Government Finance and Imposition of Serfdom after the Black Death

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Abstract

After the Black Death, serfdom disappeared in Western Europe while making a resurgence in Eastern Europe. What explains this difference? I argue that serfdom was against the interests of the sovereign and was only imposed when the nobility, most of whom needed serfdom to maintain their economic and social standing, had leverage to impose their will. One way the nobility gained this power was through financing the military. Using data from the fourteenth to through the eighteenth centuries, I show that serfdom was imposed in areas where sovereigns had few other resources to pay for war or defense. This paper addresses the causes of a historical institution that scholars from Moore (1966) to Acemoglu and Robinson (2006) have argued played an important role in the development, or lack thereof, of democracy and long-term economic growth.

Introduction

In Late Medieval and Early Modern Europe, the laws governing the lives of peasants in Europe diverged. In Western Europe, laws that had tied the peasants to the land were increasingly whittled away while in Eastern Europe these laws were imposed for the first time or made increasingly strict. At its nadir, peasants throughout much of Eastern Europe and Russia were unable to change where they lived or worked. At the same time, peasants in Western Europe were becoming free holders or wage laborers, working in an increasingly industrial society. What explains this divergence?

I argue that imposition of serfdom in Eastern Europe was a politically constrained choice of the sovereign rather than an outcome of the dynamics of the labor market. As I show, the Black Death created an exogenous shock throughout Europe, leading to labor scarcity that continued to haunt Europe for centuries. In the aftermath of the Black Death, the absence of intervention in labor markets led to increased wages and decreased prices for foodstuffs, squeezing the nobility, who relied on income from their land. It is not surprising, then, that nobility throughout Europe wanted labor tied to the land.

Yet, serfdom was not uniformly granted. Instead, sovereigns in Western Europe resisted its reimposition. I argue that the sovereign's decision to reimpose (or impose for the first time) serfdom was based on whether he[1] needed the nobility to provide the majority of financing for the government, especially for the military. During this period, wars and defense were becoming vastly more expensive (Parker 1996, Stasavage 2011). Wars could be financed from revenue or loans from towns, loans from foreigners, revenues from foreign colonies or commerce (including privateering/ piracy), support from the Catholic Church, or revenue or in-kind support from the nobility (Downing 1992, Ferejohn and Rosenbluth 2010). Where sovereigns did not have alternatives to support from the nobility, they imposed serfdom. Where sovereigns could finance war from other sources, they were less likely to impose serfdom.

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[1] I use "he" rather than the conventional "she" since most rulers were male during this time period.

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While I am not the first to argue that serfdom was an institution imposed in areas with scarce labor, I focus on the political decision to impose it. In one of the earliest works in this vein, Domar (1970, 21) argues that there must be government intervention for an area with a relative abundance of land to have non-working landowners. Yet, Domar treats these government measures as exogenous. In this paper, I place the government's decisions at the center of my analysis.

Explaining the reimposition of serfdom in Eastern Europe helps us understand long-run institutional differences in economic and political development in Europe. Scholars from Moore (1966) through Acemoglu and Robinson (2006) have argued that the decline of serfdom in the West and the rise (or continuation) of serfdom in the East contributed to these differences. Serfdom led to less investment by both the nobility and the peasants, as lords had little incentive to invest in labor-saving technology since they could squeeze the peasants and peasants had little money left for investment after paying fees to their lord (Brenner 1985, 1996). It undermined proto-industrialization as well: serfs could not move to cities to work in industry; fees imposed on serfs led to small domestic markets for manufactured goods; and those serfs who did engage in proto-industry had to pay their lord additional fees on their businesses, undermining profitability (Brenner 1985, Dennison and Ogilvie 2007). In the long run, then, Eastern Europe fell behind in agricultural productivity and industrialization and the effects of serfdom can still be felt today (Buggle and Nafziger 2016).

Serfdom also delayed democracy. Moore (1966) famously argues that democracy was most likely to succeed in states where the rural upper class had become capitalists and where peasants were transformed into another social order. In England, the demise of serfdom led to the creation of the yeoman farmer and democracy whereas in Eastern Europe the continuation of serfdom led to Fascism or Communism. More recently, Acemoglu and Robinson (2006) argue that where elites can use political institutions to repress labor, as they could with serfdom, revolution becomes more likely and democracy less so.

Additionally, this explanation for serfdom turns the notion that "war made the state and the state made war" (Tilly 1992) on its head, by examining when war makes weak states. While the bellicist literature has tended to focus on the "good" institutions of the states that won wars and the lack of these institutions in the losers, the institutional development of states that lost (at least in the long run) has received less attention. This article examines states that became the losers of international competition. In much of Eastern Europe, the need for military financing led the imposition of serfdom, which removed the state from the lives of many of its citizens and transferred daily governance to the nobility. With the passing centuries, this devolution of authority created much weaker states.[2] Even the exception to this rule, Prussia, still lagged behind its western counterparts that had emancipated their serfs, as seen with the military's defeat by France in 1806, which led to the emancipation of serfs and other reforms in 1807.

Finally, this paper connects to the increasing body of scholarship on internal migration restrictions by autocrats. Most recently, Wallace (2014) argues that autocrats often make a faustian bargain: by implementing policies that lead to urban bias to develop, they increase the likelihood of mass revolt. In this paper, I examine internal migration restrictions that too became a faustian bargain with sovereigns trading their ability to centralize the state in the future for financing today.

The history of serfdom

Serfdom was a coercive relationship between a land owner (the lord) and peasants. Landlords granted peasants rights over a piece of land to farm (individually or collectively) and provided security of these property rights. In return, peasants worked on the landlords' lands for a certain number of days per year (or paid an equivalent fee), paid additional fees and taxes, served in the military, and/or bought specific goods from the lord (Dennison and Ogilvie 2007). The nobility had almost all the power in the relationship: labor service and fees

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[2]See also Gennaioli and Voth (2015).

could be quite heavy; the amount of land, essentially the serf's payment for labor services rendered, was determined by the lord, not by the market (Domar and Machina 1984); serfs had to ask their lord for permission to move; and in some cases, like that of Russia, the lord could sell his serfs (Finkel, Gehlbach and Olsen 2015). While serfs could often move if they paid a fee for their freedom or an internal passport, these fees were often quite high, limiting mobility to the wealthiest peasants.

Serfdom also entailed the transfer of political and legal rights over the peasantry from the sovereign to the nobility. The lord became the administrator of the land, including having police and legal jurisdiction over the serfs (Bush 1996, 209). In Russia, the lord could flog, imprison, and even exile serfs to Siberia (Finkel, Gehlbach and Olsen 2015). This legal authority, moreover, gave the nobility discretionary power to require more than the customary amount of work or fees (Ogilvie 2001).

Serfdom first appeared in the Early Middle Ages (ninth through the eleventh centuries) in the Carolingian Empire and spread to much of Western Europe. At this time, feudalism was a way to pay troops when there was little cash; it gave the nobility a source of income (as well as a potential base of support for challenging the sovereign); and the peasants gained some physical and economic security (Ferejohn and Rosenbluth 2010, 3-4, Gregg 1976, 44–45).

By the High Middle Ages (twelfth through thirteenth centuries) serfdom was breaking down. As Christian knights conquered territories in Eastern Europe and sovereigns in the East converted to Christianity, they sought peasants from Western Europe to work newly conquered territories. The peasants were offered a better position than they had in the West, including the ability to sell their property and move freely (Anderson 1974, 242). As markets expanded, more currency became available, making it easier to pay troops in currency rather than land (Spruyt 1996). Finally, sovereigns were asserting their central authority over the nobility and freeing the peasantry removed a source of the nobility's power (Downing 1992, 161). At the dawn of the fourteenth century, there were few serfs in Eastern Europe and serfs in Western Europe were increasingly gaining their freedom.

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Table 1: Changes in Prices due to the Black Death

Territory	Date Range of Comparison	Commodity	Price Change
England	1300-1347 to 1440-1490	Wheat	-49%
England	1300-1347 to 1440-1490	Barley	-53%
England	1300-1347 to 1440-1490	Peas	-57%
Cuxham Manor, England	1332-1333 to 1350-1351	Profit/ Loss of manor	-87%
Nuremberg	1375 to 1376	Rye	-55%
Konigsberg	1399 to 1508	Rye	-53%
Antwerp	1379-1385	Rent of polders	-25%
Denmark	pre and post-Black Death	Rent on church lands	-33%

Note: Data on prices are from Abel (1966) and Borsch (2005).

