first half of the seventeenth century (Baetens 1976). This revival was based on two divergent forms of economic development. The first was the further deepening of the skill-intensity of export-oriented luxury production that was based in the large urban centres. This qualitative expansion of the urban industries explains the relatively low levels of inequality in the large towns during this period. Low-wage industries based on a higher division of labour and attracting lower-paid migrants were still relatively rare in the larger cities at this point. However, in the smaller towns and the countryside an alternative economic development took shape that would continue to expand during (at least) the next two centuries. There the proto-industrial production of coarser woollen (Light and New Drapery) and linen textiles created a different economic system based on the cheap production of standardized fabrics. The fact that this low-wage industry now surfaced not only in the countryside but also in some smaller towns—such as Aalst and perhaps even Ghent—suggests that the wage levels and social structure of the urban economy now came closer to that of the already well proto-industrialized countryside (Van Der Wee 1988).

When the urban luxury trades came under severe pressure by the end of the seventeenth century, it is this latter form of cheap, export-oriented industrial production on which the urban and rural economy of the Southern Low Countries came to rest. With this gradual 'proto-industrialization' of the urban economy new ways of organising production came to the fore (compare with Friedrichs 1975). The use of putting-out systems became increasingly common, not least in urban lace production where merchant-entrepreneurs employed growing numbers of women and children at low wages (Soly 1988). During this two-century period, the economy of the Southern Netherlands was thus gradually transformed from a high-wage luxury producer and fashion-maker to a low-cost manufacturer of cheap export goods destined for consumption in Southern European and New World markets. This reconversion, which had its roots in rural proto-industrial production, came hand-in-hand with the expansion of growing levels of inequality and more unequal property relations. Although inequality levels and trends diverged widely between the towns surveyed here, most towns show a clear upswing of inequality from some point during these two centuries. For the large cities the start of this growth can almost certainly be situated between the 1670s and the 1830s. In the small towns inequality levels in the sixteenth century were lower than in the larger cities, but appear to have grown continuously throughout this period. This was also indicated by the significant and negative effect on inequality of the 'pre 1550' dummy variable in the regression analysis.

Not only economic inequality grew, but dependency relations also deepened, as putting-out and subcontracting networks controlled by merchant-entrepreneurs and artisan-entrepreneurs expanded in the urban and rural economies alike. The largest industrial export-industries of the Southern Low Countries became less based on the corporatist sector of production, its regulations, and political power. This wider tendency towards capital concentration is exemplified by a similar trend towards concentration in the urban real estate market. For all case studies for which we have indications of home ownership during the sixteenth and seventeenth centuries (Ghent, Bruges, Aalst, Mechelen, 's Hertogenbosch) home ownership appears to have been clearly in decline (Figure 6). By the end of the seventeenth century the proportion of rental houses was lower than 50% of all dwellings almost nowhere, and in Mechelen, Ghent, or Bruges even higher than 65%.

These trends towards capital concentration—in both industry and real estate—help explain why economic decline during the second half of the seventeenth and the beginning of the eighteenth centuries corresponded to deepening levels of economic inequality.

Figure 6. The share of rental houses per town, Southern Netherlands, 1500–1800



Sources: See Appendix A

Restructuring and growth (1750–1900)

In the final period considered here, inequality everywhere continued upon the rising path on which it had settled in the previous period. As a consequence, in nearly every single town the level of inequality in 1890 was higher than it had been at any measured point before then. Only in Nivelles did the level of inequality drop during the nineteenth century, so that by 1890 it reached a degree similar to the situation in the seventeenth century. Perhaps this was due to the town's re-ruralization and remarkably late industrialization during this period (Ryckbosch 2010).

A lack of data points for the period around 1800 currently prevents precise insight into the timing of the general upswing in inequality in the other cities. Yet the already high levels of inequality around the beginning of the nineteenth century in Aalst, Ghent, and Mechelen indicate that this profound widening of incomes began well before the take-off of the industrial revolution. It seems likely that this deepening of inequality prior to industrialization was the result of processes already underway since the seventeenth century. It is certainly clear that this process was further strengthened throughout the eighteenth and nineteenth centuries. In the countryside, the proto-industrial production of linen textiles destined for export expanded and further encouraged the fragmentation of rural property holdings. Even if the propositions of Franklin Mendels and Joel Mokyr that the extreme development of this rural low-wage industry provided the basis for the early industrialization

of Belgium (Mendels 1972, Mokyr 1976, Mendels 1981) are no longer generally accepted, it is nevertheless clear that the rapid growth of this economic sector caused wide-spread proletarianization well before the emergence of industrial capitalism.

