War Financing and the Re-imposition of Serfdom after the Black Death

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Abstract

Theorists from Moore (1966) to Acemoglu and Robinson (2006) have focused on the key role that political institutions, and especially the organization of the agricultural sector, play in development of democracies and long-term economic growth. Serfdom was one of those key institutions: it distorted incentives for investment in agricultural productivity and hampered the development of a middle class and democratic politics. Yet, after the Black Death, serfdom began to disappear in Western Europe while it made a resurgence in Eastern Europe. What explains the differences in the imposition of Serfdom after the Black Death? I argue that serfdom could only be imposed where there was a sovereign willing to monitor and enforce these laws. Serfdom was often against the interests of the sovereign and thus was only imposed in areas in which the lords had negotiating power over the sovereign. One way the lords gained this power was through offering to finance wars that could not otherwise be financed. Using a formal model along with descriptive data from the 1350s to the 1650s, I show that serfdom was more likely in areas that engaged in conflict and where the sovereign had few other resources to pay for war.
Introduction

Why has Eastern Europe and Russia lagged behind Western Europe in terms of both economic growth and democratic consolidation? Scholars from Moore (1966) through Acemoglu and Robinson (2006) have argued that the decline of feudalism in the West and the rise (or continuation) of feudalism in the East led to the differences in both political and economic outcomes. Feudalism distorted markets: it led to less investment by both the lord and the peasants — lords had little incentive to invest in labor saving technology as they could always squeeze the peasants further and peasants had little money left for investment after the heavy taxes enacted by the lord (Brenner 1985, 31). Further, serfdom undermined proto-industrialization; serfs could not move to the cities to work in industry, robbing the industrial sector of a labor supply and the heavy taxes imposed on serfs led to small domestic markets for these good (Brenner 1985, 45). In the long run, then, Eastern Europe fell further and further behind in productivity in the agricultural sector and the creation of industrial goods.

Feudalism has also been thought to forestall the development of democracy. Moore (1966) famously was concerned with the “peasant problem,” arguing that democracy had the best chance in the states where the upper classes, especially the rural upper classes, transitioned to a capitalist economy and where peasants were transformed into some other social formation. In England, the demise of feudalism led to the creation of the yeoman farmer — a key actor in the transition to democracy — and in the US and elsewhere there was no peasantry to speak of. In contrast, in Eastern Europe the continuation of feudalism led to Fascism or to communist revolution. More recently, Acemoglu and Robinson (2006) argue that where elites can use political institutions to repress labor revolution becomes more likely and democracy less so. Democracy is less likely because the elites would have to redistribute more to the average citizen, leading to more repression. Similarly, because revolution would lead to higher incomes for the average citizen, revolution will be more likely.

But why, then, do we see this difference in the use of serfdom after the 1350s? In this paper, I argue that serfdom was primarily a political bargain between the lords and their
sovereign. After the Black Death, labor was scarce throughout the continent. This labor scarcity, in the absence of intervention in the markets, led to increased costs of agricultural labor, decreased prices for agricultural goods and thus, decreased income for lords who relied primarily on income from their land. Thus, it is not surprising that lords everywhere wanted labor to be tied to the land, forced to provide free labor for the lord. While the lords could try to cooperate to tie labor to land, they all had an incentive to renege on the deal: if any one lord offered peasants a slightly better deal, he would get more peasants, resulting in greater production at a small increase in the cost of labor. His neighbors would be left with too little labor and thus unable to produce much. The first lord could thus capture the market and make increased profits. Knowing this, his neighbors too would have an incentive to renege on the deal. Thus, the lords were stuck in a classic Prisoners’ Dilemma.

While repeat play between lords should have made cooperation easier, the Black Death and other diseases made cooperation more difficult by leading to periodic shocks in the labor supply — thus, given the information environment at the time, if the labor supply declined the lord could not always be certain who the culprit was. Further, each lord had an incentive to push other lords out of the market and take their land. This would give the lord both more economic and more political power. Lords with larger farms generally were more productive and would have been able to afford higher labor costs. By offering higher wages (or fewer service days), they could use their market power to force competitors out and thus, had little incentive to cooperate.

To make the cooperation durable, the lords needed the sovereign to provide monitoring and enforcement of the serfdom laws. However, serfdom was not necessarily in the interest of the sovereign. Serfdom prevent the free movement of peasants from areas in decline to booming areas; importantly serfdom could lead to the decline of towns as serfs would be prevented from moving to them. Towns, and the trade done through them, were an important source of revenue for the sovereign at this time. Further, sovereigns quite frequently could not conscript serfs without the lords approval, decreasing the power of the sovereign to fight
wars. Finally, in general, sovereigns during this time period were trying to reduce the power of the lords and tying labor to their land would only increase their power.

The sovereign, thus, agreed to monitor and enforce serfdom laws only where the lords could force him into that bargain. One area of leverage that the lords had was power over war financing. During this time period wars could be financed from revenue or loans from towns that the sovereign controlled, loans from foreign powers/merchants or from the lords. Where sovereigns did not have alternatives to financing from the lords, they imposed serfdom. Where sovereigns faced little threat of war or where they could finance war from towns they controlled or from foreigners, they were less likely to impose serfdom.

Explaining the reimposition of serfdom in Eastern Europe helps us explain long-run institutional differences in economic and political development in Europe. Eastern Europe and Russia still lag behind Western Europe in both economic development and democratization. The continuation of serfdom in the East through the 19th century is an important part of the explanation for this difference.

The imposition of serfdom may also tell us something about why autocracies sometimes impose restrictions on mobility, especially emigration, and why they sometimes foster mobility. There have been and continue to be large differences in the ways in which autocracies regulate emigration from allowing little or no emigration, like North Korea, to fostering emigration, like South Korea under the military dictatorship. Presumably, emigration restrictions have helped autocratic stability in North Korea where as fostering emigration helped autocratic stability in South Korea. What explains these different outcomes? This paper can help shed light on the conditions under which mobility restrictions help autocratic stability and the conditions under which it hurts autocratic stability.

