

HOW UNEQUAL IS LATIN INEQUALITY?

Five centuries of wage inequality, Portugal 1500-2000

Alvaro S. Pereira
School for International Studies
Simon Fraser University
515 West Hastings Street
Vancouver, BC, V6B 5K3,
Canada
apereira@sfu.ca

Jaime Reis
Instituto de Ciências Sociais
Av. Aníbal de Bettencourt, 9
1600-189 LISBOA
Portugal
jaime.reis@ics.ul.pt

Ana Margarida Silva
Instituto de Ciências Sociais
Av. Aníbal de Bettencourt, 9
1600-189 LISBOA
Portugal

Abstract

This paper utilizes new archival data from Portugal in order to provide additional evidence on Latin inequality in the last five centuries. We survey the evolution of wage income and income inequality in Portugal from the mid 16th century to the early 20th century. By utilizing new income and wealth data from an important historical university city, Coimbra, we are able to calculate a plethora of inequality measures across this large period. This research also presents new evidence on nominal and real wages for a wide variety of professional categories (including builders, doctors, university professors, and low skilled workers), as well as on the evolution of wages ratios. We find that: a) inequality started rising in the 17th century and reached a peak in the late 18th century, b) Inequality is mostly between classes, supporting existing evidence on this issue in other countries, and c) Wage premiums rose in the 19th century.

JEL Classification: N13, D63

1. Introduction

Latin countries are perceived to be more unequal than other countries with similar levels of income. In part, this view is explained by current inequalities, since Latin countries in Europe and in the Americas exhibit a higher degree of inequality than other countries (Lopez and Perry 2008). The work of Engerman and Sokoloff and their co-authors (Engerman and Sokoloff 1997, Engerman, Haber and Sokoloff 2000) also reiterates the idea that the degree of inequality was always much greater in Latin American countries, partly due to land endowments, but also due to social inequalities in Latin societies. In contrast, recent work has suggested that our traditional view on Latin inequality might not be completely true. Thus, Williamson (2009) and Milanovic, Lindert and Williamson (2008) present new empirical evidence based on social tables that suggest that, until the 18th century, Latin inequality was not higher than in other parts of the world, and that, in fact, inequality in Latin countries was relatively trivial until 19th century. Could this also be true for other Latin countries? What can we learn from their experiences?

This paper provides additional evidence on Latin inequality in the last five centuries by looking at new data on Portugal, and by analyzing the evolution of wage and income inequality in Portugal from the mid 16th century to the 20th century. By utilizing new income and wealth data from an important historical university city, Coimbra, we are able to calculate a plethora of inequality measures across this large period, and we are able to investigate the interactions between inequality and Portuguese economic development in the very long run.

In addition, this research also presents new evidence on nominal and real wages for a wide variety professional categories (more than 90 professional categories, including builders, doctors, university professors, and low skilled workers), as well as on the evolution of wages premiums. We find that: a) inequality started rising in the 17th century and reached a peak in the late 18th century, b) Inequality is mostly between classes, supporting existing evidence on this issue in other countries, and c) Wage premiums rose in the 19th century, d) gender inequality rose from the 16th to the 18th centuries, but then fell in after the mid 19th century.

2. Wages and prices in Coimbra

In spite of recent advances, the historical data on Portuguese inequality are very sparse. At most, measures of inequality are calculated for the 20th century (Lains, Guilera, and Gomes 2008, Guilera 2009), but we do not know much, if anything, for earlier centuries. Nevertheless, we do know that, currently, Portugal is one of the most unequal countries in the OECD (just behind Turkey and Mexico), and that the country has exhibited a high degree of inequality throughout the 20th century. The questions that remain is whether this high degree of inequality is present for previous centuries, and whether inequality has evolved over the very long run. The rest of this paper tries to address these questions. More specifically, we utilize a dataset collected from new archival work, in order to observe the evolution of inequality in Portugal since the 16th century.

Portugal is an interesting case study, not only because the country was at the forefront of the process of European overseas expansion, but also because it sheds some

light on the development of middle-income countries in the European periphery. In fact, recent research has shown that, from the 1500s until the late 18th century, Portuguese living standards were just below those in the most advanced countries (Reis, Costa and Martins 2009).

In this paper, we first collected new archival data¹ from the University of Coimbra, as well as from several locations in the town of Coimbra. We chose this town for our research for two reasons. First, the University of Coimbra has one of the oldest and richest historical archives in Portugal. The university was founded in 1290, being one of the oldest universities in the world, and most of its historical archive has been preserved.² Second, Coimbra is a middle-sized town, whose development was deeply influenced by the university, one of the most important institutions in Portugal. Still, throughout the period of our analysis, Coimbra also retained several rural or semi-rural characteristics. Thus, Coimbra provides a good cross-section of urban Portugal, since its inhabitants included prominent administrators (such as the university chancellor, whose salary was probably similar to those of middle to high-ranking nobles (Mattoso 1993)), high-income earners such as university professors, as well as a plethora of lower-level administrators and manual workers.

