The Political Economy of Status Competition: Sumptuary Laws in Preindustrial Europe

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Sumptuary laws that regulated clothing based on social status were an important part of the political economy of premodern states. We introduce a model that captures the notion that consumption by ordinary citizens poses a status threat to ruling elites. Our model predicts a non-monotonic effect of income—sumptuary legislation initially increases with income, but then falls as income increases further. The initial rise is more likely for states with less extractive institutions, whose ruling elites face a greater status threat from the rising commercial class. We test these predictions using a new dataset of country and city-level sumptuary laws.

It is unfortunately an established fact that both men and womenfolk have, in utterly irresponsible manner, driven extravagance in dress and new styles to such shameful and wanton extremes that the different classes are barely to be known apart.

—Nuremberg Ordnance of 1657, Quoted in Hunt (1996)

Sumptuary laws regulated clothing based on social status. They first emerged in Europe in the twelfth and thirteenth centuries, during the Commercial Revolution—a period of growing trade and commercialization. They were most prominent in the richest and most economically sophisticated parts of Europe. Their heyday coincided with the era of elevated per capita incomes and real wages that followed the Black Death.

The Journal of Economic History, Vol. 84, No. 2 (June 2024). doi: 10.1017/S0022050724000093

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We thank the editor and two anonymous referees, as well as George Akerlof, Guido Alfani, Metin Cosgel, Theocharis Grigoriadis, Moritz Hinsch, Felix Kersting, Jonathan Krautter, Jared Rubin, Alison Shertzer, Nikolaus Wolf, Emmanuel De Dios, and many others for their excellent comments. We appreciate comments from audiences at the Berlin Colloquium on Social and Economic History, CGM's Virtual Seminar Series on Economics of Race and Identity (University of Pittsburgh), Washington Area Economic History Workshop, the Understanding State Capacity Conference at the University of Manchester, and the University of Rochester. We are grateful to Fernando Arteaga, Josh Bedi, Jacob Hall, Linghui Han, Kang Li, Kashiff Thompson, and Alex Taylor for excellent research assistance. We thank Noboru Koyama for compiling data on Japanese sumptuary laws.

Historians have extensively studied how sumptuary laws relate to patterns of consumption (see, especially, Perrot 1994; Frick 2002; Welch 2005; Stuard 2006; Muzzarelli 2009). The existence, proliferation, and disappearance of these laws directly connect to topics such as the emergence of fashion and the culture, politics, and legal systems of the Renaissance more generally; and the consumer and industrious revolutions (see Brewer and Porter 1993; Vries 2008). Historians have also investigated how sumptuary laws reinforced distinct gender norms (see, particularly, Brundage 1987b; Jackson 2010; Moran 2018; Cavallar and Kirschner 2020).

Our focus is on how the sumptuary laws were used to regulate status competition. In particular, sumptuary laws are of interest as a manifestation of the political economy of premodern states. Our argument then is an application of what Ogilvie (2007) terms the "conflict" view of institutions. Long-standing institutions, such as sumptuary ordinances, persisted not because of any efficiency properties but because they benefited well-organized and powerful elites. Sumptuary laws could act as a form of "social disciplining" (Ogilvie 2006)—targeting urban consumers and frequently women.

Sumptuary legislation can also be understood in the context of a wider set of laws, "contra laboratores" (studied by Cohn 2007). Like sumptuary laws, these proliferated after the Black Death and were a response to the economic rise of the lower classes. However, rather than intervening in labor markets, sumptuary laws focused on consumption.

Recent work in economics establishes that people will invest considerable resources in status markers, with significant consequences for inequality (Charles, Hurst, and Roussanov 2009) and savings and growth (Omer and Neeman 2012). More so than today, clothes were important markers of status. Before the Industrial Revolution, clothes were expensive, durable goods. After subsistence needs had been met, they often took up the largest single proportion of household income. Expenditures could be astonishingly high, especially for the individually designed, fitted, and ornate clothing worn by aristocrats. Fra Bernardino (1380–1444) claimed that Florentine women might spend "more than six, more than eighteen, more even than sixty" florins on a pair of shoes (quoted in O'Malley 2010, p. 61). As the annual earnings of a skilled worker were around 37 florins, this was a huge sum (Goldthwaite 1990, p. 348).[1] Frick (2002, p. 180) notes: "Inventories of personal possessions showed an inordinate

[1] O'Malley (2010) estimates that only a tiny proportion of elite women would have spent this amount on footwear. Relatively high-quality and fashionable shoes could be obtained for perhaps between 1–6 florins.

portion of their total wealth was spent on clothes; 40 percent . . . was not unheard of."

Clothes played a vital role in expressing identity: "Aristocrats sought social differentiation through dress codes and elaborate spending because social status depended not only on luxurious cloth but on how cloth was fashioned into garments that followed precise, often individual guidelines" (Rosenthal 2009, p. 460). Clothing was a visible manifestation of the social order.

To explain why clothes increasingly became the subject of legislation and why these regulations eventually disappeared, we combine newly collected data and qualitative evidence to formulate a general explanation of the main drivers of sumptuary legislation. We employ a formal model to derive testable predictions.

Our starting point is the view expressed by North, Wallis, and Weingast (2009) that premodern polities are best analyzed as being governed by coalitions of elites who were able to generate economic rents by limiting competition and access to markets. Seen through this lens, sumptuary laws restricted the consumption of citizens, benefiting elites at the expense of the rest of society. We consider two classes: elites and non-elites. In our historical applications, the identity of these classes varies based on the setting. The non-elites, in general, refer to the class just below the elites (though in some cases, such as the Italian city-states, this could include affluent artisans and craftsmen). In England, sumptuary laws distinguished members of the nobility (and paid attention to gradations within the nobility) from merchants and artisans. In Italian cities-states, the elite were initially nobles with feudal titles and landholdings outside the city but over time they came to include established mercantile families who held public office (Martines 1979). The non-elites in this case referred to the *popolo,* who included richer artisans and craftsmen.

We build on the idea that the utility from status goods is *relative* to the status good consumption of competing social classes.[2] The key idea is that status good consumption by non-elites poses a status threat to ruling elites. To maximize their "status distance" from non-elites, elites can either raise their own status good consumption or pass laws that limit the status good consumption of non-elites. We show that as incomes rise, non-elites can afford to consume status goods, but may initially find evading sumptuary laws too costly. This, then, makes enforcement worthwhile for the elites and induces them to enact sumptuary laws. As incomes rise further, however, non-elites have even more resources to

[2] See Frank (1985) and Akerlof (1997) for early formalizations of the notion that utility from status is derived from the relative consumption of a status-producing good.

evade sumptuary legislation, which increases the cost of enforcing such laws. Ruling elites then prefer to use their income to buy more status goods, rather than reduce the status good consumption of non-elites.

Our model predicts that the scale of rent-seeking of ruling elites affects sumptuary legislation and modifies the relationship between sumptuary laws and income. Specifically, we hypothesize that the relationship between sumptuary legislation and income was stronger where elites were constrained and could extract only a moderate amount of rent. In this case, the elites' disposable income, and therefore their ability to consume status goods, was more limited, making the status threat from below more binding.

As an initial descriptive exercise, we find evidence of a non-monotonic relationship between sumptuary legislation and income at the country level. Countries with very low levels of GDP per capita were unlikely to pass sumptuary laws, as were countries with high levels of GDP per capita. It was at intermediate levels of income that we observed the highest frequency of sumptuary legislation.

To deepen our understanding of this phenomenon, we use another, city-level, dataset.[3] Studying city-level sumptuary laws allows us to leverage a source of exogenous variation in per capita income: local outbreaks of the bubonic plague following the initial Black Death outbreak (1348–1352). As medieval European economies were Malthusian, plague outbreaks generated upward wage pressure and higher incomes per capita (Galor 2005; Ashraf and Galor 2011; Voigtländer and Voth 2013; Fochesato 2018; Jedwab, Johnson, and Koyama 2022, 2024). Following the Black Death, episodes of bubonic plague continued to reoccur at the local level. Florence was hit by plague in 1430, 1437–38, 1449–50, and 1478–79 (Morrison, Kirshner, and Molho 1985). These plagues had an impact on labor supply; those of 1478–79 recorded a mortality of 20–25 percent.

We test whether, at intermediate levels of income, increases in per capita income raise the probability of elites enacting a sumptuary law. We find that cities that were affected by the plague in the prior two decades were more likely to enact a sumptuary law in the next period. This relationship between plagues and sumptuary laws is strongest in states where rent-seeking is likely to be moderate, as our theory predicts.

A concern is that the *initial* Black Death outbreak (1347–1352) had a widespread impact on culture and society. However, the *subsequent* outbreaks of plague had little discernible impact on culture or institutions.

[3] City-level estimates of historical GDP per capita are not available. Nor are there sufficient city-level estimates of real wages for us to conduct empirical analysis. The widely used real wage estimates compiled by Allen (2001) contain estimates for 17 European cities, but only 7 of these have data prior to 1500.

For example, plague outbreaks are uncorrelated with changes in political regimes (a finding confirmed for German cities by Dittmar and Meisenzahl 2020).[4] For robustness, we exclude: (i) the years surrounding the initial outbreak; (ii) the entire period 1347–1400; and (iii) the cities that were most severely affected by the Black Death.

An extensive literature has studied sumptuary laws. This includes older monographs focused on England (Hooper 1915; Baldwin 1926); Venice (Newett 1902); and Nuremberg (Greenfield 2018). Freudenberger (1963) and Miskimin (1964) discussed these laws in the context of wider economic developments. Since the 1980s, as attention focused on issues of consumption, fashion, gender, and the law, new scholarship has come to the fore. Recent studies have documented the extent to which sumptuary laws were updated and enforced (e.g., Kovesi 1993, 2016; Frick 2002; Killerby 2002; Pittman 2021). This literature has also drawn attention to highly gendered aspects of the laws.

Renaissance Italian sumptuary laws have attracted a lot of scholarship (e.g., Hughes 1983; Brundage 1987b; Killerby 2002; Muzzarelli 2002, 2018, 2019, 2022). Scholars of Italian sumptuary laws have paid particular attention to the incentives of policymakers and to issues of enforcement (e.g., Kovesi 1993; Mola and Riello 2019). Sumptuary laws have also been studied in the Ottoman Empire (Quataert 1997; Dunn 2011), Eastern Europe (Kizik 2010), and ancient Rome (Zanda 2011).

In contrast to this voluminous historical literature, less research on sumptuary legislation has been conducted by economic historians. One exception is Ogilvie (2010), who studies the enforcement of sumptuary legislation in early modern Germany. Drawing on archival evidence from Wildberg, she finds that violations were frequently sanctioned and that sumptuary laws had a real bite.[5]

SUMPTUARY LEGISLATION IN HISTORY

First, let us consider the definition of sumptuary laws, the reasons behind them, and their enforcement. Sumptuary laws regulated dress and extravagant expenditure and were common across pre-modern societies,

[4] Specifically, Dittmar and Meisenzahl (2020) establish that *only* Reformation-era plague shocks are correlated with city-level economic and institutional outcomes. Indeed, it is critical for their identification strategy that earlier and later plagues had no such impact. Institutional and cultural impacts of the initial Black Death outbreak are surveyed in detail by Jedwab, Johnson, and Koyama (2022), who also discuss the difference between the unprecedented general shock of the Black Death and later local plagues.

[5] Dari-Mattiacci and Plisecka (2012) develop a signaling model to explain Roman sumptuary legislation.

particularly in societies where dress was an important signifier of status, as in Republican Rome (see Online Appendix C) and in late medieval Europe.

These laws typically forbade members of the lower orders from wearing luxurious, more expensive items of clothing and also specified what rulers and elites could exclusively wear. They proliferated in the Italian city-states of the twelfth century during a period of increased trade and prosperity. Ostracized groups, such as Jews, were typically forced to wear special garb (Roth 1928). They were common in both China and Japan (Shively 1964). Harte (1976) described them as an "identifying characteristic" of the pre-industrial world.

Why Pass Sumptuary Legislation?

Sumptuary laws varied across time and place. But they shared common features. They sought to control consumption; they targeted specific classes of individuals, designating some clothes or expenditures prohibited for one class, but permitted for their social betters.[6] In agrarian societies, this meant the landed nobility. In medieval cities, the elites who benefited from these might be merchants (see Hughes 1983; Brundage 1987a; Killerby 2002). Sumptuary laws were thus distinct from both luxury taxes and the mercantilist encouragement of domestic industry.

