European
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EHES Working Paper | No. 184 | May 2020

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Abstract

The Black Death was the most devastating demographic shock in recorded human history. However, the effects in the European population were highly asymmetrical as were its economic consequences. This paper surveys the short and long run economic effects of the plague in Spain in European perspective. While the demographic impact in Spain was moderate compared to the European average, the economic effects were more severe and incomes per head fell sharply. This was a consequence of the existence of a frontier economy in Spain characterised by a relative scarcity of labour and a fragile equilibrium between factors of production. Unlike most of Europe, in Spain the Black Death increased inequality as the remuneration of labour decreased more rapidly than proprietors' gains. In the long term the Plague reinforced the frontier economy status.

JEL Codes: I10, N13, N33, O52

Keywords: Black Death, Frontier economy, Malthusian, Spain, income, inequality

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INTRODUCTION

The Black Death was one of the first truly global events in human history (Carpentier, 1972). Since its arrival to Europe in 1347, it quickly spread over the continent bringing a considerable loss of human lives and severe economic and social consequences. Plagues were not something new in Spain or Europe, and bouts of plague would appear regularly in the following centuries up to the present (Pérez Moreda, 1980). The difference between the Black Death and previous epidemic experiences relies on the severity of the shock in a very short period of time, and the return of the disease without cure that appeared recurrently (Biraben, 1976). The incidence of the plague was asymmetrical in Europe, partly as a consequence of the different economic and social characteristics of the areas affected. Spain and, especially, Castile have been traditionally considered as some of the regions where the impact of the Black Death was milder.

The conditions to face a global pandemic were not the best in the Middle Ages. There were difficulties to storage food to survive during shortage periods, sudden and intense climate alterations, low ability to increase personal savings, and underdeveloped financial and insurance markets. Medical knowledge was limited as were medicines, and the social and political framework did not help to smooth any of these problems with inequality reinforcing the worst consequences of any crises. While medieval societies struggled to barely deal with all these problems ordinarily, they were not prepared to face a powerful killer disease like the Black Death. The pandemic was an external shock that hit societies and people regardless their economic and social status. Facing the pandemic, lawmakers in the Middle Ages reacted introducing legislation that was not so different to the responses that we can observe in the present. To contain the spread of the virus, the Castilian *Cortes* of 1351 prohibited the presence of beggars in the streets and established working hours and rest periods. They also tried to control the access to certain items limiting their prices.

Some authors argue that a deeply rooted and long process of economic decadence had already started in Europe when the plague arrived to its borders (Hilton 1980, p.38). According to this Malthusian interpretation of history, the demographic growth of the Middle Ages brought European population near to its ceiling adding pressure on resources. The fragile equilibrium between both of them was broken when deteriorating climatic conditions reduced harvests and produced subsistence crises that made more probable the appearance of disease and epidemics. The agrarian crises of 1315-17 and 1340-50 were therefore examples of such process, and the demographic decline was already under way fifty years before the arrival of the Black Death in

some areas of Europe (Février, 1966).[1] The new plague was so lethal because it reached Europe at a time when its population was already weakened by famines. In the Spanish case, part of the literature accepts the existence of problems and famines before the Black Death (Monteano, 2001; Berthe, 1984), explained by unfavourable climatic conditions that produced bad harvests but did not stop the growth that had started two centuries before (Larenaudie, 1952; Carpentier, 1962).

Therefore, from this point of view the origin of the crisis of the fourteenth century was not an exogenous shock that changed the trend of the cycle, because endogenous Malthusian forces were already operating from long before. This research line was defended by authors such as Postan or Abel, who saw in the Black Death another consequence of the overpopulation and unfair social structures of the late Middle Ages and the first stages of the transition to capitalism (Postan, 1981; Abel 1967).[2] However, this view is contested by the fact that the Black Death affected equally to both rich and poor and that therefore weakens the connection between hunger and mortality (Biraben, 1976).[3] Other authors like Campbell (2016) point that exogenous environmental factors could have played an important role in the development and spread of the plague.

Unlike the rest of Europe, in Spain the economic consequences of the Black Death have received little attention.[4] The main studies on the effects of the Black Death in Spain focus on very specific factors such as increasing mortality, depopulation, declining agrarian output, prices and wage increases, and fall of land rents (Cabrillana, 1968; Ladero Quesada, 1981; Valdeón Baruque, 1972a). The lack of empirical evidence at macroeconomic level also explains why most of the Spanish literature is based on local or regional studies. Most of the research concerns the routes of propagation and the factors behind it[5], the epidemiological characteristics[6], the incidence of

[1] Some authors have shown depopulation of lands before the arrival of the plague. This is a contradictory argument, as more available land would have released Malthusian constrains and reduced the problems with food supply.
[2] See also Perroy (1949)
[3] Rubio (1987) believes the same for the case of Valencia.
[4] Among others see Vicens Vives (1957, pp.81-82 and 230-31), Vilar (1987), Carpentier (1962). Some express their pessimism for the bad quality of quantitative sources compared to the Italian case (Valdeón Baruque 1984, pp. 1048-49)
[5] Amasuno Sárraga (1994); Vaca Lorenzo (2001, pp. 32-33) collects bibliography to define the spread of the plague at municipal level with contemporary chronicles. Cabrillana (1968) is a first attempt to establish a timeline and routes. See also Amasuno Sárraga (1994;1996), Ubieto (1975) who suggests a North-South spread from Santiago de Compostela. Other authors suggest the existence of several entry points (Monteano 2001, p. 104). Sobrequés Callicó (1970).
[6] Arrizabalaga (1991). For a description of the disease and varieties see Vaca Lorenzo (2001, p. 27).

the plague in different social groups[7], and its cultural and social effects.[8] However, the economic consequences of the plague have not been considered at a national scale including the long-term effects of the disease.[9]

While in most of Europe the Black Death produced an intense demographic shock that prompted an improvement of real wages in the long term, in Spain the effect on real salaries was not so intense. In the same line, in Europe the Black Death produced a sudden increase of incomes per capita, but recent research show that in Spain incomes per head fell sharply (Álvarez-Nogal and Prados de la Escosura, 2013). Why do we observe these differences between Spain and the rest of Europe? What were the reasons behind them? What were the long term consequences of the Black Death in Spain and in its role within the Little Divergence? This paper will address these crucial questions looking at the European experience, focusing on population, income, and inequality.