The paper continues as follows. First, I provide background on the Black Death and its affects on prices and wages. Second, I provide background information on the rise of serfdom after the Black Death. Next, to develop the argument, I use a formal model of landlord collusion in the face of shocks to the labor supply. Third, I discuss existing arguments for
the rise of serfdom in Eastern Europe and their predictions. Fourth, I provide preliminary evidence for the argument using data on serfdom and wars. Finally, I conclude by discussing the importance of this project for historical institutionalism and for the study of emigration restrictions imposed by autocrats.

The Black Death and Its Aftermath

The outbreak of the plague known as the Black Death likely had its origins in Central Asia sometime in the late 1330s or early 1340s (Benedictow 2004, Aberth 2005). From Central Asia, it was brought by the Mongols during their siege to Caffa (or Kaffa, now Feodosiya in southern Russia), a trading post of Genoese and Venetian merchants (Benedictow 2004, 50-51). Contemporary accounts of the siege argue that as the Mongol army was beginning to disintegrate due to the plague, it threw dead bodies over the city walls, spreading the plague to the Italians (Benedictow 2004, Aberth 2005). While corpses are not contagious (Benedictow 2004, 53) and it is unclear if rat fleas could survive being catapulted over city wall (Aberth 2005, 13), it is clear that the Italian merchants contracted the plague in Caffa, probably due to rats, and rat fleas, entering the city that the Mongols could not (Benedictow 2004, 53). Once the Mongol army had disintegrated, Genoese merchants fled the city and headed for Constantinople, to promptly infect that city as well (Benedictow 2004). From Constantinople, the plague was spread along the customary trade routes throughout Europe and the Middle East, Greece, the Balkans, and Italy by the end of 1348 (Benedictow 2004). By the end of 1349, the plague had moved into modern day Spain, France, England, Ireland, Wales, and Norway (Benedictow 2004). By the 1352 or 1353, the Black Death had made its way into northern Russia (Benedictow 2004). Thus, by 1353 the Black Death had hit the vast majority of Europe.¹ Figure 1 shows the areas of Europe that the Black Death struck.

¹There is some dispute among historians as to whether Poland and Bohemia, two areas in which serfdom was imposed after the Black Death, suffered from the plague (Aberth 2001, 120), it is clear that the plague hit to the East and West of Poland and that prices right after the plague followed a similar trajectory as prices in Western Europe with wages rising (Benedictow 2004, 221-222). Similarly, the limited archival
In addition to striking most of Europe, the Black Death seems to have rendered a similar level of mortality across these areas (see Table 1). One issue with determining mortality rates of the Black Death is that the archival record mostly records the wealthy; much of the data comes from tax rolls, censuses, and other official claims that dealt with wealth. Many tax rolls did not capture those who were too poor to pay any tax and also many people evaded the tax collector (Benedictow 2004, 261). Thus, many archival sources underestimate the number of poor prior to the plague. The poor, however, due to poor nutrition and generally worse health were more likely to be killed in the plague (Benedictow 2004, 261).

This undercount of mortality has been borne out by the recent literature on English mortality. Due to the problems counting the poor, Aberth argues that the usual English mortality rate of 27%, pulled from inheritance records, is biased downward (2001, 124). He evidence from Bohemia shows that the plague had struck in sometime in 1349 or 1350 (Benedictow 2004, 222-223). As the plague struck to the north, south, east, and west of these areas, it is hard to believe that these two areas were isolated enough to miss the plague. It does appear that the plague skipped Iceland, much of Finland (Benedictow 2004, 216, 217).
<table>
<thead>
<tr>
<th>“State”</th>
<th>Mortality Rate</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kingdom of Navarre</td>
<td>60%-65%</td>
<td>Benedictow (2004)</td>
</tr>
<tr>
<td>Catalonia</td>
<td>60%-70%</td>
<td>Benedictow (2004)</td>
</tr>
<tr>
<td>Modern Day Spain</td>
<td>60%-65%</td>
<td>Benedictow (2004)</td>
</tr>
<tr>
<td>Florence</td>
<td>60%</td>
<td>Benedictow (2004)</td>
</tr>
<tr>
<td>Tuscany</td>
<td>50-60%</td>
<td>Benedictow (2004)</td>
</tr>
<tr>
<td>Piedmont</td>
<td>52.5%</td>
<td>Benedictow (2004)</td>
</tr>
<tr>
<td>Modern Day Italy</td>
<td>50%-60%</td>
<td>Benedictow (2004)</td>
</tr>
<tr>
<td>Provance</td>
<td>60%</td>
<td>Benedictow (2004)</td>
</tr>
<tr>
<td>Languedoc and Foraise</td>
<td>60%</td>
<td>Benedictow (2004)</td>
</tr>
<tr>
<td>County of Savoy</td>
<td>60%</td>
<td>Benedictow (2004)</td>
</tr>
<tr>
<td>Modern Day France</td>
<td>60%</td>
<td>Benedictow (2004)</td>
</tr>
<tr>
<td>England</td>
<td>62.5%</td>
<td>Benedictow (2004)</td>
</tr>
<tr>
<td>Norway</td>
<td>62.5%-64%</td>
<td>Benedictow (2004)</td>
</tr>
<tr>
<td>England</td>
<td>33%</td>
<td>Abel (1966)</td>
</tr>
<tr>
<td>Sweden</td>
<td>33%-50%</td>
<td>Abel (1966)</td>
</tr>
<tr>
<td>Denmark</td>
<td>33%-50%</td>
<td>Abel (1966)</td>
</tr>
<tr>
<td>Norway</td>
<td>33%</td>
<td>Abel (1966)</td>
</tr>
<tr>
<td>Hanseatic Towns, Germany</td>
<td>50%</td>
<td>Abel (1966)</td>
</tr>
<tr>
<td>Luneburg, Germany</td>
<td>36% of town councilors</td>
<td>Abel (1966)</td>
</tr>
<tr>
<td>Wismar, Germany</td>
<td>42% of town councilors</td>
<td>Abel (1966)</td>
</tr>
<tr>
<td>Reval, Germany</td>
<td>27% of town councilors</td>
<td>Abel (1966)</td>
</tr>
</tbody>
</table>
found that clerical mortality was almost 50% in some places reaching above 70% (Aberth 2001, 125). Although clerics tended to be better fed and had better overall health, they were also more exposed to the disease due to their clerical duties (Aberth 2001, 126). Thus, Aberth believes that clerical data probably reflects better the true level of mortality in England (2001, 126); although, it is hard to know if these two factors, better health but more exposure, would add up to similar mortality rates as that of the poor who likely were in worse health to begin with but were less exposed. Manorial records, another source of data, show between 4% and 70% mortality (Aberth 2001, 127). For example, in Essex overall mortality in the Black Death was likely around 45%, which compares well with mortalities in other regions (Platt 1996, 9). Similarly at the Bishop of Worcester’s estates, the reduction of tenants was as high as 80% with an overall average loss of 42% (Platt 1996, 9).

