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Economics impact of the Black Death: Wages, Labours and Divergences

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01-Abstract

This paper starts with the background information about the Black death, which was one of the most devastating plague in mankind history. Background story includes how the plague had been traveled to Europe, how people at that time reacted to the plague, and how did the plague start at first. Then we move to the more economics related parts, which the first one part is about the death and the effect of the death on wages and rents. Then we further discussed the economic effects in both long-run and short run which in this case was the pure population effect or exogenous shock. The impact in short-run and long-run are converse to each other. Then we end up with our own opinion in discussion part.

02-Introduction

Throughout the history of mankind, disease is likely to be one of the main causes of death apart from warfare. According to Paolo Malanima (2014), the worst infectious illness that struck humans is zoonosis (disease caused by contact with other animals) which occurred during the agrarian era. Various strains of influenza, smallpox, malaria, plague, measles, and cholera were provoked by infections which first affected domestic animals or those non-domestic species with which humans came into contact, such as mice, fleas or lice and were then transmitted from animals to humans and from humans to other animals. In this article, the focus is on the Black Death, which occurred during the late middle age.

Black death, the infectious and depressive disease caused by the plague that originated in China and later devastated Europe in the fourteenth century, with the number of deaths over one hundred and thirty million across Europe. The plague completely transformed the life of people living across Europe in relation to its widespread and infectious disease. The formation of radical and direct effects to the society as a whole. The second major impact was the economic impact resulting from the spread of plague in relation to the decrease in population. For example, suffering from trade, and the effect of decrease in total population in relation to the peasants. However, Europe's economy experienced both positive and negative impact after the end of black death.

However, the consequences of the plague were not the same throughout the European region, so we are going to study why the effects are not the same and how the changes cause the divergence between the East and the West.

03- Background story

Human plague can be formed by three types of plague, which are bubonic plague, Pneumonic plague, and Septicemic plague. In fact, Black death is the combination of two plagues. The first one is called "The Bubonic Plague", a zoonotic disease carried by black rats before being transmitted to humans. The rats were being penetrated by the fleas, which carried the murderous bacteria called "Yersinia Pestis", with an appearance of many painful buboes. Another severe and contagious disease that has a direct effect to human's respiratory system is called "The Pneumonic plague", also caused by Yersinia Pestis. Patients would experience the flu-like symptoms, such as fever, headache, cough, and shortness of breath. The infection would be transmitted from person to person via droplets. The Pneumonic plague can be severe and fatal if the patient has not received the treatment during the early stage of the infection. The sudden spread of the two plagues leads to many severe cases in Europe. However, antibiotics is considered to be an effective treatment as it can save lives if the treatment has been applied right after the symptoms started.

Black death greatly reflects the true nature of people. In response to the widespread disease, people abandoned their families, including their own kids and fled away to the countryside with the hope of being released and away from the disease. "Children abandoned the father, husband abandoned the wife, wife the husband, one brother the other, one sister the other.... Some fled to villas, others to villages in order to get a change in air. Where there had been no [plague], they carried it; if it was already there, they caused it to increase" said Zahler. The quote portrays how hard and horrible life people were facing, their true state of mind was radically transformed. All of them were experiencing depression. Here, the idea of the ending of the world is introduced. People were overwhelmed and possessed with their coming death. Unfortunately, people who got infected by the disease have no idea whether they got infected as long as the symptoms were not yet shown. Therefore, those who fled away carried the disease with them, causing the spread of disease to those who live in the countryside. This is one of the factors that lead to the continuation of a rise in the number of infected cases, and the situation becomes even worse.

The origin of Black Death

Black Death was initiated in China, before it spread throughout Europe via the trade routes connecting between China and Europe called "The Silk Road". Mark Welford, a professor at the University of Northern Iowa said that "the silk road allowed, possibly for the first, the sustained transmission of diseases endemic to Central Asia to move out along the road to Europe". The determination of "The Silk Road" was sometimes described as the blood vessels of the human body. This is because the ship containing black rats running around, encountered numerous stops from village to village during transportation. In the first place, the disease was being spread among traders and dealers and gradually developed within the human body by the early symptoms, such as headaches, or buboes. Later in time, Europe was ravaged. Ole J Benedictow said that "A historical turning point, as well as a vast human tragedy, the Black Death of 1346-53 is unparalleled in human history", portraying how horrible it was.