There has been widespread disagreement about the motivation for sumptuary legislation. The proclamations that accompanied sumptuary legislation justified these laws in terms of the common good (Howell 2010, pp. 234–36). These justifications could be religious—for example, an ordinance in Palermo in 1420 stated that "All that is immoderate, excessively vain and overly lavish is prohibited and censured by Holy Writ and judged ever to be noxious to the Republic" (quoted in Bridgeman 2000, p. 212). Rulers also defended sumptuary legislation because it would reduce crime; because money spent on luxuries could not be used to pay taxes; to reduce budget deficits; and because luxury was a source of immorality and decadence.[7]

Nonetheless, despite pious or altruistic rhetoric, these laws generated private benefits for elites. Rulers were active in crafting sumptuary

[6] These laws were sometimes a reaction to the specific complaints of elites. Moyer reports complaints such as "I say, opportunely, that every person is now clothed in velvets and silk cloth, which is an extremely damaging thing to the wealth and morals of the kingdom; for there is now not a *ménétrier*, *varlet de chambre*, *barbier*, *gens d'arms* who is not clothed in velvets, who doesn't have a gold necklace or signet-ring on his fingers, like princes . . . " (quoted in Moyer 1996, p. 11).

[7] Medieval French sumptuary laws were intended to encourage martial virtues among the nobility (Moyer 1996, p. 46). The Elizabethan sumptuary legislation of 1563 explicitly argued for a link between luxury and crime (Kirtio 2012). Early seventeenth-century French sumptuary laws were justified in terms of reducing the flow of money to Italy, which was seen to be the leading producer of luxury goods (Freudenberger 1963, p. 41).

legislation, and they were supported by members of the political elite. Alfonso X of Castile, Edward IV, Henry VIII, and Elizabeth I of England were personally involved in designing sumptuary codes.[8] In the late fourteenth century, English MPs lobbied for the reinstatement and vigorous enforcement of sumptuary laws, suggesting "a strong desire on the part of at least one vocal segment of society to see these controls enacted and enforced" (Doda 2014, p. 177).

We build on the work of historians, who have linked sumptuary laws to a desire to maintain status distinctions. Killerby (2002, p. 7) argues that sumptuary laws were imposed because it was felt that "luxury could be used to erode class distinctions." For Freudenberger (1963, p. 37), the "power of money unquestionably posed a threat to the established privilege." Sumptuary laws benefited existing elites; they "worked to bolster or define existing hierarchies so that visual signs matched the rank of the wearer" (Lemire 2018, p. 88). According to one scholar: "One of the most important means through which rising classes displayed their claims to higher status was outward appearance, especially clothing . . . The threat of changes to the prevailing social hierarchy prompted responses from the nobility and the monarchy in the attempt to regulate displays of false status" (Shulman 2007, p. 73).

Sumptuary legislation often contained explicit provisions for enforcement.[9] Fines were the most common, but not the only punishment. Fines could be complemented with confiscation of the goods in question, loss of employment, excommunication, or even corporal punishment and, in rare cases, imprisonment.[10] In Milan, imprisonment was used against tailors who sold forbidden goods (Kovesi 2019, p. 191). In Venice, shoemakers

[8] Describing the sumptuary laws of 1483, Penn (2020, p. 446) writes: "the wearing of cloth-of-gold and purple silk was restricted to the king and queen, the king's mother Cecily duchess of York, his children, and his brothers and sisters. Nobody else, 'of what estate, degree or condition he be', however exalted in rank, could wear these luxurious fabrics. For Edward there was the family, then a vast gulf and then the rest of the nobility." For instance, the sumptuary legislation of 1515 received the attention of both Henry VIII and Thomas Wolsey (Baldwin 1926, p. 151).

[9] Killerby (2002) notes that "All the Italian sumptuary laws of the thirteenth century, no matter how brief, have provisions for enforcement, and the methods specified are almost as various as they are numerous, which suggests that some thought went into their formulation."

[10] See Mola and Riello (2019, p. 220). In sixteenth-century England, the pillory was employed for sartorial offenses (Benhamou 1989, p. 34). We also know of a male servant stripped in public for wearing the wrong colored hose (Pittman 2021, p. 65). In the Ottoman Empire, violations of sumptuary laws could result in capital punishment (Zifli 2019, p. 398). Across Europe, it was common for illicit or inappropriate clothes to be confiscated by the enforcement officers. Vincent (2003, p. 17) reports a case in 1591/92 in which a lawyer who appeared before the privy council wearing great ruffles and other clothes reserved for nobles was dismissed from office. In Italian city-states, men who did not pay fines for sumptuary law violations were often ineligible for public office (Killerby 2002). Fines could be levied on producers as well as consumers (Mola and Riello 2019, p. 220). In England, violators could, on occasion, be pilloried. In Venice, individuals could be imprisoned for sumptuary law violations for up to six months in some instances.

who made shoes with a higher platform than specified in the law were subjected to both a fine and imprisonment. In Italian cities, violations of sumptuary laws were often handled by the podestà. In Florence, the tailors who made the offending garment were also fined, indeed at a higher rate than the owner of the good (Frick 2002, p. 182). Sumptuary laws restrict the size and extravagance of weddings and baptisms, requiring that notification be given days earlier with a list of invited guests. French sumptuary laws encouraged denouncements by members of the public who received part of the fine as a fee for informing (Moyer 1996, p. 252). Male heads of household were often responsible for their wives and daughters. In Florence, the fines could be deducted from dowries. Tudor sumptuary legislation was enforced by the Star Chamber as well as local courts. Early modern French sumptuary laws required notaries to report violations, and police officers or judges who failed to enforce the law could also be punished (Moyer 1996, p. 255).

Enforcement could be costly. Cities "appointed special prosecutors" to investigate sumptuary violations (Hughes 1983, p. 96). Special boards were also established for this purpose, although sometimes, as in Florence in 1427, citizens could not be found who would serve on them, so other government officials had to be reassigned (Frick 2002, p. 186). In Elizabethan London, individuals—who had to be men of substance—were appointed in each ward to police sumptuary offenses, but this number proved insufficient and soon had to be increased (Pittman 2021, pp. 80–81). Enforcement was always patchy, given the limited state capacity of premodern states (see Wilson 2016). The difficulty of enforcement, however, did not mean that sumptuary laws were unimportant; recent research concurs that "to simply dismiss the laws as ineffective would be incorrect" (Mola and Riello 2019, p. 239).

Guilds were involved in the enforcement of sumptuary laws. Legislation in Faenza in 1410 specified that guilds were to "place the sumptuary statute among their own guild statutes and have a member of their guild announce the law in the assembly at least every six months 'in a loud voice so that everyone can understand it well'" (Killerby 2002, p. 206). In Florence, in 1406, to improve the enforcement of sumptuary laws, a committee of four citizens was established to enforce sumptuary laws, and at least one of these had "to be a member of one of the lesser guilds" (Rainey 1985, p. 435). In 1433, these measures were strengthened so that at least five members elected to the committee to enforce sumptuary laws were to be members of the seven major guilds (Killerby 2002, p. 216).

Guilds may have been further motivated to lobby for sumptuary laws that favored their own products at the expense of imported luxuries.

Guilds certainly lobbied for protection from foreign imports (Ogilvie 2019, p. 346). Hunt (1996, p. 212) notes that in England, the Merchant Taylors regulated the dress of their members and "actually committed members to jail for excess apparel."[11]

Detailed evidence for enforcement comes from Ogilvie (2010). For the community of Wildberg, she obtained a unique source, a single surviving booklet of "'Polizei-Tax-Rechnungen,' which lists all the clothing fines levied over a 12-month period between February 1713 and February 1714 . . . Over this 12-month period, 110 individuals in a community of only about 1,300 inhabitants were fined for wearing forbidden garments, most of them small items or calico" (Ogilvie 2010, p. 308).[12]

The Data

We construct two new datasets of sumptuary legislation: a country-level dataset for all of Europe and a city-level dataset for late medieval Italy.

The country-level dataset contains information on 1,181 sumptuary laws across Europe, spanning the medieval and early modern periods. We use this dataset to track the number of sumptuary laws at the country level from 1100 to 1850. We collected information by building on the work of numerous historians who have worked on specific countries or cities. While the resulting listing does not capture the universe of sumptuary laws, we believe it is representative; it is certainly the largest list of sumptuary laws available. Important sources include Hooper (1915) and Baldwin (1926) for England; Moyer (1996) for France; Guarinos (1788) and Wunder (2019) for Spain; as well as numerous local and city-level sources for Germany, the Low Countries, and other parts of Europe. The city-level dataset compiles sumptuary laws in medieval and Renaissance Italy, which were originally collected by Killerby (2002). Details of data construction are provided in Online Appendix 1.

The information we have typically only lists the passing of a sumptuary law and not the content of each law. Nor does it distinguish between laws on new products or laws that update or renew existing legislation. We view it as measuring sumptuary legislation on the extensive rather than the intensive margin.

[11] Elsewhere in northern Europe, sumptuary laws were supported by those who believed that foreign luxuries would destroy the guilds (Sturtewagen and Blonder 2019, p. 92).

[12] Ogilvie notes that similar registers of clothing fines survived for other parts of Europe in the centuries, suggesting that such a system was not unique to Württemberg. Doda (2014) surveys recent work studying wills and inventories in late medieval and Tudor England. This suggests that sumptuary legislation was by and large obeyed: "Among the 160 wills left by late medieval artisans, Burkholder found only one example of a potential violation, in the ownership of a silk girdle" (Doda 2014, p. 182).

Figure 1 depicts the rise and fall of sumptuary legislation in France, England, the Holy Roman Empire, Italy, the Low Countries, and Spain.[13] Across Europe, sumptuary legislation followed similar patterns. They first appeared in the rapidly developing and commercializing Italian city-states. The earliest medieval sumptuary law was passed in Genoa in 1157. The number of laws increased dramatically in the late Middle Ages and continued to be high in the sixteenth and seventeenth centuries before declining.[14] In the seventeenth century, mercantilistic laws proliferated. We discuss their relationship to sumptuary laws in Online Appendix 2.

Next, we propose a model that sheds light on the proliferation and decline of sumptuary legislation and derive testable predictions.

A MODEL OF SUMPTUARY LEGISLATION

In our model, ruling elites E and non-elites B consume ordinary goods, and goods, that is, clothing, that express status. However, the elites can limit the status good consumption of non-elites by enacting sumptuary laws. Elites incur fixed costs of enforcing the law, as well as variable costs that increase with the value of status goods that non-elites consume above the regulated limit. Elites allocate their disposable income between their consumption of status goods and ordinary goods and the enforcement of sumptuary legislation. Meanwhile, if non-elites flout the law, they face a penalty if caught, which increases with their consumption. Non-elites allocate income between their consumption of status and ordinary goods, as well as the costs of evading the law if they disobey it.

We abstract from the process by which total income Y is produced and only assume that Y can be below or above a threshold level $\bar{Y}$. This threshold captures the level of income at which elites and non-elites start valuing a particular good as one that conveys status.

Production is exogenous. Income is above or below a threshold level ($\bar{Y}$). In keeping with our understanding of the institutions of premodern Europe, the elite appropriate a share $\tau = [0, 1]$ of income Y. We refer to this as a rent. Depending on context, this could refer to income from office holding and funded by taxes or to actual land rents (in which case it is effectively paid by wage laborers). It determines the distribution of income between elites and non-elites. The elites' disposable income is thus: $y_E = \tau Y$. While non-elites disposable income is $y_B = (1 - \tau)Y$.

[13] Naturally, historical borders have changed over time. Where we had to make a coding decision, we chose whatever was historically meaningful. Thus, England and Scotland were separate realms until 1603 and not formally unified until 1707. We combine Spain and Portugal for the period 1580–1640, as they were ruled by a single monarch. See Online Appendix 1.

[14] We do not include religious sumptuary laws such as those that apply to Jews (see Roth 1928).