The mortality rate for the rest of Europe, as far as the archival record allows us to know, is about the same as England’s mortality rate. Using archival records from Spain, Italy, France, Norway, and England, Benedictow estimated the general mortality rates for most of Europe at about 60% (2004, 383). Aberth confirms that the Continental European mortality was similar to the English mortality rate (2001, 128). The only areas to have significantly lower mortality rates were the city-states of Northern Italy, at about 50% to 60% (Bendictow 2004, 381). These states were better administered than most, allowing the city government to provide better services, especially to the poor (Benedictow 2004, 381).

Unfortunately, there is little data on the mortality rates in Eastern Europe. Nonetheless, we can make inferences given the biology of the spread of the plague. The plague was spread, mostly, by merchants, pilgrims, and those fleeing from plague stricken areas (Benedictow 2004). It spread faster in areas with more trade (Benedictow 2004, 97, 99), but it still spread to areas which had very little trade, such as Norway. Thus given that Eastern Europe tended to have few connections to major trading centers, we can infer that the plague may have spread more slowly. But given the evidence that even states with few connections to world trade (Norway) lost similar numbers of people as those with many connections to world trade
(France), we can infer that Eastern Europe would likely have lost a similar 50-60% of its population.

In addition to causing high mortality rates during the Black Death, the plague also circulated throughout Europe over the next 300 years (Figure 2). For example, the plague hit Luxembourg thirteen times between 1360 and 1632 (Biraben 1975, 415-420); Lithuania thirteen times between 1369 and 1555 (Biraben 1975, 421-426); the Netherlands fifteen times between 1360 and 1494 (Gottfried 1983, 133); and Barcelona twenty-two times between 1362 and 1652 (Duncan and Scott 2001, 326-327). Thus, the average person could not be sure if another round of the plague would hit their area again.

As we are interested in how the imposition of serfdom after the Black Death affected political and economic outcomes, we might be worried that mortality rates were affected by political institutions in place prior to the outbreak and that these institutions affected serfdom and/or later political and economic outcomes. The similarly high levels of mortality throughout Europe suggest that political institutions played less of a role in mortality, at least outside of Northern Italy. Additionally, medical knowledge of the disease at the time was quite low; for example, even with the shared scholarship from the more advanced Muslim world, most of the scientific community in Europe believed that the disease was spread by miasma i.e. “a fouling of the air” (Aberth 2001, 115). Of course, responses to the plague were also driven by religious beliefs. The Catholic church often took the view that the plague

Figure 2: Later Outbreaks of the Plague
was God’s punishment for wicked behavior (Aberth 2001, 114) and/or God’s punishment for non-believers in the community (Aberth 2001, 158). Throughout Europe, this belief in the punishment for non-believers often led to pogroms against the Jews living in the community rather than taking steps to prevent the plague’s spread (Aberth 2001, 156, 158). Thus, given the lack of scientific knowledge about how to prevent the plague’s spread or how to treat it combined with religious beliefs about the plague, it was unlikely that governments would have had the tools or the legitimacy to lower mortality rates.

After the Black Death, agricultural landlords faced two problems: lower agricultural prices due to a small population and higher labor costs due to a smaller workforce. In the immediate aftermath, prices for both commodities — especially food — and labor increased as there was not enough labor to bring in the food supply (Abel 1966, 46). However, the price trend for commodities quickly reversed Hilton (1985, 132). Table 2 and Figure 3 give some data on prices changes from before and after the Black Death. By the late 1400s, most grains had suffered a price decrease of about 50%. In contrast, in the absence of feudal controls on the prices of labor, the cost of labor increased compared to the price of grain and in some cases, it increased in absolute levels as well (see figure 3). In Spain, for example, the cost of agricultural labor rose dramatically and many day laborers simply refused to work unless their demands were satisfied (Haliczer 1981, 15). Rents too dropped (see Table 2), further increasing the strain on landlords. The decrease in profits for the lords also led to increasing debt burdens; for example, the Knight Command of Coblenz, a possession of the Teutonic Knights, told the Grand Master in 1441 that “the debts and annuities have grown too great and I cannot find the means with which to pay them” (Abel 1966, 65).