¹ This data collection is part of the joint project *Prices, Wages and Rents in Portugal, 1500-1900*, sponsored by the Portuguese National Science Foundation, which includes the participation of Jaime Reis, Conceição Andrade Martins, Leonor Costa, Alvaro Santos Pereira, Inês Amorim, and Helder Fonseca.

² Although known as the University of Coimbra, the university started in Lisbon in 1290, being transferred to Coimbra in 1308. In the following decades, the location of the university changed a few times between Coimbra and Lisbon. However, In 1537, the university was established definitely in Coimbra.

How big was Coimbra and how did it compare with other Portuguese and European urban centers? The *Numeramento* of the kingdom of 1527 (an attempt to estimate the population of Portugal) states that there were 1329 dwellings in Coimbra in the early 16th century, which would correspond to a population between 5300 and 6500 people, not taking into account neither the clergy, nor other religious residents. However, the definite establishment of the university in the city led to a considerable population growth, so much so that the city fiscal records of 1567 include around 7500 inhabitants, to which we should add students (around 1200, and who were exempt from paying taxes) and other privileged classes (Oliveira 1972, pp. 180-181). By 1647, military recruitment data reveals that the city population was between 9,000 and 10,000, and by 1758, a population inquiry shows that the number of residents was higher than 13,000 people (Fonseca 2000). All in all, even though in Europe, Coimbra was a relatively small town, in Portugal it was the third or fourth most populous urban centre in the country.

The data

Our data consist of series of annual nominal wages for more than 90 professions, including administrators employees, professors, as well as other skilled and unskilled workers (e.g. builders). We also collected new data on prices of an average consumption bundle and compared it to the Strasbourg basket utilized by Allen (2001) for a comparison with other European workers.

There were two main types of wage arrangements: annual wages, and daily wages. The former were fixed and were established in a formal contract between the university and its employee. In contrast, daily wages were typical for several manual workers that

did casual work. These wages could vary substantially according to market conditions. Until 1772, all university employees, including tenured or permanent professors, received a fixed annual wage paid every quarter (in April, June and October). The frequency of payments increased to four times a year after Pombal's government 1772 reform of the university, and even more after 1848, when wages were paid every month. Typically, this wage was their main source of income. However, often professors were entitled to additional perks, either in the form of monetary compensation for eventual administrative service to the university (the so-called *propinas*), or in specie, as well as several ecclesiastic benefits and, in special circumstances, even subsidies for family members. There were also several "privileges" associated with teaching at the university, which were non-monetary, but which entailed substantial social status and prestige (Fonseca 1995, p. 482). Annual wages were also differentiated by status (permanent, temporary, or substitute lecturers) and according to the courses taught (Theology and Law professors were the highest paid, whereas Music and Mathematics lecturers were in the lower part of the scale).

We should also mention that there is substantial evidence that supports the view that the annual fixed money wage was, by far, overwhelmingly more important to professors than the additional perks and privileges. Thus, in a historical survey of the living conditions of university professors, Cerejeira (1927) presents several testimonies and documents that show that, the fixed annual wage was often a source of discontent amongst the *lentes* due to the significant erosion of purchasing power caused by inflation. This is particularly true between the 1620s and 1754, when nominal wages remained constant. In the university hierarchy, the university chancellor (the rector) and vice-

chancellor were the highest paid, followed by professors, and administrators, which included the treasurer, the *bedel* (main officer in each faculty), the *meirinho*, the *conservador*, the university and faculties' secretaries, the scribes, the guards, jailers, among others. At the lower end of the wage scale, porters, cleaners and undifferentiated workers received the lowest wages. University lecturers, and all administrators were entitled to a fixed annual money wage, which could sometimes be supplemented by additional benefits (usually small amounts wheat or corn, which were distributed every year). We do not have evidence on all these specie payments and supplements, but both our archival work and the historical literature (Fonseca 1995, Oliveira 1972) suggest that these payments were fairly modest. Money wages were the main source of income for most university employees. Nevertheless, granting additional benefits besides the regular annual wage was not limited to the more qualified. Other non-qualified university workers, such as porters, guards, and tailors, often were entitled to free or low-rent accommodation as a supplement to their usually meagre incomes.

With regards to daily wages, we transformed them into annual wages by multiplying the former by 250 days (Allen 2001), so that we could compare the evolution of daily and annual wages. Namely, we assume that 250 days are the upper bound of the number of days worked in a year, since we know that, according to the Church's rule, the maximum number of days that workers were allowed to work were 282 days (Guimarães Sá 2005). From these, we should subtract the number of "mobile" holidays (likely between 15 and 20), as well as other special occasions. Thus, 250 seems to be a reasonable upper bound on the number of days worked.

Nevertheless, and since we do not have sufficient information with regards to the exact number of days that manual workers worked, we also calculated annual wages for workers that received daily stipends assuming that they toiled for 200 and 220 days. Figures 1-4 present our findings in terms of nominal and real wages of some of the representative professions in our sample.