POPULATION

Subsistence crises were common at the beginning of the fourteenth century, like those that took place between 1310 and 1317. The Iberian Peninsula was not an exception, and experienced its own crises in three different waves (1302-1303, 1333-1335, and 1343-1347) (Ladero Quesada 1981, p.3). In the eastern coast famines appear to be milder, although food shortages were also identified between 1310-1314 and 1324-1329 (Rubio Vela, 1987). In Castile, lawmakers pointed out to causes that were beyond the direct effects of the plague, such as the *Cortes* gathered in Valladolid in 1325 that considered that the poverty that affected the territory was consequence of 'bad years' (Lopez Alonso 1978, p.484). Valdeón Baruque (1969; 1972b) suggests that the origin of the crisis in Castile was in the famines that took place between 1331 and 1333. The reasons included bad weather, wars, and subsequent plunder that led to a reduction in grain production and was debated in the different *Cortes* gathered during the fourteenth century (Vaca Lorenzo 2001, p.47). The reduction in population in areas such as Tierra de Campos was already noticed years before the arrival of the plague (Vaca Lorenzo 1977, p.379). The increase of prices and nominal wages as a consequence of the demographic decline also affected other regions like Navarre (Monteano 2001, p.103). The arrival of the Black Death intensified the demographic decline and brought disturbances to the rural world (Cabrillana 1972, p.31). Social

[7] Vaca Lorenzo (2001, p. 27).
[8] See Verlinden (1938), Amasuno Sarra (1996, p. 69), Lopez de Meneses (1959), Mollat, Wolff and Funes (1976, p. 97), Jacques and Ciompi (1976, p. 97) and Sobrequés (1970, pp. 80-81).
[9] Rodríguez's survey provides an exception (2011).

conflict intensified, public works paralysed, and land concentrated in a smaller number of hands (Gautier-Dalché, 1962). Vilar summarised the situation in Catalonia in a rather catastrophic picture with abandonment of properties, deaths of prominent figures, reduction of rents, regulation of salaries, massacres of Jews, and generalised depopulation (Vilar 1987, pp.147-149).[10]

However, most of the research concerning the demographic effects of the Black Death in Spain suggest that the population loss was considerably lower than in many other regions of Europe (Trenchs Odena, 1969). They also reflect that there were significant regional differences between the Spanish territories, mainly between Castile and Aragon.[11] In Castile there were few contemporary mentions to the effects of the plague (Escalona 1782, p.172). It was estimated that the population of Castile was around 3 million in 1300, 2.5 million in 1400 and 4 million in 1490 (Iradiel, Moreta and Sarasa 1989, pp. 472-473). According to these estimates population only fell by around 16 per cent between 1300 and 1400, implying that recurrent epidemic waves that followed during the second half of the fourteenth century were not as virulent as in other parts of Europe, where between one-third and one-half of the population was wiped out (Campbell, 2016, p. 354).[12] Within Castile, the centre and the north were probably the areas less affected. On the other hand, Vaca Lorenzo (1977) argues that Andalusia in the south was probably the worst hit area of the region, and that most of the reduction in population levels in the north of Castile were consequence of north-south domestic migrations, where migrants from areas like Tierra de Campos repopulated de south.[13]

In Aragon the effects were also geographically asymmetrical. In some areas of the coast like Castellón there are no mentions to the plague during its first wave (Doñate Sebastiá, 1969). Regions in the interior like Teruel present significantly higher loses of around 35 per cent, although most of that reduction can be explained, like in Castile, by internal migrations to other regions like Barcelona, Valencia or Zaragoza (Sobrequés Callió, 1970). Other areas of Spain present a more controversial evidence. In the case of Navarre, some authors argue that the plague had a substantial effect in the number of deaths, revealing population loses of around 43 per cent (Vaca Lorenzo 1977, p.91). By 1427 the population in the region would be one quarter of the levels reached in 1346 in line with the results observed in other areas of Europe

[10] In Catalonia the Black Death is related to the crisis of the late Middle Ages and the social fight of the remensas (Vicens Vices, 1945).
[11] Sobreques Callicó (1970). Vilar (1978, p.37) defends that Castile was less affected than the Mediterranean coast.
[12] Torres Fontes (1981) analysed the development of epidemics in Murcia. For Valencia, cf. Rubio Vela (1979). See also Vaca Alonso (2001).
[13] These internal migrations from low to high mortality areas is also predicted by Koyama et al. (2019, p. 27).

(Monteano 2001 p. 118; Blockmans and Dubois 1997, p. 208). On the other hand, more recent studies suggest that mortality levels in Navarre were considerably lower.[14]

Therefore, it seems that the demographic effects of the Black Death in Spain were relatively mild. Our guestimates about the population in Spain are that between 1340 and 1420 population fell slightly from around 4.5 to 4.0 million or 11 per cent (Prados de la Escosura et al., 2020). Even allowing for a further increase between 1340 and the arrival of the plague and a potential midterm recovery from the outbreak up to 1420, the numbers clearly show that the effects of the Black Death in Spanish population were indeed comparatively mild.

Table 1: European Population 1300-1400 (million)

	Population			
	1300	1400	1500	Δ1300-1400
France	16.0	12.0	15.0	-25%
Germany	13.0	8.0	11.5	-38%
Italy	12.5	8.0	9.0	-36%
England and Wales	4.5	2.7	3.5	-40%
Spain	***4.4***	***4.1***	***4.6***	***-6%***
Scandinavia	2.5	1.4	1.5	-44%
Poland	2.0	1.5	2.0	-25%
Ireland	1.4	0.7	0.8	-50%
Belgium	1.4	1.2	1.3	-14%
Portugal	1.3	1.1	1.2	-19%
Scotland	1.0	0.7	0.8	-30%
Netherlands	0.8	0.6	1.0	-25%
Sweden	0.9	0.6	0.7	-34%
Europe	93.7	67.9	84.9	-28%
Europe minus European Russia	78.7	56.9	69.9	-28%

Sources: Malanima (2009: 9); Spain, Prados de la Escosura et al (2020) Sweden, Krantz (2017), 1350, 1450, 1520

The contemporary references to the demographic consequences of the Black Death in the rest of Europe suggest that the effect was far more devastating, although measuring the exact percentage of the population that died is a more complicated issue. Some estimates suggest that in certain regions up to 70 per cent of the population could have died (Heers 1976, p. 337; Carpentier 1962, p. 1065). However, as the Spanish experience suggest, the effect was probably asymmetrical and some regions had lower mortality rates than the average (Biraben, 1976, p.104). Table 1 shows the estimates of population in a sample of European regions.

[14] Castán Lanaspa and Dueñas Carazo(2006, pp. 304-306) maintain that mortality in Navarre was lower and would be around 25 per cent between 1347 and 1366. They also cite the same idea defended by Santamaría (1969) for Majorca and by Guileré (1984) for Gerona.