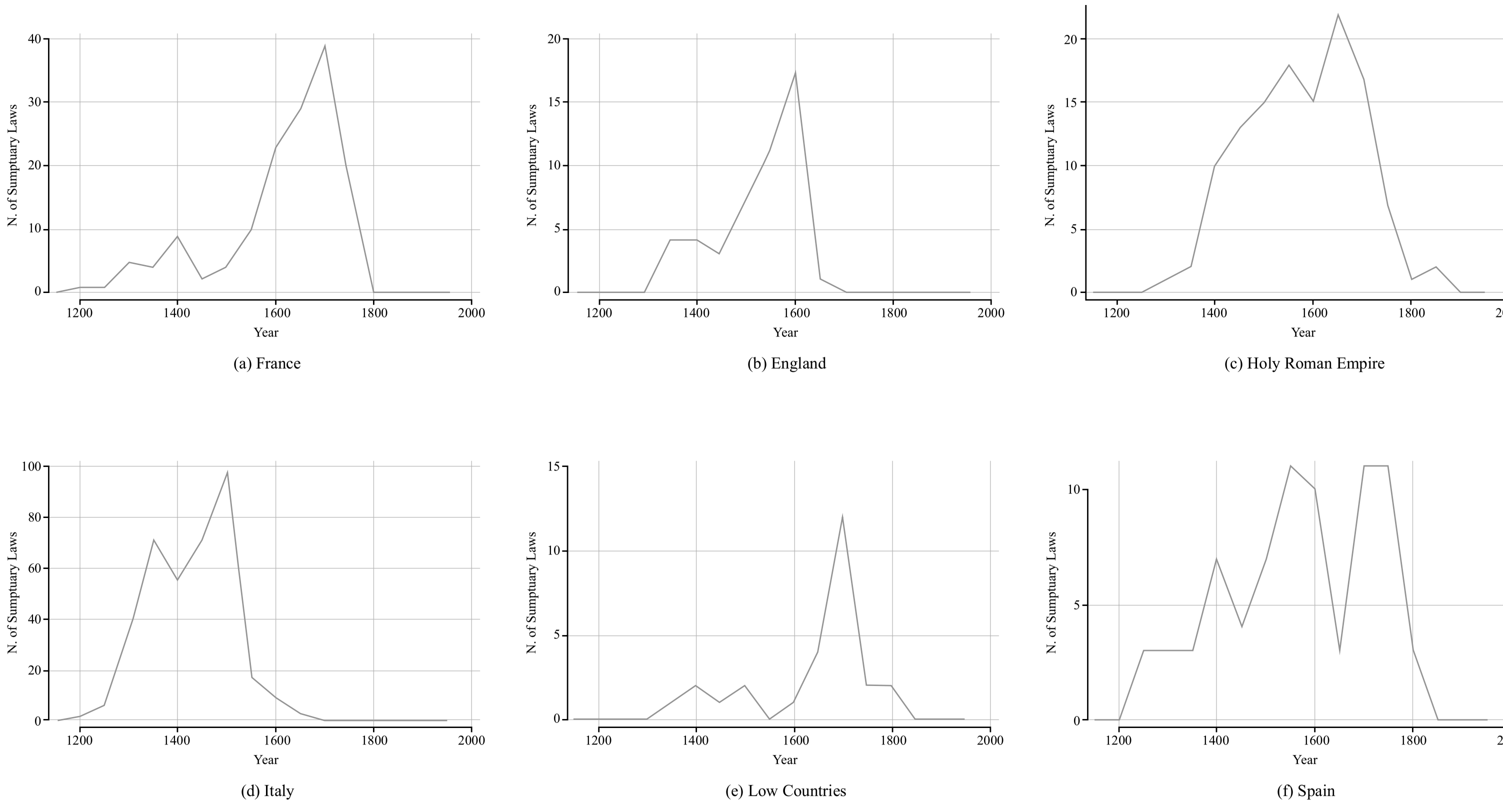

FIGURE 1
SUMPTUARY LEGISLATION OVER TIME

Data Sources: See text and Online Appendix 1.

https://doi.org/10.1017/S0022050724000093 Published online by Cambridge University Press

Both elites and non-elites derive utility from the consumption of ordinary good x and, after some threshold level of income, from the consumption of status good l. Elites, however, are threatened by the status good consumption of non-elites and thus seek to maximize their "status distance' $(l_E - l_B)$ from non-elites. The payoffs for elites and non-elites are:

$$U_E = \begin{cases} u(x_E,(l_E - l_B)) & \text{if } y_E \geq \tau\bar{Y} \\ u(x_E) & \text{if } y_E < \tau\bar{Y} \end{cases} \tag{1}$$

$$U_B = \begin{cases} u(x_B,l_B) & \text{if } y_B \geq (1-\tau)\bar{Y} \\ u(x_B) & \text{if } y_B < (1-\tau)\bar{Y} \end{cases}. \tag{2}$$

These utility functions are very general and depict simply the notion of status distance à la Akerlof (1997).[15] The only restriction is that preferences are non-homothetic above the threshold.[16]

We analyze the following game S.[17]

1. Nature decides whether income $Y \in \mathbb{R}_{\geq 0}$ reaches a threshold $\bar{Y}$. With probability p, $Y \geq \bar{Y}$. In turn, Y determines the disposable income y_i of player $i \in \{E, B\}$, where E denotes the elite and B the non-elites (the number of each is normalized to 1).
2. Elites E choose to enact a sumptuary law ($\eta = 1$) or not ($\eta = 0$).
3. If $\eta = 0$, then, simultaneously, each player i allocates their disposable income y_i over bundle (x_i, l_i), where $x_i \in \mathbb{R}_{\geq 0}$ denotes ordinary goods and $l_i \in \mathbb{R}_{\geq 0}$ status goods. Let l_i be priced at ρ, while x_i is the numeraire.

[15] Notice then that status distance $(l_E - l_B)$ only appears in the elites' utility function. All the results hold even if the non-elites utility is also defined over their status good consumption relative to elites', that is, when $U_B = u(x_B, (l_B - l_E))$ if $y_B \geq (1 - \tau)\bar{Y}$.

[16] Specifically, at $y_E \geq \tau\bar{Y}$, $u(ax_E, a(l_E - l_B)) \neq au(x_E, (l_E - l_B))$, and at $y_B \geq (1 - \tau)\bar{Y}$, $u(ax_B, al_B) \neq au(x_B, l_B)$ for every $a > 0$. This assumption is necessary (though insufficient) to match the empirical pattern of an inverted-U relationship between income and sumptuary legislation, as homotheticity would otherwise generate linear income expansion paths. Non-homothetic preferences have been found to be necessary to match theory to data in both the growth and trade literatures (Hunter 1991; Matsuyama 2000; Foellmi and Zweimüller 2006; Fieler 2011). Fieler (2011, p. 1070) observes that "there is exhaustive evidence that the income elasticity of demand varies across goods and that this variation is economically significant." In the historical growth literature, Galor and Moav (2004) employ non-homothetic preferences over consumption and bequests to generate a shift from physical to human capital accumulation. Voigtländer and Voth (2013) employ non-homothetic preferences to show how the Black Death and warfare could have increased per capita income in a Malthusian world.

[17] For a more formal rendition, see Online Appendix 3.

https://doi.org/10.1017/S0022050724000093 Published online by Cambridge University Press

4. If $\eta = 1$, B chooses whether to obey the law ($\omega = 1$) or not ($\omega = 0$). If $\omega = 0$, E incurs fixed cost C_F and variable cost C for enforcing the law. If $\omega = 1$, E incurs only fixed cost C_F. Let $\overline{l}_B \in [0, L]$, $L \in \mathbb{R}_{\geq 0}$, denote the maximum amount of status goods that E permits B to consume. Then C_F and C are decreasing in $\overline{l}_B$—the more lenient the sumptuary law, the lower the costs of enforcement. Variable cost C is also increasing in B's status good consumption l_B, as the more status goods non-elites consume, the more goods have to be inspected for infractions of the law.

   If $\omega = 0$, B is caught violating the law with probability χ, and incurs fine F if caught. Denoting the odds-ratio of being caught as $\theta = \frac{\chi}{1-\chi}$, B thus incurs expected cost of evasion θF, which decreases with the leniency $\overline{l}_B$ of the sumptuary law, and increases with B's status good consumption l_B.
5. Simultaneously, B chooses bundle (x_B, l_B), while E chooses $(x_E, l_E, \overline{l}_B)$.

Whether a sumptuary law is enacted (η) depends on income (Y), and whether non-elites evade the law (ω) depends on Y and on η. The consumption choices of both elites and non-elites ((x_i, l_i)), in turn, depend on Y, η, ω, on the choices of the other group (x_{-i}, l_{-i}) and, if $\eta = 1$, on the level of status goods proscribed for non-elites ($\overline{l}_B$) which, in turn, depends on Y, ω, and (x_i, l_i).

Thus, a strategy profile for the ruling elites E is $\sigma^E = \{\eta, (x_E, l_E, \overline{l}_B)\}$, while a strategy profile for non-elites B is $\sigma^B = \{\omega, (x_B, l_B)\}$. Let Σ^i be the set of all such strategy profiles for player $i \in \{E, B\}$, $\Sigma = \Sigma^E \times \Sigma^B$, and $U_i : \Sigma \rightarrow \mathbb{R}_{\geq 0}$ the payoff to player i. Game S is thus defined as $S = \langle \{E, B\}, (\Sigma^i, U_i)_{i \in \{E,B\}} \rangle$.

The game is solved by backward induction. In Steps 3 and 5, player i maximizes her utility subject to her budget constraint; i spends their disposable income on ordinary goods, priced at 1, and status goods, priced at ρ; E spends some of their income on enforcement if a sumptuary law is enacted; while B spends on evasion if they disobey the law.

Denote $x_{i,case}$, $l_{i,case}$ as the optimal values of (x_i, l_i) chosen by player i, $\overline{l}_{B,case}$ the optimal value of $\overline{l}_B$ chosen by E, and $U_{i,case}$ the indirect utility function obtained by i under $case = \{a, b, c, d, e, f\}$, where:

a:	income below threshold, no sumptuary law enacted:	$Y < \overline{Y}, \eta = 0$
b:	income at/above threshold, no sumptuary law enacted:	$Y \geq \overline{Y}, \eta = 0$

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c:	income below threshold, sumptuary law enacted and obeyed:	$Y < \overline{Y}, \eta = 1, \omega = 1$
d:	income at/above threshold, sumptuary law enacted and obeyed:	$Y \geq \overline{Y}, \eta = 1, \omega = 1$
e:	income below threshold, sumptuary law enacted and disobeyed:	$Y < \overline{Y}, \eta = 1, \omega = 0$
f:	income at/above threshold, sumptuary law enacted and disobeyed:	$Y \geq \overline{Y}, \eta = 1, \omega = 0$

We thus have the following result.

Proposition 1 *Game S has a unique equilibrium in which elites enact a sumptuary law ($\eta = 1$) if $U_{E,f} \geq U_{E,b}$, or if $U_{E,f} < U_{E,b}$ and $U_{B,d} \geq U_{B,f}$; otherwise, if $U_{E,f} < U_{E,b}$ and $U_{B,d} < U_{B,f}$, they do not enact it ($\eta = 0$).*

Proof See Online Appendix 3.

We now use our model to inform our empirical analysis. We are interested in the effect of income Y and the extent τ of elite rent-seeking on the probability that elites enact a sumptuary law.

Proposition 1 states that the decision η of elites to enact a sumptuary law depends on the relative values of $U_{E,f}$, $U_{E,b}$, $U_{B,d}$, $U_{B,f}$. These, in turn, depend on the exogenous variables in the model, notably income Y and the extent τ of rent-seeking. For a given population of units, where each unit has particular values of Y, τ, and, therefore, $U_{E,f}$, $U_{E,b}$, $U_{B,d}$, $U_{B,f}$, the probability that a unit in the population passes a sumptuary law is:

$$Pr(\eta = 1) = v + (1 - v)w, \tag{3}$$

where G is a cumulative distribution function, $v \equiv G[(U_{E,f} - U_{E,b})]$ denotes the probability that $(U_{E,f} - U_{E,b}) \geq 0$, and $w \equiv G[(U_{B,d} - U_{B,f})]$ the probability that $(U_{B,d} - U_{B,f}) \geq 0$.

The effect of income on this probability is obtained by taking the derivative of Equation (3) with respect to Y. Online Appendix 3 shows that there exists a threshold level of income at and below which $Pr(\eta = 1)$ is increasing with income and above which it is decreasing with income; that is, a non-monotonic inverted-U relationship between $Pr(\eta = 1)$ and Y:

Hypothesis 1: Inverted-U-Shape Relationship The probability that a sumptuary law is enacted rises with income at lower levels of income, but eventually falls at higher levels of income.

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What drives this non-monotonic, inverted-U, relationship? As Equation (3) implies, the hypothesized relationship between $Pr(\eta = 1)$ and Y is a result of the change in v and in w with respect to income Y.

Consider the following illustration of how the comparative statics of v and w can generate non-monotonicity.[18] Initially, an increase in Y generates effective enforcement of sumptuary laws—non-elites can consume more status good consumption but cannot afford to consume more than what would be prescribed by elites, which induces elites to enact such laws. As income further increases, however, non-elites are able to afford much higher levels of status good consumption. On one hand, if elites did not enact a law and non-elites had free rein, their status distance from non-elites could decrease. On the other hand, if they enacted a law, non-elites could now afford to disobey it. This, then, would make enforcement ineffective—to enact the law would be to incur enforcement costs without preventing the erosion of status distance. Thus, as income continues to increase, there comes a point at which elites cease sumptuary legislation.

> **Hypothesis 2: Rent-Seeking** The non-monotonic, inverted-U relationship between income and the probability that elites enact a sumptuary law is more likely to hold when the ability of elites to extract rents is lower.

Online Appendix 3 provides a formal discussion, but the result is intuitive. When elites appropriate less from total income, there is less income inequality between elites and non-elites. This intensifies status competition. As incomes rise, non-elites are better able to close their status distance from elites by consuming more status goods, which then prompts the latter to limit such consumption through sumptuary laws. This means, though, that elites incur enforcement costs, which leaves less income for their own status good consumption. As incomes continue to rise, non-elites buy even more status goods, even to the point of defying sumptuary laws. This further increases enforcement costs and leaves much less income for elites' status good consumption. At some point, enforcement becomes so ineffective and costly that elites cease enacting sumptuary laws.

We also consider an extension in which the fines collected from violators of sumptuary laws are a source of revenues for the elites that can offset the costs of enforcing the laws (see Online Appendix F.1 for the formal analysis). This changes the budget constraint of the elites, increasing their disposable income by the amount of fines $F(\cdot)$ whenever non-elites violate sumptuary laws, and generates the following result.