The Black Death interrupted this trend by creating the incentives for the a reimposition of serfdom in Western Europe and its implementation in Eastern Europe. This outbreak of the plague likely had its origins in Central Asia sometime in the late 1330s or early 1340s (Aberth 2005, Benedictow 2004) and spread due to conflict and trade to Greece, the Balkans, and Italy by the end of 1348; Spain, France, England, Ireland, Wales, and Norway in 1349; and northern Russia by 1353 (Benedictow 2004). While the Black Death did miss some areas, it seems to have missed few, if any, sovereign territories in their entirety (Benedictow 2004).

The population decline created two problems for the nobility, who earned most of their income from agriculture: lower prices for agricultural goods and higher labor costs (Table 1). By the late 1400s, most grains suffered a price decrease of about 50%. In contrast, in the absence of controls on labor, profits decreased and debt burdens and the likelihood of default increased (Abel 1966, 65).

Across Europe, nobles increased the demands on their serfs; asked for the sovereigns' help in tying the peasants to the land; and/or for ordinances in both rural areas and towns to keep wages below market rates (Anderson 1974, 201, Brenner 1996, 273). For example, in 1444 the administrator of Dirschau wrote the Grand Master of the Teutonic Order,

> 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-

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maids demand too high wages, ... [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)

While the nobility across Europe sought an institutional solution to their economic problems, this solutions was not granted everywhere. Figure 1 shows the variation in the adoption and timing of serfdom after the Black Death.[3] Immediately after the Black Death, several states enacted laws to keep wages low and to limit the mobility of peasants. In the 1400s, 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 on the return of runaway serfs. These laws increased in their severity in the 1500s and 1600s to the point where movement of peasants was highly restricted. In contrast, many serfdom laws were repealed or had fallen into disuse in Western Europe during the same period.

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[3]See Appendix B on data collection and coding.

Figure 1: The Rise of Serfdom after the Black Death
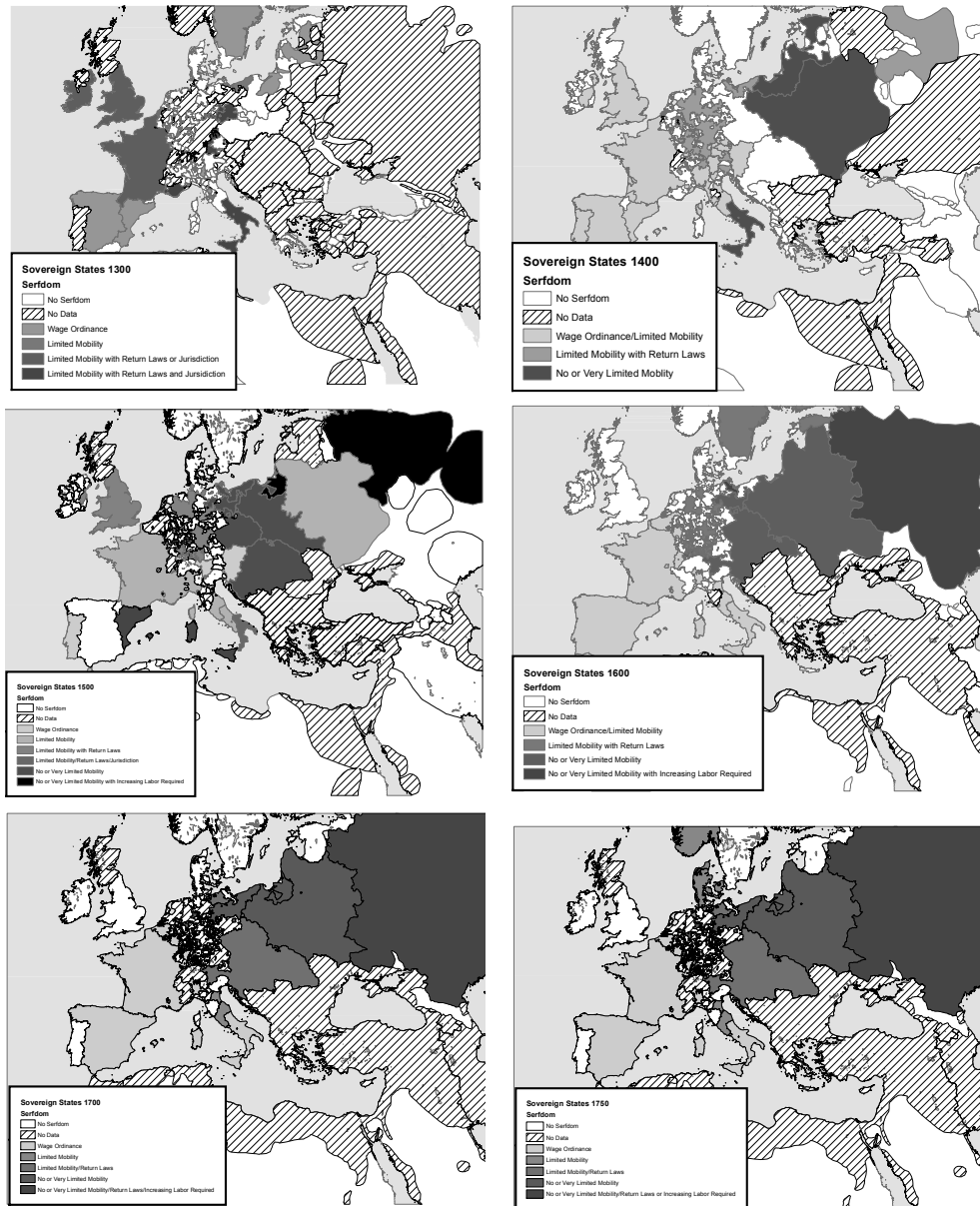
Existing explanations for the Second Serfdom

The literature has provided four main arguments for the Second Serfdom. The first focuses on the size of the population: greater population should increase peasant freedom. With more people, lords were likely to find themselves with a sufficient workforce that was willing to work cheaply and find a larger market for their goods. Together these factors would have increased the lords' profits, reducing the incentive to impose serfdom. In contrast, where labor is scarce (or scarce but not too scarce), elites have an incentive to use forced labor (Anderson 1979, Brenner 1985, Domar 1970, Rogowski 2013). However, labor had been scarce throughout Eastern Europe prior to the Black Death; one of the reasons that serfdom did not exist or was limited was that landlords had to attract peasants from Western Europe. It was after the Black Death that demands for serfdom gained ground in both Western and Eastern Europe. Instead of labor shortages, per se, it appears that the shock to the labor supply and the concomitant shock to prices and wages led to demands for serfdom. Indeed, the shock, in terms of the percent of population lost, that the Black Death rendered seems to have been similar; mortality rates were quite consistent across Europe (see Table 2).[4]

A second hypothesis focuses on peasant solidarity. Brenner (1985) argues that where conditions created higher levels of peasant organization prior to the Black Death, the peasants were able to fight against serfdom. Yet, recent evidence has shown that the relationship between peasant organization and serfdom was more complicated. In areas like Russia and Bohemia, there were relatively high levels of peasant organization prior to the Black Death. Instead of standing up to increasing seigniorial demands, these organizations were often co-opted by the nobility and their leaders were given special privileges for their cooperation (Dennison and Ogilvie 2007, Downing 1992, Ogilvie 2005).

Third, scholars have argued that the Baltic grain trade led to the rise of serfdom. Peasants working on their own could not provide the economies of scale to maximize the lord's profits,

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[4]Older sources tended to rely on official sources that dealt with wealth, undercounting the poor, who were more likely to die (Benedictow 2004, 261). See also Voigtländer and Voth (2013).

