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Wealth, work, and industriousness, 1670–1860: Evidence from rural Swedish probates*

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Abstract

This paper uses a new database of 1,891 probate inventories from rural southern Sweden from the 1670s to the 1860s to investigate the development of wealth and productive capacity in the Swedish countryside in this period. We show that while real wages fell in the 1700s, material living standards — as measured by the contents of probate inventories — improved, indicating greater labour inputs. This was not driven by more widespread ownership of the means of production, as the rural underclasses rather owned less means of production over time, and to some extent farmers did too. The wage labour inputs of the labouring classes intensified, and for workers' and farmers' households alike, textile production at home became more important; in the 1860s, half of working-class households owned spinning wheels and weaving looms, and for farmer households, the shares were 68 and 82 per cent, respectively. We argue that the results support an interpretation of an industrious revolution in eighteenth- and nineteenth-century Sweden, with the improving material living standards shown by probate inventories, in contrast to the stagnating GDP per capita suggested by historical national accounts research.

Keywords: living standards; industrious revolution; Sweden; probate inventories; early modern Europe

JEL codes: N33; N43

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The degree of economic development and the rate of change before industrialization are an important debate in European economic history. In the 1990s and 2000s, early modernists opposed the old view of a stagnant early modern economy in the 1800s fundamentally transformed by industrialism (van Zanden 2002). According to the new view, early modern economies saw significant economic development before industrialization (cf. Prak 2001). The most influential explanation of how this happened is the industrious revolution theory, put forward by de Vries (1994, 2008), in which consumer behaviour and work supply are strongly correlated, as access to new consumption goods through colonies gave incentives to European households to intensify their labour inputs. Both consumption and work have, in de Vries' footsteps, been the subject of several studies in recent decades, and our paper will add to the latter. We study the case of Sweden from the 1670s to 1860, the onset of industrialization (cf. Schön 2014). According to the canonical historical national accounts data produced by Schön and Krantz (2015), included in the Maddison Project, Swedish GDP per capita stagnated during the pre-industrial period, with an average level in 1990 US dollars of \$1,751 in 1650–99, \$1,720 in 1700–49, \$1,513 in 1750–99, and \$1,460 in 1800–49. Thus, the historical national accounts data suggest that Swedish living conditions stagnated from the late 1600s to the early 1800s,¹ a conclusion borne out also by the falling real wages of labourers in Stockholm and the south of the country (Söderberg 2010; Gary and Olsson 2020) during the eighteenth century. From the industrious revolution perspective, however, we might expect economic development: as de Vries (2008, pp. 123–6) showed, falling real wages in early modern Europe were often accompanied by improving sets of consumption goods in households, as households intensified their labour input. As a relatively poor and allegedly stagnant economy, however, Sweden poses a somewhat difficult case for the industrious revolution hypothesis.

The empirical tests of the industrious revolution hypothesis have so far yielded ambiguous results. Neither Clark and van de Werf (1998) nor Rosenband (2016) find any signs of increase in work output among early modern English threshers and sawyers or French paper workers, respectively. On the other side, Allen and Weisdorf (2011) find a sharp increase in labour output from English farmhands 1750–1820. But just like Gary and Olsson

¹ Edvinsson (2013), in a different calculation of historical GDP/capita, finds that GDP/c grew by 0.06 per cent per year from 1620 to 1800, with a total growth of 12 per cent. He argues that this did not constitute total stagnation, but a growth of 12 per cent over 180 years is not very impressive either.

(2020) for Sweden, they refute that this was connected to new consumer behaviour, but rather was necessary for working-class families to maintain subsistence when real wages fell.

We contribute to this literature by studying wealth and productive capacity among Swedish labourers and peasant farmers from 1670 to 1860. Using surprisingly rich sources of probate inventories, we can investigate both the development of wealth for different social classes over time and their productive capacity by the detailed inventories from their homes. Our two hypotheses, which both point in the direction of industrious household behaviour, are:

1. Increased wealth for the working class in a period of falling real wages — and we know that real wages fell (Gary and Olsson 2020) — is evidence of increased labour output at the household level.
2. Broadened productive capacity among peasant farmers and workers indicates broader engagement in work of the household members.

To preview the results, we find support for both hypotheses. Gross wealth grew by about 50 per cent for the rural working class in our areas from the early 1700s to the 1780s, while wages stagnated. The probate data document furthermore that the workers grew richer in terms of consumption goods while their ownership of production goods decreased, indicating greater dependence on wage labour. From these indicators, we infer greater work intensity — i.e., an industrious revolution for the south Swedish rural labourers, similar to what Muldrew (2011, p. 207) found in England. Peasant farmers' wealth grew even more over time, with increasing inequality between workers and farmers. They grew richer by increasing productivity in production of grains and other foodstuffs (cf. productivity estimates by Olsson and Svensson 2010), but the probates show that they also became larger producers of textiles, indicating, given that textile work was one of the most gender-segregated work activities in early modern Sweden (Lindström et al. 2017), greater work intensity for women on the farms. Our results indicate that even before the start of industrialization in Sweden in the 1870s, rural living standards were improving through increasing division and intensity of labour. In contrast to the historical national accounts literature (Schön and Krantz 2015), we present a more optimistic view of the development of the early modern Swedish economy.

1. Debating the industrious revolution

According to de Vries, the industrious revolution occurred during the 'long eighteenth century', 1650–1850, and was concentrated in 'northwestern Europe: England, the Low

Countries, and parts of France and Germany'. The heart of the industrious revolution was that 'a growing number of households acted to reallocate their productive resources (which are chiefly the time of their members) in ways that increased both the supply of market-oriented, money-earning activities and the demand for goods offered in the marketplace' (de Vries 2008, p. 10). Market access was crucial to economic development in de Vries' (2008, p. 78) theory, in two ways. From the production side, for households to be able to intensify their labour and to specialize in productive ways, they or their employers needed to be able to put their products to consumer markets. From the consumption side, demand for new goods — often associated with colonies — with great marginal utility increased the incentives for households to up their labour intensity. Both are related to the improvements of transports and communication. As de Vries (2008, p. 71) put it, simultaneously households increased the percentage of their production that they sold to others and the percentage of their consumption that they bought from others.

The industrious revolution theory has been tested in several different ways. Clark and van der Werf (1998) studied England and used what they called 'indirect methods' of measuring work input, backing out days worked from combinations of day wage data, assumptions on consumption propensity for food, and other figures. They did not find support for the industrious revolution. However, Allen and Weisdorf (2011) used a similar approach, using consumption good prices to calculate the number of workdays needed to achieve acceptable consumption levels and comparing with estimates of workdays per year, and they found that, indeed, work intensity grew for English rural workers between 1540 and 1616 and between 1750 and 1818. The latter industrious revolution was driven by hardship rather than by access to new and exciting consumption goods, and women and children had to increase their work intensity too to compensate (as in Horrell and Humphries 1995).

Leaving Britain behind, Ogilvie (2010) studied Württemberg in southwestern Germany from 1646 to 1800, using a database of observed work in court records. Ogilvie complicates de Vries' account of households' decision to participate in paid work by putting guilds and social regulations, not only wage rates and jobs in theory available, into the framework. She found that there was indeed a redistribution of working time from the household to the market, but that this 'industriousness' was tempered by social regulations. Hutchison (2014) evaluated the industrious revolution's relevance for Norway between 1750 and 1800, which is only a short part of de Vries' 'long seventeenth century', using previous research and previously published macro data on wages and prices. She argues that Norway

enjoyed improving exports and terms of trade, which allowed increased consumption, but that this was not driven by a Vriesian increase in availability of exotic consumption goods.