Between 1300 and 1400, population in Europe decreased by around 28 per cent, a fall that as we can observe in the data was highly asymetrical. The British Islands were severely hit with loses that ranged from 50 per cent in Ireland to 30 per cent in Scotland. The lowest fall is observed in Spain that lost around 6 per cent of its population between both benchmarks. We can therefore confirm that the severity of the Black Death in Spain was considerably lower than in the rest of the continent, a fact that would also have consequences on other key economic indicators like incomes per person.

INCOME

The available literature supports the idea that a period of crisis was well underway in Spain before the arrival of the Black Death, and that the economy had started to decline in the second half of the thirteenth century (Vaca Lorenzo 2001, pp.43-44; García Sanz 1981, p.91). This general view defends the existence of Malthusian constraints with relative scarcity of land, increasing use of marginal land, and growing fiscal pressure that triggered famines, making easier the spread and effects of the plague (Valdeón Baruque, 1969; Vaca Lorenzo 2001, pp. 37-38). Therefore, for these authors the economic decline was endogenous and not consequence of an exogenous shock like the arrival of the Black Death (Blockmans and Dubois, 1997; Berthe, 1984; Vaca Lorenzo, 1990).

Recent studies have gathered empirical evidence to provide new estimates of the evolution of the Spanish economy at macroeconomic level in the very long term. Estimates of GDP per capita for Spain since the end of the thirteenth century are presented in Figure 1.[15] The series show the decline during the last decades of the thirteenth century and the first years of the fourteenth that lends support to the qualitative literature, but also a quick recovery during the 1330s. Coinciding with the arrival of the Black Death to Spain we observe that the economic growth suddenly stops and a sharp decline in per capita incomes takes place until the 1370s. The situation persisted in the mid-term and after a period of stagnation, incomes continued to decline reaching the lowest levels in the mid fifteenth century, followed, then, by a period of growth that was not enough to recover pre-Plague income levels. In fact, the income per head achieved before the Black Death would not be reached again until the early nineteenth century (Prados de la Escosura et al. 2020).

[15] For a detailed description of the estimation, methodology and sources, see Prados de la Escosura et al. (2020)

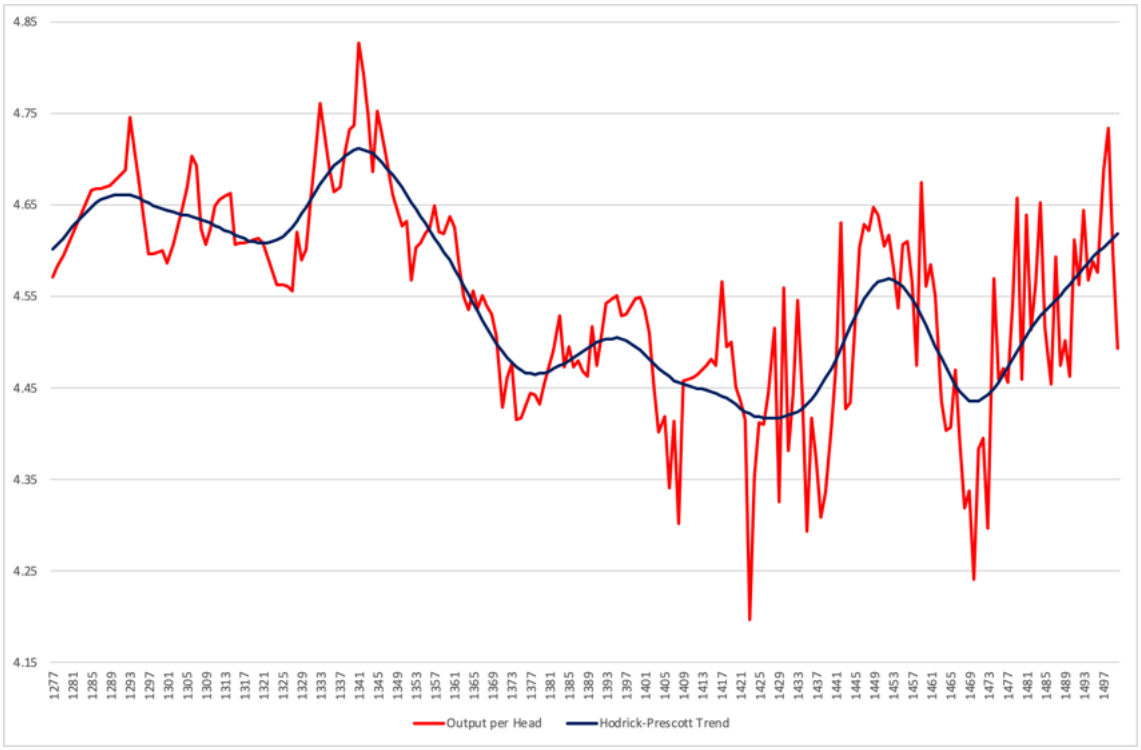

Figure 1: Figure 11. Real GDP per Head and Hodrick-Prescott Trend (lambda=1000), 1277-1500 (1490/99=100) (logs). *Source*: Prados de la Escosura et al. (2020)

How do these results compare to the performance of other European economies? Figure 2 compares the GDP per head for Spain, with those for France, Britain, the Netherlands, Sweden, and Italy (Centre-North). The most striking difference is the sudden increase experienced in all countries, but Spain and Sweden, where the immediate years following the pandemic saw considerable rises in incomes per head that were particularly intense in Britain. In these cases the behaviour of the economy goes in line with the expected results in a society constrained by Malthusian pressures. When those constrains are eliminated through a reduction of population, the incomes for those who survived the pandemic increased. Some authors even affirm that the Black Death allowed a change of demographic regime in Europe that put the foundations for the Great Divergence (Broadberry, 2013; de Pleijt and van Zanden, 2016). Others pointed out to its importance also within Europe, as it triggered the beginning of the Little Divergence (Pamuk, 2007: Koyama et al., 2020)