[18] See Online Appendix 3 for the full set of results.

FINES DEFRAY ENFORCEMENT COSTS

When sumptuary laws are enforced through fines that offset the costs of enforcement, this moderates the inverted u-shape relationship between income per capita and sumptuary legislation.

Muzzarelli (2019) provides several examples of how sumptuary laws could be used as fiscal devices.[19] Bridgeman (2000) also provides examples where sumptuary law fines had similar properties to luxury taxes.

We find that if the fines imposed on violators of sumptuary laws were significant and offset, to a degree, the costs of enforcement, this weakens the relationship between income and sumptuary legislation but does not, however, overturn our main results.

COMMERCIAL ELITES

Finally, our benchmark model captures status competition between an elite class who derive incomes from either landownership or from their control of the state and the middle class. However, in some Renaissance city-states, notably Florence, power was eventually captured by individuals whose wealth came from trade and banking. To explore how the rise of such a new type of elite might affect status competition, we consider an extension of the model where we allow the elite to "produce" their own income (see Online Appendix F.2). We show that if the new set of elites have a much larger share of income, then status competition is less intense, as elites can easily outspend non-elites. Sumptuary legislation is then less responsive to changes in income.

EMPIRICAL ANALYSIS

Our country-level panel data provides suggestive evidence that there is an inverted-U relationship between the probability that a sumptuary law is enacted and income. Next, we investigate whether a similar relationship holds in a panel of Italian city-states. This dataset includes more than 300 sumptuary laws collected by Killerby (2002), spans the period between 1100 and 1500, and covers more than 40 cities. The drawback, however, is that Killerby collected sumptuary laws only until 1500, preventing us from analyzing the subsequent decline of sumptuary legislation in these city-states. Thus, when using this data, we are only able to

[19] For example, she notes that "The authorities in Venice appear to have been quite strict in imposing heavy fines of 25 ducats, equivalent to eight times the monthly fee paid to the notary charged with the handling of procedures pertaining to sumptuary law enforcement. It may therefore be inferred that substantial income was derived from such fines as well as from seizures" (Muzzarelli 2019, p. 176).

test the relationship between the probability of enacting a sumptuary law and income at lower levels of income, which, according to Hypothesis 1, should be positive. We also test whether this positive relationship at lower levels of income is more likely to hold when elites are less rent-seeking[20] (Hypothesis 2).

Inverted-U Relationship Between Sumptuary Laws and Income: Country-Level Analysis

Our country-level data provide rich information on the timing of sumptuary legislation at the country-level. We match this information to estimates of historical income per capita from Bolt and Zanden (2020).[21]

Historical estimates of GDP are noisy and subject to revision. The underlying data quality varies by country. A particular challenge is that GDP estimates are systematically missing for earlier historical periods. For example, there are no GDP estimates for pre-1500 Germany. The absence of medieval GDP in many countries reduces our sample significantly. Due to these limitations, we first provide a qualitative exploration of the relationship between income and sumptuary legislation.

We code each datapoint (country/century) as corresponding to a high- or low-tension sumptuary regime, where, according to our preferred definition, high-tension regimes have > 5 sumptuary laws per century. We then assign data points based on whether their estimated income levels were low, medium, or high.[22] The resulting categorization in Figure 2 is highly suggestive and motivates a more formal analysis.

Figures 3a and 3b report the bivariate relationship between income and sumptuary legislation. Both figures suggest the existence of an inverted u-shaped relationship between per capita income and the number of sumptuary laws passed.

In our regression analysis, we use data at the country-century level and the country-50-year level. Specifically, we estimate:

$$\text{Sumptuary Law}_{i,t} = \alpha + \beta_1 \text{GDP pc}_{i,t} + \beta_2 \text{GDP pc}^2_{i,t} + \gamma_t + \lambda_i + \varepsilon_{i,t}, \quad (4)$$

where γ_t are century or 50-year fixed effects and λ_i are country fixed effects. Our main results are presented in Table 1. The coefficients on

[20] Data and replication files can be found in Desierto and Koyama (2023).

[21] The individual datasets that comprise Bolt and Zanden (2020) are: Pfister (2011), Álvarez-Nogal and de la Escosura (2013), Ridolfi (2016, 2019), Broadberry (2021), Broadberry, Guan, and Li (2018), Malanima (2010), Zanden and Leeuwen (2012), Palma and Reis (2019), Schön and Krantz (2015), and Krantz (2017).

[22] Thus, while the Maddison dataset does not have estimates for Germany in 1100, we are confident in assigning them to the low-income category based on our reading of the qualitative literature.

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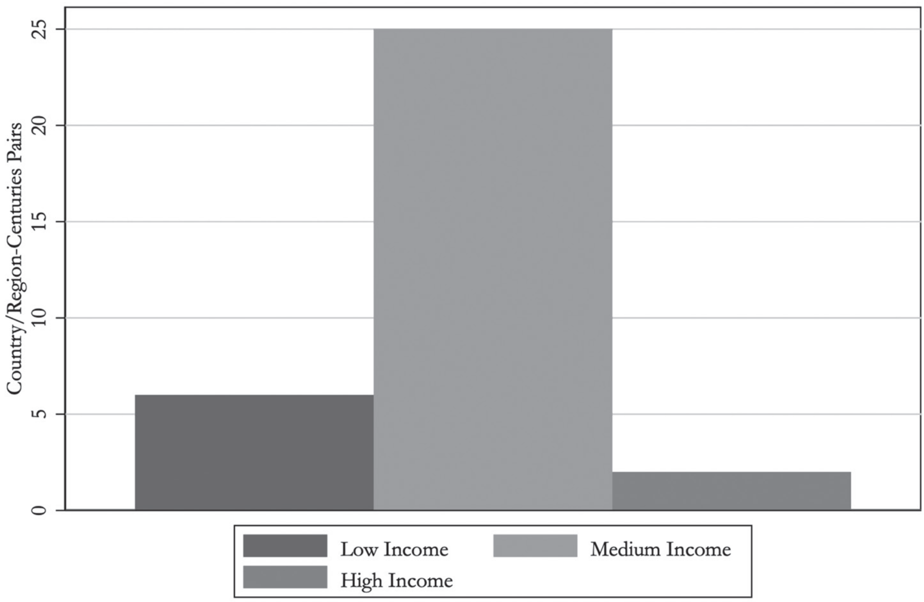


FIGURE 2
HIGH INTENSITY SUMPTUARY LAW REGIMES BY COUNTRY-CENTURY PAIRS

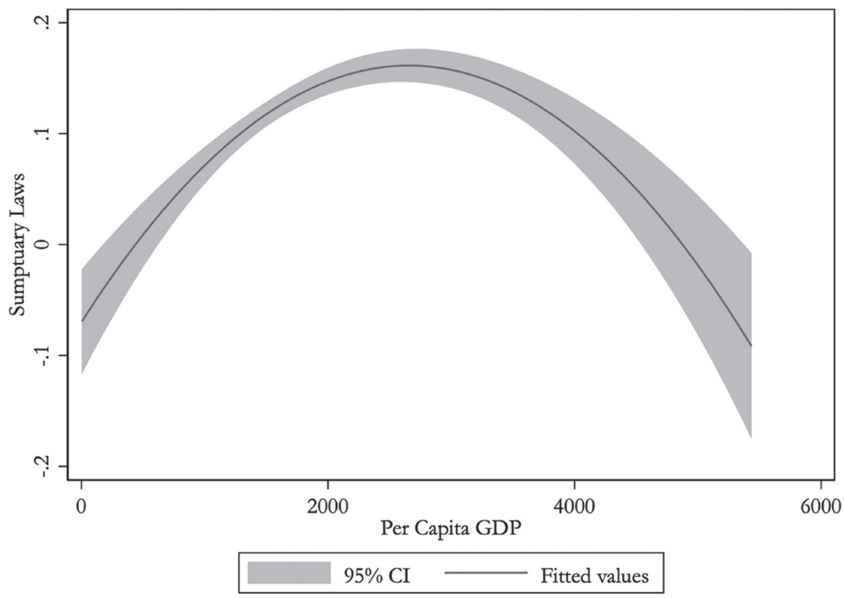
Sources: See text and Online Appendix 1.

both GDP per capita and GDP per capita squared suggest a non-monotonic relationship between income and sumptuary legislation consistent with our theory. The magnitude of the coefficients suggests that an increase in per capita GDP of $100 (1990) is associated with 2–2.5 more sumptuary laws being passed per century. Naturally, these regressions should be interpreted with caution, as we do not have a causal research design. The coefficients shrink somewhat and lose precision when we employ country fixed effects, reflecting a lack of statistical power. The sign and magnitude of the coefficient estimates remain consistent with the hypothesized non-monotonic effect of income.[23]

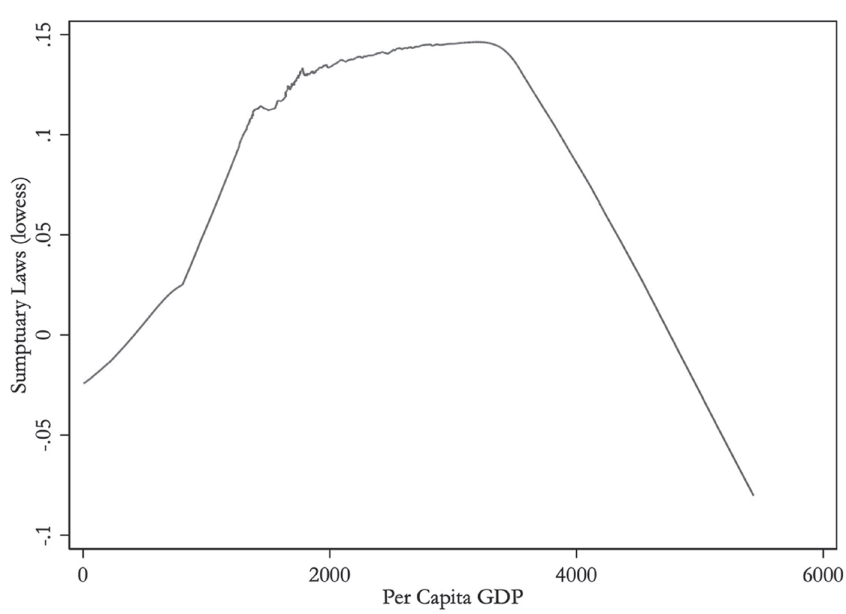
The Rise of Sumptuary Laws at Lower Levels of Income: City-Level Analysis

Real wages rose after the Black Death. For the following 150 years, recurrences of the plague repeatedly reduced populations and put upward pressure on real wages. We exploit plague outbreaks as a source of

[23] In Online Appendix 4, we use these data to explore alternative hypotheses. We find that the relationship between sumptuary legislation and income per capita is unaffected when we control for measures of historical state centralization and the impact of the Reformation.



(a) Quadratic fit of sumptuary laws and GDP per capita.



(b) Lowess of sumptuary laws and GDP per capita

FIGURE 3
POOLED COUNTRY-LEVEL ANALYSIS: SUMPTUARY LAWS AND PER CAPITA GDP

Sources: See text and Online Appendix 1.

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TABLE 1
SUMPTUARY LAWS AND GDP

	Sumptuary Laws					
	(1)	(2)	(3)	(4)	(5)	(6)
GDP pc	24.304**	21.286**	18.374	24.733**	22.389***	20.499
	(8.707)	(6.567)	(18.929)	(8.675)	(6.453)	(20.814)
GDP pc Sq	–0.003**	–0.002**	–0.002	–0.003**	–0.002**	–0.002
	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.002)
Interpolated				✓	✓	✓
Century FE	✓	✓	✓	✓	✓	✓
Region FE		✓			✓	
County FE			✓			✓
Observations	50	50	50	50	50	50

Notes: This table reports the relationship between estimates of per capita GDP and the number of sumptuary laws per century. All coefficients are multiplied by 1000 for readability. Standard errors clustered at the modern country level are reported in parentheses.
* $p < 0.10$, * $p < 0.05$, *** $p < 0.01$
Source: Authors' calculations, see text.

exogenous variation in income to study the effect of income on sumptuary legislation in Renaissance Italy.

The relationship between plague outbreaks and income is well-established for the period between 1300–1600.[24] Urban artisans and craftsmen, in particular, saw their incomes grow as demand for their services increased (Dyer 2005). In England, as the total population halved, "each household could afford to buy more goods, global consumption fell by much less than a half, and in cases such as meat or cloth the total may well have increased . . . A reduced number of traders and artisans were kept busy supplying the demand, and their increased workload brought them higher incomes" (Dyer 2005, p. 132).[25]

The quality of the dress of ordinary people improved after the Black Death. Before, peasants wore simple tunics and "economized on the dyeing of their clothes" by "wearing 'white,' the natural color of the fleece, or russet, a shade of grey" (Dyer 1989, p. 176). Afterward, this changed as ordinary people had the income to purchase showy clothing.