For Sweden, Dribe and van der Putte (2012) mapped marriage seasonality in southern Sweden from 1690 to 1895 to analyse rural work intensity over the year, concluding that work intensity over the year indeed increased over the eighteenth century. Gary and Olsson (2020) used a rich database of labourers' wages and consumption prices to show that workers suffered hardship over the eighteenth century. They concluded that workers' families in response intensified their labour inputs, in a form of industrious revolution driven by need rather than by a desire for more luxurious consumption standards: 'Swedish working class families had to work more in order to fight to maintain a decent consumption level' (Gary and Olsson 2020, p. 126). The current paper adds to the literature by analysing probate inventories from rural society, for both farmers and labourers (as well as other groups), to give a new perspective on living standards and production strategies in early modern Europe.

2. Empirical strategy and sources

2.1 Sources and sampling

Making a probate inventory, listing all owned items, claims, and debts, upon death became mandatory in Sweden in 1734. For this reason, studies using probate inventories in Sweden typically concern the post-1734 period (e.g., Bengtsson et al. 2018). However, it has long been known that inventories were made before 1734 too, and they have been used in studies of towns and cities in the 1600s (Andersson [2009] on Arboga; Andersson [2017] on Stockholm; Bengtsson, Olsson and Svensson [2022] on Stockholm). We add a new dimension by using rural inventories from the pre-1734 period.

The probate inventory was presented at the *häradsting*, the bi- or thrice-annual meeting of the judicial district (*härad*) and archived in the *härad* archive. The probate inventories from all *härad* archives are digitalized at Arkiv Digital (www.arkivdigital.se), a website used especially by genealogists, and we have searched through all archives to locate the existence of surviving rural probate inventories before 1720 to make possible research on living standards and production from the 1600s on. For the 1670 to 1720 period, we localized richly preserved troves of inventories, especially from three distinct clusters of districts in southern Sweden. There are a few preserved inventories from other districts too, but not enough to make systematic analysis; thus, we concentrate on these three areas, following the 1670–1720 sample period by sampling the same areas in the 1780s and 1860s so that we can

study the roughly 200-year period from the 1670s to the 1860s. For the 1670–1720 period, when probate records are scarce, the sampling strategy for the given districts was simple: we collected all completely preserved probate records.² For the 1780s and 1860s there are thousands of inventories preserved, so we needed to narrow our sample; we set an aim of about 200 inventories for each county-period to facilitate comparisons over time and between social groups while still economizing with resources. The inventories were archived in bound books, typically sorted after the court meeting (held once in the winter, once in the summer, and once in the autumn), where they were presented and officially accepted. Since the amount of time between death and presentation of the probate varied, and the time of death is largely unbiased with regards to one’s social standard, we simply excerpted in the order that they appeared in the volumes. Overall, there is no discernible gender bias in the surviving material, with close to a 50 per cent split between men and women.

We might worry that there is a bias in the sample in that it is more likely that people in wealthier areas were probated, and that those archives persisted to the present day. However, looking at indicators such as population density and type of geography, there is no obvious bias. The three areas are all in the south of the country (and belonged to Denmark before 1658), but quite varied in geographical preconditions and economic makeup: from fertile plains along the southern coast (in Malmöhus county), highly cultivated already during the eighteenth century, to less fertile and more forested regions 100–50 kilometres to the north and northeast in Kristianstad and Halland counties. In Swedish agrarian history, an often-used classification is plains land, intermediate ‘shrub’ land, and forest land; most of our data in Malmöhus county fall into the category of plains land, while the Halland and Kristianstad data mainly fall into intermediate or forest land (Rosenberg 1882-83a,b; Campbell 1928; Sjögren 1932). Table 1 presents the geographical composition of the dataset. Within three counties, the sample of 1,891 probate inventories draws from 14 judicial districts, and within the districts, 214 parishes.

² Only probate records presenting itemized and valued lists of household possessions were included in the sampling; those which only contained the final sum of the probated household or lacked valuation for individual items were disregarded. Due to the highly detailed nature of Swedish probate records, however, this number remained very low for every period and region. Some further probate records were discarded due to lacking readability, either because of damage (e.g., water damage or ink blots) to the document making the writing illegible or the book binding making it impossible to properly read important values.

Table 1. Geographical composition of the dataset

County	District	Number of inventories			Contextual variables		
		1670–1720	1780–5	1860–5	Type of area	Population per 100 ha, 1805	Share noble land, 1825
Halland		200	200	200			
	Halmstad	144	164	165	Shrub	14.9	81.4%
	Hök	56	36	35	Shrub	10.3	64.3%
Malmöhus		143	234	234			
	Oxie	63	64	64	Plains	34.5	19.7%
	Skytts	34	34	34	Plains	35.9	10.5%
	Frosta	8	35	35	Shrub/forest	19.6	62.4%
	Vemmenhög	24	34	34	Plains/shrub	34.4	55.8%
	Rönneberg	6	34	34	Plains/shrub	35.9	23.8%
	Bara	8	33	33	Plains	30.5	52.5%
Kristianstad		150	212	318			
	Norra Åsbo	48	35	35	Forest	12.5	34.3%
	Södra Åsbo	47	66	111	Shrub	22.7	51.3%
	Västra Göinge	5	0	0	Forest	12.1	41.2%
	Östra Göinge	25	50	61	Forest	13.6	43.2%
	Bjäre	25	61	111	Shrub	34.7	15.4%
Total		493	646	752			

Sources: Rural Production and Consumption 1670–1865 Database, Lund University. Type of area classified based on Rosenberg (1882-1883a,b), Campbell (1928), and Bohman (2010). Population per 100 hectares from af Forssell (1834). The population density for the three counties as a whole was 18.5 in Kristianstad, 31.2 in Malmöhus, and 15.6 in Halland. Share of noble land from af Forssell (1834), data for year 1825.

Note: The 1670–1720, 1780–5, and 1860–5 columns report absolute numbers of probate inventories sampled from each district. The aim was 200 inventories for each county and period, but for the period up to 1720 there were not enough surviving probate records in rural Malmöhus and Kristianstad to reach 200.

The nobility had their separate courts (*hovrätter* rather than *häradsrätter*), and their probates are found in the *hovrätter* archives and so are not included in this study (see Bengtsson et al. 2019). To study production and industriousness, we focus on farmers and labourers.

The time period covered is relevant since it covers the time of the industrious revolution — 1650–1850 — in de Vries’ analysis, as well as, in Swedish historiography, a time of stagnating GDP per capita in the eighteenth century (Edvinsson 2013; Schön and

Krantz 2015), but also from c. 1780 the agrarian revolution, a time of agrarian reforms, improved cultivation and breeding, and expanding food production (Gadd 2000). Our investigation of the premodern and preindustrial economy ends in the 1860s, the time when industrialization really took off in Sweden.

