


RESEARCH ARTICLE

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

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Abstract

This article uses a new database of 1,891 probate inventories from rural southern Sweden to investigate the development of rural households' productive capacity from the late 1600s to the 1860s. Both labourers and farmers improved their material living standards – as measured by the contents of probate inventories – but the labouring households' ownership of means of production decreased over time. This indicates increasing market involvement and dependency on wage labour. For labourers' and farmers' households alike, textile production at home became more important; in the 1860s, half of the labouring households owned spinning wheels and weaving looms, and for farmer households, the shares were even higher. Our study reveals not only the dynamism of the rural pre-industrial Swedish economy but also the unequal nature of this dynamism.

Introduction

The degree and rate of economic development before industrialisation is one of the great debates of European economic history. As evidence of significant economic development before industrialisation, economic historians point to for example developing international trade networks, agricultural productivity, and proto-industry (van Zanden 2002; cf. Prak 2001). Proponents of views of long-run stagnation, especially informed by Malthusian perspectives, instead point to indicators such as real wages (Clark 2007).

We contribute to this discussion by studying rural southern Sweden from the late 1600s to the take-off of industrialisation in the 1860s. We have collected a new dataset of 1891 rural probate inventories from the 1680s to the 1860s and use this to analyse what rural Swedes produced and how this changed over time. We follow scholars such as de Vries (2008) in using probate inventories to discuss the evolution of living standards, and it is of special importance that the richness of the Swedish historical probates makes it possible for us to socially differentiate between, on the one hand, property-owning farmers and, on the other hand, rural landless and labourers. Inequalities – economic, political and social – between the landowning and non-landowning groups were severe in early modern Sweden (e.g., Söderberg, 1978; Bengtsson et al, 2018), as in Europe more generally, so it is of great interest to study both groups here.

Sweden from the late 1600s to the onset of industrialisation in the 1860s is an interesting case for studying the dynamism of an early modern European economy, as there is evidence both speaking for stagnation and for dynamism. The most crucial piece of evidence for a view of early modern economic stagnation is the canonical historical national accounts data produced by Schön and Krantz (2015), included in the Maddison Project. According to these data, Swedish GDP per capita stagnated during the pre-industrial period, actually being at a lower level around 1850, before the onset of industrialisation, than it was in the late 1600s.¹ The suggestion that Swedish

living conditions stagnated from the late 1600s to the early 1800s is borne out also by recorded decreases in the real wages of labourers during the eighteenth century (Söderberg, 2010; Gary and Olsson, 2020). On the other hand, there are also several indicators of dynamism in the early modern Swedish economy, including falling relative prices of accomplished goods (Edvinsson and Söderberg 2011) and improved agriculture and transportation (Olsson and Svensson 2010; Bergenfeldt, Olsson and Svensson 2013).

The probate inventories have the strength for our purposes of allowing us to leave an ahistorical focus on male wages, which to some degree has marred the discussion on early modern living standards (Hatcher and Stephenson 2018) and instead focus on the composite outcomes of complex combinations of labour (cf. Horrell, Humphries and Weisdorf, 2021). Two main results of this study point in the direction of dynamic household behaviour, with higher work intensity and more market involvement (cf. de Vries, 2008), both among labourers and farmers. Firstly, we find increased wealth for the labourers in a period of falling real wages, which we interpret as evidence of increased labour input at the household level. Gross wealth grew by about 50 per cent for the rural labourers in our areas from the early 1700s to the 1780s, while wages stagnated and the labourers' ownership of means of production (land, animals) decreased. This highlights greater dependence on wage labour and greater intensity of wage labour, i.e., an industrious revolution for the Swedish rural labourers, similar to what happened in England (Muldrew, 2011: chs. 5–6) and Catalonia (Congost, Ros and Saguer 2023).

Secondly, we find that both farmer households and labourer households significantly expanded their ownership of spinning wheels and weaving looms. Textile work was one of the most gender-segregated work activities in early modern Sweden (Lindström *et al.*, 2017), so the greater involvement in spinning and weaving indicates greater work intensity, or at least reallocation of labour, for rural women. This again indicates the growing market involvement of rural Swedish households in the period.