The decreasing profits made in agriculture led to calls for serfdom. For example, in 1444 the administrator of Dirschau wrote the Grand Master of the Teutonic Order that

Knights and tenants declare that they suffer great loss [because] they have to seek their corn and goods very cheaply...then the servants, farmhands and serving-maids demand too high wages, and the more time goes by, the more they
### Table 2: Changes in Prices due to the Black Death

<table>
<thead>
<tr>
<th>State/Area</th>
<th>Date Range of Comparison</th>
<th>Commodity</th>
<th>Price Change</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>England</td>
<td>1300-1347 to 1440-1490</td>
<td>Wheat</td>
<td>-49%</td>
<td>Borsch (2005)</td>
</tr>
<tr>
<td>England</td>
<td>1300-1347 to 1440-1490</td>
<td>Barley</td>
<td>-53%</td>
<td>Borsch (2005)</td>
</tr>
<tr>
<td>England</td>
<td>1300-1347 to 1440-1490</td>
<td>Peas</td>
<td>-57%</td>
<td>Borsch (2005)</td>
</tr>
<tr>
<td>Cuxham Manor, England</td>
<td>1332-1333 to 1350-1351</td>
<td>Profit/ Loss of manor</td>
<td>-87%</td>
<td>Abel (1966)</td>
</tr>
<tr>
<td>Nuremberg</td>
<td>1375 to 1376</td>
<td>Rye</td>
<td>-55%</td>
<td>Abel (1966)</td>
</tr>
<tr>
<td>Konigsberg</td>
<td>1399 to 1508</td>
<td>Rye</td>
<td>-53%</td>
<td>Abel (1966)</td>
</tr>
<tr>
<td>Antwerp</td>
<td>1379-1385</td>
<td>Rent of polders</td>
<td>-25%</td>
<td>Abel (1966)</td>
</tr>
<tr>
<td>Denmark</td>
<td>pre and post-Black Death</td>
<td>Rent on church lands</td>
<td>-33%</td>
<td>Abel (1966)</td>
</tr>
</tbody>
</table>

Figure 3: Price and Wage Data after the Black Death (Source: Abel (1966))
ask...Moreover [the Knights] desire that the law should be changed so that no peasant may move away from his lord or landowner unless he has a letter freely given from the said lord or landowner, and that no other lord or landowner shall accept the peasant without such a letter form his former lord. (Abel 1966, 65)

In sum, the Black Death led to labor scarcity throughout Europe and its reappearance led to continued labor scarcity in many areas. This labor scarcity, in turn, affected lord’s profits from their land by decreasing the price they received for their agricultural goods and increasing the price they paid for labor. It is not surprising, then, that lords called for increased restrictions on peasant mobility as a way to keep wages down.

**Serfdom**

Given that landlords were demanding serfdom, what exactly were they demanding? Serfdom is a labor relationship between a land owner (the lord) and laborers. In this arrangement, the landlord allows the laborer to occupy and farm a piece of land on his own and provides security of these property rights. In return, the laborer agrees to work on the landlord’s land for a certain number of days per year at the lord’s request. For example, if it was time to harvest the crops, the lord could demand that the peasants work his land first and then could work their own land. In addition to farming, the lords also often had the peasants work in quarries, mines, forests or small industrial operations.

As is often the case in subcontracting relationships, especially in agriculture, the lords faced a classic hold-up problem. The lord could contract with peasants to work their land prior to a key period in growing cycle, such as harvest, and then be forced to renegotiate with the peasants for a higher wage when the crops came in or else face the loss of his crops. To prevent the hold-up problem, serfs were bound to the lord; in some areas there was a period after harvest when peasants could move; in others they could buy their mobility and in others their mobility was curtailed.
Because serfdom tied laborers to the land, it also entailed political rights. The lord became the legal adminster of the land. The lord or his representative would adjudicate disputes between serfs, between serfs and other social classes that lived in the area and between serfs and the lord. This legal relationship, therefore, gave lords a level of discretionary power over the serf. The lord could, thus, require more than the customary amount of work from the serfs. Technically, the serfs could complain to King or, if he served a lesser lord, to the lord above his own, but in practice this was likely difficult.

In the High Middle Ages (11th through the 13th centuries) this relationship between lord and laborer often made sense for both the lord and the laborer due to the economic and security situation of the time. There were few markets and little cash: lords could have offered free laborers cash for their services but they would have trouble spending it; they could offer a consumption bundle instead of cash but there was often no higher authority to enforce the contract (North and Thomas 1973, 39). Further, borders were unstable and there was little central authority in most places to provide protection (?, 3-4). Peasants, then, turned to the lord for protection. Finally, there were few ways to insurance against a poor harvest; the serfdom relationship, however, often provided at least some measure of insurance against a poor harvest, as serfs were often granted part of the harvest from the communal or lord’s fields (Gregg 1976, 44–45).

In the Late Middle Ages and Early Modern Period, the logic for this relationship began to break down. First, markets expanded making cash transactions easier. Thus, it would be easier for a landlord to pay a free laborer to work on his fields rather than use serf labor. Moreover, free labor lowered enforcement costs, as free laborers were less likely to shirk (North and Thomas 1973, 39). Second, borders became somewhat more stable and property rights became somewhat more secure. Peasants, thus, had less incentive to tie themselves to the lord for protection.

Yet, serfdom did not breakdown every where and in some places was introduced for the first time or became more strict. Figure 4 shows the expansion of serfdom after the Black
Death. Data on serfdom laws was collected from several different sources (Abel 1966, Anderson 1979, Carsten 1958, Cohn 2007, Graus 1967, Gregg 1976, Hellie 1971, Klima 1985, Martin 1983, North and Thomas 1973, Verlinden 1938). Immediately after the Black Death, several states enacted laws to keep wages low (wage ordinances) and some, especially England, limited the mobility of peasants. In the 1400s, many more states, especially those in Eastern Europe, limited peasant mobility, increased the number of days serfs had to serve their lord, allowed the lord jurisdiction over the serfs and instituted laws about the return of runaway serfs. In Eastern Europe, these laws increased in their severity in the 1500s and 1600s to the point were movement of peasants was highly restricted; they owed many days of labor services and additional taxes; the lords had complete jurisdiction over them and laws were passed that allowed for the return of even those runaway serfs who were gone longer than 5 or 10 years. In contrast, many of the serfdom laws were repealed or had fallen into disuse in Western Europe during the 1500s and 1600s.