In addition, there are many factors causing the devastation in Europe in relation to the rapid spread of the plague. Environment is one of the main factors that should be raised. The environment during the period could be described as dirty, polluted, and full of waste. This is because the behaviors of people in the fourteenth century are very different compared to

nowadays. Surprisingly, people during the period of black death limit their time spent on shower and bath to once a year, instead, they routinely wash their hands and faces. Moreover, some of them would prefer to sleep on hay or sheep wool without changing to a new one or a regular cleaning. Moreover, they usually dump the trash by throwing out the window, causing the community to be full of waste. These behaviors clearly show that they did not give much attention to wellness, sanitary, and cleanliness. Furthermore, there are many more factors apart from people's behavior, which lead to the infection of black death, such as an inefficient renaissance, lack of responsibility in reporting the case or the symptoms that could lead to the infection, poor tools and services of the treatment, and many more.

Reaction towards Black Death

Reactions of people towards the plague seems to be varie. Most people take actions and responses towards the spread of disease based on religious belief, such as folk wisdom and superstition. However, medical knowledge still applied. Western Europe applied medical knowledge based on the two dominant religions. The announcement and declaration of catholic christianity in Western Europe, while Eastern Europe took the notification from the Islams. Unfortunately, these forms of responses did not turn out to be effective, resulting in the continuation of rising numbers of infected cases and deaths. Moreover, the power of the medieval church was lowered due to the belief of god's unacceptance to the prayers, and took it as a punishment from god in relation to their sins. The Scholar Anna Louise Desomeaux once said that "turn humbly to God, who never denies His aid". Here, the idea of working in order to influence god, reviving society back to normal takes place towards Christians. On the other hand, Islam belief remained thoroughgoing due to the belief that the countless death is a gift from god, sending those infected people to paradise. Therefore, power of faith among islams remains the same, while the Christianity did not.

Another hopeful cure for people who view the world agnostically, would be the response in action from the governments. In this case, the government actions seem to be ineffective and fail to decrease the number of deaths and the infected cases. The medical workers were sent out to each region to look after and give advice to people. However, the spread of the diseases put so much pressure and enough fear to make most of the medical workers to quit their jobs. The spread of the diseases persisted, continuing the rise in the number of infected cases. However, there were still effective measures given by the government, even though, failed to stop the spread of disease. In Milan, the city authorities would mark and walk up the house, indicating the found of infected people. Other general measures would be self-isolation and quarantine. In fact, black death is the invention of quarantine. Mockaitis said that "As for how to stop the disease, people still had no scientific understanding of contagion", portraying the inadequate knowledge regarding the situation they are facing. However, they know that it is something to do with proximity. Therefore, the measure quarantine was established and being used across Europe. For example, the sailors were told to be isolated on their boat for 30 days. The actual ending period of black death has not been specified. The plague kept reappearing in a few generations in a short time period for a few centuries. In addition, the risk of human plague is everywhere in relation to the number of animal carriers and bacterias. However, technologies, medical knowledge, sanitation, and measures implementation becomes more effective and modern from time to time. Most importantly, the sanitary system has kept on developing into a modern system as time passed. However, the recondition and reconstruction process in terms of population took 200 years approximately for Europe to reach the equal number during the pre-plague. Other factors such as labor, culture, and economy also take time to replenish.

04-Mortality and labor supply

Since the arrival of the black death in 1347, the disease has killed 40 to 60 percent of the population in Europe, according to Remi Jedwab (2020). This mortality is tremendously high and it affects the society as a whole. Europe at that time faced famine and malnutrition due to high population, at that time, we were still in the Malthusian trap, that is as population growth is ahead of agricultural growth, there must be a stage at which the food supply is inadequate for feeding the population. Secondly, according to Campbell (2016), black rats acted as a powerful amplifying host in transmitting the disease. Finally, inadequate sanitary and health measures at that time further intensify the severity of the plague.