Table 2: Mortality Rates from the Black Death

Territory	Mortality Rate	Source
England	62.5%	Benedictow (2004)
Modern Day France	60%	Benedictow (2004)
Modern Day Spain	60%-65%	Benedictow (2004)
Florence	60%	Benedictow (2004)
Tuscany	50-60%	Benedictow (2004)
Piedmont	52.5%	Benedictow (2004)
Norway	62.5%-64%	Benedictow (2004)
Sweden	33%-50%	Abel (1966)
Denmark	33%-50%	Abel (1966)
Hanseatic Towns, Germany	50%	Abel (1966)
Luneburg, Germany	36% of town councilors	Abel (1966)
Wismar, Germany	42% of town councilors	Abel (1966)
Reval, Germany	27% of town councilors	Abel (1966)

leading the nobility to demand labor services, instead of money dues, to increase the scale of production (Moore 1966, Postan and Hatcher 1985). However, the grain trade pre-dated the rise of serfdom in many areas (Carsten 1958, 49). In others, most grains were sold on the local market (Klima 1985, 203, 204). Finally, as we know from "new" new trade theory only the most productive producers are able to engage in international trade. As I argue below, these lords had the least incentive to push for serfdom, as they were profitable at higher labor costs.

Finally, Acemoglu and Wolitzky (2011), Anderson (1979), and Fukuyama (2011) argue that power of cities determined whether the sovereign allied with the peasantry against the nobility. Cities provided a counterweight to the nobility: serfs who made it to the towns were granted freedom, providing a better outside option for peasants (Acemoglu and Wolitzky 2011, 577-578); they actively supported peasant rebellions (Anderson 1974, 205-206); and took away the nobility's monopoly in trade (Fukuyama 2011, 377). Cities and towns were developed to a greater extent in Western Europe prior to the Black Death and, therefore, could survive the demographic crisis (Fukuyama 2011, 376). In the West, then, sovereigns could use the strength of the towns against the power of the nobility (Anderson

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1979, Fukuyama 2011) or the towns provided a better outside option for runaway serfs, leading to a market-based breakdown of serfdom (Acemoglu and Wolitzky 2011).

Building on the work of Spruyt (1996) and others, I argue that the cities were important for these same reasons—they provided a place for runaway peasants to go and sometimes supported peasant rebellions—but more importantly their commercial wealth provided sovereigns an alternative source of finance. Towns and cities were often areas of great commercial wealth, which provided a source of revenue (Downing 1992), loans (Holborn 1959), and credibility to a sovereign looking to borrow on the international market (Stasavage 2011).

The sovereign's decision over serfdom

Like modern autocratic leaders, sovereigns wanted to stay in power and faced three main threats: overthrow by elites, in this case the nobility; mass revolution; and threats from external actors. During the Late Medieval and Early Modern period the external threat was an increasingly important and expensive threat. War occurred in Europe in 95% of the years in the 16th century, 94% in the 17th century, and 78% in the 18th century, when all but 8 of the 92 serfdom laws were passed (Tilly 1992). Additionally changes in military technology increased the costs of war dramatically (Parker 1996, Landers 2003, Stasavage 2011). While not all territories were involved in all conflicts, sovereigns were for the most part planning to fight a war, fighting a war, or paying for the last war throughout this period.

To stay in power, the sovereign needed financing to fund his government—to protect against external threats—and to obtain these funds in a way that would prevent the nobility from overthrowing him and the masses from rebelling. He also likely cared about economic growth, as increased wealth increases his power, and taking power away from the nobility so that they would be less of a threat in the future. The sovereign, therefore, had to balance pleasing the nobility—obtaining resources in the process—with the imposition of serfdom, with its effects on the rest of society, economic growth, and state building.

The nobility

The Black Death and subsequent outbreaks of the plague and other infectious diseases increased the price of the nobility's major input, labor, and decreased the prices of outputs. In a market equilibrium in which the nobility relied upon labor-intensive agriculture, free labor would have bankrupted many. Labor repression through serfdom, then, was one solution for the nobility to maintain, and even increase, their incomes and with that their political power.

Theoretically, there is little need for laws to impose serfdom, as the nobility could have repressed labor through collusion; however, the nobility were essentially stuck in a Prisoners' Dilemma. Due to labor scarcity, the nobility had excess land that could be put into productive used and, thus, each landlord had an incentive to offer slightly higher wages (or less service) to get more peasants and produce more, leading to a breakdown of a cooperative agreement. Even though the nobility were in a situation of repeat play, two issues stand out that made cooperation difficult: differences in productivity and political incentives to cheat. Greater labor productivity may have come from better land quality; more capital-intensive production; better managerial techniques; or from having a larger plot over which economies of scale could be employed. As the more productive landlords could afford higher wages (or offer less labor services) than other landlords, there would be little the other landlords could do to lure peasants away from the more productive landlords and little reason for the more productive landlords to collude. For example, wealthier landowners in Russia argued for a mobile population, as these landowners could offer peasants loans to make their own land more productive and/ or offer less labor services (Domar 1970, 25, Hellie 1971, 106). Instead, it was the lower level nobility, the pomest'ia, who had smaller holdings and tended to be less productive, that wanted serfdom imposed.

Second, in the fluid political environment of the time, the nobility often had an incentive to deprive their fellow lords of workers. If one lord went bankrupt, another lord could take over his estate, increasing his own territory, income, and political power. Given the

jockeying for power between the nobility and the sovereign, who was also a landholder, the sovereign had an incentive to impoverish his rivals as well. These dynamics should have made collusion hard to maintain without the sovereign providing some amount of monitoring and enforcement that came with serfdom laws.

Merchants

Merchants typically opposed serfdom. Merchants were often both traders of goods and proto-industrialists. They benefited from a free workforce for multiple reasons. First, they often used an urban workforce to produce their goods. Yet, towns and cities in Late Medieval and Early Modern Europe were death-traps: life expectancy in the European countryside was about 50% *higher* than in the cities. Without replacement from in-migrants, cities would decline in size and vitality (Dincecco and Onorato 2014). Serfdom, then, threatened to deprive the cities of much needed in-migration. Second, while much proto-industrial activity took place in the cities, increasingly it took place in the countryside and, again, serfdom impeded this progress (Scott 1979). With the continuation of serfdom, and feudalism more generally, the nobility held monopolies over the production of goods in their territory and could impose taxation as they liked, decreasing the ability of merchants to use rural peasants as a workforce (Gennaioli and Voth 2015, Scott 1979). Third, serfdom left the peasants relatively impoverished, decreasing the domestic market for proto-industrial goods (Brenner 1985). Finally, merchants, and the towns they represented often fought with the nobility for power, with the nobility encroaching on the towns' self-governance. Thus, policies that would impoverished the nobility would have been welcomed by the merchants.

Townspeople

Although the merchants favored freedom of movement, that sentiment might not have been shared among the townspeople. Peasants migrating from the countryside may have represented threats to the average townsperson's income, just as immigrants may represent a

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threat to native workers today. This was a time period in which skilled craftsmen used the power of guilds to limit entry into many industries through apprenticeships; similarly, towns often limited entrance and charged high fees for citizenship (Pirenne 1937). Towns-people could also use their urban privileges under serfdom to impose penalties on village craft workers, further protecting their income (Klein and Ogilvie 2015). Finally, as some German towns enacted relatively more generous social-welfare programs (so to speak) in the mid-16th century, they limited the in-migration of poor peasants to limit their welfare burden (Brubaker 2009, Kahl 2005), similar to laws today to limit immigration of those who might use social welfare programs. Thus, while merchants in towns might be a constituency for freeing the peasants, the average townsperson might not have.