The lords had an incentive to continue to tie serfs to the land after the Black Death given the scarcity of labor and decreasing prices for agricultural goods. Lords could require serfs to provide more and more labor for their own holdings, essentially obtaining free or relatively low cost labor. The lord could also force peasants into using his mills, breweries and other “factories” to mill their grain, brew their beer or produce other finished goods at inflated prices. Thus, what the lord lost in efficiency because of higher enforcement costs and more shirking, he more than likely gained in cheap labor and monopoly rents.

The Black Death left Europe with labor scarcity everywhere and lower profits for lords. Labor, as the scarce factor, should have had negotiating power over the lords and been able to write a better contract for themselves, one with more freedom, higher wages and potentially more political power. In some areas of Europe, like England, serfs obtained their freedom and higher wages. In other areas, peasants were kept or place in serfdom until the 1800s. What accounts for these different outcomes?
Figure 4: The Rise of Serfdom after the Black Death
Landlord Collusion and Serfdom

Landlords, and other capital owning members of society, in the aftermath of the Black Death were in competition with each other for workers. I focus on rural landlords because I am interested in the rise of a political system, serfdom, that mostly affected rural areas. I assume that there are $N$ landlords in the area. The spatial area in which these $N$ landlords compete is a large area with many peasants akin to a statewide market. Landlords could offer peasants some combination of wage, reduced rents, fringe benefits, and political freedoms as inducements to obtain labor. Without loss of generality, I assume that all these benefits could have a numerical weight given to them and that the sum of these benefits can be expressed numerically as the wage, $w$. I further assume that peasants’ utility functions are monotonically increasing in $w$; thus, the more benefits a landlord is willing to part with, the happier the peasant is to take the job. When considering taking a position with (or renting land from) two different landlords, the peasant will take the position with the landlord who offers the highest $w$. In contrast, the landlord’s utility function is monotonically decreasing in $w$; thus, the more benefits the peasant can extract from him, the less likely he is to give the peasant a job.

Landlords, however, face constraints in how high a $w$ they can offer peasants. I assume that landlords all produce the same good. I further assume that no one landlord produces enough of the good to be a price setter; all landlords are price takers. The market price for the good is the same throughout the market. Thus, for every one unit of the good, the landlord gets the market price. Assuming that the landlords are rational, the landlord will produce for market up to the point where marginal cost equals marginal revenue. Assuming that the landlords costs consist of labor costs and agricultural inputs, such as the marginal cost of animals for plowing and fertilizer, tools, and seeds, the landlord can only afford to offer the peasants a wage up to the point where he can cover his other costs and not lose money, $w'$.

In order to make a profit, the landlords, of course, would want to offer a wage lower than
$w'$. However, in a one-shot game, if $N - 1$ landlords offer $w'' < w'$, the $N$th landlord can offer $w'' + \epsilon$ and have all the peasants he needs work for him and still make a profit. The other landlords would be able to hire the remainder of the peasants, but in this time of labor scarcity, I assume that these “leftover” peasants would not be enough for each of the $N - 1$ landlords to produce, forcing some out of the market.

The landlords are essentially in a Prisoners’ Dilemma. They would each like to cooperate with each other to all off a wage of $w'' < w'$, but there is always the incentive to defect and offer a slightly higher wage. Once one landlord defeats, they all have an incentive to defect and offer a slightly higher wage. In equilibrium, every other landlord has an incentive to deviate, until the wage is $w'$, at which point the landlord cannot offer a higher wage and still produce.

It is likely, however, that landlords frequently interacted with each other in the labor market and in other areas and that they knew that their children and grandchildren were likely to interact as well. Given the high number of interactions, we assume that the landlords interact over an infinite time period.\footnote{If the landlords only interact over a finite period, any cooperative equilibrium would unravel as each landlord would have an incentive to defect in the last period, leading each to have an incentive to defect in the period before, and so on.} In the basic repeated model, $N \geq 2$ landlords simultaneous select wages and peasants work for whichever landlord offers the highest wage, dividing equally in the event of a tie. The quantity of work is given by a continuous, strictly increasing function; therefore, the higher the wage, the more labor the landlord will get. Landlords face the same price, $p$, per unit of good. Assuming that each landlord has the same cost for all other inputs, (without loss of generality set at zero), their profit function is

$$\pi(w) = (p - w)Q(p)$$  \hspace{1cm} (1)

As all landlords are price takers, they cannot affect the price of what they sell and therefore to make a profit, they must keep the wage, $w$, as low as possible. To use Nash reversion as punishment for defection involves setting $w = p$. In this case, no landlord will
make any profits and is thus the most severe punishment possible (Bernheim 2007, 181).
Assume that all the landlords agree to set the wage to some $w^* < p$. In equilibrium, in
every period all landlords get some workers, produce some level of goods, and profit from
their endeavor. If a landlord decided to defect, he would get all the workers, produce all the
goods in the market, and make a huge profit for one period, but then never make a profit
again. Therefore, cooperation turns on how much landlords value the future. Solving this
model implies that competition can be sustained as long as each landlord’s discount factor,$\delta$, is:

$$\delta \geq \frac{N - 1}{N} \quad (2)$$

However, to impose a political solution to collusion, landlords from the entire area had
to agree (or at least not disagree) to impose the solution. Yet, due to the spatial variation in
mortality and in the reoccurrence of the plague, demand for employment from the peasantry
would be somewhat random and uncertain. Landlords would never be able to know if the
demand for employment was strong or weak. This is not a strong assumption as there was
little market data available to landlords, especially on the national level. Thus the situation
after the Black Death, mirrors that of Bertrand competition models with price wars.