[24] As discussed in Jedwab, Johnson, and Koyama (2022), plague outbreaks do not always result in higher per capita income. This finding rests on a Malthusian framework. In other settings, the negative impact of an epidemic disease shock can outweigh these Malthusian effects. For example, in Southern Europe after 1600, there does not appear to be a positive relationship between plague and income per capita (see Alfani and Percoco 2019; Rota and Weisdorf 2020).

[25] Reoccurrences of the plague helped to ensure that wages remained high for more than a century following the Black Death. Real wages series for medieval Europe are rare, but the majority of available series demonstrate major increases in real wages after 1350. Online Figure A.6 depicts the relationship between real wages and population in Florence following the Black Death for illustrative purposes.

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Peasants "could indulge in the greater comfort of the linings, and dress more colourfully, with blues and greens to some extent replacing the old whites and russets." The number of clothes owned by ordinary people also increased. Similar developments are attested to across Europe (see Online Appendix 2).[26]

Across Europe, migration increased following the Black Death (see Gottfried 1983, p. 135). Higher wages attracted workers to cities from the countryside. But any downward pressure from inward migration did not offset the overall effect of the plague, which was to raise real wages. We confirm this empirically for Florence. Online Appendix A.4 uses data from Fochesato (2018) to show that plague outbreaks in Florence were strongly positively associated with population falls and real wage growth.

Historians have speculated about why sumptuary laws increased following the Black Death (see Scheidel 2017). Rublack (2019) writes that "sumptuary legislation reflected a growing concern for social regulation from the fourteenth century in response to plague, famine, extended warfare and greater mobility." For Muzzarelli (2009, p 608):

> On the one hand, the tendency toward unnecessary spending could be understood as an expression of vitality unrestrained by the fear of death that the plague perpetuated everywhere. On the other, the high percentage of deaths . . . would have increased, for some people, the possibility of spending lavishly on clothing and jewelry.

In contrast, our model provides an *economic* explanation for the increase in sumptuary laws. Increased incomes for peasants, craftsmen, and merchants *intensified* status competition. One response was the attempt by elites to crack down on status competition through sumptuary legislation.

While the intensity of the initial outbreak of the Black Death was largely exogenous to city characteristics (Jedwab, Johnson, and Koyama 2024), one may wonder whether subsequent outbreaks of the plague were correlated with city-level characteristics such as size, trade links, and transport infrastructure. The consensus among both historians and social scientists, however, is that the timing of these subsequent outbreaks was

[26] Rainey (1985, p. 82) notes that due to the "suddenly increased per capita wealth of the survivors of the plague, Florentines indulged in a variety of new fashion trends during the 1340s." Note that even following the rise in incomes after the Black Death, luxury goods remained expensive relative to the budgets of the majority of the population. Munro (2006) finds that a master mason in sixteenth-century Antwerp might have to work for up to a year to afford a piece of luxury stripe cloth with multiple colors (*strijpte laken*). Similarly, in Renaissance Italy, the cost of a pair of medium-quality leather shoes might be 30 percent of the monthly income of an artisan (O'Malley 2010, pp. 59–60).

largely idiosyncratic (Siuda and Sunde 2021). Dittmar and Meisenzahl (2020, p. 984), for instance, note that "the short-run distribution of plague outbreaks was random, conditional on observables, and was geographically localized."

We use data on plague outbreaks from Biraben (1975) and data on city-level sumptuary laws from Killerby (2002).[27] We exploit variation in the timing of a plague reoccurrence and conduct a panel-data analysis to take into account city-specific unobservables and common time trends. Specifically, we estimate the following difference-in-differences equation:

$$\text{N. Sumptuary Laws}_{i,d} = \beta \sum_{j=1}^{2} \text{N. Plagues}_{i,d-j} + \mathbf{X}'_{id}\lambda + \Gamma_i + \Lambda_d + \varepsilon_{i,d}, \quad (5)$$

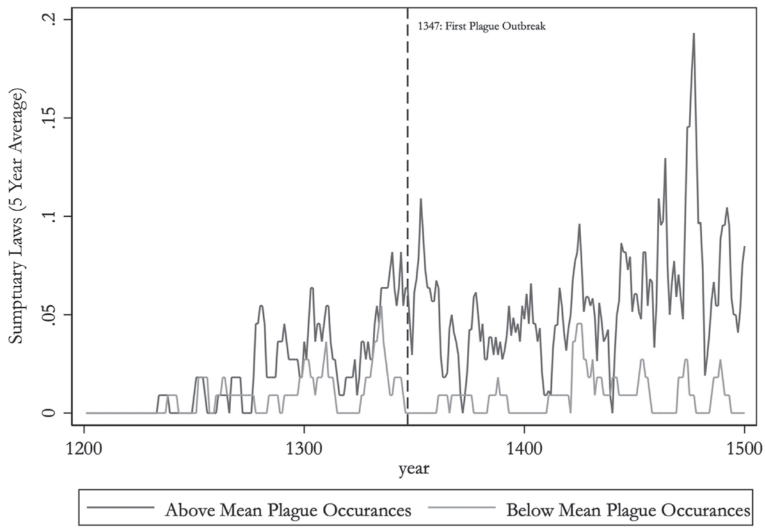
where N. Sumptuary Laws is the number of sumptuary laws in city i and decade d. Our explanatory variable, $\Sigma_{j=1}^{2}$ N. Plagues$_{i,d-j}$ is the sum of the number of plague outbreaks in the prior two decades.[28] Γ_i are city fixed effects, Λ_d are decade fixed effects, and $\mathbf{X}$ is vector of city-level controls. Specifically, we include controls for geographic characteristics that might make a city more suitable for commerce and trade, such as latitude, longitude, Roman roads, whether a city has access to the sea or is on a river, its elevation, ruggedness, and soil quality. We also control for its population size in 1300 and institutional characteristics that might influence the decision to introduce sumptuary legislation, such as the presence of an archbishopric, bishopric, university, or commune.[29]

Equation (5) identifies the effects of the plague on the number of sumptuary laws under the assumption that in the absence of the plague, the unobserved differences between cities affected and unaffected by the plague would be the same over time. To explore whether the parallel trends assumption holds, we exploit the fact that there were no plagues prior to the outbreak of bubonic plague in 1348. Figures 4a and 4b report the number of sumptuary laws in cities that had above the mean or median number of plague outbreaks after 1348 against those cities that had below the mean or median number of plague outbreaks. There are no discernible differences prior to 1348: cities above and below the mean or

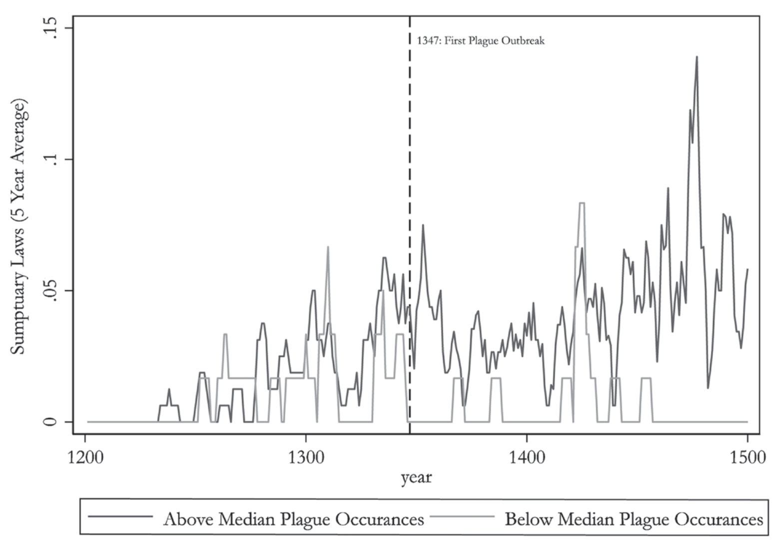
[27] Biraben (1975) has been criticized (Roosen and Curtis 2018). It has better coverage for France than for other parts of Europe, and it is likely missing plague outbreaks (Alfani and Murphy 2017). However, this is not a major concern here, as we are exploiting within-Italy variation.

[28] This reflects the time it took for demographic shocks to affect labor market conditions. We obtain very similar results if we use the number of plague outbreaks in the prior decade; see Online Appendix Table A.7.

[29] Note that these are time invariant so we interact them with year fixed effects. There are time-varying measures of institutional development, such as parliamentary activity, but these are reported at the country/region level.



(a) The number of sumptuary law passed in cities above the mean number plague (post-1347) and below the mean.



(b) The number of sumptuary law passed in cities above the median number plagues (post-1347) and below the median.

FIGURE 4
PARALLEL TRENDS: SUMPTUARY LAWS IN CITIES MORE OR LESS AFFECTED BY POST-1348 PLAGUE.

Sources: See text and Online Appendix 1.

median number of plague occurrences exhibit the same trend. This lends credence to our difference-in-differences research design.

Table 2 reports the estimated impact of the plague on the number of sumptuary laws. The sample includes all cities in Italy for which there is information on plague occurrences in Biraben (1975). Our preferred specification includes the interactions of geographic and institutional controls with decade fixed effects. Due to concern that the data might be over-dispersed, we report results using both OLS and negative binomial specifications. The corresponding incidence ratio (in square brackets) implies that one occurrence of the plague in city *i* in the previous two decades increased the number of sumptuary laws by 1.2.

One concern is that plagues could have affected city-level institutions through mechanisms other than their effect on income. While we cannot rule this out entirely, we do not believe that it is driving our results. Indeed, we find no relationship between plagues and city-level institutions in Italy between 1300–1500 (Online Appendix Table A.16).[30] Overall, the historical literature suggests that post-Black Death outbreaks of bubonic plague affected per capita income and real wages, but did not have a decisive impact on political institutions (see Cohn (2004, 2010) for an analysis of popular rebellions following the Black Death).

Another concern is that the Black Death affected consumption patterns through another channel, such as discount rates. Richardson and McBride (2009) suggest that the Black Death reduced incentives to cooperate in the future. They suggest that this was why late medieval craft guilds acquired religious functions. Indeed, the Black Death was such a dramatic shock that it could have affected sumptuary legislation through various channels.

To address this, we show that our results are not driven by the period of the Black Death (1347–1352) itself. In Tables A.11 and A.12, we systematically exclude first the immediate years following the plague (Columns 1–2); second the half century after the plague (Columns 3–4); and finally, all cities that experienced more than 50 percent population loss during the Black Death according to Christakos et al. (2005) (Columns 5–6). The coefficient on plagues remains strong and precisely estimated.

[30] Dittmar and Meisenzahl (2020) establish that *only* plagues in the crucial two decades prior to the Reformation predict institutional change—specifically, the adoption of city-ordinances—plagues prior to 1500 have *no impact* on institutions or long-run growth. Specifically, Dittmar and Meisenzahl (2020, p. 988) find that plague shocks before 1500 have *no* impact on long-run outcomes. Plague shocks between 1500–1524 do impact long-run outcomes, such as city population in 1800, and the channel that they hypothesis is responsible for this effect is the adoption of city-ordinances. They note that "[p]lagues in the early 1500s did not shift other institutions" (Dittmar and Meisenzahl 2020, p. 989). They did not affect the adoption of participatory elections, public representation, or guild constitutions.

TABLE 2
THE EFFECT OF PLAGUE SHOCKS ON THE NUMBER OF SUMPTUARY LAWS: CITY-LEVEL PANEL ANALYSIS, DECADE LEVEL

	Number of Laws					
	OLS			Negative Binomial		
	(1)	(2)	(3)	(4)	(5)	(6)
Plague	0.138***	0.134***	0.128***	0.196***	0.167***	0.163***
	(3.55)	(3.77)	(3.88)	(5.77)	(5.07)	(5.08)
				[1.22]	[1.18]	[1.18]
	(0.0399)	(0.0365)	(0.0344)	(0.0339)	(0.0394)	(0.0399)
City FE	✓	✓	✓	✓	✓	✓
Decade FE	✓	✓	✓	✓	✓	✓
Geographic Controls*Decade FE		✓	✓		✓	✓
Institutional Controls*Decade FE			✓			✓
Observations	2,719	1,761	1,761	2,719	1,761	1,761
Adjusted/Pseudo R^2	0.455	0.383	0.384	0.347	0.316	0.317

Notes: This table reports difference-in-differences estimates of the impact of the plague. Columns (1)–(3) report OLS results. Columns (4)–(6) report results obtained from a negative binomial specification. The unit of observation is a city-decade. All specifications include city and decade fixed effects. Geographical controls include longitude, latitude, elevation, whether a city is on a river or the sea, and soil quality. Institutional controls include the presence of universities, bishoprics, and communes. The number of observations drops as we lack control variables for some smaller cities. We report incidence ratios in square brackets. Robust standard errors clustered at the city level are reported in brackets.
Source: Authors' calculations, see text.