Peasants

Peasants, for the most part, opposed serfdom, often violently. Peasant rebellions, due (at least in part) to serfdom, were common in both Western and Eastern Europe, including: France 1358, Catalonia 1380-1480, western Germany 1524-1525, England 1549, Austria 1525, 1594-1597, and 1626, Brandenburg 1646-1648, Bohemia 1679-1680, 1775 and 1780, Poland 1768, Silesia 1766, 1784, 1793, 1798, and 1811, Russia 1773-1775, and Hungary 1735, 1753, 1755, 1763-1764, and 1784 (Bush 1996, 208). For example, during the 1358 Jacquerie in France peasants revolted due to increased demands for labor service by the nobility in the immediate aftermath of the Black Death (Pirenne 1937). Peasant rebellions could turn into all out war. In 1524-1525, a peasant revolt, which had its roots in both serfdom and religious conflicts, turned into the German Peasants' War, leading to the death of 100,000-300,000 peasants and great destruction of the countryside (Scott 1979). While few rebellions were successful, they often caused great damage and forced the sovereign to mobilize the army to put them down.[5] In addition, peasants expressed their displeasure against serfdom in less violent ways, using the weapons of the weak, so to speak: they would foot drag, engage in

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[5]See Finkel, Gehlbach and Olsen (2015) and Moon (1996).

absenteeism, pilfer goods from the lord, and so on (Moon 1996), lowering economic output.[6]

Economic growth

Serfdom has been theorized to have several negative effects on economic growth. First, similar to other forms of protection, the inability of labor to move within a country to where it could be most productively used would have decreased economic growth.[7]

Second, serfdom affected the incentives to increase agricultural productivity. For the nobility, the ability to use cheap serf labor, instead of wage labor, disincentivized investment in productivity. Additionally, because the nobility had the ability to change the amount of labor or money due, if serfs were more productive, their additional product could be seized by the lord, reducing the incentive to work harder (Markevich and Zhuravskaya 2016). This also affected incentives to invest in human capital, as that human capital belonged to the nobility (Markevich and Zhuravskaya 2016), leading to fewer schools in areas with more serfs (Buggle and Nafziger 2016). Finally, while it was possible that the nobility could set the incentives so that serfs worked productively or increased monitoring to solve their principal-agent problem, there existed asymmetries of information and other difficulties that made monitoring serfs' effort a challenge (Markevich and Zhuravskaya 2016).[8] Together, these problems would have led to lower agricultural productivity.

Third, serfdom not only affected agricultural productivity but also proto-industrial productivity. It limited movement into cities and towns where much industrial production took place (Buggle and Nafziger 2016), decreasing the possibility of urban agglomeration effects (Klein and Ogilvie 2015).[9] Second, even as proto-industrial production moved into the coun-

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[6]Yet, not all peasants suffered equally under serfdom. As Dennison and Ogilvie (2007) and Ogilvie (2005) show, village elite in Bohemia and Russia often profited from the rents that the relationship provided and likely supported the relationship.

[7]While serfdom did not preclude all mobility—for example Russian peasants could purchase passports to work elsewhere if they could afford them or could move without a passport if they could afford to pay the fine and if they could pay someone else to perform their labor service (Dennison 2006)—it did limit mobility to those who could afford it, similar to immigration restrictions today.

[8]Although, it does appear that large landowners were more likely to set consistent policies governing serfs to increase productivity (Dennison 2006).

[9]Serfdom did not necessarily stop local, village agglomeration effects (Klein and Ogilvie 2015).

tryside, the nobility could arbitrarily increase the monetary payment due to them from this activity. This would have disincentivized the peasantry from increasing their productivity in the industrial sector (Dennison 2006). Moreover, nobility held monopolies over the production of goods in their territory and could impose taxes as they liked, decreasing *capital* mobility into the countryside (Klein and Ogilvie 2015, Gennaioli and Voth 2015, Stanziani 2014). Further, towns subject to the jurisdiction of the nobility could pressure the lord to prevent rural competition, increasing distortions in the market (Klein and Ogilvie 2015).

Altogether, the low labor mobility and the distortions in agricultural and proto-industrial production decreased economic growth. Some of the best evidence of the effect of serfdom on economic growth comes from Russia, due to its late abolition of serfdom and the associated records that remain. Markevich and Zhuravskaya (2016) find that the abolition of serfdom led to a 16.5% increase in agricultural productivity and increased industrial production by 48%. Buggle and Nafziger (2016) find that there were fewer factories and lower industrial output per worker in areas with more serfs. Thus a sovereign worried about increasing the economic output of his state would prefer free peasants.

State building

Serfdom also negatively affected the ability of the sovereign to centralize power and administration. First and foremost, serfdom increased the power of the nobility vis-a-vis both the sovereign and the peasants. By increasing their income, serfdom increased the economic and military strength of the most powerful members of the nobility. Serfdom also presented a challenge to the centralization of legal authority and administration (MacDonald 2003, 62). It limited the building of an effective tax bureaucracy as taxes were collected through the lord (Dennison and Ogilvie 2007, Holborn 1959, MacDonald 2003). While some sovereigns may have had no choice but to turn to the nobility to collect taxes and administer authority—for example, the Russian Tsars had to rely upon the nobility to collect taxes—in the long run, this hampered the development of state administration. Thus, the sovereign had reasons to

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oppose serfdom on statebuilding grounds as well.

Government finance

Sovereigns had several ways they could finance their government and by extension military campaigns. While traditionally sovereigns were supposed to fund their government through their own holdings (MacDonald 2003), their ability to do so decreased over the Late Medieval and Early Modern periods as the costs of wars increased (Landers 2003). For example, in 1572-1576, war-related expenditures equaled 150% of the Spanish Habsburg's total revenues, including the revenues coming from the New World (Landers 2003, 366). Alternatively, they could raise taxes from domestic sources including the cities, the nobility, and the peasantry; however, administratively most taxes, except for indirect taxes and tariffs, were hard to collect and the sovereign needed the consent of the nobility and in some cases the cities to raise taxes (Landers 2003, MacDonald 2003, Stasavage 2011). If the nobility and cities would not assent to taxation, they might contribute troops directly (Downing 1992) and domestic merchants might provide loans (Landers 2003). Even when the nobility consented to taxation, they often granted themselves more power over the collection of revenue and created only short-term revenue streams (MacDonald 2003), which both reduced the sovereign's power and ensured that he would have to ask for taxation in the future.[10]

Beyond these domestic sources, there were a few external sources of finance. A few could use income from overseas colonies and commerce (including from privateering/ piracy) (Ferejohn and Rosenbluth 2010) or indirect taxes (MacDonald 2003, 109-110). Others, turned to international capital markets to fund their governments. For sovereigns with access to both short- and long-term debt financing, this debt financing allowed them to rapidly mobilize and survive (Stasavage 2011), even when they lacked the political or administrative capacity to do so through taxation (Landers 2003). Additionally, debt was not just taxation deferred;

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[10]The French kings were only kings to be able to enact taxes without consent by parliament, beginning in 1436. They also effectively let serfdom end by 1600; although it would not be official repealed until 1789 (Downing 1992, 248).

sovereigns would frequently default or restructure debt reducing their need to raise tax revenues.[11] Yet, not all sovereigns could access credit. As Stasavage (2011) shows, states that had assemblies in which domestic merchants participated were better able to ensure that the sovereign would pay loans back and, thus, had greater access to credit. He finds that city-states often met these conditions; consistent with this, no city-states imposed serfdom after the Black Death. Beyond city-states, states that had more and larger cities were more likely to have merchants that would provide the credit worthiness (Stasavage 2011).

Throughout this period the Catholic Church often provided funds for sovereigns as well. Both prior to and after the Reformation, the Catholic Church helped finance wars against Muslim polities in both Spain and in Southeastern Europe. Further, the Reformation had two effects on the fiscal systems of sovereigns. Those sovereigns who converted to Lutheranism (or, later, to Reformed Protestantism) confiscated the property of the Catholic Church. Yet, this was typically a one-time infusion of cash rather than a continued income stream.[12] While the sovereigns of territories that remained Catholic, especially those of the Holy Roman Empire, did not have this same ability to take property, they were often given monetary support by the Catholic Church. For example, in Bavaria in the mid-1500s, Duke Albert V, a Catholic sovereign, used the issue of religion to consolidate his power against a growing Lutheran nobility. With financial support from the Catholic Church, he and, later, Maximilian I were able to dispossess and drive out the Lutheran nobility, excluding them from the Diet and consolidating power (Holborn 1959). With greater political power, the Dukes did not, unlike their neighbors to the northeast, impose serfdom.

The sovereign's decision

Because serfdom was opposed by the merchants and the peasants and would lead to lower growth and less state capacity, sovereigns should have opposed serfdom. Yet, their willingness

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[11]See Queralt (2018) for a similar argument about rulers in the periphery in the nineteenth century.