2.2 Coding and interpreting the probate inventories

The probate inventories reflect the early modern reality that the smallest economic unit of both production and consumption was the household rather than the individual, with the individual members of the household contributing to a shared pool of resources and labour opportunities (Overton et al. 2004; de Vries 2008; Ågren 2017). Thus, each probate inventory lists the belongings of the household as a whole, rather than those of the deceased individual per se. Strictly personal belongings of the deceased, such as clothes and jewellery, are often listed separately, but as a whole the Swedish probate inventory reflects the productive capacity and material life of the household. The inventory includes everything from furniture to tools, cattle, grain, and debts and credits held by the household.

We collected personal information such as name, occupational titles of both the deceased and the spouse (when available), and information on where they lived for each sampled individual. Ages are rarely given in the inventories, and occupational titles are not always given; when missing, we have complemented (if possible) with information from the church books and cadastres. We found the age for 16 per cent of the probated for the first period, 76 per cent for the second period, and 93 per cent for the third period. We have also coded if the deceased had children and, if so, of which age.

From the probates and church books, around 60 unique occupational titles were identified, not including the ubiquitous wife (*Hustru*) or similar titles used for almost every woman. Using the HISCO classification system (van Leuwen, Maas & Miles 2002), these titles were reduced to 48 unique codes. Since we are interested in households rather than individuals, the probated wives were classified from the title of their husband. Using the HISCO classification, the sample was then subdivided into eight socioeconomic groups. Most important for our purposes are the two major groups, farmers and workers, who comprised the majority of Swedish society (cf. Bengtsson et al. 2018).

Due to the well-known stratification within these two major groups, we also differentiate them further. We break down the peasant farmer group into four subgroups (cf. Gadd 2000, pp. 72–9). The biggest group consists of owner occupiers and crown tenants, who

had relatively stable tenure. A more privileged category is that of local trustees (jurors and churchwardens), who can be expected to possess a high level of social capital and thereby stand out from the rest of the peasant community. Another category that can be expected to stand out is the farmers who did not pay their annual tax to the crown but instead were obliged to hire and maintain a horseman (*rusthållare*, literally armour holder). For this task, farms assessed as especially viable had to a high degree been allocated (Olsson 2005, pp. 155–8), and these farmers were often the same people who were appointed as local trustees. Since the local trustees are quite few, we often merge these two groups in the further analysis. The last farmer subgroup consists of the tenants of the nobility who were less privileged, as they had insecure tenancies and had to perform *corvée* labour.

In the same way, we break down the rural labourers into three subgroups. The first group is crofters and cottagers, who sometimes had rudimentary land tenure and could produce some food (cf. Bengtsson and Svensson 2022). The second is annually hired workers or live-ins, such as farmhands, maidens, and later married contract workers (*statare*). The third group is unspecified landless with no titles.

Image 1. List of iron goods (Jern Saker), mainly tools, belonging to the household of Nilla Persdotter, wife of a tenant farmer. Probated September 1785.

Item	Value
Transport	42.0
1. P. Hammars	10.0
1. P. Söfnad	3.0
1. P. Söfnad	3.0
1. P. Söfnad	5.0
2. P. Söfnad	12.0
1. P. Söfnad	4.0
1. P. Söfnad	4.0
4. P. Söfnad	5.0
1. P. Söfnad	6.0
3. P. Söfnad	5.0
1. P. Söfnad	2.0
1. P. Söfnad	3.0
7. P. Söfnad	14.0
1. P. Söfnad	12.0
1. P. Söfnad	5.0
1. P. Söfnad	3.0
2. P. Söfnad	1.6
Gammarna af Söfnad	3.0

Sources: Halmstads häradsrätt (N) FIIa:14 (1783-1787) Bild: 236, accessed via arkivdigital.se. Probate inventory included in the Rural Production and Consumption 1670–1865 Database, Lund University.

For analysing the development of wealth and living standards, we code the variety and amount of goods owned by the households, and their aggregate value. Capturing the evolution of industriousness and the division of labour from the probate inventories is more complicated and warrants further discussion. De Vries (2008, ch. 4) used probate inventories extensively in his exploration of the industrious revolution, but mostly to locate and map the spread of consumption goods. Here we focus on production goods and productive capacity. We capture productive capacity in two dimensions:

- a. the *extent* of production capacity in agriculture: the number of animals and tools and the wealth in terms of land
- b. the degree of *variety* in production capacity and pluriactivity: in how many ways can the household produce goods?

In early modern western Europe, very few households — likely the largest estates — were completely self-sufficient. The degree of market involvement and market dependency varied, however (Heckscher 1936, p. 530; Shammass 1990, p. 17). The recent probate-based literature has captured market involvement in various ways. Overton et al. (2004, p. 35) proposes the scale of production to be of central importance, since ‘it can often be indicative of fundamentally different enterprises and is one factor in determining whether production was for use or for exchange’. So, if a farmer household has the capacity to produce great amounts of wheat (indicated in the inventory by ploughs, draught animals, and perhaps land and/or harvested grain), we can infer that the household produced grains for sale in the market. Overton et al. (2004), however, concede that the relationship between scale and specialization is far from perfect, since specialization could be done on smaller scales, or non-specialized production, such as agriculture, could be relatively large-scale. In their rebuttal of the ubiquitousness of English rural by-employment, Keibek and Shaw-Taylor (2013) make a similar point by not counting production of too small a scale, deeming these to be indicative solely of production for household consumption. They do, however, also remove spinning completely as a possible by-employment since they only investigate male market-oriented by-employment. On the other hand, we do not focus on male by-employments specifically, but the household’s pluriactivity (or not) taken as a whole. There is ample research suggesting that the cost of living relative to income increased over the early modern period, which forced many households to increase their labour intensity to maintain their consumption levels (Allen & Weisdorf 2011; Gary & Olsson 2020). In this period of shrinking economic margins, even

small-scale production, for either personal consumption or market resale, would for many households have made an important difference for maintaining consumption levels. This would have been even more true for those types of production — such as spinning, weaving, or basic handicraft — that required an investment of spare time rather than artisanal skill and as such could be undertaken by children and women (Horrell, Humphries, & Weisdorf 2021). To incorporate as full a range of income and production strategies as possible, we will, rather than focusing strictly on commercial production, seek to analyse the *productive capacity* of the household.

To map the productive capacity of the probated households, detailed information was collected on the household productive capital. The complete values of several different categories of inventoried goods were collected: general tools, such as hammers, drills, and saws generally found together under iron goods, which, due to their ubiquitousness, were all collected as a shared group; more specialized equipment for farming, fishing, and hunting; and tools for fibre treatment, such as carders as well as textiles when these can be identified as being for sale. Due to the detailed classification system used by the contemporary recorders, it has in many cases also been possible to differentiate between unworked fabric likely intended for home use, listed in the probates under bed cloth (*sängkläder*) and linen cloth (*linkkläder*), and unworked fabric likely intended for sale, often listed under a section of ‘various things’ (*diverse saker*) together with yarn and unworked fibre; spinning wheels and looms, both value and number found in the household due to their established importance for early modern proto-industry (Allen 1992, pp. 244–5; van Nederveen Meerkerk 2008, p. 244); and the complete value of inventoried grain, seeds, and cattle, the latter category divided among the different types of animals with both value and number of animals noted.