The following data is quoted from David Routt(2008) : “The first outbreak of the Black Death indisputably was the deadliest but the death rate varied widely according to place and social stratum. National estimates of mortality for England, where the evidence is fullest, range from five percent, to 23.6 percent among aristocrats holding land from the king, to forty to forty—five percent of the kingdom’s clergy, to over sixty percent in a recent estimate. The picture for the continent likewise is varied. Regional mortality in Languedoc (France) was forty to fifty percent while sixty to eighty percent of Tuscans (Italy) perished. Urban death rates were mostly higher but no less disparate, e.g., half in Orvieto (Italy), Siena (Italy), and Volterra (Italy), fifty to sixty—six percent in Hamburg (Germany), fifty—eight to sixty—eight percent in Perpignan (France), sixty percent for Barcelona’s (Spain) clerical population, and seventy percent in Bremen (Germany). The Black Death was often highly arbitrary in how it killed in a narrow locale, which no doubt broadened the spectrum of mortality rates. Two of Durham Cathedral Priory’s manors, for instance, had respective death rates of twenty—one and seventy—eighty percent (Shrewsbury, 1970; Russell, 1948; Waugh, 1991; Ziegler, 1969; Benedictow, 2004; Le Roy Ladurie, 1976; Bowsky, 1964; Pounds, 1974; Emery, 1967; Gyug, 1983; Aberth, 1995; Lomas, 1989)”

From the data above, we can see that most of the death belongs to those aristocrats holding the land much less than those peasants who work in their land. According to David Routt(2008), the agricultural sector was severely affected by the plague since more than ninety percent of the European at that time worked in the agricultural sector. In pre-plague, all the peasants would do the routine, growing and harvesting crops, for very low wages due to overpopulation. After the plague, those lords lose ability to keep the wage low since peasants who survive the plague have more negotiating power and experience more wage, many of the nobles at that time need to do the plantation themselves since the wage is too high for them to hire peasants. Many of the lord polemically evoked nostalgia for the peasant who knew his place, worked hard, demanded little, and squelched pride while they condemned their present in which land lay unpowered and only an immediate pang of hunger goaded a lazy, disrespectful, grasping peasant to do a moment’s desultory work (Hatcher, 1994).

At the beginning of the fourteenth century, most of Europe had been attacked by various waves of the pandemic. The pandemic wiped out most of the population; however, Carlos Alvarez-Nogal (2020, p.4) suggests that the decline in population is not the direct effect of the plague. The reasons of the food supply shortage in some regions were the bad weather, wars, and crimes which led to decrease in output and eventually causes famine which set off the decline in population, according to Malthusian trap

Moreover, the decline in population did not distribute equally, but varies across regions. The decline in population in the Iberian Peninsular or Spain and Portugal nowadays were surprisingly subtle compared to other parts of Europe. Scandinavia region had suffered the highest loss: forty four percent decrease in population, and Spain was the one that suffered only six percent loss in population, which is relatively low compared to others. The explanation for this event was that Spain had suffered the Malthusian trap before the plague arrived in Europe.

Wages

As conditions in poverty left the lower class especially vulnerable to the disease, the nobles who owned large houses and large estates found that suddenly there were not enough serfs and farmers to do all the work that needed to be done. They needed workers immediately, so they attracted workers from other areas with the promise of cash. Again and again, their employers had to offer higher and higher wages, as well as better working conditions, housing, food, and more. Serfs find themselves at a very high level of power negotiation.

The rise in wages varies across regions, the more decrease in population would result in more increase in wages. The income is measured by GDP per capita, so if the mortality rate is high, the wages should be rapidly increased. But some countries with the high mortality rate did not end up in the effect following the assumption and the growing population sometimes did not end up in lower wages too. (Carlos Alvarez-Nogal, 2020). For example, in Holland, the rise in population during the plague as the result of the absence of plague did not influence the wages at all, the wages in Holland persisted at a high rate for a long period.