Assume that there are two landlords, for instance two neighboring landlords or two groups
of homogenous landlords. Demand for employment in each period can be either high or low.
Landlords do not observe what the other landlord is paying his works; there was little central
information gathering during this time and landlords and peasants had incentives, especially
in the face of labor legislation, to lie about compensation. Low demand periods occur with
probability $\alpha$ and high demand period occur with probability $1 - \alpha$. In the low demand
period, without loss of generality, landlords have no peasants. In a high demand period,
each landlord has some peasants. Each landlord can only observe the wage he pays his
workers and the number of workers he has. None of this information, additionally, would
give him information about the idiosyncratic market conditions of that period. The problem
for sustaining collusion is that if a landlord has no peasants it could be a result of low demand or deviation by another landlord. If a landlord has zero peasants, he reverts to a punishment phase in which the wage reverts to \( p \) (and landlords make no profit) for \( T \) periods. Under this scenario, the best collusive equilibrium can be maintained, but only if

\[
\delta \geq \frac{1}{2(1 - \alpha)}
\]

Only if \( \alpha \) is zero will the discount factor, \( \delta \), needed for cooperation be the same as in the standard infinite Bertrand competition model (Bernheim 2007, 200). Thus, the more likely a state is in a low period of demand for employment (i.e. there are few available workers), the more unlikely will competition be sustained. Given the number of continuous outbreaks of the plague, it is likely that \( \alpha \) was relatively high, making cooperation difficult throughout the continent.

In addition to shocks to the labor supply, all lords did not have the same production function; in fact lords with larger plots of land likely were more productive. These more productive landlords would have preferred a more mobile peasantry because they had an advantage in hiring as they could afford to pay their workers more. For example, Hellie argues that wealthier landowners in Russia, including both monasteries and lay landowners, preferred a mobile population, as these landowners could offer peasants loans to make their own land more productive and/or offer less labor services (1971, 106). Even if a cooperative arrangement was made, these lords would have an even greater incentive to defect, since defection is more profitable for them. As such, cooperation should have been difficult to maintain.

To maintain collusion, then, the lords needed a higher authority to provide monitoring and enforcement of the agreement. In essence, they needed the sovereign — the king, archduke, etc. — to help adjudicate disputes and enforce penalties on lords that cheated on the agreement. During this time period, adjudication was likely to be imperfect; for example, since verifying the identification of any person was difficult, it would have been relatively
easy for a lord to lie about the identity of one of their peasants or for a peasant to lie about
his/her identity. Nonetheless, the sovereign’s officials could make a determination of the
identity of the serf and impose penalties for any defection from the cooperative agreement.
While the sovereign did not have complete control of coercive power in most of these states,
his judgement (or the judgement of his officials) could have served as a focal point, leading
the lords to obey the ruling or at least pay some compensation to the lord they had wronged.
Further, the sovereign could back up his judgement with some level of punishment for lords
who did not comply with a ruling.

The sovereign, however, had several reasons to oppose tying the peasantry to the land.
First, tying the peasants to the land would give the lords relatively more power. Theoret-
ically, a lord’s peasants could be used as an independent source of power. For sovereigns
wishing to consolidate their power, serfdom would represent a challenge to their authority
(Downing 1991, 26). Second, serfdom led to the decline of towns, as towns needed new
residents to replace those lost in the Black Death and later outbreaks of the plague. While
towns often represented a threat to the sovereign’s power, they were also a source of eco-

The lords, thus, had to have some power over the sovereign in order to have him enact
and enforce the serfdom laws. One source of leverage was the financing of war. The period in
which serfdom was reimposed in Eastern Europe was a period of almost Hobbesian war of all
against all. Throughout the 1400s, there were wars throughout Central and Eastern Europe,
the Italian Peninsula, the Iberian Peninsula and Scandinavia. In the 1500s, religious wars
raged across Europe in addition to incursions into Europe by the Ottomans and incursions

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into Russia by the Tartars and others. In the 1600s, the Thirty Years’ War embroiled most of the territories in Europe and there were still incursions by the Ottomans into southeastern Europe and Tartars and others into Russia. Sovereigns were, thus, planning to fight a war, fighting a war or paying for a past war throughout this period.

Sovereigns had several ways they could pay for a war. They could use resources from their own holdings; they could increase taxes on towns; they could take loans from foreign capitalists or they could tax the lords/ have the lords provide troops. By the 1500s and 1600s, the cost of war had increased so much that most sovereigns could not afford to pay for them from their own holdings and their ability to finance the wars from taxes on the towns was also limited (Parrott 2012). Instead, most sovereigns had to obtain financing from military entrepreneurs, like Albrecht von Wallenstein, the general of the forces of the Holy Roman Empire during the Thirty Years’ War (Parrott 2012). Military entrepreneurs would pay for the recruitment, equipment and maintenance armies in the field over long-term contracts. According to the contract, the sovereign was supposed to pay the entrepreneur a yearly fee that would compensate the entrepreneur for his costs as well as provide him with some profit (Parrott 2012). Sovereigns frequently went into default on these contracts and had to find additional funds to continue to wage war (Parrott 2012). A major source of these funds were the lords.

**Alternative Explanations for the Rise of Serfdom**

The literature has provided four main alternative hypotheses: differences in population growth, peasant solidarity, the rise of absolutism and the rise of international trade. Increased population growth, paradoxically, would likely lead to peasant freedom rather than serfdom. In areas with higher populations, lords were likely to find themselves with a sufficient workforce that was willing to work cheaply and also find a larger market for their goods. Together these factors would have increased the lords’ profits, reducing the need to
impose serfdom (Brenner 1985, 27). Similarly, Anderson argues that it was the constant shortage of rural labor in the East that led to serfdom: “the population density of Russia in the 17th century was 3 to 4 persons per square kilometer, at a time when that of France was 40, or some 10 times greater. In the fertile lands of South-Eastern Poland and Western Ukraine, the richest agricultural zone of the Rzeczpospolita, demographic density was little more — some 3 to 7 persons per square kilometer” (1979, 206).