3. Wealth development and inequality

Table 2 shows the composition of the dataset in terms of social class with subgroups, period, natural conditions, and gender. Since we specifically aim to study wealth, inequality, and industriousness within the two groups of peasant farmers and rural labourers, we do not worry about the class representativeness of our sample.³ But, as expected, peasant farmers and rural

³ The social bias of who was probated is a large debate in Swedish economic history. Cf. discussion in Bengtsson et al. (2018).

elite (especially clergymen) are overrepresented in the first period, while the sample in the last period is quite well balanced to the real rural population.

To check for possible effects of imbalances between the social classes, over time, in natural conditions and gender, we start by running three simple regressions with the logarithm of gross wealth as the dependent variable. The first regression focuses on the difference in wealth between the different social groups; the second regression also controls for time and for sex; and the third regression also adds the type of geography in the district. Regarding the differences between the social groups, they are mostly as expected, with privileged groups within the farmer class richer than the reference group (freeholders and crown tenants) and labourers poorer. The rural elite together with merchants and innkeepers were the only groups with greater wealth than the peasant farmers; on average, the elite was 1.5–1.7 times richer. For gender, the results are also as expected, as there is no significant difference between probated women and men; this reflects the fact that the inventory is for the household, not the individual.

Regressions 2 and 3 show that average wealth rose from the first period with about 45 per cent up to the 1780s, and with 85 per cent up to the 1860s. This is in stark contrast to the stagnation of GDP per capita as calculated by Edvinsson et al. (2013) and Schön and Krantz (2015). However, the relationship between probated wealth and production is complex, and as we will get to soon, the growing wealth was not equally distributed. In Table 2, we furthermore see the variety between different economic geographies: the inhabitants on intermediate ‘scrub’ lands are on average about 30 per cent poorer than the plains dwellers, and the wood landers are about 40 per cent poorer. This accords with the results of Bengtsson and Svensson (2019, p. 136–137).

Table 2. Distribution of the sample together with three OLS regressions with gross wealth (logarithmized) as the dependent variable

	No.	Reg1	Reg2	Reg3
Farmers, reference group	683	(ref)	(ref)	(ref)
Farmers, local trustees	37	1.207***	1.195***	1.140***
Farmers, allotted to cavalry	148	0.355***	0.437***	0.383***
Farmers, tenants of the nobility	80	-0.356***	-0.459***	-0.485***
Retirees	138	-1.490***	-1.783***	-1.760***
Labourers, crofters and cottagers	138	-1.222***	-1.613***	-1.597***
Labourers, rural workers	304	-1.372***	-1.687***	-1.682***
Labourers, unspecified landless	122	-1.958***	-2.137***	-2.129***
Fishermen	4	-1.220**	-1.518**	-1.511***
Artisans and skilled workers	63	-0.476***	-0.695***	-0.720***
Middle class: sextons, toll staff	36	-0.356*	-0.454*	-0.434**
Merchants and innkeepers	24	0.728***	0.543**	0.612***
Rural elite: priests, inspectors	70	1.466***	1.709***	1.683***
1672–1720	475		(ref)	(ref)
1780–1785	634		0.446***	0.436***
1860–1865	741		0.869***	0.857***
Men	1,053		(ref)	(ref)
Women	793		-0.058	-0.054
Plain land	653			(ref)
Intermediate	785			-0.295***
Wood land	409			-0.409***
Constant		5.501***	5.140***	5.366***
Number of observations		1,846	1,846	1,846
Adjusted R-squared		0.388	0.433	0.446

Note: Significance: * $P \leq 0.05$; ** $P \leq 0.01$; *** $P \leq 0.001$.

Sources: Database as described in Table 1. The reference group consists of freeholders and crown tenants; see discussion in the section ‘Coding and interpreting the probate inventories’.

Both the farmers’ and the workers’ gross wealth increased by roughly 50 per cent between 1700 and 1780. One of the most striking results is that the farmers after that tripled their wealth until 1860, while the workers basically stood still during the latter period (see Table 3). This correlates with the fact that the nineteenth century was a time of steeply increasing

wealth inequality in Sweden (Bengtsson et al. 2018). The share of household goods linked to production declined among both workers and farmers, but from an initially lower level and at a significantly faster rate for workers than for farmers. We will now look more closely at the development of these groups.

Table 3. Wealth development for workers and peasant farmers

	Period	No.	Age at death	Gross value	Net value	Real estate value	Producti on assets, share of gross	Consuma ble assets, share of gross	Claims, share of gross	Debts, share of gross
Workers and crofters	1700	40	45	64	24	5	61%	34%	7%	91%
	1780	199	53	98	77	4	37%	57%	8%	39%
	1860	346	54	95	58	36	24%	72%	42%	66%
Peasant farmers	1700	368	50	234	136	21	80%	18%	4%	58%
	1780	362	50	362	249	62	66%	31%	5%	40%
	1860	233	52	1,425	787	651	59%	37%	36%	51%

Sources: Database as described in Table 1. All values in 1800 prices. Consumer price index from Edvinsson and Söderberg (2010). Only farmers with working farms included; for retirees, see Appendix Table A2 and the discussion there.

Table 3 shows that the value of the rural working-class' assets was about one-fourth that of the farmers' from our earliest benchmark and up until 1780. The two groups developed in parallel during this time with an increase in wealth by roughly 50 per cent. But after 1780, the average wealth of the working class stagnated, even decreased slightly, from 98 to 95 riksdaler in gross value in 1800 prices.

Appendix Table A4 shows the development for the rural workers divided into three subgroups: crofters and cottagers (with access to some land), workers, and those whose occupations are unspecified in the sources. Within the wider group of the rural working class, the group that seems to have lost the most was the crofters and cottagers. Land prices increased steeply in Sweden over the eighteenth and nineteenth centuries, as population and agrarian productivity grew (cf. Bengtsson et al. 2019, pp. 39–41). However, among the crofters and cottagers in our sample, the value of their land stagnated at 19 and 21 riksdaler in the 1670–1720 period and the 1780s, and 31 riksdaler in the 1860s, while the corresponding value for the peasant farmers (see Table 3) grew from 21 riksdaler in the first period to 62 in

the 1780s and 651 in the 1860s. For the workers overall (Table 3), the productive assets' share (not including land) of their wealth decreased from 61 per cent in the first period to 24 per cent in the 1860s; for crofters and cottagers, the decrease was from 78 to 30 per cent. They were transforming in the direction of a more purely proletarian group (as in Bengtsson and Svensson 2022). This means that they became more dependent on wage labour and work for hire.

4. How to make a living

4.1 Agricultural productive capacity

As explained above, using the probate inventories, we approach the question of production strategies of the households of rural Sweden in the early modern period in two dimensions: the *extent* of their productive capacity in agriculture and the *variety* of their productive capacity. We have already seen (Table 3) that there was a polarization in productive capacity over the eighteenth century, in that labouring households decreased in productive capacity as measured by production goods' share of total assets. Table 4 further elucidates the issue of extent and variety of productive capacity by showing the share of households — divided among farmers and labourers — that had the tools and items for various kinds of production: agriculture, fishing, hunting, brewing, spinning, and weaving. About a third of the labourer households had a plough and harrow in the late seventeenth century as well as in the 1860s, while naturally it was the norm among farmers — farmer households that lacked these items were most likely aged households. The average age for peasant farmers with plough and harrow was 50 years, those without 57. It is likely that certain tools were passed over to the next generation in advance, either before death or during the weeks or months between *dies mortis* and the day when the inventories were set. Since these items were highly needed, but had relatively low values, compared, for example, to livestock (compare farming tool values in Table 5 with horse and cattle prices in Table 6), this could be held secret or pass without remarks from the recorders.