Fig 1_ Professors' average nominal wage

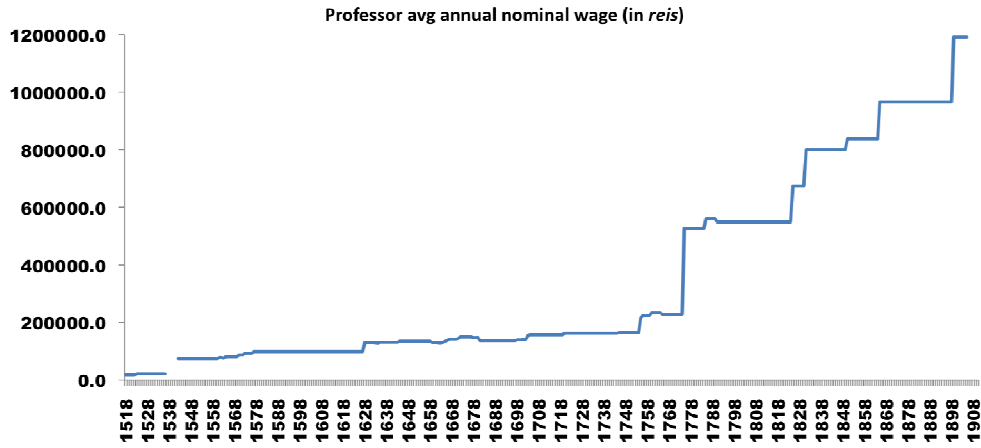
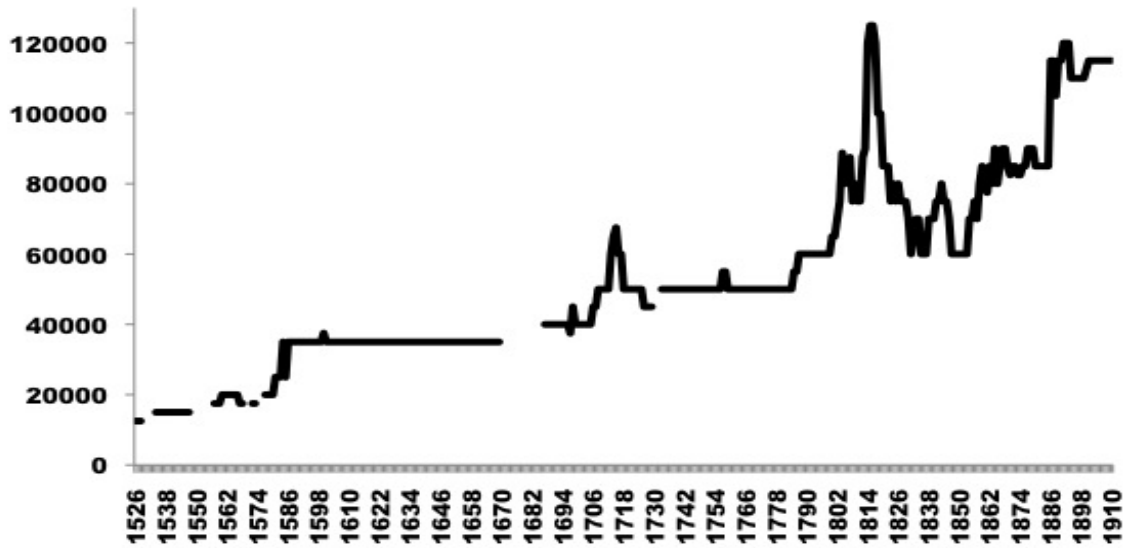
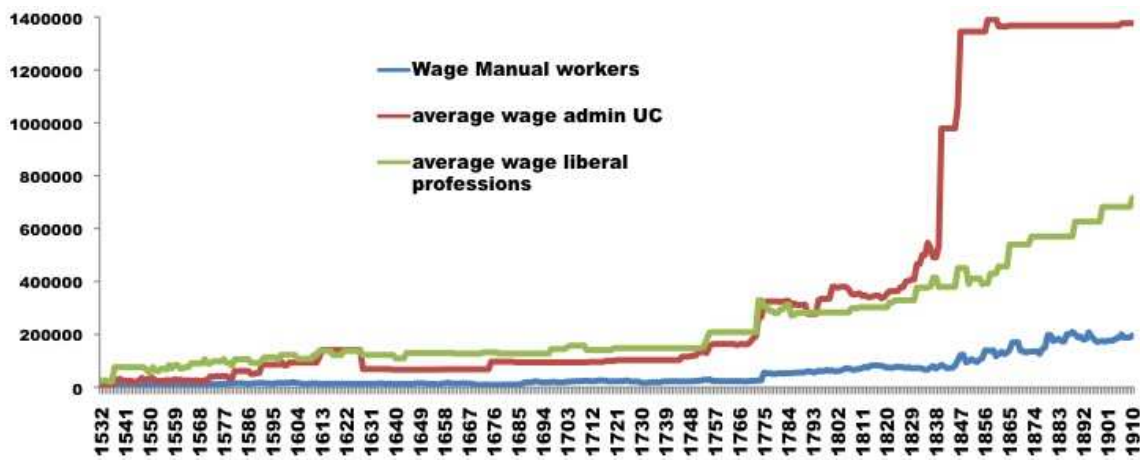


Fig. 2_ Carpenters' average nominal wage



We also calculated average nominal wages by main professional group. More specifically, we divided our sample into three main professional groups: administrators, liberal professionals and manual workers. Figure 3 presents the average wages for these group since 1500.