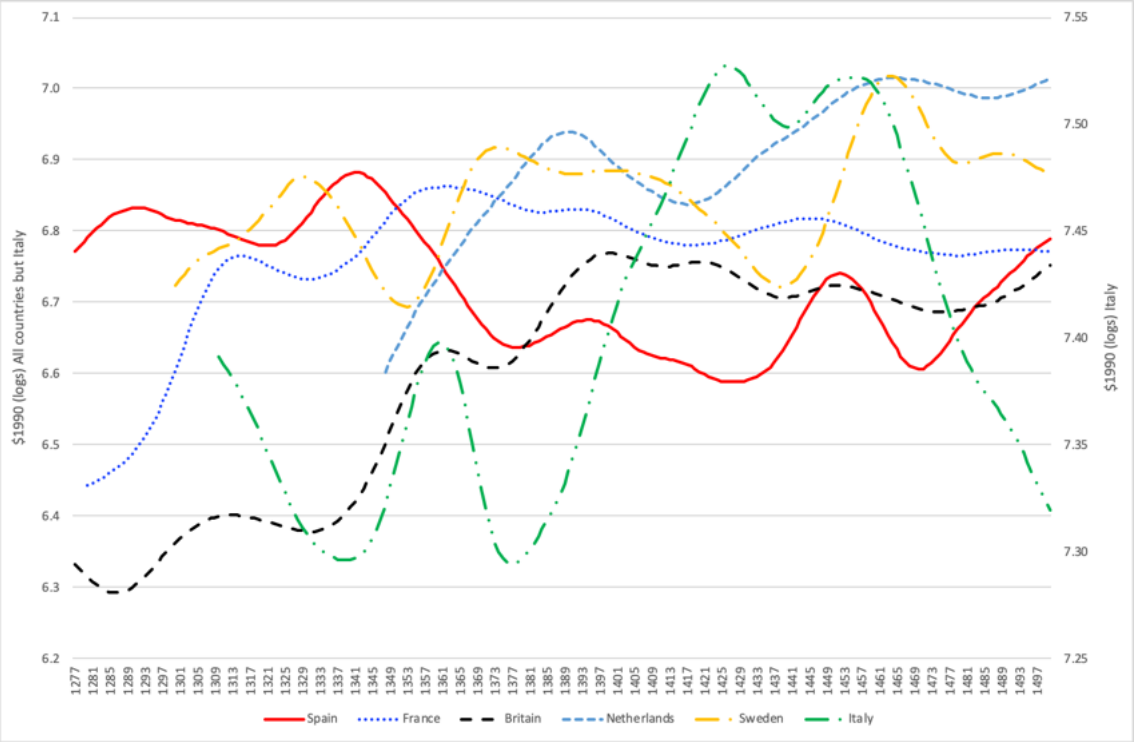

Figure 2: Figure 11. Hodrick-Prescott Trends in Real GDP per Head in European countries, 1277-1500 (Geary-Khamis $1990) (Italy right axis) (logs). *Sources*: Prados de la Escosura et al. (2020), Broadberry et al. (2015), Krantz (2017), Malanima (2011), Ridolfi (2016), and van Zanden and van Leewen (2012)

Why were Spain and, to some extent, Sweden different from the other European economies? A first answer can be associated to the fact that the demographic crisis in Spain was considerably milder than that experienced in the rest of Europe. If that was the case, the benefits in terms of increasing incomes for those who survived would be lower as labour would be more abundant. However, this would explain a smaller increase like the case of France versus the United Kingdom where the crisis was harder, but not a decline in absolute terms like the one that we observe in Spain and Sweden. We believe that the main reason behind the collapse of incomes per head in Spain is that its economy was not Malthusian at all, and that, therefore, a reduction of population did not translate in an improvement in the incomes of those who survived. The fact that GDP per head fell immediately after the plague supports this view.

But was this just a short term event? We can check to what extend the Spanish economy fits into a Malthusian framework in the long run comparing the evolution of population and income per head over time. If Spain was an economy constrained by Malthusian forces, incomes would increase with decreases of population and vice versa.

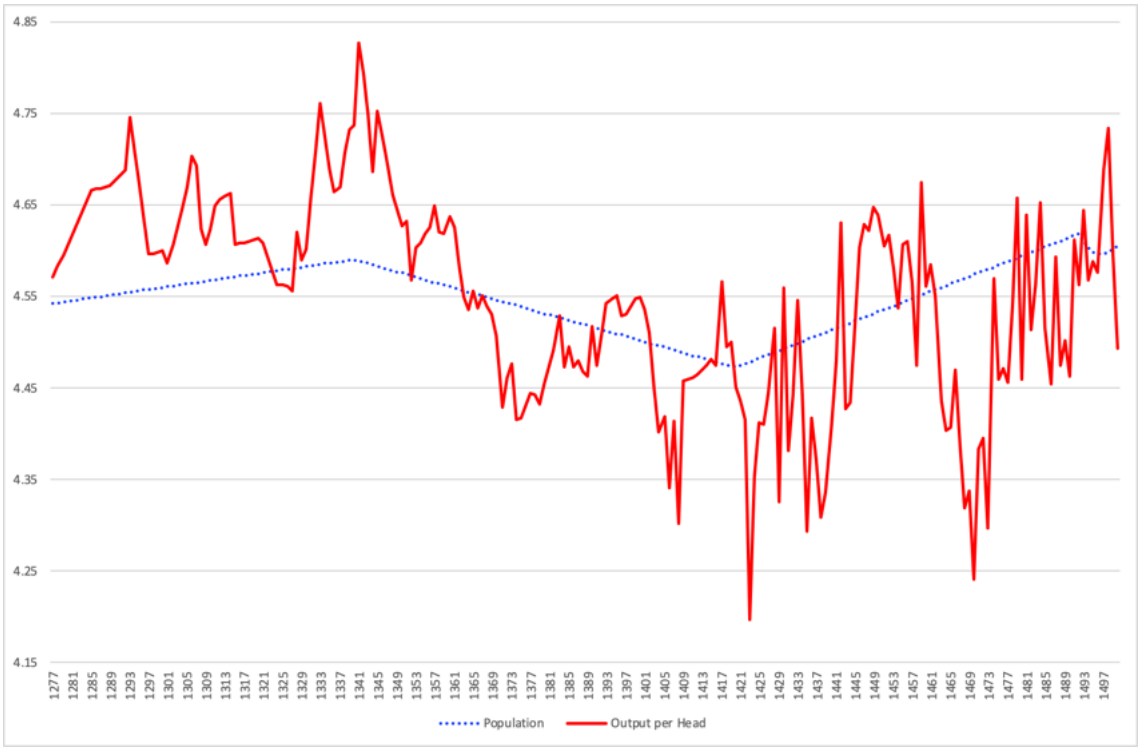

Figure 3: GDP per Head and Population, 1277-1500 (1490/99=100) (logs). *Source*: Prados de la Escosura et al. (2020)

As we can observe in Figure 3, the relationship between population and income per head in Spain is positive, revealing that overpopulation did not seem to have been an issue limiting improvements in average incomes. Spain is more appropriately depicted as a frontier economy. Frontier economies are defined by an abundance of natural resources (especially land) and scarcity of labour, where the economy will organise itself around the exploitation of the abundant input. The frontier in Spain was literal, and was settled by the Reconquista, where the instability of the borders and the high land-labour ratio encouraged the development of a pastoral system intensive in the use of land and scarce in the use of labour (MacKay, 1977). The territories that were incorporated to the Christian kingdoms (mainly Castile) from the eleventh century served to relieve the demographic pressure of the territories in the north (Rodriguez, 2011). The high quality of wool explained its increasing demand in the manufacture areas of the Low Countries. Castilians exported wool and gold and imported expensive textiles, jewellery, and all kinds of luxury goods in exchange making possible the creation of a national and international trade network that was maintained through a network of fairs and a vibrant urban economy (Álvarez-Nogal and Prados de la Escosura, 2013).