Ploughs and other farming equipment were of low value until the eighteenth century. They were traditionally mostly made of wood with some iron shod details. But during the century to come, new types of iron-made ploughs and harrows were introduced and spread among the peasant farmers (Gadd 1983, pp. 153–6). These innovations also contributed to a decrease in the need for draught animals; the new ploughs had curved iron mouldboards and were not so heavy to drag (Olsson 2005). Regarding peasants' wagons, they began to rise in

value due to technological change already during the 1770s, which has been demonstrated in detail by Bergenfeldt et al. (2013).

To understand more in depth the extent of agricultural productive capacity, Table 6 shows the number of animals per household. The number of horses decreased over time both among labourers — from an average of 1.1 horses per household in the 1670–1720 period to 0.1 in the 1860s — and in farming households, where the number of horses decreased from 3.5 to 2.6. The drastic livestock decrease in labouring households is an indicator of proletarianization, but the fact that the number of horses also decreased among farmers indicates that the horse decline was also related to the changes in ploughs and wagons, which decreased the need for draught animals (Gadd 1983, pp. 259–60). In a West Swedish context, Gadd (1983, p. 125) found a shift from horses to oxen as draught animals from the 1750s to the 1850s.⁴ The decline in the number of animals — for horses as well as other types of animals — was also partly counteracted by a greater productivity for each animal, driven by breeding strategies and greater feed availability. The greater productivity per animal is also reflected in the growing prices of the animals, which is also shown in Table 6. The table also shows that farmers in the 1860s owned better animals than labourers did; by 1860, an average horse owned by a farmer was valued more than twice as much as a horse owned by a rural labourer.

Not only horses but also the number of cattle decreased over time. For farmers, the decrease in cattle during the eighteenth century can be partly attributed to rinderpest, which had devastating outbreaks in this area in 1722, 1745–6, 1749–52, 1762, and 1767–72 (Weibull 1923). The continuous decline after 1780, now also in the number of horses, can be explained by the above-mentioned innovation-driven decrease in need for draught animals and the increased productivity per animal. In a study of nine parishes in the southwestern county of Halland (of which four are included in our sample), Wiking-Faria found that only 5 per cent of farmers had no draught animal in 1740 but that the share grew to 26 per cent in 1820 and stayed around that level throughout the rest of the nineteenth century. ‘The cause of this development is proletarianization among a share of the farmers’, argues Wiking-Faria (2009, p. 293) and there might be a minor tendency like that in our sample too.⁵

⁴ However, Bengtsson and Svensson (2019, Table 5) found for four rural areas in central and southern Sweden that the largest decrease in the number of horses among farmers was in the very south, in Bara district, which is also included in our dataset.

⁵ Another potential explanation of the low number of animals for some farmers is the date of probating. Börje Hanssen (1952, pp. 229, 239–40), in his classic socio-anthropological study of early modern Scania, argues that

Table 4. Percentage of households with items showing engagement in productive activities

	Period	No.	Farming	Fishing	Hunting	Brewing, distillation	Spinning	Weaving	Textiles other
Workers and crofters	1700	40	30%	8%	3%	20%	18%	15%	8%
	1780	199	57%	3%	4%	2%	50%	37%	27%
	1860	346	38%	3%	5%	1%	49%	49%	39%
Peasant farmers	1700	368	70%	7%	1%	27%	20%	42%	12%
	1780	362	95%	6%	3%	16%	59%	72%	40%
	1860	233	87%	3%	12%	6%	68%	82%	67%
Retirees (undantag)	1700	–	–	–	–	–	–	–	–
	1780	30	50%	0%	0%	3%	50%	40%	53%
	1860	108	30%	2%	6%	2%	44%	46%	52%

Sources: Database as described in Table 1. Measured as ownership of tools for each activity. For ‘farming’ that is a plough and a harrow.

Table 5. Average value of some means of production for workers, peasant farmers, and retirees

	Period	Farming tools	Wagons	Spinning wheels	Looms
Workers and crofters	1700	0.5	1.7	0.7	0.4
	1780	0.3	3.5	0.2	0.6
	1860	0.9	3.1	0.2	0.9
Peasant farmers	1700	1.9	3.6	1.0	1.3
	1780	1.3	10.2	0.3	0.9
	1860	7.7	26.9	0.5	1.9
Retirees (undantag)	1700	–	–	–	–
	1780	0.3	3.1	0.2	0.4
	1860	0.3	2.4	0.2	1.0

Sources: Database as described in Table 1. All values in 1800 prices. Consumer price index from Edvinsson and Söderberg (2010).

some of the poorer peasants, especially in the more forested areas, could not afford to keep cattle during the winter months due to lack of fodder and instead would buy new oxen come spring, which they would sell again towards late autumn. For the sample taken for the period 1860–65, the majority of peasants were probated during the winter and early spring months, which would mean that the low capacity for farming found among the peasant group corresponds to the time during the yearly farming cycle they were probated. This correlation, however, does not appear to be present during the 1780–5 period, suggesting that the economic margins and capacity to keep animals during the winter period for the peasant group decreased during the nineteenth century.

Table 6. Number of livestock per household and average prices of livestock for workers, peasant farmers, and retirees

	Period	Horses mean	Horses median	Horse price	Cattle mean	Cattle median	Cattle price
Workers and crofters	1700	1.1	1	5.3	2.9	2	3.7
	1780	0.7	0	11.1	1.7	1	5.8
	1860	0.1	0	8.6	0.7	0	6.1
Peasant farmers	1700	3.5	2	6.6	10.3	9	4.6
	1780	4.3	3	10.8	8.5	8	5.1
	1860	2.6	2	19.3	5.0	4	8.2
Retirees (undantag)	1700	–	–	–	–	–	–
	1780	0.2	0	7.1	1.9	2	4.9
	1860	0.1	0	11.8	0.7	0	7.1

Sources: Database as described in Table 1. All values in 1800 prices. Consumer price index from Edvinsson and Söderberg (2010).

As for extent of productive capacity, then, it appears that for farmers, productive capacity was constant or growing over time: they owned the tools and animals needed for production, and we know that animals' productivity as well as land productivity grew significantly after 1750 through both animal breeding and improved crop rotations and new crops (Gadd 2000). In southern Sweden, especially plains regions, there was specialization in grain production for the market in the nineteenth century (Olsson 2005). The labouring classes, however, became more and more dependent on wage labour. This group also grew as a share of the rural population, from one quarter of the rural households in 1750 to half in 1850 (Winberg 1975). Of course, the growth of the rural wage labour force correlated with greater production at large farms and estates, using a hired labour force.

Let us now turn to the question of the *variety* of productive capacity. Did farmers and labourers have the capacity to produce goods other than agricultural?