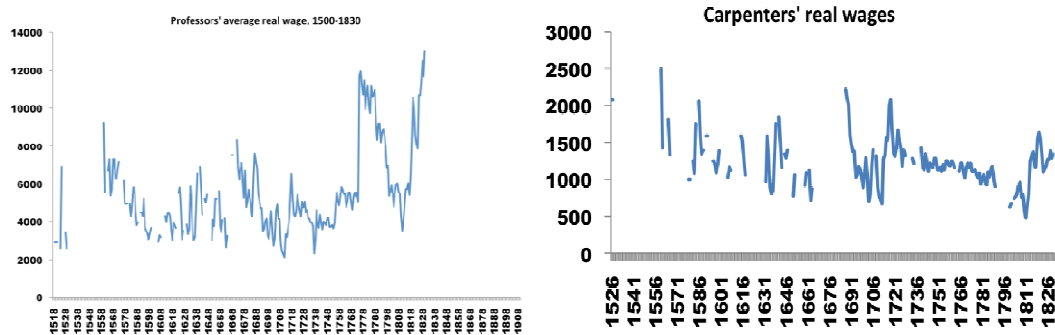
Fig. 3 _ Nominal wages by professional group, 1500-1910



REAL WAGES

We also estimated average real wages by dividing nominal wages by price indexes from Pereira and Silva (2010), and by Valerio (2001). Figure 4 presents our real wage calculations for university professors and carpenters.

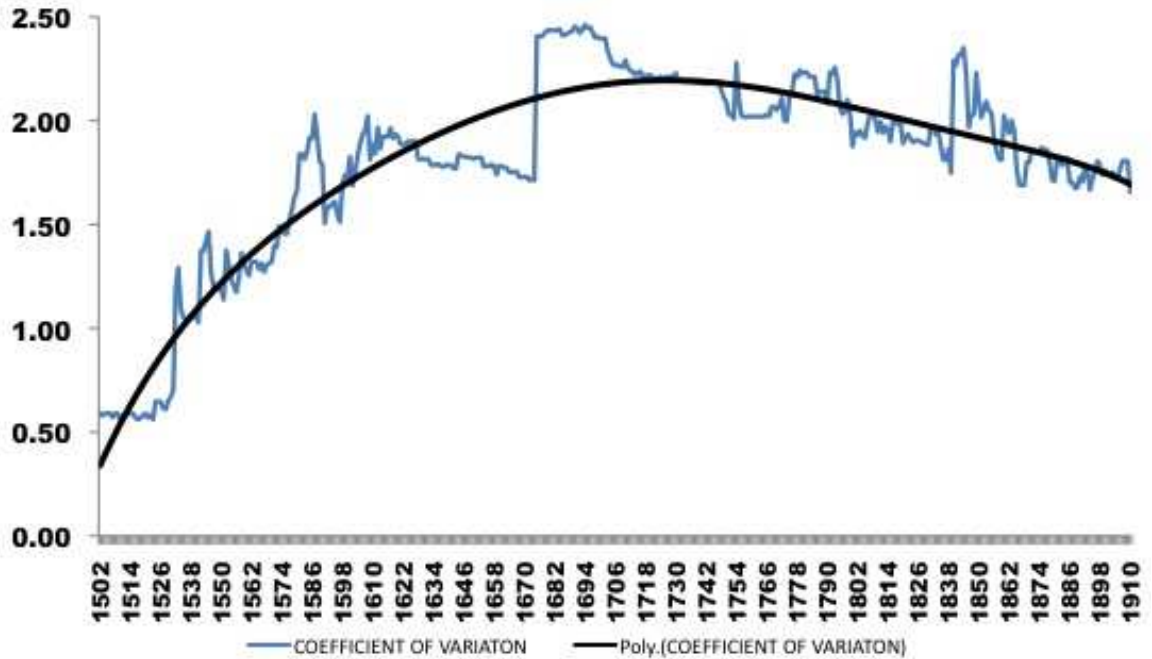
Fig. 4_ Real wages, professors and carpenters, 1500-1910



3. Inequality in the long run

Our data shows that inequality increased throughout the 16th and 17th centuries, peaked around the end of the 17th century, stabilizing in the 18th century. At the end of the 18th century, inequality rose again slightly, but then declines substantially until 1910 (see Figure 5 for the coefficient of variation).