After tremendous rise in wages, there were many attempts by the elites to set the wages by passing the legislations or law to limit the wages of labour and price of goods. The legislation enacted was varied across Europe with different purposes and different intensity. Provence, which is a part of France, had the legislation passed by king John II, which aims at the Parisian guild monopolies and anti-corporatist. The legislation in Provence influenced very little on wages and price of things. But later French territory and England Isles enacted similar legislations to control wages and price. Both calculated wages of labour based on productivity, and wages include the money and food. Provence also set price ceilings on various types of shoes and also set specific prices for each type of meat by cut. The legislation passed by state in Iberian peninsular or Spain nowadays, including the Aragon and Castilian, was more severe compared to those enacted by England and France. Aragon law prohibited the begging to the lord and forced the peasants to work all day long except ill, old, or too young. In Castilian law, the peasants were tied to the land and the lord like before the plague. Moreover, both laws did not include food in the portion of wages, so the peasants must produce their own food. The legislation in Iberian peninsular was beneficial to the lord more than the economy as a whole so the peasants were more likely to rebel and protest against these regulations set on them. The other parts also set the legislations, but it did not effectively control wages. In Florence, the legislation only set the wages of the lowest stratum of workers and only set the price on goods produced by the cobbler. The similar situation also occurs in Venice and Milan which all the law passed out was aimed at the urban population only. Moreover, most of the law including the Spanish law was urban population centred. However, the amendment later on stabilised wages for all jobs and set price on every goods. (Samuel Cohn, 2007)

Rents

The sudden drop in population causes many land to be free of work, consequently the rent dropped as the wages increased since the peasants had gained more bargaining power. However, "In western Europe the decline in population left the holdings of many peasants and landlords at least partially vacant. Landlords initially attempted to force the surviving tenants to take up vacancies on the old terms, but such attempts were not successful. The flight of peasants, the competition between the lords and the struggle by tenants eventually led to much lower rents, fewer obligations and longer leases which soon became life leases." (Sevket Pamuk, 2007, p.309)

05-Short-run economic effects

Black Death is being considered as "A Great Tragedy" or "the Great Mortality", due to one of the main scenes the black death was responsible for, which is the drastic decrease in the total number of population in Europe. Black Death has an immediate association with the economy, including the relationship between the peasant and the landowners. According to the decline in population, less number of laborers and peasants are available, which later conduct a change in their mindset. The rise in their value, portraying the higher power of negotiation to the landowners in relation to the wages, freedom, and social hierarchy as the labor supply is now limited. Instead, the power of the landowners have lowered, some of them could not effort the high wages. Therefore, leading to an excess or the surplus of land as shown on the graph below, giving the peasants an opportunity to buy their own land. In addition, most of them decided to quit their jobs, and operate the land they bought by themselves.

However, all of the labor was not able to negotiate for a higher wage. The European Rulers were trying to prevent the act, by forcing the laborers to receive the same amount of wages determined by the landowners. Moreover, there would be punishment applied in the case of breach or disobey the statutes. On the other hand, due to the decrease in the number of laborers, implying working conditions becomes less crowded and more tools available, leading to an increase in marginal product of labor. The implication of an increase in marginal product of labour is due to the reason that laborers got the opportunities to do the job they are specialized or expert at, together with knowledge sharing among the labourers as they become more productive. Therefore, specialization and knowledge sharing would lead to a higher number of goods and services produced, resulting in a higher willingness to pay for the wages of the landowners. Another positive impact towards the landowners is a decrease in marginal cost due to a fall in marginal product of labor, implying a fall in cost of producing an additional unit of goods, which in contrast with a fall in GDP. Also, the contribution to the better living condition of the society as a whole, including safeness, sanitized community, and weatherproof.

06-Long-run economic effects

Despite the fact that the short run economic effect was negative, with the productivity shock and rapid decrease in wages and rents, the long run economic effect tends to be positive. In the long-run the wages tend to rise if we see wages as the price of labour, since there is less labour supply given the same demand. The rate at which the wages and rents decrease was determined by the number of life lost, the more death usually causes wages to decrease. Absence of plague in Low-countries gave the economic advantage to the manufacturer since the lower death means higher labour supply, resulting in lower wages for labour. Holland experienced a sharp rise in population, but not lower wages, so Dutch manufacturers did not get the comparative advantage, but capital-intensive agriculture and industry as the result of high wages caused the competitive advantage in the sixteenth century (Samuel Cohn, 2007). Moreover, the pre-industrial revolution might lead to divergence.

Urbanisation

The food shortage was more severe in urban areas at the beginning of the plague, but the public goods and public security influenced people from rural areas to move to the city. The rise in urban population was replacing the population that died causing the fast recovery and urbanisation after the plague had gone because the migration makes the economy look as if no population has gone (Carlos Alvarez-Nogal, 2020). So the plague was the beginning of urbanisation which resulted in persistent wages in some urban areas where people constantly move in. The persistent high wages forced manufacturers to find ways to maximise their profit, which can be done through capital-intensive industry and agriculture, which will increase the productivity of labour. For example, Dutch experienced a rise in population since the plague was hardly reached.