4.2 By-employments and the role of textile production

Except for textiles, Table 7 shows that the various types of by-production were a minority activity among the probated households. The minority, however, could be quite large: before 1720, one-fifth of labourers and a quarter of farmer households could brew their own beer and/or distil their own liquor, but in 1747, distilling in the countryside was restricted to those who possessed taxed land, which stopped the crofters and tenant farmers. Many farmers continued until 1860, the year when the so-called household need distillation definitely was banned, which happened to coincide with our last benchmark. Some of the farmers probated

in the years after that still owned the equipment to produce liquor, but they were not allowed to use it.⁶ The brewing and distilling, however, were most likely production for one's own consumption and not production for the market. Fishing and hunting tools were owned by less than 10 per cent of households in all cases except for among the farmers in the 1860s, when 12 per cent of farmer households had hunting rifles.⁷

By far the most common production outside of agriculture per se, however, was textile production. In the 1670 to 1720 period, weaving and spinning were not so common in these households: 18 per cent of labourers and 20 per cent of farmer households had spinning wheels, and 15 and 42 per cent, respectively, had weaving looms. However, the trend was strongly increasing over time. In the 1760s, 50 per cent of labourer households and 59 per cent of farmer households had spinning wheels, and 37 per cent and 72 per cent, respectively, had weaving looms. In the 1860s the proportions had grown further: the prevalence of both spinning and weaving was about half for labourer households, and 68 and 82 per cent, respectively, for farmer households. Overall, these figures indicate a strong increase in textile production in these rural households. If we take the spinning wheel and the weaving loom together, in our first period more than half of the probated households had at least a spinning wheel or a weaving loom; in the two latter periods (the 1780s and 1860s), three quarters of households lived up to this criterion. This is a much higher frequency than found in English probate inventories by Shamma (1990) or Overton et al. (2004). We know that southern Halland — which includes the districts Halmstad and Hök, included in the sample — was a hub of woollen knitting from at least the mid-eighteenth century. In the tenancy contracts with the noble estates, crofters typically were obliged to spin as part of their land rent, while peasant farmers in 1824 were obliged to knit (Johansson 2001, p. 112). But in our sample, spinning wheels and weaving looms were ubiquitous also in the Scanian districts, and we can see an increasing amount of evidence in the estate archives that spinning was a part of the land rent during the eighteenth century.⁸ The significance of spinning is also obvious from one of the few preserved universal town custom lists, which is from Ängelholm 1798 in the very heart of our area of investigation in northwestern Scania. Although Ängelholm was a

⁶ Nordisk familjebok 'Bränvinslagstiftning' 1878 <http://runeberg.org/nfab/0636.html>.

⁷ That ownership of handicrafts tools and hunting and fishing tools was a minority phenomenon also holds for the crofter households in 1800, 1850, and 1900, as studied by Bengtsson and Svensson (2022, Table 6).

⁸ E.g., Rydboholmssamlingen E7715, RA (Skarhult 1720s); Torpaarkivet FI:6, GLA (Marsvinsholm 1750s); Karsholm Estate Archives DI:3, LLA (Karsholm 1780s).

very small town with 680 inhabitants, it received 2,952 kilos of spun linen yarn, 1,007 metres of cloth, and 849 pairs of woollen mittens during that year.⁹

Among the work activities that crop up in Swedish court records in 1550 to 1800, spinning yarn and weaving were two of the gender-exclusive work activities: they were only carried out by women (Lindström et al. 2017, Table 2). Thus, to understand the great expansion of spinning and weaving in the rural households studied here, it is crucial to understand the gender aspect. We will now turn to the overall interpretation of the empirical results.

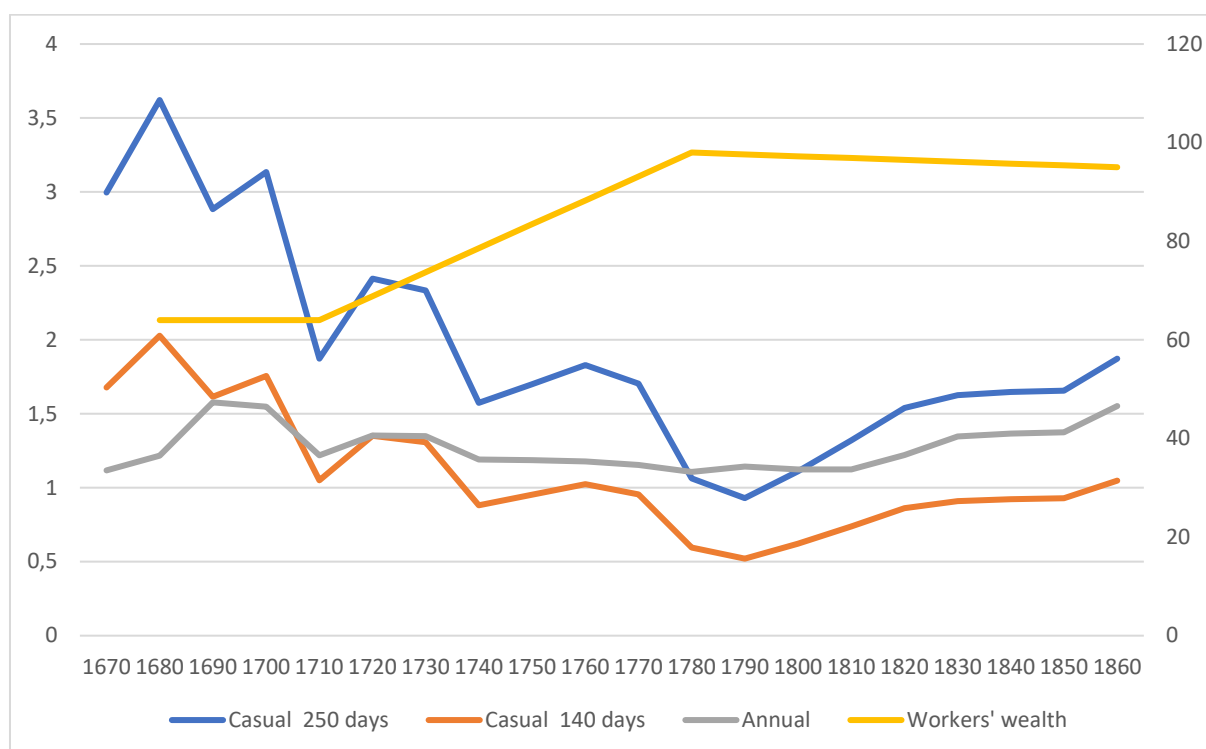
5. An industrious revolution in an increasingly unequal society

Historical national accounts indicate a stagnant economy in Sweden from the late 1600s, when our study begins, to the early 1800s (Edvinsson 2013; Schön and Krantz 2015). However, there are also more dynamic indicators. Edvinsson and Söderberg (2011), for example, map the evolution of relative prices and show that more knowledge-intensive products such as paper and printing and mining products became relatively cheaper over time. They interpret this as elements of Smithian growth in the non-agricultural sectors. Something similar might be indicated by our results.

The households that we study grew wealthier over time, in terms of real wealth in monetary terms (Table 2) and in terms of consumption goods (Falk 2023). However, our results also show that early modern Sweden was becoming more and more unequal, both between the social classes and within them. As we now have been able to draw some of the lines back to 1670–1720, this becomes increasingly clear. But at the same time, the average living standard measured by wealth increased for both peasant farmers and labourers.

⁹ Centrala tullräkenskaper, landstullen och accisen, Kammararkivet, RA. At this time there were two master tailors and one master weaver with a journeyman in this small town, and we do not know how much of the raw material was redistributed again (Ångelholms församling, husförhörslängd A11, LLA).