Fig. 5 _ Coefficient of variation _ All wages, 1500-1910



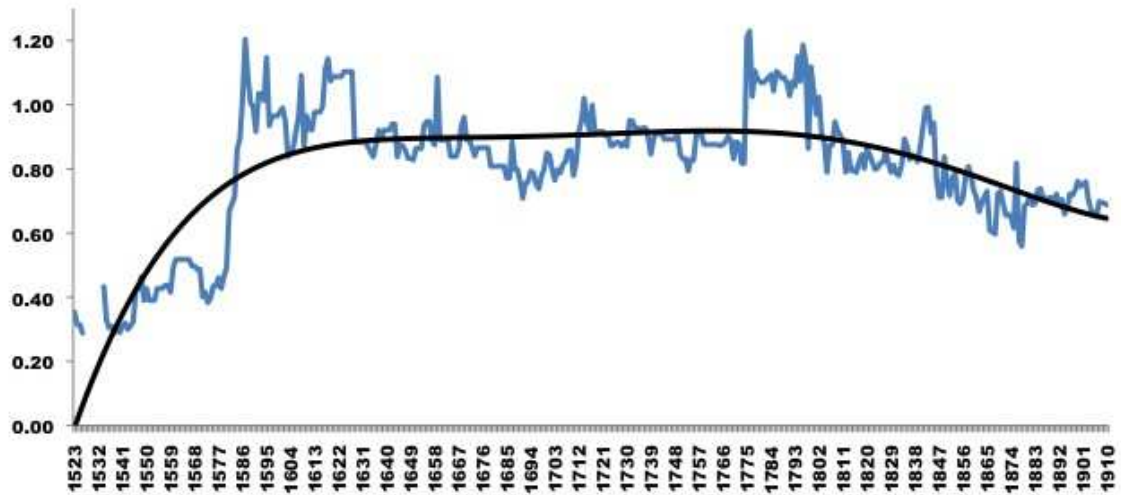
Inequality by professional group

The data also allow us to calculate within-group inequality. We observed inequality within the main professional groups, by dividing our sample into groups of administrators, liberal professional and unskilled workers. The coefficients of variation by professional group show that: 1) there is evidence of inequality between and within classes, 2) Within-class inequality seems to have been mostly on the administrators, and 3) driving force behind rise and fall in inequality is located in the administrators group.

Wage inequality _ manual workers

Wage inequality within the manual workers' group remained somewhat stable throughout most of the period until the early 19th century, declining steadily afterwards.

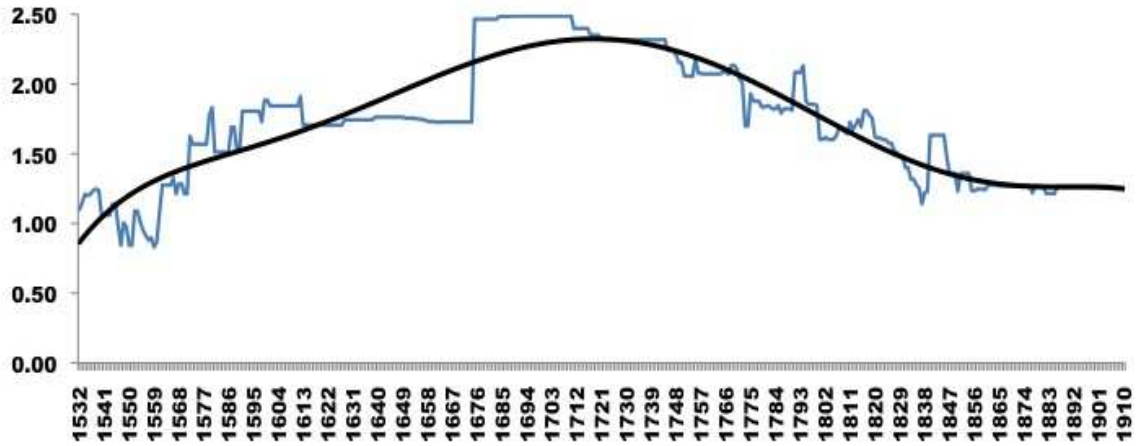
Fig. 6 _ Coefficient of variation _ Manual workers, 1500-1910



Wage inequality _ administrators

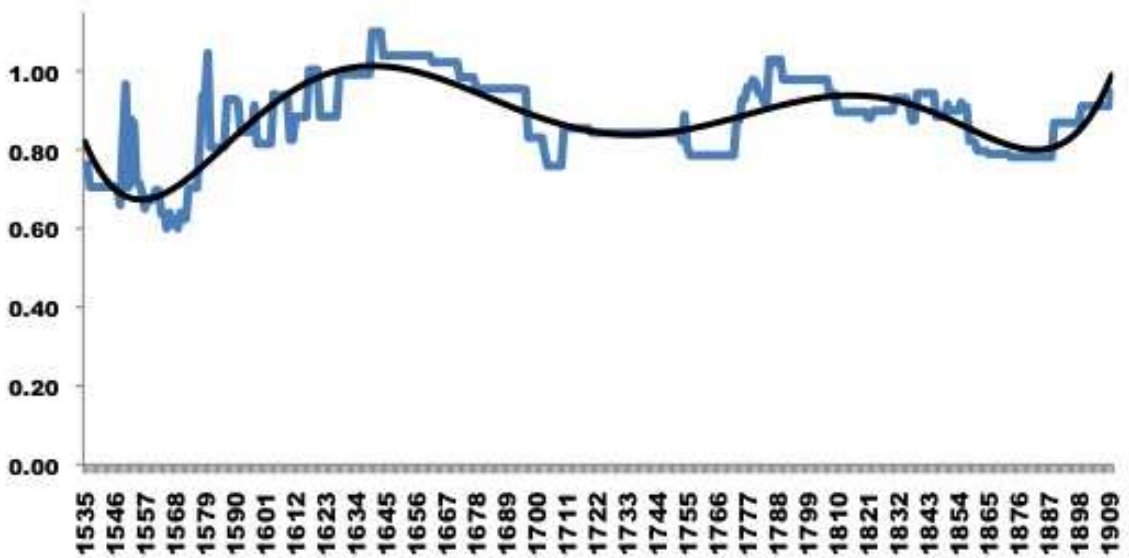
As we can see in the next figure, inequality within the administrators group increases from the 16th century until about 1740, reaching a peak in the early 18th century. From the 1740s onwards, inequality within the administrators group declines considerably, before stabilizing in the last third of the 19th century.