Our results indicate that even before the start of industrialisation in Sweden, rural living standards for both workers and farmers were improving through increasing division and intensity of labour. However, on the whole, a contrasting effect was given by the well-known process of proletarianisation which occurred in Swedish countryside between the mid-eighteenth century and the mid-nineteenth century (Winberg, 1975; Söderberg, 1978). This process meant that an ever greater share of the population came to belong to the poorer group, the labourers. Thus, even though both groups improved their standing, since the poorer group increased its share of the population, the effect on overall wealth was tempered by the composition effect. We thus document dynamism in the early modern Swedish economy, but a dynamism which did not benefit everyone equally.

The dynamics of the early modern economy and the industrious revolution

In the early modern period, European households typically combined several economic activities to make a living, in strategies of pluri-activity (Ågren, 2023: 26). Subsistence production was combined with wage labour and production for the market in complex ways (Heckscher, 1936: 530; Shammas, 1990: 17; Overton *et al.* 2004). According to de Vries, an industrious revolution occurred during the 'long eighteenth century', 1650–1850 in northwestern Europe. The crux of this 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: 10). Market access was crucial to economic development in de Vries' theory, in two ways. From the production side, for households to be able to intensify their labour and to specialise 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 (de Vries, 2008: 78). Both are related to the improvements of transport and communication, which connected households to markets.

An important revision of de Vries's model of the industrious revolution is that increasing work intensity seems to have been often driven not by access to attractive new goods of colonial provenance, but rather by times of hardship and rising prices, forcing labourers to increase their work intensity to survive. This has been found in Britain (Allen and Weisdorf 2011), Italy (Malanima and Pinchera 2012), and Sweden (Gary and Olsson 2020); also a recent study of Catalonia finds increased industriousness in the eighteenth century, without much role for colonial goods (Congost et al., 2023). Importantly, such pressures can also lead to revised household strategies and reallocation of labour time with women and children increasing their work for the market (as in Horrell and Humphries, 1995).

Beyond the de Vriesian model, there are several other reasons to expect pre-industrial economies to exhibit economic development, despite the lagging of GDP per capita and real wages in the Swedish case (Schön and Krantz, 2015; Gary and Olsson, 2020). Firstly, the rich literature on the 'agrarian revolution' in Sweden and elsewhere suggests that before industrialisation, agricultural output improved with new crop rotations, productivity-enhancing animal breeding, and more efficient ploughs and other tools. In the Swedish case, this is dated to c. 1750 to 1850 (Gadd, 2000; Olsson and Svensson, 2010; Morell, 2022; on the British development Overton, 1996). Secondly, transportation improved in the 1760s in southern Sweden when iron-axled wagons and iron-clad wheels became widespread in the population (Bergensfeldt, Olsson and Svensson, 2013). This should have facilitated increased market involvement, which is crucial for agricultural development (Kopsidis and Wolf 2012; Lust 2023) and of course, in the de Vriesian model, economic development broadly. Thirdly, it has been shown that relative prices of accomplished goods – iron nails, paper – fell compared to grains over the long run (Edvinsson and Söderberg 2011). This indicates productivity growth in the crafts sectors. All these indicators make it pertinent to investigate how the productive capacity of rural households evolved before industrialisation.

Empirical strategy and sources

Making a probate inventory, listing all owned items (including real estate), claims, and debts, upon death became mandatory in Sweden in 1734. These inventories and the calculated household wealth were then used as the basis for the division of the estate between heirs, as well as the paying of creditors – who according to both law and customs had first priority when dividing the estate – and the parish poor tax (Jónsson 2016). 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 (G. Andersson 2009; E. Andersson 2017; Bengtsson, Olsson and Svensson 2022). We add a new dimension by adding rural inventories from the pre-1734 period.

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 (Overton et al., 2004; de Vries, 2008; Keibek and Shaw-Taylor, 2013). Thus, the Swedish probate inventory lists the belongings of the household as a whole and reflects the productive capacity and material life of the household, including everything from furniture to tools, cattle, grain, and debts and credits held.² The inventories would be drawn up by elected trustees and presented at the *häradssting*, the bi- or thrice-annual meeting of the judicial district (*härad*) after which they were archived in the *härad* archive. The probate inventories from all *härad* archives are digitalised 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.