Plague outbreaks following the Black Death were not spatially correlated. There was little direct city-to-city transmission. Nonetheless, as a further check, in Online Appendix 4, we consider spatial autocorrelation using Conley standard errors of varying radiuses (Tables A.9 and A.10). None of these exercises significantly modify our baseline results. Table 3 demonstrates that our results are highly robust when we exclude cities in the north or south of Italy, cities in Sicily, and coastal or riverine cities. Our results similarly hold for both large and small cities.
Next, we consider how this relationship between sumptuary legislation and income would have been influenced by political and economic institutions, specifically the degree of rent-seeking in a society.

Institutions and the Extent of Rent-Seeking

As North, Wallis, and Weingast (2009) argue, the degree and character of rent-seeking within natural states vary considerably. The most advanced late medieval Italian city-states were on the "doorstep of the transition" from natural states to what North, Wallis, and Weingast (2009) call open access orders. Belloc, Drago, and Galbiati (2016, p.

TABLE 3
THE EFFECT OF PLAGUE SHOCKS ON THE NUMBER OF SUMPTUARY LAWS: CITY-LEVEL PANEL ROBUSTNESS, DECADE-LEVEL

	Number of Laws					
Excluding		L. Cities	Sicily	N. Cities	S. Cities	Coastal Cities
	(1)	(2)	(3)	(4)	(5)	(6)
Plague	0.128***	0.128***	0.132***	0.0868**	0.142***	0.0923***
	(0.0331)	(0.0331)	(0.0342)	(0.0311)	(0.0339)	(0.0254)
City FE	✓	✓	✓	✓	✓	✓
Decade FE	✓	✓	✓	✓	✓	✓
Geographic Controls*Decade FE	✓	✓	✓	✓	✓	✓
Institutional Controls*Decade FE	✓	✓	✓	✓	✓	✓
Observations	1,723	1,723	1,543	424	1,299	1,239
Adjusted R^2	0.345	0.345	0.421	0.517	0.380	0.405
Excluding	Riverine Cities	Elevation > mean	Roman Road Hubs	University Cities	Pop 1300 > 50k	Pop 1300 < 50k
	(7)	(8)	(9)	(10)	(11)	(12)
Plague	0.139***	0.143***	0.138***	0.146***	0.119**	0.106***
	(0.0426)	(0.0366)	(0.0325)	(0.0372)	(0.0563)	(0.0361)
City FE	✓	✓	✓	✓	✓	✓
Decade FE	✓	✓	✓	✓	✓	✓
Geographic Controls*Decade FE	✓	✓	✓	✓	✓	✓
Institutional Controls*Decade FE	✓	✓	✓	✓	✓	✓
Observations	933	1,270	1,185	1,417	454	1,286
Adjusted R^2	0.331	0.348	0.342	0.324	0.294	0.365

Notes: This table reports our main robustness checks for our city-level analysis. The unit of observation is a city-decade. All specifications include city and decade fixed effects. Geographical controls include longitude, latitude, elevation, whether a city is on a river or the sea, and soil quality. Institutional controls include the presence of universities, bishoprics, and communes. Column (1) reports our baseline estimates. The largest cities excluded in Column (2) are Venice, Florence, and Milan. Column (3) drops cities in Sicily. In Column (4), we focus on northern Italian cities (defined as those above 41.9028, the latitude of Rome). Column (5) focuses on cities below this latitude. Column (6) excludes coastal cities. Column (7) drops cities on rivers. In Column (8) we exclude cities with elevation greater than 122 meters. Column (9) drops cities were on the interaction of a Roman road. Column (1) drops cities with medieval universities. Columns (10)–(11) exclude larger and smaller cities. Robust standard errors clustered at the city level are reported in brackets.
Source: Authors' calculations, see text.

1877) study the formation of the commune movement in Italy as "a radical change toward broader-based political institutions." Acemoglu and Robinson (2019) consider them key case studies in the "shackling of Leviathan." We expect that in cities with communes or in cities with republican institutions, the degree of rent-seeking by elites (as captured by τ) was lower.[31] In contrast, in despotic regimes—cities dominated by a

[31] Specifically, in communes, office-holding was more widely distributed. Equal access to public offices for ordinary citizens (*popolo*) was a key demand of the commune movement (Dean 2000, pp. 143–44).

https://doi.org/10.1017/S0022050724000093 Published online by Cambridge University Press

single ruler, a despot, or signorie in the terminology of contemporaries—the was a narrower group of elites.[32]

We find evidence that the relationship between sumptuary legislation and income is indeed stronger for cities in which elites' rent-seeking was low. We use three different codings to capture differences in τ. First, we consider despotisms, or signoria, as coded by Killerby (2002). These were city-states ruled by a single individual as opposed to a republic. In the thirteenth century, many Italian cities transitioned from being governed as republics or communes to being ruled by a single individual. In cities under despots, such as Milan, ruled by the Visconti family, or Ferrara by the Este family, we expect τ to be high.

Second, we use information from Bosker, Buringh, and Zanden (2013) to ascertain whether cities established communes in the eleventh or twelfth centuries. This measure has the advantage of being determined prior to our period of study. We expect τ to be lower in cities with communes.

One concern is that plague outbreaks might impact τ as well as Y. Here, we are reassured by recent research indicating that while the Black Death did reduce income and wealth inequality, this was *not* necessarily true of later outbreaks (Alfani 2021, 2022). Rather, the relationship between demographic shocks and inequality was mediated by initial institutions. Moreover, in the Italian cities that we study, elite incomes in the fifteenth century rose because Italian elites were merchants as well as landlords, and their incomes were buoyed by the growing demand for luxury goods.[33]

We also construct our own measure of republican institutions. This allows us to exploit variation over time in a city's institutions.[34]

Table 4 reports the effect of plagues on sumptuary legislation when we split the sample according to the degree of rent-seeking by elites τ. The relationship between income and the number of sumptuary laws is strongly positive for cities that were non-despotic, had historical communes, or were republics. For cities that were despotisms, non-communes, or non-Republicans, however, we find either no effect or a smaller effect. This does not reflect differences in the number of observations for despotic cities, non-commune cities, and non-Republican cities. These results support Hypothesis 2: "despotic regimes within Italy passed fewer laws

[32] The case of Ferrara is documented by Dean (1988).

[33] See Goldthwaite (1968, 2009). "There was a marked trend of the rich becoming much richer during the later fifteenth and sixteenth centuries. On his death in 1491 Filippo Strozzi left an estate worth fl.100,000, 75 percent more than the net worth of Palla Strozzi, the richest man on the catasto roster of 1427" (Goldthwaite 2009, p. 568).

[34] One might also be concerned that there is a relationship between plagues and a city becoming Republican. There is no evidence of this. The coefficient of plagues on becoming Republican is zero.

TABLE 4
THE EFFECT OF PLAGUE SHOCKS ON THE NUMBER OF SUMPTUARY LAWS: CITY-LEVEL PANEL ANALYSIS BY CITY INSTITUTIONS

	Number of Law					
	Non-Despotic/ Despotic		Commune/ Non-Commune		Republican/ Non-Republican	
	(1)	(2)	(3)	(4)	(5)	(6)
Plague	0.139***	0.0848	0.139***	–0.0124	0.0905**	0.0644***
	(0.0396)	(0.0501)	(0.0320)	(0.0529)	(0.0412)	(0.0184)
City FE	✓	✓	✓	✓	✓	✓
Decade FE	✓	✓	✓	✓	✓	✓
Geo. Controls*Decade FE	✓	✓	✓	✓	✓	✓
Instit. Controls*Decade FE	✓	✓	✓	✓	✓	✓
Observations	1,368	393	1,122	639	398	1,363
Adjusted R^2	0.381	0.404	0.435	0.411	0.386	0.404

Notes: This table reports difference-in-differences estimates of the impact of the plague on the number of sumptuary laws by state type. The unit of observation is a city-decade. All specifications include city and decade fixed effects. Geographical controls include longitude, latitude, elevation, whether a city is on a river or the seas, and soil quality. Institutional controls include the presence of universities and bishoprics. Robust standard errors clustered at the city level are reported in brackets.
Source: *Authors' calculations, see text.*

than their republican counterparts" (Killerby 2002, pp. 33–34). Sumptuary legislation was more intense in cities with more inclusive institutions.

The Decline of Sumptuary Laws

Our city-level dataset does not extend beyond 1500. We therefore cannot explore the decline in sumptuary laws at the city level. But the evidence we have is consistent with Hypothesis 1 and suggests that evasion and the costs of enforcement help to explain the post-1600 decline in sumptuary laws.

First, we can investigate the relationship between sumptuary legislation and income in France quantitively, as Ridolfi (2019) provides yearly estimates of per capita GDP for 1280–1779. Figure 5 plots the number of sumptuary laws by decade against per capita GDP by decade. There is a clear inverted-U relationship consistent with Hypothesis 1.

Second, the qualitative evidence from eighteenth-century France provides insight into their decline. Opponents of strict sumptuary laws like Jean Francois Melon argued that many so-called luxury goods, such as cheap silks, were already widely available to the lower classes.[35] They

[35] Restrictions on luxury were justified on Physiocratic grounds—the view that agriculture was the source of all income—on the grounds of maximizing employment, on protectionist and balloonist grounds, on the grounds of reducing inequality, and of encouraging marriage and population growth. Numerous other authors have put forward arguments for permitting luxuries and relaxing sumptuary legislation (Moyer 1996).

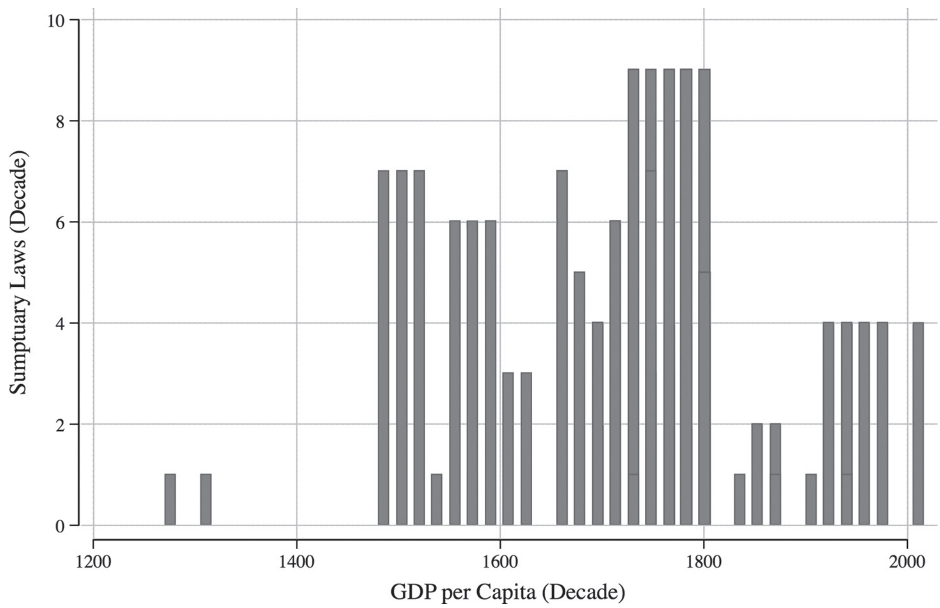


FIGURE 5
FRENCH SUMPTUARY LAWS (BY DECADE) AND GDP PER CAPITA

Source: Data described in Online Appendix 1.

further noted that enforcement was increasingly difficult with a wider range of goods available: "individuals ignored the spirit of the laws by substituting another type of luxury for the forbidden item" (quoted in Moyer 1996, p. 355).

Over time, greater resources had to be spent on enforcement. Moyer observes that "As the seventeenth century wore on, sumptuary law mandated more frequent searches of workshops and boutiques, usually by officers of the local police accompanied by guild *jurés*" (p. 254). Inventories and records were also required to be kept by merchants to ensure that they were not selling prohibited products. Nevertheless, and despite these police measures, the "royal and municipal officials entrusted with sumptuary law execution were beset with problems" (Moyer 1996, p. 255).

The consumer revolution of the seventeenth to eighteenth centuries made sumptuary laws increasingly difficult to enforce. Opportunities for luxury consumption could not easily be restricted to the elite (McKendrick, Brewer, and Plumb 1982; Brewer and Porter 1993; Vries 2008; Koyama 2012). Consumer aspirations diffused among the middle and lower classes (see Styles 2007). New opportunities for fashionable clothing rose with the emergence of retail shops, where individuals could purchase ready-made clothes, as opposed to purchasing whole cloth (Mui and Mui 1989). The real cost of clothing also fell (Shammas 1990). By the eighteenth century, Lemire (1991, p. 97) observes that even servants could save up the "eight shillings for a ready-made gown," creating "a potentially vast market among working-women, for whom these prices meant perhaps one week's wages or less." All of this made it more costly to limit the expenditures of non-elites.