However, later on the state that lost a lot of population can also develop the capital-intensive production and finally catch up with those countries. England which lost more than forty percent population had been into pre-industrialisation after the plague had gone. But the growth and development after the plague was biased toward the north western regions. Before the plague, the core of Europe, where all the capital and most economic activities belonged, was in Italy and Spain. But those countries tend to recover slower than England and cause the great diverges.

Inequality

Another long-run effect of the plague is that it drives down the inequality. According to Guido Alfani, 2020, the black death causes two phases of systematic inequality decline: "First, the aforementioned increase in real wages of skilled and unskilled workers and the generally more favourable conditions experienced by labourers. Second, the fragmentation of large patrimonies caused by extremely high mortality in the context of the partible inheritance system, which in the late Middle Ages characterized many European areas, like Italy. This resulted in many people inheriting more properties than they needed or wanted. Consequently, it led to an unusual abundance of property being offered on the market. Together with higher real wages due to the scarcity of labour, this situation helped a larger part of the population gain access to property." (quote from Guido Alfani, 2020).

Carlos Alvarez-Nogal (2020) uses two methods to measure the inequality: land rents to wage ratio, and nominal output per capita and nominal wage rate. The first option can tell us how much of the productivity had been distributed to the peasants, since the landowner at that time captured most of the wealth gained from the output. The second option implies that the increase in that rate would cause the rise in inequality since more output was allocated to the elites.

07-Discussion

Black Death resulted in a massive number of deaths. People take action in different ways according to their own belief. It is the disease that is recognized by people as one of the foremost pandemic throughout world history. The plague has a fatal effect on both physically and mentally. Moreover, the noteworthy effectual measure that was originated during the period of Black Death, "Quarantine", the measure that has been applied by all countries across the world nowadays, reflecting its effectiveness and its main role in slowing down the spread of disease. The first crucial factor is the close proximity, resulting in an unexpected spread of plague before turning the situation into a nightmare. Hygiene is another factor that plays an important role in spreading the disease, portraying people's behaviors that has to be changed. For example, regular showers, linen change, and washing hands. Another behavior that should be modified is the way of throwing the trash in one specific place such as the trash can, causing less rodents, as dirty places would be a perfect place for them. Fortunately, these modified behaviors could lead to the contribution to the development in the sanitary system from time to time. Furthermore, Black death reflects different attitudes of people according to their own belief towards their religion. Also, the difference in the attitudes towards the spread of plague among Christian and Islam is completely difference. Power of faith among islams remains the same, while the Christianity was not. In the same time, the social, culture, political, would result in a drastically changed according to the idea of working to influence god across Western Europe, while the Eartern Europe holding the Islamic belief was not.

Economically, the peasant has a higher bargaining power due to limited labor supply, causing a decrease in total population. Here, both positive and negative impacts are shown. Even though the fall in GDP took place, peasants became more productive, contributing to knowledge sharing and specialization. This leads to a fall in marginal cost, implying a fall in the cost of producing an additional unit of output.

Various researches mentioned that the plague was the cause of the great divergences between the North-eastern, the Eastern and The Southern Europe, but there was no obvious reasons why the great divergences really happened given the same conditions.

Sevket Pamuk (2007) indicated that Eastern European lords did not submit the change causing the producer or the lord to get slave labour like pre-plague. In my opinion, this was one of the reasons why the Western Europe like England or France developed faster than the Eastern Europe. When the wages are low, so the peasants or laborers did not have the incentive to work and the productivity of labour declined. When labour had no incentives, they did not really work, they were just pretending to work so they did not get penalised by the lord since they get nothing out of their work. In other words, even if the peasants deliberately grow the crops and the output doubled or even tripled, they would get the same wages and be treated as before. However, the Western Europe was more open after the plague had gone, peasants were converted to the renter and the lord became the landlord. The

structural change in those countries motivates people to work more since they only need to pay the lump-sum of their output to the landlord, comparing to the other methods which the lord paid the lump-sum of the production back to the workers, and those paying from the manorial lord was inadequate for people to survive. So structural change which resulted in more incentives was one of the reasons why the core of Europe was moved to North-Western Europe.