For the 1670–1720 period, we located three clusters, encompassing 13 judicial districts, which have preserved enough inventories to facilitate analysis. All three clusters are located in southern Sweden: one is from the historical Kristianstad County, one from Malmöhus County, and one from Halland County. The study area is delineated in the map in Figure 1.

For the 1670 to 1720 period, when probate records were scarce, the sampling strategy for the given districts was simple: we collected all completely preserved probate records.³ We then sampled the same districts in the 1780s and the 1860s to facilitate the investigation of rural economic change until the advent of industrialism. For the 1780s and 1860s, there are thousands of inventories preserved, so we needed to narrow our sample, and we set an aim of about 200 inventories for each district cluster period. Table 1 shows the make-up of the dataset. Within three counties, the sample of 1,891 probate inventories draws from 13 judicial districts and within the districts, 214 parishes.

The inventories were archived in bound books, typically sorted after the court meeting 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 during the year is largely unbiased with regard to one's social standard, we simply excerpted the inventories in the order that they appeared in the volumes.⁴ Overall, there is no discernible gender bias in the surviving material, with close to a 50 per cent split between men and women.

Table 1 also addresses a reasonable worry of sample bias: it could be the case that only wealthier areas would have surviving probate records. In fact, the table shows that the studied areas varied significantly in terms of conditions for agriculture, population density, and social structure. In Swedish agrarian history, an often-used classification is plains land, intermediate 'shrub' land, and forest land, with the first type of area richer and more populous as the more fertile plains land could support more people. As can be seen in the 'Contextual variables' section of Table 1, the dataset comes from all three types of regions. That the sample is a varied one is also borne out by the share of the households who were poor (tax exempt) in the 1820s, as investigated by Söderberg (1978, p. 41): poverty rates varied from 15.5 per cent in the plains area Oxie and Skytts to 18.0 in the Halmstad area, 20.2 per cent in Norra and Södra Åsbo, and a high of 26.2 per cent in the forested Göinge area. The variation in natural conditions, social structure, and wealth levels reassure us that our results will not be relevant only for one type of area.

We retrieved occupational titles from the probate inventories, when needed complimented with the church books. (For full references to the church books of the 200+ parishes, see the Online Appendix.) Around 60 unique occupational titles were identified, not including the ubiquitous wife (*hustru*) or similar titles used for almost every woman. In the main analyses of the paper, we distinguish especially between farmer households and labouring (landless or semi-landless) households.

The age of the probated person is of importance since we want to study households of working age rather than retirees. Combining information of the probate inventories – the age of surviving children, as well as goods held (a person with the title farmer but without farming tools is most likely retired) – with age information from the church's death books, we separate retirees from working-age people.⁵ See the Online Appendix for further discussion of retirees.

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. The evolution of household wealth and its distribution is of relevance for our purposes to contextualise the households: how large were wealth differences between farmers and labourers and how did overall wealth evolve over time? For the main analyses of the paper, however, we focus on the households' productive capacity. We divide the production capacity into two dimensions. Firstly, the *extent* of production capacity in agriculture: the number of animals and tools and the wealth in terms of land. Secondly, the degree of *variety* in production capacity: in how many ways can the household produce goods? The extent of productive capacity in agriculture has a non-linear relationship with market



Figure 1. Map of the investigated area with district borders.

involvement. If the household has no agricultural productive capacity at all – no pig, no cow, no plough – it means that its members certainly are dependent on wage labour for survival (cf. Bengtsson and Svensson, 2022).⁶ If the household has *some* agricultural productive capacity, it indicates a degree of self-sufficiency, but if the capacity is much greater than a household's

Table 1. Geographical composition of the dataset

County	District	Number of inventories			Contextual variables		
		1670–1720	1780–1785	1860–1865	Type of area	Population per 100 ha, 1805	Share noble land, 1825
Halland		198	200	200			
	Halmstad	107	147	148	Shrub	14.9	81.4%
	Hök	57	36	35	Shrub	10.3	64.3%
	Tönnersjö	34	17	17	Shrub	9.3	76.9 %
Malmöhus		135	228	228			
	Oxie	59	64	64	Plains	34.5	19.7%
	Skytts	30	28	28	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%
	Ö. Göinge	30	50	61	Forest	13.6	43.2%
	Bjäre	25	61	111	Shrub	34.7	15.4%
Total		483	640	746			

Sources: judicial district archives (häradsrätter) for the 12 districts, accessed via arkivdigital.se. Note that all the inventories from Tönnersjö were found in the Halmstad probate volumes, and almost exclusively belong to parishes previously part of Halmstad. Type of area is classified based on Campbell (1928), Söderberg (1978) 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 the year 1825.

consumption needs, then it indicates market involvement, as the surplus must be sold (cf. discussion in Overton *et al.*, 2004: 35).