Table 2. Urbanisation rates and population density in selected European countries

	Urbanisation rates			Population density		
	1300	1400	1500	1300	1400	1500
Belgium	18.8	17.4	21.7	46.7	40	43.3
Italy	18.0	12.4	16.4	41.5	26.6	29.9
Netherlands	9.4	3.3	12.7	24.2	18.2	28.8
Spain	***8.8***	***7.8***	***9.4***	***8.6***	***8.1***	***9.0***
France	5.2	4.7	5.1	29.4	22.1	27.6
England and Wales	4.0	2.5	2.3	29.8	17.9	23.2
Portugal	3.6	4.1	4.8	14.1	11.4	13.0
Germany	3.4	4.1	4.1	23.9	14.7	16.6
Poland	1.0	1.3	5.4	8.3	6.3	8.3
Ireland	0.8	2.1	1.0	16.7	8.3	9.5
Scandinavia	0.0	0.0	1.1	2.1	1.2	1.3
Scotland	0.0	0.0	2.3	12.7	8.9	10.1
Europe	5.3	4.3	5.6	9.0	6.5	8.0

Sources: Malanima (2009, p. 246 and 16), for Spain Prados de la Escosura et al. (2020)

Table 2 supports this description of the Spanish economy, where we can observe that Spain had one of the lowest population densities of the continent and one of the highest urbanisation rates.[16] This means that the percentage of the population employed in the rural economy was considerably lower and the amount of land available per worker much higher than in the rest of Europe. This also explains why although the demographic impact of the plague was milder in Spain than anywhere else in Europe, it hit harder an economy organised around a fragile system that was very sensitive to changes in the scarce resource, labour. Labour in Spain showed increasing returns to scale as output grew more proportionally than workforce. When the disease killed a large proportion of the population and, hence, the labour force, the economy lost ground as we observe in the fall in production.

If in other more densely populated countries rural labour could easily be replaced by an oversupply of population, in Spain the loss of labour brought by the abandonment of large areas and the collapse of the rural economy and the urban links through trade associated to it.[17] When

[16] The urbanisation rates for Spain are adjusted, excluding those locations that would be considered urban for their size but not for the character of their economy (agro-towns).

[17] Kelly (2001) found similar effects in the case of Ireland and in Egypt the plague affected agrarian production with the collapse of the irrigation system (Borsch 2015)

we think of a rural economy and rural population we should not think only in terms of a single economic activity, namely, agriculture, but also in manufacture activities and services provided. Many of these sectors suffered with the plague leaving isolated many urban towns and cities. Trade was profoundly disrupted, and people abandoned any diversification strategy. Commercial networks just disappeared and urban areas were deeply affected. Koyama et al. (2019, p.25) argued that after hit by the plague, cities recovered from migrants that arrived from rural areas. The fact that Spanish cities recovered more slowly in the short term (Koyama et al., 2019, p.20) suggests that the Spanish countryside was indeed severely hit as it could not provide labour for urban areas as quick as other countries did.

INEQUALITY

To deal with the lack of empirical evidence, economic historians have relied on indirect estimates of economic inequality in premodern times. One of them is the ratio between land rents and real wages, understanding that land is less evenly distributed than raw labour, so the former would capture the returns of the relatively wealthy and the latter of those less privileged. A second option is the Williamson index, expressed as the ratio between nominal output per capita and nominal wage rates. The idea behind the index is that the numerator captures the returns to all factors of production while the denominator represents the returns to labour. Assuming that the bottom part of the distribution obtains their incomes from wages, the Williamson index compares their returns with those of the average captured by output per head. An increase would mean that the returns obtained by the average would increase more rapidly than those obtained by workers, and therefore a rise of inequality. Figure 4 shows the evolution of land rents and real wages in Spain between 1277 and 1500.