Fig. 7 _ Coefficient of variation _ Administrators, 1500-1910



With regards the liberal professions, the trend in within-group inequality is not so noticeable. Thus, even though there is some variation of the coefficient of variation for this group, there seems to be some constancy in the evolution of this indicator for liberal professions.

Fig. 8 _ Coefficient of variation _ liberal professions, 1500-1910

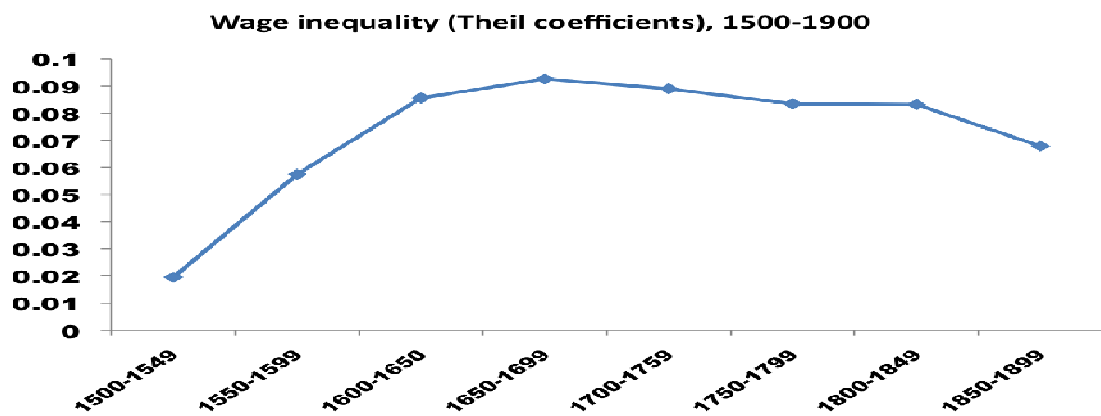


All in all, most of within-group inequality took place in the administrators group.

Wage inequality _ Theil coefficients

The same pattern is observed when we calculate Theil coefficients: Inequality rises throughout the 16th and 17th centuries, peaks around the end of the 17th century, but then declines substantially until 1910. In order to calculate the Theils, we use data on urban workers from the *sis*a tax records.

Fig. 9 _ Theil coefficients_ all wages, 1500-1900



All in all, we show that, in the last 5 centuries, the largest increase in inequality seems to have occurred in the 20th century, at the time of the long Portuguese dictatorship (1926-1974) and in the early stages of industrialization.

Wage ratios

We also calculated wage premiums from 1500 until 1900. Once again, there is evidence that wage premiums varied substantially throughout our period. We find that the wage premiums of the skilled vs. the unskilled workers were relatively stable in the 16th and 17th centuries, but then rose in the 18th and most of the 19th century. The figures below summarize our main findings. In general, the wage ratios of administrators and liberal professions tended to rise from the 16th until the 18th century, but by the 19th century decrease substantially.