[12]For example, by the end of Henry VIII's reign in England, two-thirds of the lands he had confiscated from the Church had been sold (MacDonald 2003, 159).

to impose serfdom would have depended on their need for financing and the sources of finance that the could access. Sovereigns with access to external financing, from domestic or international capital markets or from the Catholic Church, would be less likely to impose serfdom. However, those sovereigns without access to external sources of finance or with few domestic merchants to draw funding from would need to rely upon financing from the nobility and be more likely to trade serfdom for increased revenue.[13]

Illustrative cases

The inability of the Polish King to raise revenue from sources other than the nobility is deeply tied to the rise of serfdom. In 1454, the Statutes of Nieszawa mandated that the nobility, the only group represented in the Sejm (parliament), assent to taxation, which allowed them both to avoid taxation and to prevent the king from gaining resources that might endanger their power (Filipczak-Kocur 1999). From then on, the Polish King had difficulty in raising regular revenue to fund the government and the military, instead relying on the Sejm to approve new, short-term taxes (for the most part) whenever greater revenues were needed (Filipczak-Kocur 1999). Due in part to the inability to raise revenue, Polish Kings also had difficulty borrowing funds; while the King did borrow from merchants and Jews in the larger cities from time to time, there is little record of established public debt (Filipczak-Kocur 1999).

The inability to raise funds except from the nobility led to the rise of serfdom in Poland. In 1496, with the treaty with the Ottoman Empire due to expire the following year, Poland needed to field an army of at least 40,000 to deter Ottoman aggression (Pappee 1950, 260). The king did not have the revenue to hire mercenaries or, even, to pay for an army of conscripts. Instead, he had to turn to the nobility for a *levee en masse*. In return, the nobility forced the king to agree to the Statute of Piotrkow, the *Magna Carta* of Poland.

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[13]My argument is similar to Downing's (1992) explanation for the rise of absolutism except that I argue that foreign loans are a substitute for raising resources from the lords.

The Statue also began the process of enserfing the peasantry.[14] As the nobility gained increasing power through parliament, they were granted additional serfdom laws in 1501, 1503, 1510, 1511, and 1520 (Anderson 1979, Macek 1982).

In contrast to Poland, while English Kings also needed the assent of parliament to obtain new revenues, they had several regular sources of revenue. These included duties on exports of wool, which after the Black Death made up at least 50% of revenue; loans from Italian merchant banks; and later loans from English Merchants (Ormrod 1999). Thus, while as part of the initial reaction to the Black Death the King enacted a wage ordinance in 1349 and the 1351 Statute of Laborers to limit peasant mobility, in 1427 the king enacted a new statute that exempted employers from prosecution for any breaches of the Statute of Laborers over the objections of the nobility (Fryde 1996, 117). The unwillingness of the king to enforce existing laws and enact new ones allowed market forces to do their work, leading to the de facto end of serfdom in the fifteenth century (Fryde 1996, Hilton 1969).

The end of serfdom in Aragon also shows how a sovereign, able to rely on other sources of finance, ended serfdom. During the Black Death and subsequent outbreaks, Aragon lost somewhere between 20% (Freedman 1991) to 70% (Benedictow 2004) of its population. As happened elsewhere in Europe, the decline in the labor supply led the nobility to impose increased restrictions on peasant mobility; demand peasants pay higher prices (redemptions) to leave the lord's land; and imposed a host of other fees above what was customary (known as the *bad customs* or *malos usos*; Freedman 1991). In response, well-organized groups of peasants developed syndicates to raise money for redemptions and lobbied the monarchy to secure more freedoms (Freedman 1991, Ruiz 2011). The monarchy used these syndicates against the nobility to further its own ends against the nobility. In 1448, the monarchy formally allowed the peasants to form syndicates to raise money for redemptions (Ryder 2007, 31-32). The Corts, the parliament representing the nobility, denounced the legislation and in response King Alfonso dissolved it (Ryder 2007, 32). He could do so because the

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[14]Serfdom in Hungary was imposed under similar circumstances (Fukuyama 2011, 382).

syndicates financed his military campaign in Florence (Ryder 2007, 34): while the Corts offered Alfonso 30,000 florins to pay for his campaign, the syndicates offered 100,000 florins (Ryder 1990, 389-390). Nonetheless, Alfonso did not pass legislation freeing the peasants then, but played the peasants off the nobility to generate more income for his wars, first implementing a policy to suspend the bad customs, then repealing those policies, and then reimplementing them in 1455 (Freedman 1991, 186).

The conflict between the nobility and the monarchy turned into civil war over a succession crisis. King Juan fought the nobles, relying on military aid from France, one form of external finance (Ryder 2007, 105).[15] In addition, the King, unlike the monarchs of Eastern Europe, borrowed from Italian capital markets (MacKay 1977, 166) and the merchants of Barcelona (Ryder 2007, 47) and was funded by the Church, which sold indulgences to fund the Reconquista (MacKay 1977, 147). He also allowed the peasant syndicates to raise a militia to help fight the nobility (Ryder 2007, 113), leading to his success in the conflict. In return for the peasants' support, there was a de facto end of serfdom during the civil war.

While the peasantry supported the king in the civil war, the promised repeal of serfdom did not come until fourteen years later. In part, this was due to the King's continued need for financing, now dependent on the Corts: in 1480, the Corts offered the King £300,000 for full restoration of both the bad customs and serfdom (Ryder 2007, 256). The King's about-face led to a second peasant revolt, which was arbitrated in the Sentence of Guadapule. In return for granting the peasants freedom, the peasants had to pay the King £50,000 as a fine for the damage they had cause (Ryder 2007, 260). The money was then used to finance the final stages of the Reconquista. Thus, in this case, the fact that the King could turn to groups other than the nobility, including international financiers, the Church, merchants, and the peasants themselves, for funding meant that he could, eventually, free the serfs.

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[15]Louis XI eventually turned against Juan, leading Juan to turn to France's rivals, England and Burgundy, for support (Bisson 1986, 152).

Evidence of the effect of state finance on serfdom

I now turn to examining the evidence for my argument. First, I examine whether the Black Death was truly an exogenous shock. Next, I examine how the ability to issue long-term debt affected the imposition of serfdom. Third, as debt data are spotty, I examine whether the conditions that made debt financing possible also decreased the likelihood of serfdom. Finally, I examine whether states of the Holy Roman Empire that remained Catholic were less likely to impose serfdom.

Was the Black Death an exogenous shock?

Instead of creating similar conditions across Europe, is it possible that the effects of the plague were correlated with other long-term trends that led to the imposition or decline of serfdom? One potential factor is that mortality rates were affected by political institutions and that these institutions affected serfdom. The similarly high levels of mortality throughout Europe suggest that political institutions played little role in mortality. Even in Northern Italy, the most developed area of the time, mortality rates were at least 50%. These high mortality rates were due to a lack of knowledge about the disease and treatments (Strayer 1970, 58). In fact, there was little governments could do to treat the plague until antibiotics were developed in the early 1940s; even in early 1900s, mortality of those who contracted the disease remained at 60%-70% (McNeill 1976). The plague ceased to be a major killer in Western Europe in the late 1600s, *after* most of the serfdom laws were passed, likely due to changes in sanitary practices that meant that humans did not come into contact with rats as often (McNeill 1976), not due to concerted government action. It is unlikely, then, that prior institutions affected mortality rates.

Another concern might be that the plague was spread along trade routes and therefore, it was trade or the lack thereof, and not the high mortality rates, that lead to a free peasantry. While plague was spread by trade, it was also spread by war, especially to previously isolated

Figure 2: Recorded Outbreaks of the Plague per Decade

Note: Graphs report totals for each decade. West Europe includes Spain, Portugal, the UK, France, and the Low Countries. Central Europe includes Italy, Malta, Germany, Austria, Switzerland, Bohemia, and the Nordic Countries. East Europe includes Poland, the Baltics, Hungary, and the Balkans. Russia includes both Northwest and Southern Russia, Ukraine, and the Caucuses. Data originally from Biraben (1975) and was compiled by Voigtländer and Voth (2013).

communities (Holborn 1959, Voigtländer and Voth 2013). For example, in Figure 2 plague outbreaks track the increase in conflicts in the late 1400s through the 1500s and we can easily spot the Thirty Years War, which led to highest decade total of recorded outbreaks. Thus, it is likely that the deaths caused by the Black Death and later outbreaks were exogenous to many of the factors, except for the need for military finance considered here, that we might think would affect the sovereign's ability to raise revenue.

Sovereign borrowing and serfdom

To examine the factors that led to the imposition of the second serfdom, I collected a new dataset on the laws that imposed serfdom and coded these laws based on their severity from several sources.[16] The least severe serfdom laws were wage ordinances. These ordinances made it illegal to pay a peasant or worker more than a certain amount. Some laws limited but did not fully restrict mobility. For example, an English law in 1388 required that anyone who

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[16]See Appendix B for sources and coding.