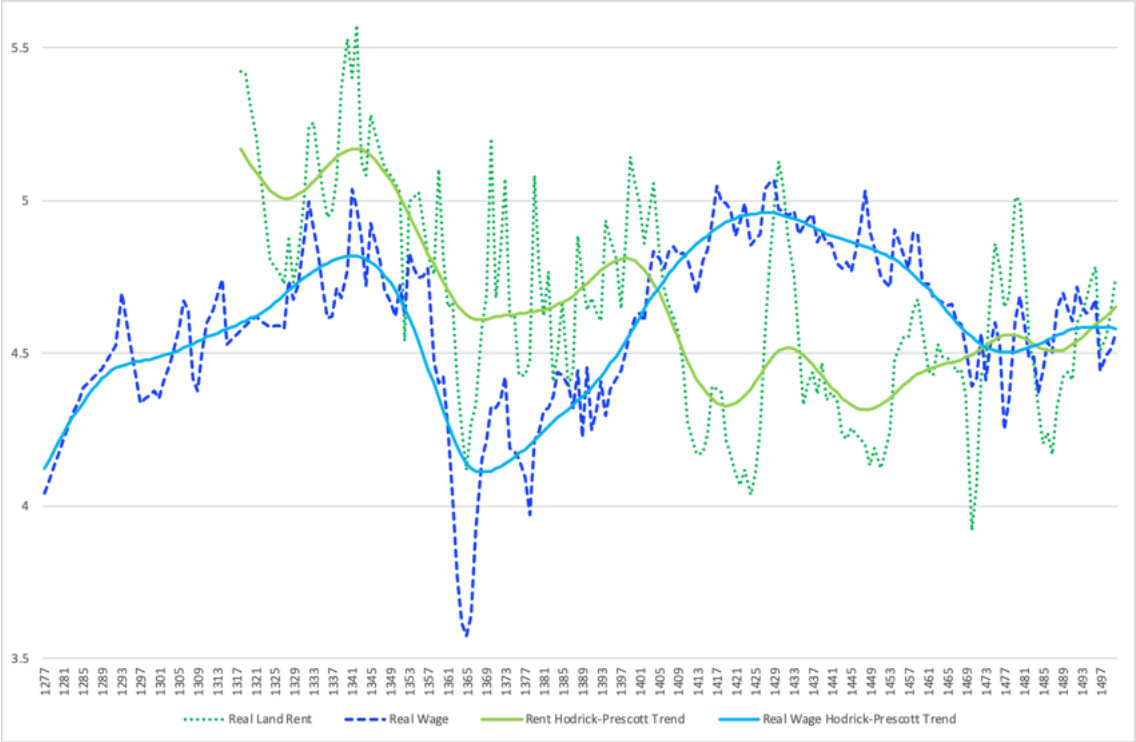

Figure 4: Real Wages and Land Rent, 1277-1500 (1490/99=100) (Hodrick-Prescott filter (lambda=1000) (logs). *Source*: Prados de la Escosura et al. (2020)

The plague produced a sharp decline of both land rents and real wages, although the decrease was more intense in the case of wages. The combination of both variables implies that inequality rose immediately after the outbreak, a situation that we can be confirmed in Figure 5 where we present the evolution of the land rent / real wages ratio and the Williamson index.

Therefore, the years that followed the arrival of the Black Death in Spain produced an increase in inequality following different trends than those observed in the rest of Europe, where the effects of the Plague produced an intense reduction in economic inequality (Scheidel, 2017). In the case of Italy, Alfani (2015) found that in Piedmont, between 1300 and 1800, the Black Death was the only event that produced a decrease in inequality, a fall that also took place in Tuscany (Alfani and Ammannati, 2017). Similar trends were also observed in Northern Italy and Southern France. Societies became more egalitarian because real wages increased rapidly, a process that also reduced wealth inequality through a change in the relative prices between wages and capital. (Alfani and Murphy, 2017, p. 333-4).

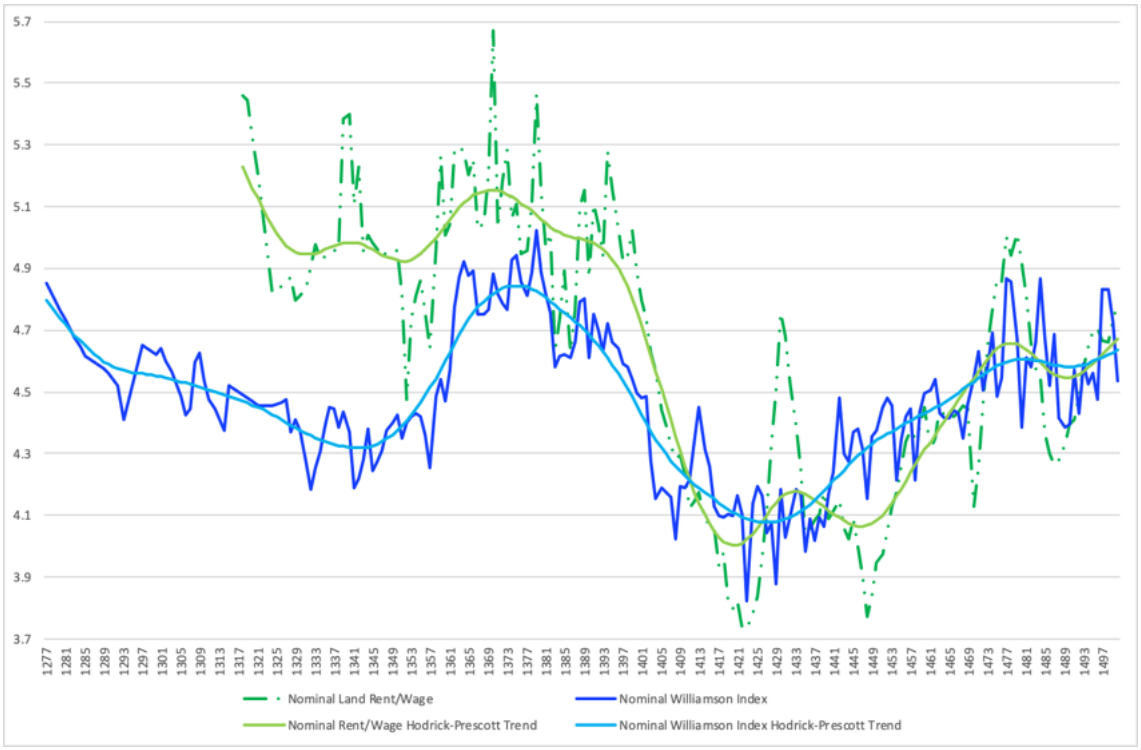

Figure 5: Nominal Williamson Index and Land Rent-Wage Ratio, 1277-1500 (1490/99=100) (Hodrick-Prescott filter (lambda=1000) (logs). *Source*: Prados de la Escosura et al. (2020)

Therefore, the evolution of real wages seems to be a key factor behind the differences between Spain and Europe in the changes in economic inequality. Did they behave so differently in Spain after the plague? Nominal wages did increase in Spain after the Black Death. In Murcia master bricklayers who earned eight maravedis in the 1390s, were able to reach eighteen in the early fifteenth century. Wages for unskilled rural workers more than doubled also in line with similar increases for other unskilled professions (Falcón Pérez, 1985; Menjot, 1993). Nominal wages also increased in Aragon before and after the arrival of the plague for men and women in almost every sector, for workers paid in cash but also to those paid in kind (Campo Gutiérrez 2006, pp. 110-111). There were however some exceptions, like female servants who suffered a deterioration in their wages in Zaragoza.[18] Contrary to what was observed in other regions like Tuscany, the length of their contracts increased from 1365 onwards, from around one year at the beginning of the fourteenth century to up to six years in the middle.[19] Therefore, in the short term the general trends shows that decrease of real wages that we observe was not consequence of decreasing nominal wages, but of a rapid increase in prices that did not fall in Spain as rapidly as they did in other parts of Europe.

[18] The length of contracts is an indicator of the bargaining power of the servant to establish his remuneration.
[19] Campo Gutierrez (2006, p. 101) shows how contracts in Zaragoza increased during the fourteen century. In other aspects the contracts in Spain were similar to those in Europe (Iradiel 1986, p. 251).