The variety in production capacity measures the capacity of the household to produce non-agricultural goods: carpentry, textile work, and the like. The inventories report numbers and monetary values of items such as hammers, drills, and saws (all three generally found together under iron goods), fishing rods, hunting rifles, carders, and so on. The probate inventories are great sources to capture any craft that required tools, and we put special emphasis on textile work which was of great importance in the early modern Swedish and European economy. The Swedish probate inventories do not suffer from the problem suggested by Keibek and Shaw-Taylor (2013) in the English context, namely that they would under-represent spinning wheels because these were so cheap. As we will see, there are many spinning wheels in the Swedish probate inventories – and these are by no means the cheapest items present in the records. We interpret this as an indicator of the comprehensive nature of these inventories (Cf. Gadd, 1983: 69–72). What we are missing in the probates are by definition work activities in the service sector, such as transport services, that required no specific tools. (Cf. the discussion based on court sources in Ogilvie, 2003: 115–138). We will problematise this in the discussion.

Social structure, wealth development, and inequality

In our time period, the social structure in the Swedish countryside was built especially on the broad group of peasant farmers, encompassing both freeholders and tenants. By the mid-eighteenth century, when reliable population statistics began, around three-quarters of rural households were headed by a peasant farmer (Winberg, 1975). The final quarter was made up of craftsmen, labourers of various kinds, nobles, and small middle classes and proprietary groups (Carlsson, 1973; Bengtsson et al, 2018: 791–794). Over the 1750 to 1850 period, the number of households grew much faster than the number of farms, and the share landless or semi-landless labouring households increased from about 25 to about 40 per cent of the total population (Winberg, 1975; Söderberg, 1978).

The two broad groups of labourers and farmers are at the centre of our analysis, and as we can see in Table 2, they are well-represented in the dataset: the labourers are 8.1 per cent of the sample in the first period, 30.8 per cent in the second period, and 46.0 per cent in the third period. The farmers were 74.6 per cent in the 1670–1720 period, 56.0 per cent in 1780–85, and 31.0 per cent in 1860–65. The rise of the labourers and the relative decline of the farmers in the sample is intimately related not only to the changes in their shares of the population but also to a decreasing wealth bias in the making of a probate. Bengtsson and Svensson's (2022: Table 8) comparison of probate records and church books when it comes to the probate frequency of crofters 1750 to 1900 however suggests that it was not so simple as a linear increase in probate frequency. Due to the erratic existence of church books for our areas in the 1670–1720 period, we cannot reproduce the calculations of Bengtsson and Svensson (2022) here, but can claim that firstly, the representation of both the main groups is rich, and secondly, if there is a decreasing wealth bias over time, then this will lead us to underestimate improvement in living standards (Cf. discussion in Muldrew, 2011: 187–192.)

The quite drastic rise in wealth for both groups from the 1670 to 1720 period to the 1780s, however, seems to indicate that such a bias is not severe. For the labourers, overall probated wealth grew from 61 riksdaler to 96 riksdaler in 1800 prices (an increase of 57 percent), while the farmers' average probated wealth grew from 232 to 362 riksdaler (an increase of 56 percent). This is an important result, as it speaks against the stagnationist view of Swedish eighteenth and early nineteenth century economic development given by the evolution of GDP per capita (Schön and Krantz, 2015) and real wages (Gary and Olsson, 2020). Especially, the discrepancy between the labourers' assets and the real wages – the farmers should not be affected by real wages – is very important, as it indicates increasing work intensity.

This is also highlighted in Figure 2 which relates the household wealth to the real wage. If labour input for wages was constant, and this was the only source of household wealth, then household wealth would follow the real wage closely. However, Figure 2 shows that this is not the case: labourers' household wealth grew from the 1670 to 1720 benchmark to the 1780s, while real wages declined significantly. (The evolution from the 1780s to the 1860s was different: great growth in wealth for the farmers, but stagnation for the labouring households.) The discrepancy between the real wage and labourers' household wealth suggests that we must, in line with recent criticisms of real wage studies (Hatcher and Stephenson 2018), discuss the breadth of rural households' labour input not only recorded wage labour but also other forms of work for subsistence or the market.