Fig. 11 _ Wage ratio _ Administrators' wage/Manual workers' wage

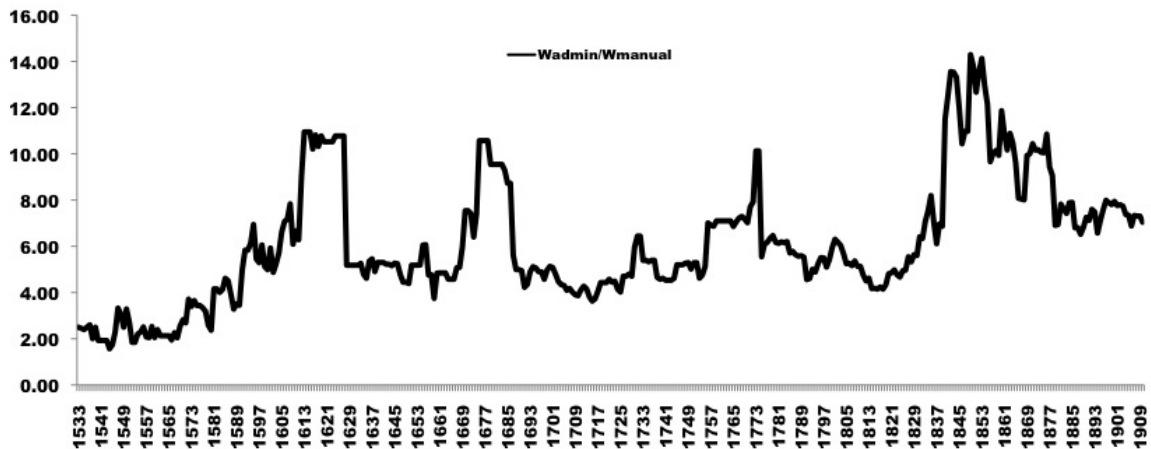
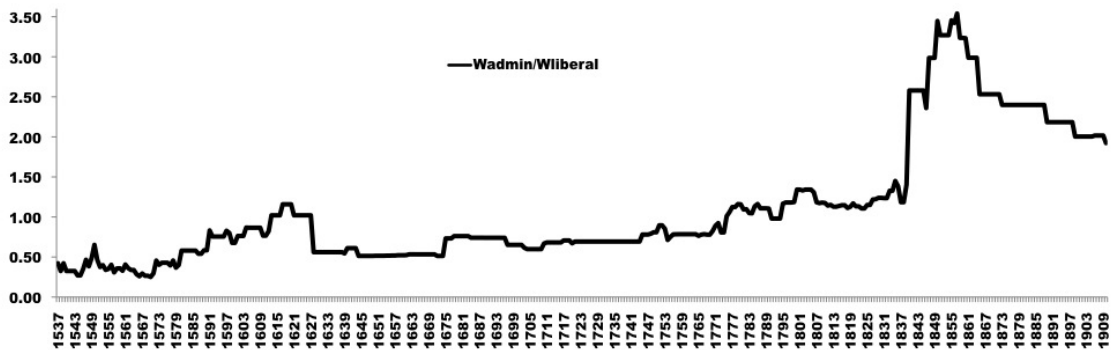
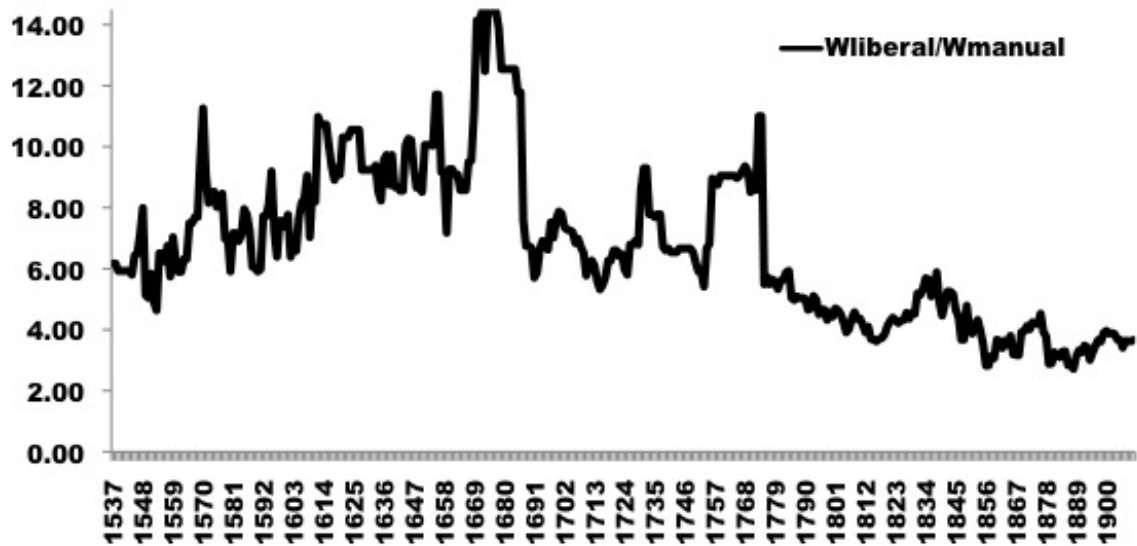


Fig. 12 _ Wage ratio _ Administrators' wage/liberal professionals



In terms of the W_{LP}/W_{MW} ratio, we can see that this ratio was large in the 17th century, but then decreased steadily from the late 1670s onwards, albeit with some minor interruptions in the 1750s and the 1760s.

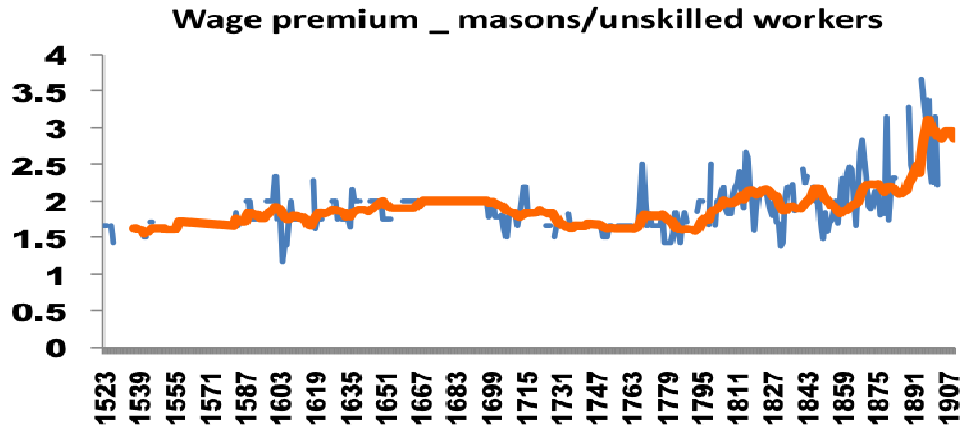
Fig. 13 _ Wage ratio _ Liberal professionals/Manual workers