In Castile price levels multiplied by a factor of four or five between 1345 and 1390 (Ladero Quesada 1981, p. 10).[20] While during the first third of the fourteenth century one fanega of wheat cost around 5 maravedis, the price had almost doubled at the end of the century (Valdeón 1989, p. 232). Political events influenced inflation, like the war between Castile and Aragon and the presence of a Castilian army in Murcia between 1364 and 1365. Rice, wheat and barley was diverted from the market to maintain the army producing price increases that doubled or trebled (Martínez Carrillo 1985, pp.85 and 93). However, the plague itself also had an effect like the wave of 1379-80 that increased prices in the autumn of 1380 and spring of 1381 (Martínez Carrillo 1985, p.111). Inflation was systematic during the whole reign of Juan I (1379-1390) and affected also to other staple products like meat (Martínez Carrillo 1985, p.106).

Similar trends were observed in Aragon, where for example in the lands controlled by the knights Hospitaller of Saint John of Jerusalem the population fall produced social unrest and especially a sudden increase in prices (Luttrell 1966, pp. 499 and 507). In Catalonia Vilar suggested that the increase of prices was one of the few benefits that lords obtained at the time, an inflationary process that is also observed in detailed studies in around the Plana de Vich and in Mallorca.[21] Coastland economies did not escape from rise in prices, and even fresh or salted fish in Valencia saw increases in 1350 (Rubio Vela 1979, pp. 63-64). There are signs suggesting that real wages started to decline at the end of the fourteenth century before similar trends were found in Europe, a process that appeared before in Castile than in Aragon.

The European experience on prices was in general very different. The immediate effect of the plague in rural areas was the reduction in the amount of cultivated land (Vaca Lorenzo 2001, p.29). England, Norway and Sweden recorded the abandonment of farms and a reduction of rents and agrarian prices (Schreiner, 1948). Grain prices show an intense decrease up to 1460 that in cases like England or Belgium continued until 1500 and that was also affected a relatively high level of economic integration of the European market (Bois, 2001: Abel, 1973; Pamuk, 2007, p. 295). The decrease of grain prices is explained by an oversupply caused by the sudden demographic collapse and a relatively well integrated European grain market (Lamprecht, 1885-1886). The changes in the velocity of money in circulation could have also played a role (Robinson, 1959).

[20] Sobrequés Callicó (1970, p.86) argues in favour of an increase but does not provide numbers.
[21] For Plana de Vich see Pladevall (1962), for Majorca Sobrequés Callicó (1970, p. 84).

Combined with the falling prices, the scarcity of labour in Europe increased nominal wages and gave way to what has been defined by many researchers as the golden age of real wages (Bois 2001, p. 98). Some authors argue that the main responsible of this new cycle was the arrival of the plague in 1347 (Voigtländer and Voth, 2013; Phelps-Brown and Hopkins, 1981). This process first started in the countryside and moved soon to the rest of the economy.[22] In the bishopric of Winchester wages in grain doubled between 1300 and 1379 (Vaca Lorenzo 2001, p. 29). Braid (2009) on the other hand suggested that gains in real wages in England after the Black Death were if any very limited. Wages doubled in Paris between 1349 and 1370 and in Rouen a worker's salary paid in grain practically trebled between 1300 and 1450 (Bois, 1986). The trends were common in all of Europe and the Middle East where nominal wages rose coinciding with the demographic and monetary crises of the time (1348-1360, 1418-1422) (Bois, 2001; Pamuk 2007, p. 297). Workers not only received more for their work, they also improved their working conditions with more freedom to choose and even to decide when to stop working (Dyer 1991. p. 291). In this case it was the rich who lost more, not being able to take advantage of the favourable conditions of the market (Koenigsberger 1991, p. 262).

Moving to the upper part of the income distribution, lords were affected by increasing expenditures, as the rise in nominal wages produced by the fall in population and by falling rents. This situation affected all the privileged classes of the time including the nobility, church, monasteries and also the Crown. Rents fell by one third in the bishopric of Oviedo, and the monastery of Sahagún suffered even higher loses of around 50 per cent between 1338 and 1358 (Vaca Lorenzo, 1983). Similar figures are observed if we take into account the payments that the Crown obtained from agents in exchange of collecting them. The response of the nobility was immediate, trying to control the loss of revenues that they obtained from rents, conditioning their support to Enrique II de Trastámara to the acquisition of privileges that compensated the decrease in revenues (Valdeón Baruque, 1974). The creation of the majorat and the prohibition of emphyteusis or the *censo perpetuo* are seen as examples of the royal response to those requests (Clavero, 1974). As in other regions of Europe, peasants paid most of the price of this reaction, especially when the Crown allowed the direct control of substantial amounts of the territory by the nobility (Martin Cea, 1986). After the plague, seigniorial pressure on peasants grew in Castile and many lords claimed to abolish *behetrías*, namely, old municipalities of free peasants with the right to choose their lord (Ferrari Núñez, 1958; Martínez Díaz, 1981; Estepa Diez, 2003). This implied not only the loss of privileges and traditions that those areas previously

[22] Following the Malthusian theory, real wages decreased during the whole thirteenth century, but the trend changed in the mid fourteenth century. Research from Phelps Brown and Hopkins (1981).

enjoyed, but also the creation of new taxes and an important reduction of municipal independence that many localities had enjoyed from the Reconquista (Pretel Marin 1982, p.153). Therefore, in Castile higher taxes and less freedom was the price that the peasantry had to pay in order to compensate the losses of the privileged classes. We find similar movements in Aragon and Catalonia, where landlords preferred lowering their rents that in some cases halved (Luttrell 1966, p.503). The decrease also affected urban areas, where the payments in the rents paid for houses fell. Taxes on the other hand did not decrease, because although some of them fell other did not and even rose with few exceptions like taxes collected in customs (Kuchler 1969, p. 68).

The privileged classes also worked hard to reduce the rising costs that they were facing through increasing nominal wages. To limit salaries in Castile, Pedro I accepted to top up wages paid to rural workers in 1351, but the law failed and many lords decided to abandon the cultivation of their lands (Sanz Fuentes 1987 p. 1565; Vaca Lorenzo 2001, p. 45). A similar process of reducing the extension of land cultivated happened in Orense as a consequence of higher rural wages (Duro Peña, E. pp. 68-69). Similar laws were created in other regions of Spain like Aragon, Navarre, Valencia or Toro. [23] In Aragon the king did not allow increases of the wages paid to those occupying a public office (Kuchler 1969, p.67). Few of these were successful and in cases like Zaragoza, just two years later they had to be abolished for producing severe damages to many guilds (Sobrequés Callicó 1970, p. 73). There were also interventions in Europe in order to moderate the increase of wages including efforts to top up salaries (Cohn, 2007). England and France introduced legislation that not only forced people to work, but that also controlled their wages, but their effects seem to be equally limited (Bois 2001, p. 96).