Delving into the details of the dataset reveals that the stagnation for labourers from the 1780s to the 1860s was driven especially by the evolution for the semi-landless groups, crofters, and cottagers. This group had access, on a rental basis and in exchange for their labour, to some land, perhaps enough for the grazing for a pig and a cow. (For detailed calculations see Online Appendix, Table A4.) But over the nineteenth century, when the population, agrarian productivity, and land prices grew steeply (cf. Bengtsson and Svensson, 2019), the value of land in the probates of crofters and cottagers stagnated, indicating a steep decline in land access.

Table 2. Wealth development for labourers and peasant farmers

	Period	No.	Average age of 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
Labourers	1670–1720	39	45	61	27	3	62%	33%	7%	91%
	1780–1785	195	53	96	75	9	37%	56%	8%	39%
	1860–1865	342	54	96	58	28	24%	72%	18%	61%
Peasant farmers	1670–1720	367	50	232	135	9	80%	18%	4%	58%
	1780–1785	362	50	362	250	35	66%	31%	5%	40%
	1860–1865	231	52	1434	792	576	59%	37%	23%	49%

Sources: Database is described in Table 1. All values in riksdaler specie, 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.

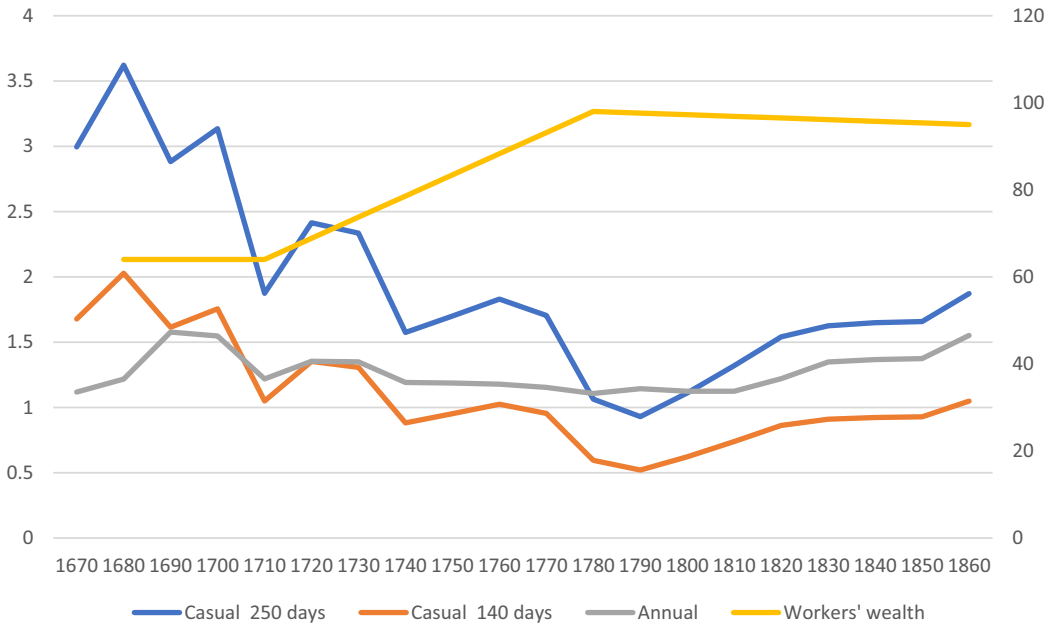


Figure 2. Casual and annual hired workers' real wages 1670–1860 and labourers' wealth. Note: Wealth is shown on the right axis. Decadal averages of real wages, casual wages expressed in two hypothetical scenarios in numbers of workdays per year, divided by a Swedish consumption basket; primary axis 1 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: Wealth: Probate inventories as described in Table 1. Real wages: Gary and Olsson (2020); Jörberg (1972).