Samuel Cohn (2007) told us that the wage restriction was more severe in those southern Europe regions including the Iberian peninsular and Italy. The severe wage restrictions were less intense by the threat of peasants in eastern Europe, but it could have yielded the same outcome towards the incentive of the labours. With the wage limitation, the price of labour cannot adjust itself to the equilibrium so the workers will be less motivated and yield less output.

For the Western Europe, the producer was unable to generate profit out of the traditional industry or the normal agriculture since the wage was too high. The emergence of capital-intense which required lower labour input and yield more productivity and push those regions out of the Malthusian trap and experienced the rapid population growth

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09-Appendices

This table shows the number of population in some parts of Europe.

Table 1. *Population of selected European countries, 1300–1800 (in thousands)*

	1300	1400	1500	1600	1700	1800
England and Wales	5,750	3,000	3,500	4,450	5,450	9,250
Netherlands	800	600	950	1,500	1,950	2,100
Belgium	1,250	1,000	1,400	1,600	2,000	2,900
Italy	12,500	8,000	9,000	13,300	13,500	18,100
Spain	5,500	4,500	5,000	6,800	7,400	11,000
Total Europe	94,200	67,950	82,950	107,350	114,950	192,230

Source: Paolo Malanima (unpublished manuscript).

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

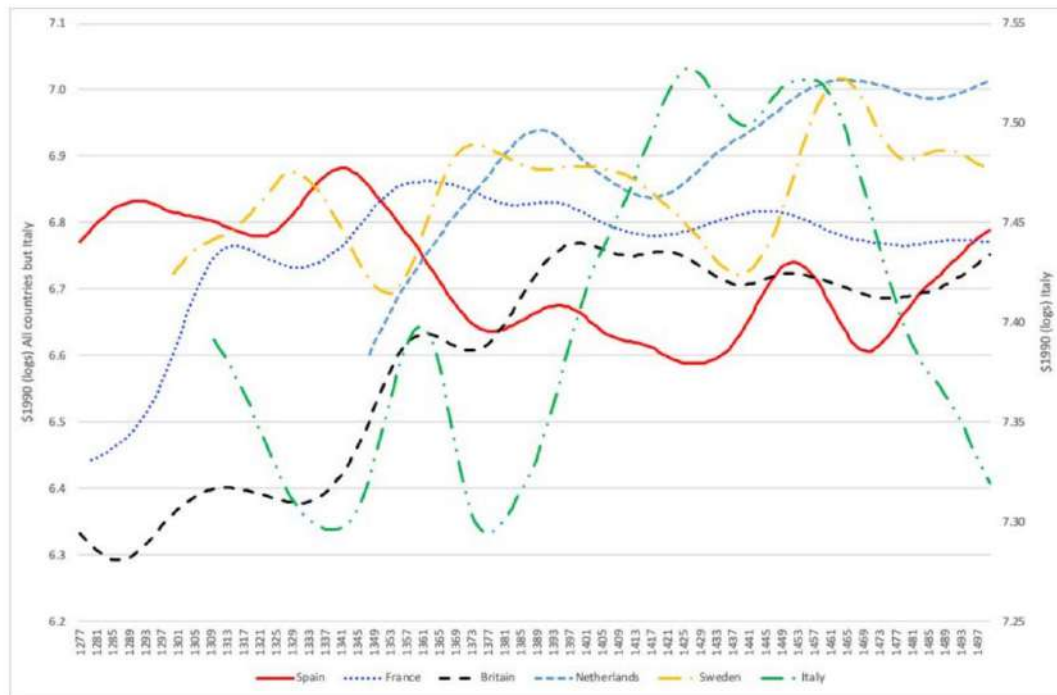


Figure 2: Figure 11. Hodrick-Prescott Trends in Real GDP per Head in European countries, 1277-1500 (Geary-Khamis \$1990) (Italy right axis) (logs). *Sources:* Prados de la Escosura et al. (2020), Broadberry et al. (2015), Krantz (2017), Malanima (2011), Ridolfi (2016), and van Zanden and van Leeuwen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