In the urban sector as well, tendencies towards proletarianization were increasingly clear from at least the middle of the eighteenth century onwards (Lottin & Soly 1983, Soly 1988, Lis & Soly 1997). Subcontracting networks enabled considerable capital concentration in the hands of small numbers of artisan-entrepreneurs, while it reduced large numbers of urban artisans to *de facto* wage labourers (Lis & Soly 2008). Such organizational restructuring lay at the heart of the expanding textile industries of the eighteenth-century's Southern Low Countries, where the innovative production of mixed linen and cotton fabrics (especially the so-called 'siamoises'), cotton spinning, and printing reached new heights of industrial productivity (Sabbe 1945). By the last quarter of the eighteenth century towns such as Ghent, Aalst, and Bruges all counted several *manufactures* where wage labour in textiles, tobacco processing, and sugar refining was concentrated in the hands of small numbers of entrepreneurs (Coppejans-Desmedt 1952, Moureaux 1974, Ryckbosch 2012).

The argument laid out here is that these changes in the organization of production went hand-in-hand with a reshuffling of the endowments of the principal factors of production within society, ultimately resulting in a deepening of inequality throughout most of the eighteenth and nineteenth centuries. In Ghent the (maximum) proportion of households with income-yielding (invested) capital declined from 31% to 20% between 1738 and 1788 (Vanaverbeke 1969, Jacobs 1981). In Antwerp this proportion fell from 32% to 24% in the same time period (Feyaerts 1967, Vandervorst 1977), and in Aalst it declined from 57% in the 1670s to 53% around 1710, to 38% around 1745, and finally 34% by the 1790s (Ryckbosch 2012). Clearly, already in the eighteenth century Belgium (the Southern Low Countries) acquired the basic characteristics of a low-wage economy with a large and continuously growing labour force of wage-dependent men, women, and children (Mokyr 1976). Since this process of proletarianization and capital concentration continued throughout most of the nineteenth century, it is no surprise that even at the beginning of the twentieth century contemporary social scientists concluded that Belgium enjoyed lower living standards and higher degrees of inequality than, for instance, England (Rowntree 1910). Or that nineteenth-century Belgium was characterised by unprecedented levels of capital concentration in the hands of both traditional aristocratic families and the (newer) industrial bourgeoisie (Soltow 1981, Clark 1984).

5. Conclusions

The findings of this study contradict the view that rising levels of income inequality in the early modern Low Countries were the result of the region's short spells of economic efflorescence. Comparing the Southern and Northern Low Countries reveals that divergent paths of economic development had little influence on the general trend of urban inequality. This trend was generally upwards from the sixteenth century onwards, through spells of economic growth and economic decline alike. The OLS regression analysis on urban inequality levels presented here indicates that, when controlling for the population size of

cities, neither economic growth nor living standards seem to have had a significant effect on inequality. On the other hand, a town's political function and the time period of the case study produce significant effects on inequality levels. This suggests that transformations of a different nature determined the growth of inequality over and above the growth in population size during the pre-industrial period. This effect was clear in both the Southern and Northern Low Countries, and began well before the 'take-off' of the industrial revolution around the beginning of the nineteenth century.

In attempting to account for this skewed U-curve of inequality from the fourteenth until the nineteenth centuries, and more particularly for the question of why inequality rose in the Southern Low Countries during a time of economic stagnation and decline, I have drawn attention to the organisation of industrial production and the specific distribution of factor endowments these entailed. The long-term history of economic inequality in the Low Countries thus suggests a cyclical pattern, in which inequality was high during periods of large-scale, standardized export production in a low-wage economy (13^{th}–14^{th} centuries; 18^{th}–19^{th} centuries), and low in periods of skill-intensive export production of luxury goods and services (15^{th}–17^{th} centuries).