The average crofter in our dataset in the 1780s held land worth 21 riksdaler, and in the 1860s 31 riksdaler, but the corresponding value for farmers grew from 35 riksdaler to 576 riksdaler (see Table 2). This shows the polarisation in access to land over this time period. For the labourers overall (Table 2), the productive assets' share (not including land) of their wealth decreased from 62 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. The lesser ownership of productive goods indicates less capacity for subsistence production and greater dependency on wage labour (cf. Ahlberger, 1988; Bengtsson and Svensson, 2022). Furthermore, unlike as proposed by de Vries (2008), however, it seems unlikely that the increase in consumable assets was driven by demand for new exotic consumption goods, as almost no colonial goods were observed in the south Swedish countryside in the 1780s (Falk, forthcoming).

Agricultural productive capacity

We now know that there was a polarisation in agricultural productive capacity over the eighteenth century among the rural households. Tables 3 and 4 further elucidate this issue. While about a fifth of labouring households still had a plough and a harrow in the 1860s (Table 3),⁷ the number of animals collapsed for the labourers: from an average of 1.1 horse and 2.9 cattle in the late 1600s to 0.7 and 1.1 in the 1780s and 0.1 and 0.7 in the 1860s (Table 4). Thus, few of the labouring households had draught animals, and they were by the 1780s, and even more so by the 1860s, clearly dependent on wage labour and labour for hire. The number of cattle in the first period is respectable compared to the English labouring households investigated by Muldrew (2011: 250–255), whereas the 1860s average is very low also compared to Muldrew's labourers (Muldrew's investigation ends in 1799.)

Table 3. Percentage of households with items showing engagement in productive activities

	Period	No.	Farming	Fishing	Hunting	Brewing or distillation	Spinning	Weaving
Labourers	1670–1720	39	25%	5%	3%	21%	18%	15%
	1780–85	195	33%	3%	4%	2%	49%	37%
	1860–65	342	18%	3%	5%	1%	49%	49%
Peasant farmers	1670–1720	368	62%	7%	1%	27%	20%	42%
	1780–85	362	90%	6%	3%	16%	59%	73%
	1860–65	231	74%	3%	12%	6%	68%	82%

Sources: Database is described in Table 1. Measured as ownership of tools for each activity. For 'farming' that is a plough and a harrow. That 30 percent of farmer households in the first period lack plough and harrow is most likely an indicator of old age and retirement. For this period, finding ages in the church books is more difficult than for the two other periods, as the sources often have not survived. For those farmers who we have found in the church books, the average age for peasant farmers with plough and harrow was 50 years, those without 57. See Online Appendix for further discussion.

Table 4. Means of production held by labouring households and peasant farmers

	Period	Farming tools, values	Wagons, values	Spinning wheels, values	Looms, values	Horses, mean #	Cattle, mean #
Labourers	1670–1720	0,1	0,8	0,1	0,1	1.1	2.9
	1780–85	0,4	1,5	0,2	0,4	0.7	1.7
	1860–65	0,3	0,7	0,1	0,5	0.1	0.7
Peasant farmers	1670–1720	1,3	2,9	0,2	0,5	3.5	10.3
	1780–85	2,5	9,9	0,4	1,2	4.3	8.5
	1860–65	6,7	23,4	0,3	1,6	2.6	5.0

Sources: Database is described in Table 1. All values in *riksdaler specie*, 1800 prices deflated using the consumer price index from Edvinsson and Söderberg (2010).

The number of livestock decreased for farmers too (Table 4), to an average of 5.1 cattle and 2.6 horses in the 1860s. But this should not be interpreted simply as evidence of impoverishment. More systematic breeding meant that the productivity of each animal – in terms of draught power for oxen and horses or in terms of milk yields for cows – grew strongly over the eighteenth and nineteenth centuries. For example, Gadd (2000: 315–316; cf. Wiking-Faria, 2009: 285–287) estimates that the average cow gave 600 kilos of milk per year around 1800, but 1000 kilos per year around 1860. Over the 1750 to 1850 period, iron-clad ploughs and harrows were also introduced, drastically improving fieldwork and decreasing the need for draught animals (Gadd, 1983: 153–156, 259–260; Olsson, 2005). However, the very low ownership of animals for labourers in the 1860s is indicative of small or non-existing own agricultural productive capacity.