Yet, the population growth hypothesis raises two questions. First, the low levels of population in the East may have increased the incentive to push for serfdom but it also likely increased the difficulty of collusion. If there were high levels of labor to land in the West, landlords should have found collusion relatively easy, since it is unlikely that any lord would want to defect from the agreement. Second, if this hypothesis is true, why wouldn’t landlords in the west want serfdom regardless? Serfdom allowed landlords to extract more rents out of their peasants. For the population growth hypothesis to be correct, we would have to assume that there were some costs to serfdom that Western landlords did not find worth paying. It could be that in the face of royal opposition to serfdom, landlords might be less likely to push for serfdom. We are still left, however, with the question of why royal opposition would be lower in some areas than others.

A second hypothesis focuses on peasant solidarity. This hypothesis was most famously articulated by Brenner (1985). He argues that where there were higher levels of peasant solidarity, the peasants were effectively able to fight against the imposition of serfdom. For example, in West Germany, towns were older and had more commons that had to be regulated, leading to increased interactions between peasants and increasing their ability to act collectively. These villages also elected their own magistrates and had village charters which also increased their ability to work together. In contrast, East Germany was settled much later than West Germany which led to newer villages that did not elect their own leads, did not have charters and tended to have less common agriculture. All of these factors led to fewer interactions between peasants and less collective action (Brenner 1985, 41-43). Where
peasants were able to act collectively, they were able to fight the imposition of serfdom, often by violent resistance (Brenner 1985, 46).

One question for this argument is how did peasant solidarity change incentives for the implementation of serfdom. Presumably, peasant solidarity would either make collusion more difficult or more costly. Solidarity could have made collusion more difficult by essentially allowing peasants to go on strike for a better contract from the lord. Nonetheless, it is unlikely that peasants would have needed to strike (exercise voice) given that they could exit (Hirschman 1978). The high level of labor scarcity meant that leaving one lord for another who would offer a better contract should have been relatively easy — this was exactly the problem that serfdom was to address.

Solidarity could have made collusion more costly if it resulted in rebellion. Rebellions would need to be quashed and they often were. As noted above, conscript armies made up of peasants were rarely a match for the mercenary armies that could be hired (Parrott 2012). Peasants with even less training, then, would have a hard time defeating the forces of the state. Knowing that peasants would be unlikely to win a rebellion should have had two effects. First, it should have made the lords more willing to fight a rebellion rather than acquiescence. If the lords fought and won, they would be able to impose serfdom and make high profits into the future; therefore, it was probably worth the cost of fighting. Second, knowing that the lords would be likely to fight any rebellion should have made rebellion less likely, as peasants knew they would likely be ineffective. We expect, then, that peasants would have only rebelled in areas where they thought they had a relatively high probability of obtaining their demands. These areas would have been where it was likely the sovereign would support, or at least not actively repress, the peasants in their fight against the lords. We are left, then, again with the question of where and why were sovereigns likely to support serfdom and where were they likely to oppose it.

Third, as articulated by Anderson (1979) serfdom was tied to the rise of absolutism in the East but not the West. Anderson argues that
The Absolutist State in the West was the redeployed political apparatus of a feudal class which had accepted the commutation of dues. It was a compensation for the disappearance of serfdom, in the context of an increasingly urban economy which it did not completely control and to which it had to adapt. The Absolutists State in the East, by contrast, was the repressive machine of a feudal class that had just erased the traditional communal freedoms of the poor. It was a device for the consolidation of serfdom in a landscape scoured of autonomous urban life or resistance (1979, 195).

While serfdom was clearly tied to the rise of absolutism, it is unclear why it was imposed in the East and not the West.

Finally, some scholars have argued the role that the grain trade played a role in the rise of serfdom. For example Postan argues, “The consequent demand for labour [due to the expansion of the international grain market] which the population of peasants well provided with land could not and would not meet, induced landlords to seek a solution in the expropriation of peasant land and obligatory labour services” (1985, 68). Moore similarly argues that “the expansion of the grain trade led lords to be interested in cultivating the land for themselves instead of money dues. Labor services were extended and the peasants tied to the soil” (1966, 462).

There are several problems with this argument, however. First the grain trade pre-dated the rise of serfdom in many areas (Carsten 1958, 49). Second, in areas like Bohemia, which imposed a relatively harsh version of serfdom, most grains were sold on the local market, in part to produce beer, which was a much more profitable product (Klima 1985, 203, 204). Finally, we know from new, new trade theory that it is often only the most productive producers who are able to engage in international trade, due to the fixed costs of trade, such finding a distribution network. These fixed costs of trade were likely to be especially high during this time period as the cost of information was quite high. We expect, therefore, that only the most productive lords would have been able to engage in the grain trade. As
argued above, these were the lords that had the least incentive to participate in serfdom as they were still profitable at higher wage rates. Thus, most of the arguments given in the literature do not seem to be supported. Nonetheless, I plan to test them in future iterations of this project.

Evidence of the Effect of War and War Financing on Serfdom

We now turn to examining the argument that sovereigns were more likely to put serfdom laws into place when they needed the lords support to pay for the costs of war. As noted above, I collected information on the laws that imposed serfdom and coded these laws based on their severity. The least severe serfdom laws were wage ordinances. These ordinances made it illegal to pay a peasant (or in the case of towns, a worker) more than a certain amount. Not surprisingly, these laws were subject to much evasion. The next set of laws limited but did not fully restrict mobility of peasants. For example, an English law in 1388 required that anyone wanting to move had to have a letter from his lord stating that he was allowed to move (Cohn 2007, 476). Similarly, in 1488, peasant mobility in Russia was limited to the St. George’s Day period (Hellie 1971, 83). This time period occurred each year after the harvest, which ensured that peasants could not leave their lords service before the crops were brought in; nonetheless, peasants were still free to move. These limited mobility laws were often combined with increasing restrictions: increases in the number of labor days that the peasant had to serve, laws that gave the lord jurisdiction over the peasant and laws on the return on runaway peasants. Finally, in some countries laws that totally limited mobility were passed. For example, in the Ucker Mark area of Germany in 1550 peasants were no longer able to leave their lord, even if they had found a successor (Carsten 1958, 157) and in Russia in 1581 peasants were no longer allowed to move (Anderson 1979, 332). To these laws, additional regulation that increased the number of days the peasants owed the lord,
increased the lords’ jurisdiction over the peasants and that increased the lords ability to bring back runaway peasants were added.