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wanted to move had to have a letter from his lord stating that he was allowed to move (Cohn 2007, 476) and in 1488, peasant mobility in Russia was limited to the St. George's Day period after the harvest (Hellie 1971, 83). Finally, some countries limited mobility completely. For example, in Pomerania in 1550 peasants were no longer able to leave their lord, even if they had found a successor (Carsten 1958, 157). Additional regulations increased the number of days the peasants owed the lord; increased the lords' jurisdiction over the peasants; and increased the lords ability to bring back runaway peasants.

To test the validity of my argument, I first examine whether the states that imposed serfdom had access to long-term credit. To create the dataset, I used the Euratlas (Nussli 2010) to determine a list of sovereign entities from 1400-1799. Using data from Stasavage (2011), I coded whether states had access to long-term credit. Any state that had borrowed in the past was deemed to have access to long-term credit, even if there is not evidence that the state was currently borrowing. This is a relatively hard test for the data: states that had borrowed in the past may be in arrears and unable to borrow but are coded as having access to credit. Further, I coded the sovereign state as being able to borrow if it absorbed a city that had borrowed, even if this was not the case. By 1350 when the Black Death was raging through Europe, 15 territorial states and autonomous cities had taken long-term loans at least once and over the entire time period, 31 entities borrowed (Stasavage 2011). Thus, long-term loans to sovereigns were not unheard of and were becoming increasingly common when sovereigns faced demands for serfdom.

The data on long-term credit is consistent with my argument (Figure 3): of the 92 state-years in which states enacted serfdom laws, only two were enacted when the state had access to credit while 30 of the 31 sovereign entities that borrowed never passed serfdom laws.[17] The one state that could access credit and still passed serfdom laws was Denmark. In 1733, the Danish King enacted the Stavnsbånd, a less restrictive form of serfdom which bound men between the ages of four and forty to the nobility but with the possibility to purchase their

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[17]In a cross tabulation of state-years with a indicator for past borrowing and serfdom laws, the chi-square statistics is $\chi^2 = 5.0891, p < 0.05$. See Appendix A Table A1 for full table.

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Figure 3: Potential for Long-Term Borrowing and Serfdom
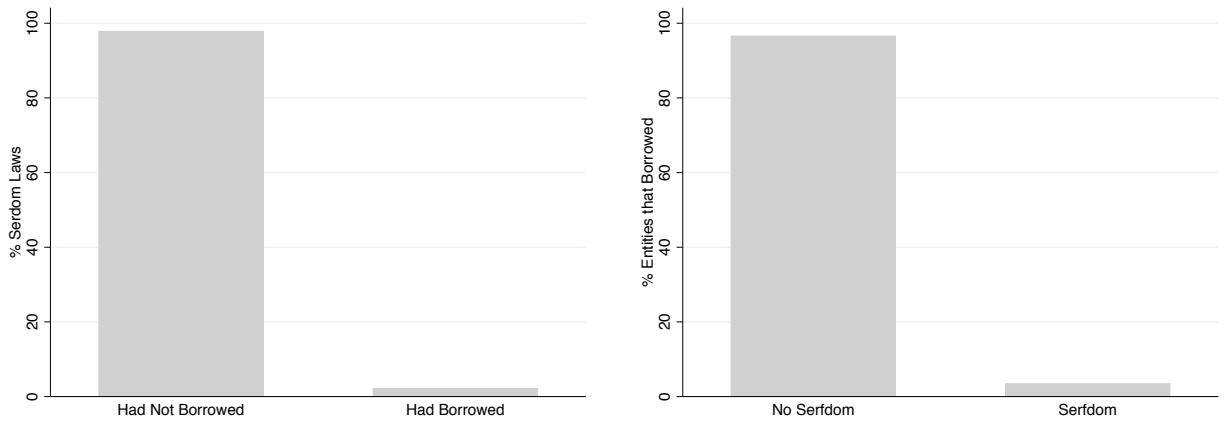
(a) Borrowing by States that Imposed Serfdom   (b) Experience with Serfdom of States that Borrowed

Note: Figures show the percent of sovereign entities in each category. Debt data from Stasavage (2011). Serfdom data collected and coded by author, see Appendix B.

freedom (Østergaard 2006, 63). In 1788, the Stavnsbånd was mostly repealed; although, peasants still owed some labor services (Østergaard 2006, 63). Thus, the two cases in which a state could borrow and enacted laws related to serfdom, one law was relatively light and the other repealed most of the restrictions on mobility. In all other cases, sovereign states that enacted serfdom had no access to credit and states that had had or currently had access to credit did not.

As a second test, I examine whether serfdom laws were more likely to be enacted when access to credit was limited due to debt crises in the major European economies.[18] The resulting credit crunches after these defaults would have made it difficult, if not impossible, for even otherwise creditworthy sovereigns to borrow. Similar to Queralt (2018), I code the year of the crisis and the three following years as periods of scarce credit.[19] I expect, then, that serfdom should be more likely during periods of scarce credit and indeed, that is what we find. Serfdom laws are twice as likely to be passed during times of scarce credit than

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[18]Appendix Table A2 lists the debt crises included.

[19]Results are substantively similar if we examine only the years of the debt crisis or including the following year.

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in times where credit would be more plentiful.[20] This serves as additional evidence that sovereigns with access to credit were less likely to impose serfdom.

Serfdom and factors that affect creditworthiness

As a third piece of evidence, I examine whether the factors that affected access to credit, along with additional variables to control for alternative explanations, had an effect on the imposition of serfdom and its severity. Above, I coded states as having access to credit if they had ever borrowed in the past, but other states may have had the potential to borrow but chosen not to. To examine both my hypothesis that states that had less access to credit imposed serfdom, I turn to regression analysis (Table 3). Given the paucity in data—most of the data we are interested in is available only at the city- or modern-polity-level and only at the century mark (e.g. 1300, 1400, etc.)—I regress the change in serfdom from one century to another, starting with the period 1300-1400 and ending with the period 1700-1800, on the change in the independent variables (more below) over the same time period using ordinary least squares.[21] Using first-differences allows me to control for unchanging factors within a territory that might affect both access to credit and serfdom, such as an advantageous location, and ensures that the results are not driven by spurious time trends in the data. I include century fixed effects to capture continent-wide shocks.[22]

Instead of using the city or the modern polity as the unit of observation, I use data constructed at the city level and then aggregate the city characteristics to the polity level for a given century. Data constructed to reflect modern polities is problematic as borders have changed dramatically over the centuries. This is especially true in the case of Germany; the constituent parts of the Holy Roman Empire that became modern Germany, implemented

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[20]Serfdom laws are rare events, passed only in 0.14% of country-years. They are passed in 0.24% of country-years with a credit crunch and 0.11% of years without. $\chi^2 = 12.6$ from a cross-tabulation of serfdom and credit crunch years.

[21]Due to the averaging across cities in a territory, the change in serfdom variable becomes an continuous variable.

[22]As a robustness check in the Online Appendix, I examine the level of serfdom in a given century mark on the level of the independent variables with both century and territory fixed effects and find substantively similar results (Table A3).

very different serfdom policies. The data on cities and their characteristics is from Van Zan-den, Buringh and Bosker (2012). Using the Euratlas (Nussli 2010) data, I determined which polity each city was a part of in a given century, using the location listed in that dataset or, for those not listed, their current longitude and latitude as their location.[23]

The dependent variable is the change in the level of serfdom in the cities in a territory. For each city, serfdom is coded at the territory level in a given century and averaged over the cities in that territory. Serfdom is coded at the territory level as an ordinal variable with values from 0 (no serfdom) to 7 (no mobility, many service days owed).[24] For the century of interest, each city in a given territory is coded as having the same level of serfdom but for the past century they may have different levels of serfdom, as some cities may have been part of a different territory.

Even with extensive data collection, we are missing data on the serfdom variable for some of the small states, especially among the Italian city-states. From the literature, there is qualitative evidence that these territories did not impose serfdom; however there is no data on if serfdom laws were passed or when serfdom was repealed. An additional coding problem is that the Euratlas lists the smaller states of the Holy Roman Empire as one territory (*Small States*); yet, these states had very different histories of serfdom. To address these problems, I coded the serfdom variable four different ways. In models 1 and 2 below, I drop all territories for which I am missing data and in models 3 and 4, I code those territories as free. Further, in odd number models I code the Small States as having serfdom and in the even numbered models code them as free.