We also estimated wage premiums for specific professions. In particular, we calculated the manual workers skill premiums, by estimating the wage ratio between builders and unskilled workers (Figure 15). It is noticeable that this skill premium remained fairly constant until the 19th century, with some oscillations along the way. Thus, for instance, the skill premium for manual workers increased for a short period after the devastating 1755 Lisbon earthquake as well as during the Napoleonic invasions in the early 19th century³.

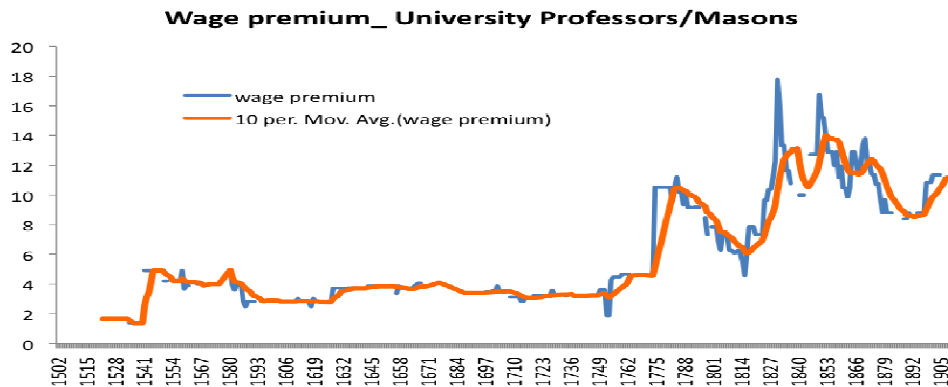
³ The increase in the skill premium corroborates the findings of Pereira (2009).

Fig. 14 _ Wage premium _ Masons/unskilled workers



In turn, the wage ratio between university professors and builders was also relatively stable until the mid 18th century. The skill premium increased after Pombal's university reforms, which entailed a substantial revision of professorial wages, but declined afterwards until the 1820s. This skill premium rose in the 1830s and the 1850s, decreasing steadily in the following decades.

Fig. 15 _ Wage premium _ University professors/masons



4. Conclusion

All in all, we find that: a) inequality started rising in the 17th century and reached a peak in the late 18th century, b) Inequality is mostly between classes, supporting existing evidence on this issue in other countries, and c) Wage premiums rose in the 19th century. We also conclude that inequality tended to rise in periods of low economic activity, but decreased in more dynamic periods. In short, our research shows that Latin inequality did, indeed, vary substantially in the last 5 centuries, although, as suggested by Williamson and Lindert, the great increase in inequality did occur in recent times, and not in earlier periods.

Sources:

Folhas de Ordenados da Universidade de Coimbra (1561-1969),
Obras da Universidade de Coimbra (1593-1833),
Livros de Receita e Despesa do Hospital de São Lázaro (1488-1729),
Livros de Receita e Despesa do Hospital Real de Coimbra (1532-1796),
Livros de receita e despesa da Obra da Igreja da Sé de Coimbra (1580-1703)
Livro de receita e despesa da Universidade de 1544,
Livros do Celeiro do Cabido da Sé de Coimbra (1581-1878),
Estiva Camarária (1689-1898),
Livros da Superintendência da Cozinha do Colégio de S. Pedro (1581-1833),
Obras do Colégio de S. Pedro (1687-1879),
Livros de despesa da Fábrica do Colégio de S. Pedro (1599-),
Hospitais da Universidade de Coimbra. Administração e Contabilidade (séc. XVIII-XIX),
Hospital de Nossa Senhora da Conceição. Administração e Contabilidade (séc. XIX),
Receita e Despesa da Câmara (1557-1846) (AHM)

REFERENCES

- Cerejeira, Manuel Gonçalves (1927) *Notas históricas sobre os ordenados dos lentes da Universidade de Coimbra*, Coimbra: Coimbra Editora.
- Fonseca, Fernando Taveira da (1995) *A Universidade de Coimbra 1700-1771: estudo social e económico*, Coimbra: Universidade de Coimbra.
- Gonçalves, António Nogueira, e Dias, Pedro – O Património Artístico da Universidade de Coimbra.
- Oliveira, António (1972) *A vida económica e social de Coimbra de 1537 a 1640*, volumes I and II, Coimbra: Universidade de Coimbra.
- Sá, Isabel dos Guimarães (2005) “O Trabalho”, in *História Económica de Portugal. 1700-2000, Vol I.*, edited by Pedro Lains and Álvaro Ferreira da Silva, Lisbon, Instituto de Ciências Sociais, pp. 93-121.