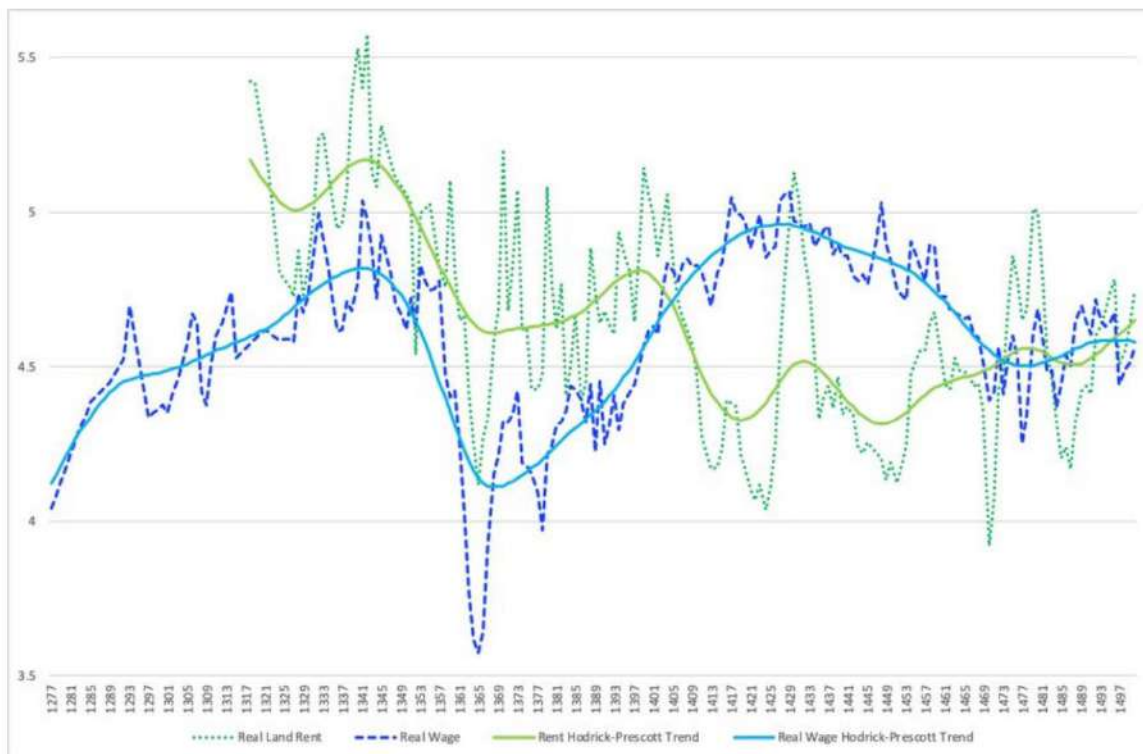


Figure 4: Real Wages and Land Rent, 1277-1500 (1490/99=100) (Hodrick-Prescott filter (lambda=1000)) (logs). *Source:* Prados de la Escosura et al. (2020)

Table 2. *Urbanisation rates in selected European countries, 1300–1800: population of centres with more than 10,000 as percentage of total population*

	1300	1400	1500	1600	1700	1800
England and Wales	1.2	2.2	2.3	6.0	13.3	22.1
Netherlands	0.0	0.0	17.1	25.6	32.8	28.8
Belgium	18.5	22.4	18.4	15.1	20.4	17.0
Italy	14.7	8.6	14.9	16.2	14.2	17.2
Spain	11.6	10.4	11.5	14.5	9.6	13.5
'Northwest'	3.9	6.3	8.5	11.8	18.9	22.0
'South'	13.8	10.9	13.7	15.6	13.3	19.5
'Northwest' – 'South'	–9.9	–4.6	–5.2	–3.8	+5.6	+2.5
Total Europe	5.0	4.4	5.6	7.3	8.1	8.7

'Northwest' refers to population-weighted average of England and Wales, Netherland and Belgium; 'South' refers to population-weighted average of Italy and Spain.