To test my hypothesis that access to credit allowed sovereigns to free their peasants (or to keep them free), I include variables that help explain which sovereigns likely had access to credit. The first two variables I include are the change in the constraints on the executive

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[23]Most cities lay in the interior of sovereign territories, making shifts in city locations over the centuries relatively unproblematic. Due to the lack of data on the trajectory of each polity, I choose to code all cities belonging to a territory in a given century as having belonged to it in the previous century. This coding decision does not have to be made for the regressions on the level of serfdom in Appendix A. The results are similar, suggesting that this coding decision is not driving the results.

[24]See Appendix B for more details.

and the change in protection for capital from Acemoglu, Johnson and Robinson (2005), which both are coded at the modern polity level and then allocated to cities based on their location. For executive constraints, they use Polity's definition and extend it back in time. Protection for capital measures "the formal rights given to urban merchants, particularly their protection in the event of a dispute with the nobility or monarch" (Acemoglu, Johnson and Robinson 2005, 569). Increasing protection of capital should reduce serfdom, as both domestic and international lenders felt more secure in their property rights and were more likely to lend to the sovereign (Stasavage 2011). Once we control for protection for capital, executive constraints should measure the institutional constraints that the nobility had over the sovereign (Acemoglu, Johnson and Robinson 2005, 569). More constraints should have given the nobility greater leverage and made serfdom more likely.

The existence and frequency of parliament meetings may have also affected the likelihood of implementing serfdom. I include a variable that captures the change in whether a city was in a territory with a parliament and the change in the number of meetings of that parliament and then aggregate to the polity level. If a parliament is established or meets more often, sovereigns are likely to be better constrained by merchants from the cities and, thus, have greater access to credit (Stasavage 2011). On the other hand, if parliaments are mostly comprised of representatives from the nobility rather than from the cities, it is likely that the sovereign has less access to credit and is beholden to the nobility. In this case, a change in whether there is a parliament and an increase in its meetings, then, is likely to lead to increased serfdom. A priori, it is theoretically undetermined as to whether the effect of parliaments should be positive, negative, or may be null due to opposing effects.

Third, I include a variable to examine the Anderson (1979) and Fukuyama (2011) hypothesis that the *decline* in cities tilted the balance in favor of the nobility and led to serfdom. Alternatively, a decline in the size of cities could mean that there were fewer (rich) merchants who could lend the sovereign money or increase the credit worthiness of the state. I include the change in the population of all the cities, which correlates with economic and political

power of cities, in a territory to test this hypothesis. If this hypothesis is correct, we should find that a decline in population should increase serfdom.

Finally, I examine the effect of the Reformation. While Protestant sovereigns expropriated church property, this was often a one-time source of income that was quickly spent, but perhaps could have been a bulwark against the nobility. In contrast, Catholic sovereigns were often able to access Church funds when they needed to fight wars against Protestant upstarts or Muslim polities. On balance, I expect an increase in the proportion Protestant cities to be associated with increased serfdom, as a one-time infusion of funds from the expropriation of Church properties was unlikely to provide protection against the nobility for long. As a control, I also include the change in the proportion of Muslim cities and, as mentioned above, century-fixed effects.

The data are largely supportive of my argument. First, as polities increased protection for capital—increasing their access to domestic and international credit—serfdom was more likely to languish or was repealed; the coefficient on protection of capital is negative in all models and statistically significant in models 1, 2, and 4. In contrast, those polities that increased constraints on the executive were more likely to impose serfdom, showing the importance of the nobility having leverage over the sovereign (the coefficient on increasing executive constraints is positive in all four models and statistically significant in models 1, 2, and 4). As a robustness check, I examine only the first imposition of limited mobility from no serfdom or wage laws and drop all instances in which the restrictiveness of serfdom increased.[25] Given that serfdom might lead to a decline in the power of the executive and, potentially (although less likely) decreased protection for capital, this should help control for the reverse causality; the results are similar.[26]

As for the other variables, there are no consistently statistically significant effect of a change in the existence of a parliament or a change in the number of meetings perhaps

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[25]This is coded as a change from a 2 or below to a 3 or above, as most European states had at least wage ordinances at the start of the period.

[26]See Appendix A Table A4. This assumes that any changes in executive constraints or protection of capital in the century came before the change in serfdom.

likely because some parliaments gave more power to representatives of cities—which would increase the ability to borrow—while others gave more power to the nobility. While the change in the population living in cities is statistically significant in models 1 and 2; it is not significant when we increase the sample to include territories in which we are missing data as not having serfdom. Most of these territories are in Italy, which developed a large number of cities. Once we include these polities, we see less of an effect of changing city size, suggesting less support for the Anderson/ Fukuyama hypothesis. There is no statistically significant effect of the proportion of Protestant cities; likely because there were both Protestant polities and Catholic polities that imposed serfdom (e.g. Prussia and Poland) and that removed serfdom (e.g. England and Aragon). The coefficient on Muslim is positive and statistically significant; this result may be driven by the territory that was taken by the Habsburg empire and Hungary from the Ottomans.

Finally, the results are similar if we examine the level of serfdom in a given century on the level of each of these variables and including territory fixed effects (see the Appendix A). The major difference is that total population in cities is now statistically significant. This suggests it was not the declining power of cities but the lack of large cities—and their wealth and borrowing power—that led to the imposition of serfdom.

Table 3: Explanations for changes in serfdom, 1400-1800

$DV= \Delta$ *Serfdom*	(1) Small States=3 NAs dropped	(2) Small States=0 NAs dropped	(3) Small States=3 NA=0	(4) Small States=0 NA=0
Δ Executive Constraints	4.94**	5.21***	2.50	3.39*
	(1.86)	(1.48)	(1.90)	(1.32)
Δ Protection of Capital	-2.56*	-3.03**	-1.78	-2.42*
	(1.12)	(0.98)	(1.39)	(1.03)
Δ Parliament	-1.47[+]	-0.57	0.18	1.34
	(0.77)	(0.81)	(1.24)	(0.87)
Δ Parliament Meetings	-0.03	-0.02	-0.00	-0.01
	(0.02)	(0.02)	(0.02)	(0.01)
Δ City Population	-0.08*	-0.06*	-0.02	-0.02
(100,000s)	(0.03)	(0.02)	(0.03)	(0.01)
Δ % Protestant Cities	-1.32	-2.05	-0.69	-0.98
	(1.30)	(1.49)	(1.28)	(0.99)
Δ % Muslim Cities	2.07***	2.28***	2.28[+]	2.84***
	(0.61)	(0.55)	(1.24)	(0.70)
1300	-0.12	-0.10	-0.03	0.14
	(0.23)	(0.19)	(0.28)	(0.22)
1400	-0.01	-0.05	-0.17	-0.08
	(0.20)	(0.19)	(0.24)	(0.23)
1500	-0.10	-0.04	-0.03	0.05
	(0.25)	(0.23)	(0.25)	(0.21)
1600	0.05	-0.07	0.13	0.08
	(0.21)	(0.22)	(0.22)	(0.22)
Constant	-0.12	0.02	-0.20	-0.16
	(0.18)	(0.18)	(0.20)	(0.19)
Observations	98	98	135	135
R^2	0.286	0.674	0.328	0.363

Notes: Robust standard errors in parentheses. [+] $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Data on explanatory variables from Van Zanden, Buringh and Bosker (2012). Data on serfdom coded by author; see Appendix B for coding. *Small States* denotes the Small States of the Holy Roman Empire.

Support from the Catholic Church and serfdom

In Table 3, there was not a statistically significant effect of the proportion of protestant cities. Yet, it is possible that Reformation played a larger role in Holy Roman Empire (HRE), which was the hotbed of both the Reformation and the Counter-Reformation. Using data from Cantoni (2012) on whether the sovereign of a territory of the HRE had adopted Protestantism by 1600, I find that 26.67% of Protestant territories had some form of serfdom by 1700 in comparison to less than 10% of those that remained Catholic ($p = 0.067$ in a cross-tabulation of religion and serfdom).[27] Further, the Protestant territories were much more likely to increase the severity of the serfdom between 1600 and 1700; 13.33% of Protestant territories increased the severity while none of the Catholic territories did ($p = 0.03$ in a cross-tabulation of increases in the severity of serfdom and religion). While many of the Catholic rulers obtained support from the Church, the Protestant princes often had to fall back on their nobility. While not all Protestant princes imposed serfdom—in line with my argument, sovereigns like William IV of Hesse-Cassel and August I of Saxony who were better able to manage their territories' finances and increase their power at the expense of the nobility (Holborn 1959, 264) did not impose serfdom—many did.