Figure 1. Casual and annual hired workers' real wages 1670–1860 and workers' wealth



Note: Wealth shown on right axis. Decadal averages of real wages, casual wages expressed in two hypothetical scenarios in numbers of workdays per year, divided by a Swedish consumption basket; primary axis 1 represents one Swedish average household respectability basket. The real wage level in 1840–60 has been extrapolated to Gary and Olsson’s series by Jörberg’s rural day labour series.

Sources: Real wages: Gary and Olsson (2020); Jörberg (1972). Wealth: Rural Production and Consumption 1670–1865 Database, Lund University; see Table 3 here.

The result for the labourers is startling and illustrated in Figure 1. During the eighteenth century, the labourers’ wealth increased at the same time as real wages, for both annually and casually hired labour, decreased. The only plausible explanation for this is an increase in labour output at the household level, since they had no other assets that they could capitalize on. On the contrary, their diminutive real estate values went down during this period, and so did their assets in livestock.

We have also seen a broadened productive capacity among peasant farmers and workers, almost entirely directed at textile production, and we see this as a strong indication of more household members engaging in new types of work. How did this change in household labour allocation work in practice? We know that from the 1760s, in southern Sweden the iron-axled wagons and iron-clad wheels became widespread in the population. Roads were not significantly improved, but with the given state of the roads and the better transportation

of the new wagons (documented by Bergenfeldt, Olsson and Svensson [2013]), transportation improved. This meant both that the number of goods that could be transported from production centres to farms and villages grew, and that the number of goods that could be transported from output production on the farms to markets could be increased. (The role of peddlers in nineteenth-century West Swedish rural consumption has been sketched by Lundqvist [2007].) The first mechanism is in evidence in Falk's (2023) study of rural consumption, and the second is present in the current study, as the increased market integration of improving transport gave rural households greater opportunities to produce textiles for sale. Of course, transport opportunities are not enough, but there must also be demand. The share of households that owned a spinning wheel increased from less than 20 to 50–60 per cent up to 1780. This change coincides with the heydays of Swedish pre-industrial mercantilist textile production. Thousands of rural and urban households were engaged in spinning wool and, to some extent, cotton in a putting-out system. Recent research into the textile factories' putting-out work arrangements show that this work gave important extra income to the predominantly working-class households. Some 95 per cent of the spinners were women, and there was a substantial amount of child's work involved. Although the specific state-sponsored putting-out system only involved a small fraction of Swedish rural households, it is a sign of the times that more household members were mobilized in work for the market. Consequently, the putting-out agents complained of competition from other actors who engaged rural working-class women in commercial spinning (Nilsson, Gary and Olsson 2023).

In a study of farmer diaries from the nineteenth century, Morell (2022, pp. 320–2) argues that farmers responded to the increasingly regressive taxation of the post-1720 period, and the individualization of agriculture imposed by the enclosures from 1748 onwards, by becoming more market-oriented and motivated by profit. These long-term institutional developments can have influenced farmers and made them more responsive to increased market opportunities offered by improved transports.

How did households then reallocate their labour/leisure time distribution? The period before 1780 saw only small improvements in agricultural productivity (Gadd 1983; Olsson and Svensson 2010). Thus, it was not necessarily the case that improvements in agricultural practice shed labour. Rather, the households sacrificed leisure. This is supported by the fact that marriage seasonality changed significantly in southern Sweden over this period. The share of marriages occurring post-sowing season in May–June fell drastically from the first half of the eighteenth century to the second half of the century (Dribe and van de Putte 2012)

(Table 2). Over the nineteenth century, the distribution of marriages over the year continued to change, with a generally even distribution, but also with December weddings becoming more important. Dribe and van de Putte (2012) interpret these changes as outcomes of increased work intensity throughout the year. Furthermore, as we have seen in Table 9, the farmer households decreased their number of cattle. This can have freed up labour time for women of the farmer households, since milking and taking care of the cows were female-coded tasks (Lindström et al. 2017) (Table 2).

Combined, improved transport opportunities, which gave access to new consumption goods and to sales markets for home-produced goods, a more market-oriented mentality, and a slightly revised agricultural strategy, facilitated an intensification of work throughout the year — an industrious revolution in southern Sweden, c. 1700–1800.

6. Conclusions

Our study clearly indicates a change in household labour allocation, giving strong Swedish support to the industrious revolution hypothesis. Both farmer households, whose wealth grew over the period and whose agricultural productive capacity was constant or improving, and labouring households, who were proletarianized over the eighteenth and nineteenth centuries in the sense that their agricultural productive capacity decreased, increased their spinning and weaving. Given the gendered coding of spinning and weaving, this indicates a greatly expanded output for textile markets by rural women in southern Sweden in this period. This coincided with a decrease in the number of cattle and an increased specialization in grain production, which decreased female labour inputs relative to male in the agricultural production, but was also a result of intensification of work — increased industriousness. This conclusion is also supported by the changing seasonality of marriage (Dribe and van der Putte 2012). Thus, our research indicates the dynamism of the early modern Swedish economy, which contrasts with estimates of stagnating GDP per capita (Edvinsson 2013; Schön and Krantz 2015), but concurs with indicators of growing agricultural productivity (Olsson and Svensson 2010) and more knowledge-intensive production (Edvinsson and Söderberg 2011). Our results open up for further research on the dynamics of market formation and integration in the early modern Swedish economy and sources of economic development in such a society, in line with previous research on early modern West Europe that has also shown incremental economic growth in pre-industrial society (van Zanden 2002; de Vries 2008; Muldrew 2011).

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Appendix

This Appendix presents additional calculations based on the database used in the paper. In the Appendix, we present more detailed estimates of wealth and assets of different categories of farmers and retired farmers (Tables A1 and A2), the development of wealth inequality among farmers (Table A3), and estimates for different categories of the agrarian working classes (Table A4). These calculations are not necessary for the argument put forward in the paper, but useful to understand the wider context.

Tables A1 and A2 provide a more detailed calculation of wealth development over time, compared to the presentation in Table 3 in the main body of the paper.

Table A1. Wealth development for peasant farmer subcategories

	Period	No.	Age at death	Gross value	Net value	Real estate value	Production assets, share of gross	Consumable assets, share of gross	Claims, share of gross	Debts, share of gross
Farmer reference group	1700	292	50	196	115	15	80%	18%	4%	54%
	1780	204	51	290	197	33	65%	31%	5%	40%
	1860	202	52	1,253	659	619	58%	39%	36%	51%
Local trustees or rusthållare	1700	70	57	400	231	48	81%	17%	4%	72%
	1780	98	50	602	432	160	63%	33%	6%	33%
	1860	17	54	4,425	2,823	1,572	65%	29%	42%	41%
Tenants of the nobility	1700	6	–	147	81	0	89%	11%	6%	60%
	1780	60	48	211	125	0	72%	26%	3%	51%
	1860	14	46	264	162	1	69%	28%	21%	59%

Sources: Rural Production and Consumption 1670–1865 Database, Lund University. All values in 1800 prices. Consumer price index from Edvinsson and Söderberg (2010).

Table A2. Wealth development for retired farmers

	Period	No.	Age at death	Gross value	Net value	Real estate value	Production assets, share of gross	Consumable assets, share of gross	Claims, share of gross	Debts, share of gross
Retirees (undantag)	1700	–	–	–	–	–	–	–	–	–
	1780	30	65	63	39	2	39%	54%	4%	39%
	1860	108	72	187	158	8	23%	71%	58%	48%

Sources: Rural Production and Consumption 1670–1865 Database, Lund University. All values in 1800 prices. Consumer price index from Edvinsson and Söderberg (2010).