To sum up, for farmers, productive capacity was constant or growing over time: they owned the tools and animals needed for production, and animals' productivity as well as land productivity grew significantly at least after the mid-eighteenth century (Gadd, 2000; Olsson and Svensson, 2010). The growing surplus of the farmers facilitated risk-taking and specialisation, as the risk of poverty or even starvation withered away, and the enclosures and new production strategies of the farmers improved output further, in a positive cycle over the nineteenth century (Wiking-Faria, 2009: 321–324). The labouring classes, however, became more and more dependent on wage

labour, while this group also grew as a share of the rural population. The agrarian growth of the nineteenth century included lots of ditch-digging and other improvement work on the farms, which provided agrarian job opportunities for labourers (Gadd, 1983: ch. 12; cf. for England Muldrew, 2011: ch. 6). In the next section, we explore other possible subsistence strategies.

By-employments and the role of textile production

Table 3 summarises not only the share of households which held plough and harrow, what we see as the key agricultural tools, but also the tools for a variety of economic activities and crafts: hunting, fishing, brewing, spinning, and weaving. 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 (Nordisk familjebok, 1878), which happened to coincide with our last benchmark. 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.⁸

By far the most common production outside of agriculture per se, however, was textile production. We know from previous studies, such as Muldrew (2012), that before the mechanisation of spinning and weaving which started in the late 1700s (and well after that: see Nilsson, 2015), these activities were major parts of work strategies in rural European households. In the 1670 to 1720 period, weaving and spinning were quite common activities in the south Swedish 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. Furthermore, the trend was strongly increasing over time. In the 1760s, 50 per cent of labourers and 59 per cent of farmers 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 farmers. Overall, these figures indicate a strong increase in textile production in these rural households.⁹ 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. There is among the labourers no similar increase in fibre production, either wool or flax, during the same period, with the share of labouring households keeping sheep even declining between the two latter periods (from 53% to 25%).

The ownership rate of spinning wheels and weaving looms is, however, higher than that found in English probate inventories by Shammas (1990) and Overton et al. (2004), or the Catalanian labourers' inventories studied by Congost et al. (2023). We know that southern Halland – which includes the districts Halmstad, Tönnersjö and Hök, included in the sample – was a hub of woollen knitting from at least the mid-eighteenth century (Johansson 2001). But in our sample, spinning wheels and weaving looms were ubiquitous also in the Scanian districts.¹⁰ What can then explain the increasing ubiquitousness of spinning wheels and weaving looms? And how can we know that this increase was not mainly for home-used products?

The so-called manufactory system was a Swedish state-subsidised factory system which above all produced textiles, enforced from about 1739 to 1846 (Heckscher 1949, 586; Nyberg 1992, 5). Although there is an ongoing debate on the impact of the system, it has been argued that it introduced a new type of organisation of labour and drove many households into the factory system (Nyström 1955, 141–45). The pre-industrial mercantilist textile production saw its heydays during the eighteenth century, and it created a demand for homespun yarn. Recent research into

the textile factories' putting-out work arrangements shows that the factories, based in cities such as Norrköping, Stockholm and Gothenburg, bought great amounts of wool and some cotton from thousands of households. Although the specific state-sponsored putting-out system only involved a small fraction of Swedish rural households, the putting-out agents complained of competition from other actors also engaging rural women in commercial spinning, which indicates that their business was only the tip of an iceberg (Nilsson *et al.*, 2023).

One insight from manor records is that estate owners demanded spinning and other textile work as part of the land rent; Johansson (2001: 112) documents for southern Halland that 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. This demand from estate owners indicates that there were market opportunities for the resulting yarn, and the significance of spinning is also clear from one of the few preserved town custom lists, which is from Ängelholm, in the very heart of our area of investigation in northwestern Scania, in the year 1798 (see map Figure 1). Although Ängelholm was a 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.¹¹ This indicates a great deal of rural textile work for the market – the converse of the spinning wheels and weaving looms found in our probate inventories. Private demand is otherwise difficult to locate in the sources, but studies of textile consumption show that ownership of textiles and clothing expanded significantly among Swedish households, at least during the 1800s (Ulväng 2012), and it was only in the 1870s that the factories surpassed home-weaving in the output of cloth in Sweden (Schön, 1979: 46).