Conclusion

Eastern Europe has long lagged behind Western Europe in both economic and political development. Even before the rise of Communism, Eastern Europe was poorer and more autocratic. Communism only compounded these problems. 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 the nobility had less incentive to invest in labor-saving

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[27]It does not appear that Protestantism was adopted for fiscal reasons or for reasons having to do with serfdom. Instead, distance to Wittenberg, where Martin Luther taught, affected the spread of Protestant ideas and provided the demand by the (urban) populace for the change of religions. It also increased the likelihood that princes would adopt it; once the powerful Elector of Saxony adopted Protestantism, his neighbors felt more comfortable doing so, as they could rely on close territories for support against the Catholic Emperor (Cantoni 2012).

technology, given their free labor, and peasants had less income to invest. It also led to later industrialization, as there was a limited workforce for proto-industrialists to draw upon and a limited market given the poverty of the peasantry. When peasants engaged in market activities, including proto-industrial activities, they had to contend with the monopolies and monopsonies of their lord (Ogilvie 2001). Additionally, serfdom made democratization more costly as it would entail the break up of both the political and economic system (Acemoglu and Robinson 2006).

Why serfdom was imposed in the Late Middle Ages and Early Modern Period in Eastern, but not Western, Europe? This paper argues that sovereigns were willing to impose serfdom when they needed the nobility to finance the government. When they had other sources of financing, peasants gained or maintained their freedom. In addition to providing a new explanation for the imposition of serfdom, the paper provides new evidence consistent with the argument.

This explanation for serfdom shows that while war may make states, it might still make relatively weak states. The need for military financing led sovereigns in Eastern Europe to choose an institution that increased the power of the nobility at the expense of other parts of society, including themselves. While this devolution in power made sense in the short-run, in the long-run it made for relatively ineffective institutions, which could not compete economically or militarily with states that had freed their peasants centuries earlier. Similar choices to devolve power to local leaders in return for their support in war may, too, lead to institutionally weak states in other contexts.[28] These choices, then, may explain why modern warfare—either against external or internal foes—does not seem to have the state building effect that it had in Europe, as it can empower local elites at the expense of the central state.

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[28]See Dincecco, Fenske and Onorato (2016) for a similar argument regarding conflicts in Sub-Saharan Africa during the same time period.

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Appendix A: Additional Statistics

Table A1: Serfdom Laws and Borrowing

| | Had Borrowed | | |
Serfdom Law	No	Yes	Total
None Passed	99.87%	99.97%	99.88%
	[60,252]	[5,856]	[66,118]
Law Passed	0.15%	0.03%	0.12%
	[90]	[2]	[92]
Total	100%	100%	100%
	60,342	5,858	66,200

Notes: Column percentages shown. Number of observations in brackets. $\chi^2 = 5.0891, p = 0.02$

Table A2: Debt Crises in Europe 1350-1700

Year	Event
1378-1382	Venice suspends interest payments
1389	Venice starts a sinking fund
1392	Florence starts a sinking fund, 25% tax on interest
1450	England defaults
1451	Charles VII (France) has major financier executed to avoid paying debt
1472	English default
1475-1500	Venice and Florence in default; Genoese debt trades at a discount of 40-50%
	Cologne in bankruptcy; cities of Netherlands suspend debt payments
1557-1559	First general financial market collapse in European history
1575	Spanish default
1594	English default
1596	Spanish default
1607	Spanish default
1608	French default
1624	French default
1627	Spanish default
1634	French default
1647	Spanish default
1648	French default
1652	Spanish default
1661	French default
1662	Spanish default
1683	Germany (Prussia) default

Notes: Data coded from MacDonald (2003) and Reinhart and Rogoff (2008).

Table A3: The Explanations for the Level of Serfdom, 1400-1800

DV= Serfdom	(1) Small States=3 NAs dropped	(2) Small States=0 NAs dropped	(3) Small States=3 NA=0	(4) Small States=0 NA=0
Executive Constraints	1.30*	1.30*	1.13*	1.13*
	(0.51)	(0.51)	(0.46)	(0.46)
Protection of Capital	-0.97**	-0.97**	-0.87**	-0.87**
	(0.37)	(0.37)	(0.33)	(0.33)
Parliament	-1.33	-1.33	-1.18+	-1.18+
	(0.90)	(0.90)	(0.70)	(0.70)
# Parliament Meetings	-0.01	-0.01	-0.01	-0.01
	(0.01)	(0.01)	(0.01)	(0.01)
City Population	-0.03**	-0.03**	-0.04**	-0.04**
(100,000s)	(0.01)	(0.01)	(0.01)	(0.01)
% Protestant Cities	-0.47	-0.47	-0.27	-0.27
	(0.72)	(0.72)	(0.62)	(0.62)
% Muslim Cities	15.96***	15.96***	16.50***	16.50***
	(1.53)	(1.53)	(1.19)	(1.19)
1500	0.39	0.39	0.27	0.27
	(0.25)	(0.25)	(0.17)	(0.17)
1600	1.33*	1.33*	0.99*	0.99*
	(0.63)	(0.63)	(0.48)	(0.48)
1700	1.17+	1.17+	0.89+	0.89+
	(0.68)	(0.68)	(0.53)	(0.53)
1800	0.37	0.37	0.26	0.26
	(0.50)	(0.50)	(0.39)	(0.39)
Constant	1.08	0.70	0.57	0.29
	(0.66)	(0.66)	(0.51)	(0.51)
Observations	191	191	261	261
R^2	0.410	0.410	0.380	0.380

Notes: Robust standard errors in parentheses. $^+$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Data on explanatory variables from Van Zanden, Buringh and Bosker (2012). Data on serfdom coded by author; see text for coding. *Small States* denotes the Small States of the Holy Roman Empire. Century fixed effect for 1400 is dropped due to collinearity.

Table A4: The Explanations for the Change in Serfdom, First Imposition Only

$DV= \Delta$ *Serfdom*	(1) Small States=3 NAs dropped	(2) Small States=0 NAs dropped	(3) Small States=3 NA=0	(4) Small States=0 NA=0
Δ Executive Constraints	1.19*	0.49*	0.43	0.04
	(0.54)	(0.20)	(0.99)	(0.51)
Δ Protection of Capital	-0.82	-0.25^{+}	-0.40	-0.02
	(0.54)	(0.14)	(0.74)	(0.39)
Δ Parliament	-1.92*	-0.25	-0.43	0.51
	(0.78)	(0.18)	(1.45)	(0.77)
Δ Number of Meetings of Parliament	0.00	0.01	0.00	0.01
	(0.01)	(0.00)	(0.01)	(0.01)
Δ City Population	-0.01	-0.00	0.00	0.01
(100,000s)	(0.01)	(0.00)	(0.02)	(0.01)
Δ % Protestant Cities	-0.51	-0.90***	0.11	-0.70^{+}
	(0.49)	(0.24)	(0.89)	(0.41)
1400.year	0.03	-0.02	-0.02	-0.03
	(0.11)	(0.04)	(0.11)	(0.04)
1500.year	-0.02	-0.04	-0.01	-0.02
	(0.13)	(0.04)	(0.15)	(0.05)
1600.year	0.06	-0.06	0.05	-0.05
	(0.13)	(0.05)	(0.14)	(0.07)
Constant	-0.15	0.03	-0.14	-0.01
	(0.10)	(0.04)	(0.12)	(0.05)
Observations	57	65	81	89
R^2	0.471	0.441	0.042	0.250

Notes: Robust standard errors in parentheses. $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Only observations in which there were few restrictions on peasants (serfdom<3) in the previous century are included. Data on explanatory variables from Van Zanden, Buringh and Bosker (2012). Data on serfdom coded by author; see Appendix B for coding. *Small States* denotes the Small States of the Holy Roman Empire.