Table A2 shows that in the nineteenth century, the retirees show a similar wealth development to the farmers, an increase of two to three times depending on whether we count gross or net, but from a lower level. It testifies that most of them were former farmers who left the farm in exchange for guaranteed sustenance until their death, usually but not always to a son or daughter. Persons listed as retirees are completely missing in the material from the seventeenth and early eighteenth centuries. This can have two explanations. Firstly, the retirees' estates were not particularly interesting for probate in the early period, as they usually already got rid of any debts as well as the most essential parts of their possessions, precisely in exchange for old age subsistence and care. When probate later became mandatory, they appear in the sources. Second, this group de facto increased during the eighteenth and especially the nineteenth century, with rising prosperity among the farmers combined with pressure from their increasingly surviving children who needed to take over the farm to marry. It became, so to speak, both possible and necessary to retire. Contemporary nineteenth century writings also reported with some horror the retiree system to promote that the old 'often longed much too early for the comfort of the quiet pension croft' (Lundh and Olsson 2002, p. 388).

Farmers' wealth grew quite rapidly over time, but there was a great deal of inequality among farmers. Table 2 in the main body of the paper has shown that in our first period of analysis (1670–1720), the wealth of the tenants of the nobility (*frälsebönder*) was a third lower than the wealth of the freeholders and crown tenants (*skattebönder* and *kronbönder*). Appendix Table A1 shows the absolute numbers for each group. This finding contrasts with earlier research, which has often seen both groups as equivalent up to the mid-eighteenth century (Olsson 2005) and attributed the divergence to the favourable development of taxes (paid by freeholders) compared to the land rents paid by tenants of the nobility in the eighteenth and early nineteenth centuries. The land rent, in the form of tax, fell for owner-occupiers and crown tenants successively, from 30–5 per cent of the household's gross return at the end of the seventeenth century to less than 10 per cent 200 years later. This is in sharp contrast to the tenants of the nobility whose landowners were able to increase the *corvée* labour and other rent forms; consequently, their land rent remained at the level of 30–40 per cent of the household's gross production (Olsson 2005). The increase in wealth up to 1780 (Table 2) was quite similar for the various peasant groups, but a renewed strong differentiation took place thereafter until 1860. In the 1860s, the owner-occupiers and crown tenants were almost four times richer than those of the tenants of the nobility. Their advantage

was the direct result of more favourable taxation and of the fact that productivity developed more favourably for freeholders compared to tenants of the nobility during the agrarian revolution — the latter driven by the former, by the incentives given by taxation and land rents (Olsson and Svensson 2010, p. 293).

An interesting difference within the peasant farmer group is that the livestock of the tenants of the nobility actually outnumbered the livestock of the peasant farmer reference group in the 1780s and 1860s. This is not shown in the tables, but the reference farmers had on average 2.8, 3.7, and 2.3 horses at the three benchmark years, and tenants of the nobility 3.0, 4.5, and 2.9. The same figures for cattle (including oxen) were 10.1, 7.9, and 4.8 as compared to 6.8, 7.8, and 6.1. This is most likely an effect of the *corvée* system. The tenants of the nobility would plough and tend not only the fields of their own farm, but also the demesne of the manor, which required more draught animals. It was exactly during this time, from the late eighteenth century to the mid-nineteenth century, that the number of *corvée* days per tenant increased sharply, from around 100 to more than 300 days per year. To meet these demands, they were also forced to hire extra farmhands (Olsson 2006).

The uneven development among the farmers was partly due to real estate values, which in 1860 constituted about half of the freeholder and crown tenant group's gross values and just over a third of the trustees' (Table A1). But the differentiation was equally strong when it comes to movables. For the differentiation among the peasant farmers, earlier research has pointed at explanations like security in tenure, natural conditions and productive capacity, and the ability to adapt production to the growing markets for agricultural produce (Bengtsson and Svensson 2019).

As differences grew between different kinds of farmers, inequality within the farmer group grew. Table A3 shows that the Gini coefficient among the farmers in our sample increased from 0.45 in the 1670–1720 period and 0.48 in the 1780s to 0.60 in the 1860s. The initial low level of inequality found among farmers fits with some previous research, such as Linde's (2000) argument based on tax data that stratification among farmers in Närke county in the 1710s was limited. Lindström (2008), on the other hand, studying a parish in central Sweden, found a high level of inequality already in the 1620s, with a relatively stable level until the 1820s. Using taxes on animals, Lindström found, for example, that a single farmer in 1631 could own 8 horses, 12 oxen, 19 cows, 30 sheep, and 17 pigs. This was more animals than the wealthiest farmer in the parish had in 1812, and Lindström (2008, p. 92) argued that

inequality within the farmer class in this parish had no growing tendency over this period.¹⁰ For Sweden as a whole, Bengtsson et al. (2018) found a Gini coefficient of net wealth of 0.57 of farmers in 1750, 0.71 in 1800, 0.77 in 1850, and 0.80 in 1900. Since these figures are on the national level, they are not directly comparable to ours, but the trend of growing inequality at least from the 1780s to the 1860s is similar in our sample.

Table A3. Inequality among peasant farmers

Period	Top 10% share of wealth	Gini coefficient
1670–1720	35%	0.45
1780s	37%	0.48
1860s	48%	0.60

Sources: Rural Production and Consumption 1670–1865 Database, Lund University.

Table A4. Wealth development for worker and crofter subcategories

	Period	No.	Age at death	Gross value	Net value	Real estate value	Production assets, share of gross	Consumable assets, share of gross	Claims, share of gross	Debts, share of gross
Crofters and cottagers	1700	6	–	135	119	19	78%	22%	7%	21%
	1780	108	52	102	76	21	43%	54%	4%	32%
	1860	194	55	92	52	34	30%	67%	30%	66%
Workers	1700	4	–	84	14	5	37%	63%	6%	51%
	1780	60	52	118	101	4	29%	60%	15%	32%
	1860	82	41	144	101	36	10%	82%	52%	55%
Unspecified landless or semi landless	1700	29	45	47	6	0	60%	34%	8%	113%
	1780	29	63	43	25	0	32%	59%	6%	83%
	1860	68	66	49	25	10	22%	74%	62%	79%

Sources: Rural Production and Consumption 1670–1865 Database, Lund University. All values in 1800 prices. Consumer price index from Edvinsson and Söderberg (2010). Before 1720, the unspecified landless is the biggest group in the working-class sample, which must be attributed to lack of titles in the sources. Their (low) mean age is built on only seven individuals.

Table A4 breaks down the wealth development of Table 3 in the main body of the paper, for various working-class groups. For the unspecified landless and semi-landless, we lack titles. They are the poorest of all the groups in our sample, and in 1780 and 1860 they are also the oldest, apart from

¹⁰ On the other hand, he argued that overall inequality probably grew, through growth of the underclasses and an increasing concentration of wealth among the non-farmer landowners (Lindström 2008, p. 92).

retired farmers. The unspecified landless thus increasingly consisted of elderly poor people without any organized pension benefits or with very low ones; in most cases, they were former crofters and labourers.

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