Even though these results contradict established theories on the relationship between economic growth and inequality—and their application to the pre-industrial period—they do fit in well with an older historiography on the social and economic history of the region. The gradual process of capital concentration and labour proletarianization, both in rural proto-industries and urban export-oriented textile industries, which spans the sixteenth until the end of the nineteenth centuries, can thus be invoked to explain why income inequality grew almost continuously. This finding indicates that economic historians looking for insight into the issue of inequality and its relationship to economic growth would do well to refocus attention upon the functional distribution of income and the factor endowments that shape its effects. The results for the Low Countries suggest that the level of capital concentration at the heart of Thomas Piketty's explanation for inequality movements in nineteenth- and twentieth-century Europe and North America was not a persistent feature of pre-industrial economies, but the result of a gradual reshuffling of factor endowments during the early modern period.

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Appendices

Appendix A

Overview of fiscal sources used

City	Year	Sources
Brugge (Flanders)		
	1382	A.R.A. (Royal Archives Brussels), Rekenkamer, n° 45699.
	1583	Courtesy of H. Deneweth (Vrije Universiteit Brussel).
	1667	Courtesy of H. Deneweth (Vrije Universiteit Brussel).
	1860	P.-C. Popp, *Atlas Cadastral Parcellaire de la Belgique*. *Ville de Bruges*, s.d.
	1890	Documents parlementaires, Chambre des représentants, session 1890-1891, n° 261, pp. 135-369. Courtesy of S. Vrielinck & LOKSTAT (Universiteit Gent).
Gent (Flanders)		
	1492	S.A.G. (Municipal Archives Gent), reeks 20, n° 15. Courtesy of M. Boone (Universiteit Gent).
	1672	S.A.G., reeks 153, n° 2.
	1834	Hannes & Vanhaute 2007.
	1890	Documents parlementaires, Chambre des représentants, session 1890-1891, n° 261, pp. 135-369. Courtesy of S. Vrielinck & LOKSTAT (Universiteit Gent).
Aalst (Flanders)		
	1572	S.A.G., reeks 28, n° 1 (3).
	1602	S.A.A. (Municipal Archives Aalst), Oud Archief, n° 265.
	1672	S.A.A., Oud Archief, n° 264.
	1705	S.A.A., Oud Archief, n° 269.
	1742	S.A.A., Oud Archief, n° 273.
	1791	S.A.A., Oud Archief, n° 277.
	1834	W. Jacob, *Grondgebruik, woningvoorraad en eigendomsverhoudingen,* Ma Thesis, Gent*,* 1970.
	1860	W. Jacob, *Grondgebruik, woningvoorraad en eigendomsverhoudingen,* Ma Thesis, Gent*,* 1970.
	1890	Documents parlementaires, Chambre des représentants, session 1890-1891, n° 261, pp. 135-369. Courtesy of S. Vrielinck & LOKSTAT (Universiteit Gent).
Kortrijk (Flanders)		
	1572	S.A.G., reeks 28, n° 34 (145).
	1686	R.A.K. (State Archives Kortrijk), Oud Stadsarchief Kortrijk, n° 784.
	1761	R.A.K., Oud Stadsarchief Kortrijk, n° 342.
	1890	Documents parlementaires, Chambre des représentants, session 1890-1891, n° 261, pp. 135-369. Courtesy of S. Vrielinck & LOKSTAT (Universiteit Gent).
Antwerp (Brabant)		
	1584	Stadsarchief Antwerpen, GA n° 4833; courtesy of Heidi Deneweth, Joeri Lersberghe, Marlene Gonzalez, based on Gil Degueldre, *Kadastrale ligger Antwerpen (1584-1585)*, 2013.
	1667	R. Baetens, *De nazomer van Antwerpens Welvaart* (1976) 271-280. Courtesy of Laura van Aert.
	1890	Documents parlementaires, Chambre des représentants, session 1890-1891, n° 261, pp. 135-369. Courtesy of S. Vrielinck & LOKSTAT (Universiteit Gent).

Mechelen (Brabant)	
1544	S.A.M. (Municipal Archives Mechelen), *Oud Archief*, serie K. Impots Maisons, n° 1. Courtesy of Jord Hanus.
1579	Idem, n° 3. Courtesy of Jord Hanus.
1599	Idem, n° 4. Courtesy of Jord Hanus.
1643	Idem, n° 6. Courtesy of Jord Hanus.
1746	Idem, n° 14. Courtesy of Jord Hanus.
1890	Documents parlementaires, Chambre des représentants, session 1890-1891, n° 261, pp. 135-369. Courtesy of S. Vrielinck & LOKSTAT (Universiteit Gent).
s' Hertogenbosch (Brabant)	
1506	J. Hanus 2010.
1547	J. Hanus 2010.
1636	J. Hanus 2010.
1656	J. Hanus 2010.
Nivelles (Brabant)	
1525	V.N. (Municipal Archives Nijvel), n° 268.
1667	V.N., n° 1382.
1680	V.N., n° 1194.
1800	V.N., n° 2224.
1890	Documents parlementaires, Chambre des représentants, session 1890-1891, n° 261, pp. 135-369. Courtesy of S. Vrielinck & LOKSTAT (Universiteit Gent).