Therefore, the reaction of the rich and powerful in Spain was not as successful as expected, and in any case it was far softer than in other areas like Eastern Europe. The low population density and the high levels of competition between lords explain why in the Spanish case they limited the intensity of their response to avoid losing vassals. An example is the reduction in taxes for the organisation of fairs during the fifteenth century, where different lords competed against each other as the fairs of Medina del Campo, Villalón and Medina de Rioseco show in the centre of Castile. The role of the main cities, those with delegates in the Cortes, was also relevant to limit the reaction of the nobility. Urbanisation levels in Castile were traditionally high and therefore their power was key to counterbalance the interests of the lords. They had their own

[23] Navarre Monteano (2001, p. 117), for Valencia Rubio Bela (1979, p. 62), for Toro Martín Cea (1986, p. 131).

laws, levied their own taxes, and had the support of the monarchy. Their presence in the Cortes gave them the visibility and influence to antagonise the actions of the privileged classes.

To sum up, the milder demographic consequences of the Black Death in Spain meant that nominal wages increased less rapidly than they did it in other parts of Europe, where the behaviour of prices also allowed higher gains in real terms for the lowest social classes, explaining the sharp reduction in inequality that did not take place in Spain. At the same time, although the attempts by the upper part of the income distribution to sustain rents generally failed, they did not decrease as much as real wages did. The consequence was a growing gap between proprietors' and labour gains that explains the rise in inequality that we observe in the case of Spain.

LONG TERM CONSEQUENCES

The direct effects of the Black Death in Spain established the foundations for its growth during the following centuries. The short term consequences of the plague were negative, with the destruction of a fragile organisation based in a frontier economy. However, in the long run the demographic recovery that followed reinforced the system with increasing urbanisation and a more intense specialisation in high value added production.

The general view of the Black Death primarily affecting urban economies has been recently disputed.[24] While contemporary advice counselled escaping when the plague arrived, where to go was not such an easy decision (Vaca Lorenzo 1998, pp. 16-17). Short-term food shortages were harder in cities, but long term refugee from hunger was probably better found in urban centres that offered public goods, security and protection (Laredo Quesada 1981, p. 4). The growing number of depopulated rural areas supports the idea of increasing migrations from the countryside to the cities (Valdeón Baruque 1972a, p. 88). Koyama et al. (2019, p.29) support this idea and explain how most of the recovery of urban population came from rural migrations. We have several examples of cities that were able to resist and even increased their populations after the pandemic. In the city of Burgos there were no signs of population decline during the outbreak (Casado Alonso, 2009). Valencia raised its population even after the waves that followed the plague of 1348 (Rubio Vela 1987, p.109). A similar situation took place in Jaen, and

[24] There are no reasons to believe that it affected more to those regions more populated or differences between rural and urban areas (Monteano 2001, p. 107). Romano and Tenenti (1977, p. 6) follow the same argument. For Cordoba see Collantes de Terán Sánchez (1980, p. 78).

in cities like Córdoba the number of rented houses increased because new neighbours occupied the places of those who passed away (Rodríguez Molina 1975, p.31). The higher mortality in rural areas of Majorca compared to the city can only be explained by a transfer of population from the countryside (Santamaría Arández 1969, p.120). In Vic there was an intense movement of people from the surrounding areas to the city thanks to the fiscal advantages that its authorities granted to the migrants, and for the security that it offered (Pladevall, 1962: Cuvillier, 1969). Other parts of Iberia showed similar trends like Portugal, where the Black Death marked the beginning of a growing urban economy (de Oliveira Ramos 1963, pp. 220-229).

Therefore, the high levels of urbanisation that Spain presented did not suffer much (Mitre Fernández and Granda Gallego 1982, p.832). Aragon and Catalonia were less urbanised than Castile, partly consequence of the way the Reconquista was carried out (Zulaica Palacios 1995, p.132). From the mid eleventh century up to the battle of Las Navas de Tolosa an urban network is created in Castile, followed by a second wave that lasts until the arrival of the Black Death (Ladero Quesada 1986, p. 573).

The reinforcement of the urban economy in Spain was also possible thanks to a deeper specialisation in the rural world, recovering many of the economic strategies that the disease had stopped or destroyed right after 1348. The frontier economy based on wool production intensified following the depopulation of the countryside and the reduction of arable lands not needed to feed a smaller population. Cheaper land attracted urban investors but also the high nobility, ecclesiastical lords and powerful monasteries. Regions like Murcia where the plague hit harder lived a more profound transformation including new legislation protection cattle breeders. Although the process also took place in Aragon, it was not as intense as in Castile.[25] The former was encouraged by the demand from northern Italy, while the later benefited from the diversion of Flanders demand from England (Ibarra Téllez 2007, p.133). Castilian merchants from Burgos expanded their networks through France, England and Low Countries. Using Bilbao as their main port for exports, they were able to create after 1390 commercial colonies from Lisbon to Antwerp. Burgos became the main insurance centre in the Iberian Peninsula and capital profits were invested heavily in the Castilian countryside and wool production (Casado Alonso, 1987).

[25] Koyama et al. (2019, p.25) suggest that the fact that cities recovered population faster than the use of land imply that peasants in rural areas after the Black Death could have been substituted by livestock.

The international demand of high-priced merino wool increased productivity in the rural economy, and at the same time expanded trade networks that connected the countryside with the cities and these with the international markets. The development was not circumscribed only to the production of raw wool, as spillovers appeared in the tertiary sector related to trade and in the secondary sector with the rise of the textile industry. Therefore, if the short term effects of the Black Death in Spain were negative, by the second half of the fifteenth century the economy was already recovering. In the long term the most important effect of the plague was the reinforcement of an economic model based on an efficient and complex rural sector, not just on peasants living at subsistence levels struggling with low productivity crops.

CONCLUSION

The arrival of the Black Death to Europe produced the worst demographic crisis in recorded human history. However, within the European context not all the countries suffered its effects in the same way. The Spanish case became an exception to the European rule, with a relatively mild population loss but an intense decrease in incomes per head. Also contrary to the experience in Europe, inequality in Spain increased and the differences between labour and capital gains grew in the years that followed the outbreak, when real wages decreased more rapidly than did land rents. In the long run the plague reinforced a system of frontier economy based in the production of high value agrarian products, where the rural sector was well connected to a vibrant urban economy, and from it to the rest of Europe. The growth that followed in the following centuries would put Spain in a privileged position at the Age of the Discoveries.

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