With economic growth, evasion became easier and enforcement more difficult. It became increasingly challenging to differentiate between those who were permitted to wear particular items of clothing and those who were not.[36] Medieval guilds played an important role in regulating economic activity (Ogilvie 2019). They often cooperated with local authorities in the enforcement of sumptuary laws (Moyer 1996). But after 1600, guilds went into decline, especially in Western Europe. As their hold on the economy weakened, it became harder to punish vendors who violated sumptuary legislation. Finally, at the end of our period of analysis, the rise of ready-to-wear clothes made it easier for non-elites to emulate the clothing of elites. As a consequence, in the nineteenth century, luxurious clothing ceased to be as important a signifier of social status as it had been previously.

CONCLUDING COMMENTS

Sumptuary laws were denounced by Adam Smith (1776) as the "highest impertinence and presumption." As rulers are "the greatest spendthrifts in the society," he cautioned them to "look well after their own expence, and they may safely trust private people with theirs. If their own extravagance does not ruin the state, that of their subjects never will." But Smith did not investigate why sumptuary laws were passed or why they fell out of favor, and, while they have attracted attention from historians and sociologists, sumptuary laws have been neglected in economics.

We introduce a model of sumptuary legislation that generates a non-monotonic, inverted-U relationship between per capita income and sumptuary legislation. As incomes rise, non-elites can spend more on status goods, obliging elites, on the one hand, to also spend more and, on the other hand, to enact sumptuary laws in order to restrict the consumption of non-elites. As incomes rise still further, however, non-elites are better able to evade these laws. Elites, moreover, also benefit from economic growth and can spend more on status consumption. At a certain point, therefore, sumptuary laws cease to be worthwhile for elites.

[36] Moyer notes that it became "difficult for officials to determine with any degree of certainty precisely who was legally entitled to wear illegal items" (Moyer 1996, p. 257).

https://doi.org/10.1017/S0022050724000093 Published online by Cambridge University Press

We consider two extensions. First, as sumptuary laws could be used a *de facto* luxury taxes (i.e., Muzzarelli 2019), we allow for the fines from sumptuary violations to offset the costs of enforcement. This encourages elites to pass more sumptuary laws and thus slows down the decline in sumptuary laws (muting the inverted-U-shaped relationship). Second, the baseline model considered status competition between the landed elite and ordinary citizens. We extend the model to allow for the elites to also be merchants. The results of the model carry over: commercial elites also have an incentive to maintain status distance from those below them in the social hierarchy. The main difference is that if the commercial elite is extremely rich (as was the case, for example, with the Medici family in Florence), this lessens the status threat that they face, reducing, at the margin, their incentive to employ sumptuary laws.

The non-monotonic relationship between income and sumptuary laws is steeper for states when elite rent-seeking is lower and more moderate, where the elites capture a larger share of income. Overall, we argue that this framework can account for much of the otherwise puzzling rise and fall of sumptuary laws in premodern Europe.

Empirically, we document a non-monotonic, inverted-U relationship between sumptuary laws and per capita GDP at the country level, and at the city level, we provide evidence linking increased incomes to sumptuary laws in Italy.

REFERENCES

Acemoglu, Daron, and James A. Robinson. *The Narrow Corridor to Liberty: States, Societies, and the Fate of Liberty*. New York: Penguin, 2019.

Akerlof, George A. "Social Distance and Social Decisions." *Econometrica* 65, no. 5 (1997): 1005–27.

Alfani, Guido. "Economic Inequality in Preindustrial Times: Europe and Beyond." *Journal of Economic Literature* 59, no. 1 (2021): 3–44.

———. "Epidemics, Inequality, and Poverty in Preindustrial and Early Industrial Times." *Journal of Economic Literature* 60, no. 1 (2022): 3–40.

Alfani, Guido, and Tommy E. Murphy. "Plague and Lethal Epidemics in the Pre-Industrial World." *Journal of Economic History* 77, no. 1 (2017): 314–43.

Alfani, Guido, and Marco Percoco. "Plague and Long-Term Development: The Lasting Effects of the 1629–30 Epidemic on the Italian Cities." *Economic History Review* 72 (2019): 1175–201.

Allen, Robert C. "The Great Divergence in European Wages and Prices from the Middle Ages to the First World War." *Explorations in Economic History* 38 (2001): 411–47.

Álvarez-Nogal, Carlos, and Leandro Prados de la Escosura. "The Rise and Fall of Spain (1270–1850)." *Economic History Review* 66, no. 1 (2013): 1–37.

Ashraf, Quamrul, and Oded Galor. “Dynamics and Stagnation in the Malthusian Epoch.” *American Economic Review* 101, no. 5 (2011): 2003–41.

Baldwin, Frances Elizabeth. *Sumptuary Legislation and Personal Regulation in England*. Baltimore: John Hopkins University Press, 1926.

Belloc, Marianna, Francesco Drago, and Roberto Galbiati. “Earthquakes, Religion, and Transition to Self-Government in Italian Cities.” *Quarterly Journal of Economics* 131, no. 4 (2016): 1875–926.

Benhamou, Reed. “The Restraint of Excess Apparel: England 1337–1604.” *Dress* 15 (1989): 27–37.

Biraben, Jean-Noël. *Les Hommes et la Peste en France et dans les pays Europeens et Mediterraneens*. Paris: Mouton, 1975.

Bolt, Jutta, and Jan Luiten van Zanden. *Maddison Style Estimates of the Evolution of the World Economy. A New 2020 Update.* Groningen Growth and Development Centre, Groningen, The Netherlands, November 2020. Available at https://www.rug.nl/ggdc/historicaldevelopment/maddison/releases/maddison-project-database-2020.

Bosker, Maarten, Eltjo Buringh, and Jan Luiten van Zanden. “From Baghdad to London: Unravelling Urban Development in Europe and the Arab World 800–1800.” *Review of Economics and Statistics* 95, no. 4 (2013): 1418–37.

Brewer, John, and Roy Porter, eds. *Consumption and the World of Goods*. London, UK: Routledge, 1993.

Bridgeman, Jane. “‘Pagare le pompe’: Why Quattrocento Sumptuary Laws Did Not Work.” In *Women in Italian Renaissance Culture and Society*, edited by Letizia Panizza, 209–26. London: Routledge, 2000.

Broadberry, Stephen. “Accounting for the Great Divergence: Recent Finding from History National Accounting.” Oxford Economic and Social History Working Papers No. 187, Oxford, UK, March 2021.

Broadberry, Stephen, Hanhui Guan, and David Daokui Li. “China, Europe, and the Great Divergence: A Study in Historical National Accounting, 980–1850.” *Journal of Economic History* 78, no. 4 (2018): 955–1000.

Brundage, James A. *Law, Sex, and Christian Society in Medieval Europe*. Chicago: University of Chicago Press, 1987a.

———. “Sumptuary Laws and Prostitution in Late Medieval Italy.” *Journal of Medieval History* 13, no. 4 (1987b): 343–55.

Cavallar, Osvaldo, and Julius Kirschner. *Jurists and Jurisprudence in Medieval Italy: Texts and Contexts*. Toronto: University of Toronto Press, 2020.

Charles, Kerwin Kofi, Erik Hurst, and Nikolai Roussanov. “Conspicuous Consumption and Race.” *Quarterly Journal of Economics* 124, no. 2 (2009): 425–67.

Christakos, George, Richardo A. Olea, Marc L. Serre, Hwa-Lung Yu, and Lin-Lin Wang. *Interdisciplinary Public Health Reasoning and Epidemic Modelling: The Case of Black Death*. Berlin: Springer, 2005.

Cohn, Samuel K. *Creating the Florentine State: Peasants and Rebellion, 1348–1434*. Cambridge: Cambridge University Press, 2004.

———. “After the Black Death: Labour Legislation and Attitudes Towards Labour in Late- Medieval Western Europe.” *Economic History Review* 60, no. 3 (2007): 457–85.

———. Lust for Liberty: The Politics of Social Revolt in Medieval Europe, 1200–1425. Cambridge MA: Harvard University Press, 2010.

Dari-Mattiacci, Giuseppe, and Anna Plisecka. "Luxury in Ancient Rome: Scope, Timing, and Enforcement of Sumptuary Laws." *Legal Roots* 1, no. 1 (2012): 189–216.

Dean, Trevor. *Land and Power in Late Medieval Ferrara, The Rule of the Este, 1350–1450*. Cambridge: Cambridge University Press, 1988.

———. *The Towns of Italy in the Later Middle Ages*. Manchester: Manchester University Press, 2000.

Dittmar, Jeremiah, and Ralf Meisenzahl. "Public Goods Institutions, Human Capital, and Growth: Evidence from German History." *Review of Economic Studies* 87 (2020): 959–96.

Desierto, Desiree, and Koyama, Mark. "The Political Economy of Status Competition: Sumptuary Laws in Preindustrial Europe." Ann Arbor, MI: Inter-university Consortium for Political and Social Research [distributor], 2023-03-31. https://doi.org/10.3886/E187801V1

Doda, Hilary. "'Saide Monstrous Hose': Compliance, Transgression and English Sumptuary Law to 1533." *Textile History* 45, no. 2 (2014): 171–91.

Dunn, John P. "Clothes to Kill For: Uniforms and Politics in Ottoman Armies." *Journal of the Middle East & Africa* 2, no. 1 (2011): 85–107.

Dyer, Christopher. *Standards of Living in the Later Middle Ages, Social Change in England*. Cambridge: Cambridge University Press, 1989.

———. *An Age of Transition? Economy and Society in England in the Later Middle Ages*. Oxford: Clarendon Press, 2005.

Fieler, Ana Cecília. "Nonhomotheticity and Bilateral Trade: Evidence and a Quantitative Explanation." *Econometrica* 79, no. 4 (2011): 1069–101, doi:10.3982/ECTA8346.

Fochesato, Mattia. "Origins of Europe's North-South Divide: Population Changes, Real Wages and the 'Little Divergence' in Early Modern Europe." *Explorations in Economic History* 70 (2018): 91–131.

Foellmi, Reto, and Josef Zweimüller. "Income Distribution and Demand-Induced Innovations." *Review of Economic Studies* 73, no. 4 (2006): 941–60.

Frank, Robert H. "The Demand for Unobservable and Other Nonpositional Goods." *American Economic Review* 75, no. 1 (1985): 101–16.

Freudenberger, Herman. "Fashion, Sumptuary Laws, and Business." *Business History Review* 37, nos. 1/2 (1963): 37–48.

Frick, Carole Collier. *Dressing Renaissance Florence*. Baltimore: John Hopkins University Press, 2002.

Galor, Oded. "From Stagnation to Growth: Unified Growth Theory." In *Handbook of Economic Growth*, edited by Philippe Aghion and Steven Durlauf, 179–293. Amsterdam, Netherlands: Elsevier, 2005.

Galor, Oded, and Omer Moav. "From Physical to Human Capital Accumulation: Inequality and the Process of Development." *Review of Economic Studies* 71, no. 4 (2004): 1001–26.

Goldthwaite, Richard A. *Private Wealth in Renaissance Florence*. Princeton, NJ: Princeton University Press, 1968.

———. *The Building of Renaissance Florence*. Baltimore and London: Johns Hopkins University Press, 1990.

———. The Economy of Renaissance Florence. Baltimore: John Hopkins University Press, 2009.

Gottfried, Robert S. The Black Death: Natural and Human Disaster in Medieval Europe. New York: The Free Press, 1983.

Greenfield, Ken Roberts. *Sumptuary Laws in Nuremberg: A Study in Paternal Government*. Baltimore: The Johns Hopkins Press, 2018.

Guarinos, Don Juan Sempere Y. *Historia Del Luxo, Y De Las Leyes Suntuarias De Espana*. Madrid, Spain: Royal Printing Office, 1788.

Harte, Negley B. "Trade, Government, and Economy in Pre-Industrial England." In *State Control of Dress and Social Changes in Pre-Industrial England*, 132–165. London: Weidenfeld & Nicolson, 1976.

Hooper, Wilfrid. "The Tudor Sumptuary Laws." *English Historical Review* 30, no. 119 (1915): 433–49.

Howell, Martha. *Commerce Before Capitalism*. Cambridge: Cambridge University Press, 2010.

Hughes, Diane. "Sumptuary Laws and Social Relations in Renaissance Italy." In *Disputes and Settlements: Law and Human Relations in the West*, edited by John Bossy, 69–100. Cambridge: Cambridge University Press, 1983.

Hunt, Alan. *Governance of the Consuming Passions: A History of Sumptuary Law*. Houndsmills, Basingstoke, Hampshire: Palgrave MacMillan, 1996.

Hunter, Linda. "The Contribution of Nonhomothetic Preferences to Trade." *Journal of International Economics* 30, no. 3 (1991): 345–58.

Jackson, Philippa. "Parading in Public: Patrician Women and Sumptuary Law in Renaissance Siena." *Urban History* 37, no. 3 (2010): 452–63.

Jedwab, Remi, Noel Johnson, and Mark Koyama. "The Economic Impact of the Black Death." *Journal of Economic Literature* 60, no. 1 (2022): 132–78.

———. Pandemics and Cities: Evidence from the Black Death and the Long-Run." *Journal of Urban Economics* 139 (2024): 103628.

Killerby, Catherine Kovesi. *Sumptuary Law in Italy, 1200–1500*. Oxford: Clarendon Press, 2002.