Source: Paolo Malanima (unpublished manuscript).

	kmq	Population				Density				Index			
		1300	1400	1500	1600	1300	1400	1500	1600	1300	1400	1500	1600
Scandinavia	1,198	2,500	1,400	1,500	2,400	2.1	1.2	1.3	2.0	100	56	60	96
England (Wales)	151	4,500	2,700	3,500	4,450	29.8	17.9	23.2	29.5	100	60	78	99
Scotland	79	1,000	700	800	1,000	12.7	8.9	10.1	12.7	100	70	80	100
Ireland	84	1,400	700	800	1,000	16.7	8.3	9.5	11.9	100	50	57	71
Netherlands	33	800	600	950	1,500	24.2	18.2	28.8	45.5	100	75	119	188
Belgium	30	1,400	1,200	1,300	1,300	46.7	40.0	43.3	43.3	100	86	93	93
France	544	16,000	12,000	15,000	18,500	29.4	22.1	27.6	34.0	100	75	94	116
Italy	301	12,500	8,000	9,000	13,300	41.5	26.6	29.9	44.2	100	64	72	106
Spain	505	5,500	4,500	5,000	6,800	10.9	8.9	9.9	13.5	100	82	91	124
Portugal	92	1,300	1,050	1,200	1,300	14.1	11.4	13.0	14.1	100	81	92	100
Switzerland	41	800	500	800	1,000	19.5	12.2	19.5	24.4	100	63	100	125
Austria (Czech., Hung.)	626	10,000	9,000	11,500	12,800	16.0	14.4	18.4	20.4	100	90	115	128
Germany	543	13,000	8,000	11,500	16,200	23.9	14.7	16.6	29.8	100	62	88	125
Poland	240	2,000	1,500	2,000	2,500	8.3	6.3	8.3	10.4	100	75	100	125
Balkans	516	6,000	5,000	5,500	7,000	11.6	9.7	10.7	13.6	100	83	92	117
Russia (European)	5400	15,000	11,000	15,000	16,000	2.8	2.0	2.8	3.0	100	73	100	107
EUROPE	10,383	93,700	67,850	84,850	107,050	9.0	6.5	8.0	10.3	100	72	91	114
EUROPE (without Russia)	4,983	78,700	56,850	69,850	91,050	15.8	11.4	13.6	18.3	100	72	89	116

Sources: Reinhard, Armengaud and Dupâquier 1968 (all countries); Ulanis 1941, 414 (all of Europe); Mols 1974 (early Modern; several countries); Wilson and Parker (eds.) 1977 (some countries; early Modern); Dupâquier 1968 (France); De Vries 1984, 36-7 (Western Europe); Russell 1958; Wrigley and Schofield 1981 (England from 1541); Myrdal forthcoming (Scandinavia 1300 and 1400); Beloch 1937-61; Lo Cascio and Malanima 2005 (Italy 1300-1800); Bardet and Dupâquier (eds.) 1997 (several countries); Maddison 2001; 2003 (several countries); Klep 1991 (Belgium); De Vries and Woude 1997 (the Netherlands); Valerio 2001 (Portugal); Mc Evedy and Jones 1978 (several coun-

Table 2. The European urban population (000) and urbanisation rates in 1300-1600.

	Urban inhabitants (000)				Urbanisation Rates (%)			
	1300	1400	1500	1600	1300	1400	1500	1600
1 Scandinavia	0	0	17	50	0	0	1.1	2.1
2 England (Wales)	179	67	80	266	4	2.5	2.3	6
3 Scotland	0	0	18	15	0	0	2.3	1.5
4 Ireland	11	15	8	10	0.8	2.1	1	1
5 The Netherlands	0	0	180	452	0	0	18.9	30.1
6 Belgium	263	209	282	242	18.8	17.4	21.7	18.6
7 France	831	566	760	1,173	5.2	4.7	5.1	6.3
8° Italy CN	1,394	583	871	1,130	18	12.4	16.4	14.4
8b Italy SI	446	109	468	1,018	9.4	3.3	12.7	18.6
9 Spain	665	457	572	985	12.1	10.2	11.4	14.5
10 Portugal	47	43	57	148	3.6	4.1	4.8	11.4
11 Switzerland	24	10	22	27	3	2	2.8	2.7
12 Austria (Hungary)	60	43	91	210	0.6	0.5	0.8	1.6
13 Germany	436	324	451	717	3.4	4.1	4.1	4.4
14 Poland	20	20	108	165	1	1.3	5.4	6.6
15 Balkans	314	231	422	929	5.2	4.6	7.7	13.3
16 Russia (European)	322	257	303	378	2.1	2.3	2	2.4
EUROPE	5,012	2,934	4,710	7,915	5.3	4.3	5.6	7.4

Source: Malanima forthcoming a.