Appendix B

Estimates of inequality, measured in Gini coefficients, based on the rental value of houses

	Gent	Brugge	Aalst	Kortrijk	Den Bosch	Nijvel	Mechelen	Antwerp
1400		,49 ‡						
...								
1500	,49 †				,47			
1525						,35		
1550					,40		,44	
1575		,46	,39	,44				,49
1600							,41	
1625					,47			
1650					,45		,41	
1675	,47	,45	,49	,47		,45		,37
1700			,49					
1725								
1750			,48	,47	,46		0,44	
1775								
1800			,51			,47	0,40	
1825	,57		,51					
1850		,53	,52					
1875								
1900	,59	,56	,53	,59		,45	,48	,46

Note: For visual convenience, the precise dates are approximations.

† Data are only from one of the five parishes (Sint-Jacobsparochie).

‡ Data are only from one of the six town quarters (Sint-Jacobszestendeel). When comparing the Gini of only this quarter (0,45) with that of the whole town (0,46) in 1575, the difference is small, thus reinforcing the robustness of the earlier figure from 1400.

Sources: See Appendix A.

Appendix C

Table C1. Means and standard deviations of the non-dummy variables in the regression analysis

Variable	Mean	St. Dev.
Gini	0.466	0.062
Population size	31.543 (x 1,000)	41.121 (x 1,000)
Population change	1.778 (Δ ‰ / 50 yrs.)	5.192 (Δ ‰ / 50 yrs.)
GDP/capita	1,954 (1990$)	676 (1990$)
Real wage	7.578 (baskets)	1.695 (baskets)

Table C2. Sources and notes on the non-dummy variables in the regression analysis

Variable	Sources
Gini	See Appendix B. The Gini has been calculated from the estimated housing value per household, using the sources listed in Appendix A. Uninhabited houses, as well as dwellings occupied by members of the regular clergy, have been excluded from the analysis.
Population size	Unless stated otherwise, population estimates are derived primarily from De Vries 1984, and if missing from Bairoch et al. 1988. Complementary data have been collected from Dambruyne 2001; Jaspers & Stevens 1985; Van Werveke 1984; Stabel 1995; Ryckbosch 2012; Faipoult 1802; Hanus 2013; Bruneel 1975; Jacquemin 1996; Blondé 1999; Soltow & Van Zanden 1998.
Population change	Idem.
GDP/capita	Bolt, J. and J. L. van Zanden (2013). The First Update of the Maddison Project; Re-Estimating Growth Before 1820. Maddison Project Working Paper 4.
Real wage	Robert C. Allen, *Consumer price indices, nominal / real wages and welfare ratios of building craftsmen and labourers, 1260-1913.* The real wages pertain to mason-labourers, and are expressed in subsistence consumption baskets. A preliminary analysis of the available wage and price data for the towns of Aalst (Verlinden et al. 1959-1973, v. 3, pp. 189-221), Gent (ibid., v. 2, p. 88; ibid., v. 3, pp. 95-185), Antwerp (ibid., v. 3, pp. 350-357; ibid., p. 512), Bruges (ibid., v. 2, pp. 39-46), Deinze, and Kortrijk (ibid., v. 2, pp. 139-143) indicates that on average the difference in wage levels between the different towns is matched by a similar difference in the price level of wheat. There is thus no indication that real wages differed consistently between towns of various sizes within the same economic region (even though nominal prices and wages tended to be considerably lower in the smaller than in the larger towns).

Table C3. Correlation matrix of non-dummy variables in the regression analysis

	Gini	Population	Pop. change	GDP/capita	Real wage
Gini	1	.550 **	.191	.361 **	.083
Population	.550 **	1	.135	.226	.228
Pop. Change	.191	.135	1	.203	.420 **
GDP/capita	.361 **	.226	.203	1	-286 *
Real wage	.083	.228	-.286 *	.420 **	1