Of these different types of laws, the harsher laws are associated with wars. Whereas only 32% of limited mobility laws were passed while the territory was at war, 63% of the no mobility laws were passed during war as were 72% of the even harsher laws. While harsher serfdom laws were associated with wars, we know that Europe was almost continually at war during this time period and that many areas that were at war, such as France or Scandinavia, did not have serfdom or had only limited remnants of it. Thus, it was not simply war that led to serfdom.

The Russian case serves as an example of the passage of serfdom laws as a way to get financial support for war. Russia was at war almost continually throughout the Late Medieval Period and Early Modern Period; it faced foes on three sides: Tartars on the South and East and Poles, Lithuanians and Swedes to the Northwest (Hellie 1971, 21). In order to protect and expand its territory, the Muscovy government had to rely on the Middle Service Class. In return for military service, this class of nobility was granted land; nonetheless, for the Middle Service Class to be able to serve, as they often had to pay to outfit themselves as well as those that served under them, they needed this land to be profitable (Hellie 1971, 29). The relative labor scarcity in Russia in general along with the possibility of moving east to the Black Earth areas of Russia made agriculture production with free labor relatively unprofitable, as the cost of labor was quite high. Thus, the Middle Service Class demanded that the government tie the peasants to the land. In 1649, “the frightened government desperately needed the support of the middle service class, for at the moment it had no other force for internal repression or for an instrument of foreign policy” and therefore was willing to permanently tie the peasants to the land (Hellie 1971, 139). Because the government had no other source of revenue to fight off both internal challenges as well as external enemies, it was forced to give the Middle Service Class serfdom even though it was opposed by the higher levels of the nobility as well as the Church (Hellie 1971, 106).
As a next step for this project, I plan to examine whether other sovereigns who allowed serfdom laws to be passed faced similar incentives in two ways. First, I plan to obtain more data on the financing of wars and examine whether those sovereigns who could finance wars from other sources did not impose serfdom whereas those who had to rely on the lords imposed serfdom. Second, I plan to complete three case studies, one on Brandenburg, one on France and one on England, as well as a more in depth case study of Russia. The case of Brandenburg, like that of Russia, is one that seems to follow the causal mechanisms outlined in this paper. In 1653, the Great Elector promised the lords serfdom in return for their financing of a permanent standing army (Anderson 1979, 203). While Brandenburg was not at war in this year, the Great Elector feared further conflicts would necessitate a standing army. Thus, the need to finance conflict led the Great Elector to agree to serfdom. In the French case, there was limited serfdom until the French Revolution (Anderson 1979, Moore 1966) but this serfdom was qualitatively different from that of Brandenburg or Russia in that the peasants had some mobility. The French Kings, like the Great Elector in Brandenburg and the Russian Tsars, were also often at war, but instead of financing wars through the lords and serfdom, they sold offices to the lords. The case study will examine why the French kings followed this strategy instead. Finally, the case of England would not be predicted by the argument of this paper. Serfdom laws that limited but did not fully restrict mobility were imposed immediately after the Black Death when the state was not at war. These laws eventually languished and were rescinded in 1660 (North and Thomas 1973, 155). The case study will examine why the English king agreed to these laws in the first place and what allowed them to be rescinded.

Conclusion

Many scholars, policymakers and commentators have noted the fact that Eastern Europe has long lagged behind Western Europe in terms of both economic and political development.
Even before the rise of Communism in the east, the states of Eastern Europe were poorer and more autocratic. Communism only compounded these problems. What caused these differences? Scholars from Moore (1966) to Acemoglu and Robinson (2006) have focused on serfdom as a major cause of this difference. Serfdom led to underinvestment, as lords had little incentive to invest in labor saving technology given their free labor and peasants had little additional income to invest. It also led to later industrialization as there was a limited workforce for urban proto-industrialists to draw upon and a limited market given the poverty of the peasantry. Additionally, serfdom made democratization more costly as it would entail the break up of both the political and economic system (Acemoglu and Robinson 2006).

Yet, we understand little about why serfdom was reimposed in the Late Middle Ages and Early Modern Period in Eastern, but not Western, Europe. This paper seeks to close that gap by suggesting a new theory for the imposition of serfdom based on a model of landlord collusion. The Black Death and the frequent reoccurrence of the plague should have made collusion relatively difficult to maintain and equally as desirable. The lords needed the sovereign to step in and provide monitoring and enforcement for a collusive agreement to work. The sovereign was only willing to do this when he needed the lords to help finance war-fighting efforts. The paper shows preliminary evidence consistent with this argument.

In addition to shedding new light on the historical origins of key institutions, this paper also can help explain why autocratic leaders sometimes impose restrictions on mobility and sometimes encourage mobility. In the modern era, we have seen autocrats in North Korea limit external mobility (emigration) whereas their contemporaries in autocratic South Korea encouraged emigration. The policies of both countries were likely developed to increase autocratic stability, but what caused the differences in policies? This paper argues one reason that sovereigns who want to stay in power will limit mobility is that they need to trade mobility of the peasantry for support of those who rely on income from the peasantry. As such, it may help explain later emigration restrictions by autocrats in Mexico and other emigrant sending countries.
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