Kirtio, Leah. "'The Inordinate Excess in Apparel': Sumptuary Legislation in Tudor England." *Constellations* 3, no. 1 (2012): *doi.org/10.29173/cons16283*.

Kizik, Edmund. "Sumptuary Laws in Royal Prussia in the Second Half of the Sixteenth Century to the Eighteenth Century." *Acta Poloniae Historica* 102 (2010): 127–59.

Kovesi, Catherine. "The Enforcement of Italian Sumptuary Legislation, 1200–1500: Conflict between Ideal and Practice." In *Crime, Society and the Law in Renaissance Italy*, edited by Trevor Dean and K. J. P. Lowe, 99–120. Cambridge: Cambridge University Press, 1993.

———. "Curbing 'Ambitions of the Throat': Alimentary Sumptuary Law in Early Modern Italy." In *Studies on Florence and the Italian Renaissance in Honour of F.W. Kent*, edited by Peter F. Howard and Cecilia Hewlett, 479–94. Turnhout: Brepols Publishers, 2016.

———. "Defending the Right to Dress: Two Sumptuary Law Protests in Sixteenth-Century Milan." In *The Right to Dress*, edited by Giorgio Riello and Ulinka Rublack, 186–209. Cambridge: Cambridge University Press, 2019.

Koyama, Mark. "The Transformation of Labor Supply in the Pre-Industrial World." *Journal of Economic Behavior & Organization* 81, no. 2 (2012): 505–23.

Krantz, Olle. *Swedish GDP 1300–1560: A Tentative Estimate*. Lund Papers in Economic History No. 152, Department of Economic History, Lund University, Lund, Sweden, 2017.

Lemire, Beverly. *Fashion's Favourite: The Cotton Trade and the Consumer in Britain, 1660–1800*. Oxford: Oxford University Press, 1991.

———. *Global Trade and the Transformation of Consumer Cultures*. Cambridge: Cambridge University Press, 2018.

Malanima, Paulo. "The Long Decline of a Leading Economy: GDP in Central and Northern Italy, 1300–1913." *European Review of Economic History* 15, no. 2 (2010): 169–219.

Martines, Lauro. *Power and Imagination: City-States in Renaissance Italy*. Baltimore: The Johns Hopkins Press, 1979.

Matsuyama, Kiminori. "A Ricardian Model with a Continuum of Goods under Nonhomothetic Preferences: Demand Complementarities, Income Distribution, and North-South Trade." *Journal of Political Economy* 108, no. 6 (2000): 1093–120.

McKendrick, Neil, John Brewer, and J. H. Plumb. *The Birth of Consumer Society: The Commercialization of Eighteen-Century England*. London, UK: Europa, 1982.

Miskimin, Harry A. "Monetary Movements and Market Structure—Forces for Contraction in Fourteenth-and Fifteenth-Century England." *Journal of Economic History* 24, no. 4 (1964): 470–90.

Mola, Luca, and Giorgio Riello. "Against the Law: Sumptuary Prosecutions in Sixteenth- and Seventeenth-Century Padova." In *The Right to Dress*, edited by Giorgio Riello and Ulinka Rublack, 210–41. Cambridge: Cambridge University Press, 2019.

Moran, Megan. "Young Women Negotiating Fashion in Early Modern Florence." In *The Youth of Early Modern Women*, edited by Elizabeth S. Cohen and Margaret Reeves, 179–94. Amsterdam: Amsterdam University Press, 2018.

Morrison, Alan S., Julius Kirshner, and Anthony Molho. "Epidemics in Renaissance Florence." *American Journal of Public Health* 75, no. 5 (1985): 528–35.

Moyer, Johanna B. "Sumptuary Law in ancien regime France, 1229–1806." Ph.D. thesis, Syracuse University, 1996.

Mui, Hoh-Cheung, and Lorna H. Mui. *Shops and Shopkeeping in Eighteenth-Century England*. Kingston: McGill-Queen's University Press, 1989.

Munro, John. "Luxury and Ultra-Luxury Consumption in Later Medieval and Early Modern European Dress: Relative and 'Real' Values of Woollen Textiles in the Low Countries and England, 1330–1570." Department of Economics and Institute for Policy Analysis, Working Paper No. 28, University of Toronto, Toronto, Ontario, July 2006.

Muzzarelli, Maria Giuseppina. *La Legislazione Suntuaria Secoli XIII-XVI Emilia-Romagna*. Rome: Ministero Per I Beni E Le Attivita Culturali Direzione Generale Per Gli Archivi, 2002.

———. "Reconciling the Privilege of a Few with the Common Good: Sumptuary Laws in Medieval and Early Modern Europe." *Journal of Medieval and Early Modern Studies* 39, no. 3 (2009): 597–617.

———. "Vesti bollate: The Italian Fashion Gazette of the Fourteenth and Fifteenth Centuries (Shapes, Colours, Decorations)." In *Luxury and the Ethics of Greed in Early Modern Italy*, edited by Catherine Kovesi, 119–36. Turnhout, Belgium: Brepols, 2018.

———. "Sumptuary Laws in Italy: Financial Resource and Instrument of Rule." In *The Right to Dress*, edited by Giorgio Riello and Ulinka Rublack, 167–85. Cambridge: Cambridge University Press, 2019.

———. "Prolusione." In *La moda come motore economico: innovazione di processo e prodotto, nuove strategie commerciali, comportamento dei consumatori*, edited by Giampiero Nigro, 5–12. Florence: Firenze University Press, 2022.

Newett, M. Margaret. "The Sumptuary Laws of Venice in the Fourteenth and Fifteenth Centuries." In *Historical Essays by Members of the Owens College, Manchester*, edited by T. F. Trout and James Tait, 246–78. London: Longman Green, / Co., 1902.

North, Douglass C., John Joseph Wallis, and Barry R. Weingast. *Violence and Social Orders: A Conceptual Framework for Interpreting Recorded Human History*. Cambridge: Cambridge University Press, 2009.

O'Malley, Michelle. "A Pair of Little Gilded Shoes: Commission, Cost, and Meaning in Renaissance Footwear." *Renaissance Quarterly* 63, no. 1 (2010): 45–83.

Ogilvie, Sheilagh. " 'So That Every Subject Knows How to Behave': Social Disciplining in Early Modern Bohemia." *Comparative Studies in Society and History* 48, no. 1 (2006): 38–78.

———. "'Whatever Is, Is Right'? Economic Institutions in Pre–Industrial Europe (Tawney Lecture 2006)." *Economic History Review* 60, no. 4 (2007): 649–84.

———. "Consumption, Social Capital, and the 'Industrious Revolution' in Early Modern Germany." *Journal of Economic History* 70, no. 2 (2010): 287–325.

———. *The European Guilds: An Economic Analysis*. Princeton, NJ: Princeton University Press, 2019.

Omer, Moav, and Zvika Neeman. "Saving Rates and Poverty: The Role of Conspicuous Consumption and Human Capital." *Economic Journal* 122, no. 563 (2012): 933–56.

Palma, Nuno, and Jaime Reis. "From Convergence to Divergence: Portuguese Economic Growth, 1527–1850." *Journal of Economic History* 79, no. 2 (2019): 477–506.

Penn, Thomas. *The Brothers York: An English Tragedy*. London: Penguin, 2020.

Perrot, Philippe. *Fashioning the Bourgeoisie*. Translated by Richard Bienvenu. Princeton, NJ: Princeton University Press, 1994.

Pfister, Ulrich. "Economic Growth in Germany, 1500–1850." Paper presented at the Conference on Quantifying Long Run, 2011.

Pittman, Sophie. "Codes: Redressing London - Sumptuary Laws and the Control of Clothing in the Early Modern City." In *A Cultural History of Law*, edited by Peter Goodrich, 65–86. New York, NY: Bloomsbury Publishing, 2021.

Quataert, Donald. "Clothing Laws, State, and Society in the Ottoman Empire, 1720–1829." *International Journal of Middle East Studies* 29, no. 3 (1997): 403–25.

Rainey, Ronald Eugene. "Sumptuary Law Legislation in Renaissance Florence." Ph.D. thesis, Columbia University, 1985.

Richardson, Gary, and Michael McBride. "Religion, Longevity, and Cooperation: The Case of the Craft Guild." *Journal of Economic Behavior and Organization* 71, no. 2 (2009): 172–86.

Ridolfi, Leonardo. "The French Economy in the Longue Durée. A Study on Real Wages, Working Days, and Economic Performance from Louis IX to the Revolution (1250–1789)." Ph.D. thesis, IMT Lucca, 2016.

———. "Six Centuries of Real Wages in France from Louis IX to Napoleon III: 1250–1860." *Journal of Economic History* 79, no. 3 (2019): 589–627.

Roosen, Joris, and Daniel R. Curtis. "Dangers of Noncritical Use of Historical Plague Data." *Emerging Infectious Diseases* 24, no. 1 (2018): 103.

Rosenthal, Margaret F. "Cultures of Clothing in Later Medieval and Early Modern Europe." *Journal of Medieval and Early Modern Studies* 39, no. 3 (2009): 459–81.

Rota, Mauro, and Jacob Weisdorf. "Italy and the Little Divergence in Wages and Prices: New Data, New Results." *Journal of Economic History* 80, no. 4 (2020): 931–60.

Roth, Cecil. "Sumptuary Laws of the Community of Carpentras." *Jewish Quarterly Review* 18, no. 4 (1928): 357–83.

Rublack, Ulinka. "The Right to Dress: Sartorial Politics in Germany, c. 1300–1750." In *The Right to Dress*, edited by Giorgio Riello and Ulinka Rublack, 37–73. Cambridge: Cambridge University Press, 2019.

Scheidel, Walter. *The Great Leveler: Violence and History of Inequality from the Stone Age to the Twenty-First Century*. Princeton, NJ: Princeton University Press, 2017.

Schön, Lennart, and Olle Krantz. *New Swedish Historical National Accounts since the 16th Century in Constant and Current Prices*. Lund Papers in Economic History No. 140, Department of Economic History, Lund University, Lund, Sweden, 2015.

Shammas, Carole. *The Pre-Industrial Consumer in England and America*. Oxford, UK: Oxford University Press, 1990.

Shively, Donald H. "Sumptuary Regulation and Status in Early Tokugawa Japan." *Harvard Journal of Asiatic Studies* 25 (1964): 123–64.

Shulman, Rachel. "Sumptuary Legislation and the Fabric Construction of National Identity in Early Modern England." *Constructing the Past* 8, no. 1 (2007): 72–86.

Siuda, Fabian, and Uwe Sunde. "Disease and Demographic Development: The Legacy of the Black Death." *Journal of Economic Growth* 26 (2021): 1–30.

Smith, Adam. *An Inquiry into the Nature and Causes of the Wealth of Nations*. Oxford: Clarendon Press, 1776.

Stuard, Susan Mosher. *Gilding the Market: Luxury and Fashion in Fourteenth-Century Italy*. Philadelphia: University of Pennsylvania Press, 2006.

Sturtewagen, Isis, and Bruno Blonder. "Playing by the Rules? Dressing without Sumptuary Laws in the Low Countries from the Fourteenth to the Eighteenth Century." In *The Right to Dress*, edited by Giorgio Riello and Ulinka Rublack, 74–95. Cambridge: Cambridge University Press, 2019.

Styles, John. *The Dress of the People*. New Haven: Yale University Press, 2007.

Vincent, Susan. *Dressing the Elite*. Oxford: Berg, 2003.

Voigtländer, Nico, and Hans-Joachim Voth. "The Three Horsemen of Riches: Plague, War, and Urbanization in Early Modern Europe." *Review of Economic Studies* 80 (2013): 774–811.

Vries, Jan de. *The Industrious Revolution*. Cambridge, UK: Cambridge University Press, 2008.

Welch, Evelyn S. *Shopping in the Renaissance Consumer Cultures in Italy 1400–1600*. New Haven: Yale University Press, 2005.

Wilson, Laurel. "Common Threads: A Reappraisal of Medieval European Sumptuary Law." *Legal Worlds and Legal Encounters* 2, no. 2 (2016): 141–65.

Wunder, Amanda. "Spanish Fashion and Sumptuary Legislation from the Thirteenth to the Eighteenth Century." In *The Right to Dress*, edited by Giorgio Riello and Ulinka Rublack, 243–72. Cambridge: Cambridge University Press, 2019.

Zanda, Emanuela. *Fighting Hydra-Like Luxury: Sumptuary Regulation in Republican Rome*. London: Bristol Classical Press, 2011.

Zanden, Jan Luiten van, and Bas van Leeuwen. “Persistent but Not Consistent: The Growth of National Income in Holland 1347–1807.” *Explorations in Economic History* 49, no. 2 (2012): 119–30.

Zifli, Madaline C. “Women, Minorities and the Changing Politics of Dress in the Ottoman Empire, 1650–1830.” In *The Right to Dress*, edited by Giorgio Riello and Ulinka Rublack, 393–415. Cambridge: Cambridge University Press, 2019.