It also appears that public demand for knitted goods was a real factor in the pre-industrial Swedish economy. Johansson (2001) in his study of Halland's woollen home industry shows the importance of the military as a source of demand for woollen socks, gloves, hats and the like. During the Pomeranian war between Sweden and Prussia 1757–1762, merchants from the town of Laholm in southern Halland (see map Figure 1) delivered about 50 000 woollen socks to the Swedish army, while merchants from the more distant town of Borås delivered another c. 38 000, probably also knit in southern Halland, especially in Höks härad which is part of our sample (Johansson, 2001: 142–147).

What does this tell us about the work intensity and labour allocation of rural households? To begin with, it must be said that spinning yarn and weaving in Sweden at this time, as indicated by work activities that crop up in Swedish court records from 1550 to 1800, were gender-exclusive work activities: they were only carried out by women (Lindström *et al.*, 2017: Table 2; cf. Ahlberger, 1988: 42–43 with anecdotal evidence for some weaving by men). Some 95 per cent of the spinners were women, and there was a substantial amount of child's work involved; research from the factory side indicates that the spinning could generate incomes for the labouring households that would have been important in their – relatively poor – context. Thus, to understand the great expansion of spinning and weaving in the rural households studied here, it is crucial to understand the gender aspect. Whittle has recently criticised de Vries for his assumption that rural women before the industrious revolution were 'trapped in idleness and underemployment by the seasonal constraints of agriculture' (de Vries, 2008: 97; discussed by Whittle, 2019: 46). We do not want to suggest that rural Swedish women were under-employed before the 1700s, but that labour was reallocated to production for the market and that women's labour was crucial in this regard.

It could be the case that the increased use of spinning wheels and weaving looms in households was driven by growing household sizes, with more children at home or more servants. To investigate if this was the case, we have used cadastral registers (*mantalslängder*) from four of the parishes to map changes in household size over the period. (For details see Online Appendix, Table A8.) The average number of adults in these four parishes changed little, and if anything decreased, from 2.8 in 1700, to 2.6 in 1780 and to 2.5 in 1860. When including children under the age of 15, the average household size grew from 3.9 in 1780 – the same number that Lundh (1995:

Table 1) calculates for southern Sweden in 1700 – to 4.3 in 1860, again in line with Lundh's results. Farmer households became larger over the nineteenth century, as child mortality was reduced due to vaccines and improved nutrition (cf. Holmlund, 2007: 99), but landless households were smaller, with fewer children and fewer servants, and since the proportion of landless grew over time, this dampened the growth in overall household size.

From the inspection of the cadastral registers, we conclude that it was not household size growth that drove the increased prevalence of spinning wheels and weaving looms. What other changes in how households allocated their labour/leisure time distribution can be thought of? 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 assumption 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 and over the nineteenth century, the distribution of marriages over the year continued to change not only with a generally even distribution but also with December weddings becoming more important (Dribe and van de Putte, 2012: table 2). 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 4, 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).

This reallocation of labour within the rural household occurred simultaneously as a general improvement of wagons, which helped to integrate markets to meet the increasing demand for yarn and cloth. The improved wagons/transportation techniques of the second half of the eighteenth century (Bergenfeldt, Olsson and Svensson, 2013) meant both that the number of goods that could be transported from production centres to farms and villages, as well as from output production on the farms to markets, could be increased (cf. Lundqvist's 2008 study of rural pedlars). That the rural households got better access to consumption goods is indicated by the increasing presence of porcelain and coffee (Ahlberger 1996: 84–97), and conversely, the improved transportation also gave rural households greater opportunities to produce textiles for sale. Thus, we interpret the increased prevalence of spinning wheels and weaving looms in south Swedish rural households as increased market involvement.

Conclusions

Building on rural probate inventories from the 1670 to 1865 period, the article has documented interesting dynamics of the early modern Swedish economy. Previous research has highlighted dynamic elements of the economy in agrarian expansion after 1750 (Olsson and Svensson 2010), improved transports likewise after 1750 (Bergenfeldt, Olsson and Svensson 2013), growth of the specialised crafts sectors (Edvinsson and Söderberg 2011), increasing labour intensity over the year (Dribe and van de Putte 2012), and richer and more varied access to consumption goods (Ahlberger 1996). Our study adds to this line of research by exploring the probate inventories of labourers and farmers, showing that while labourers' agrarian productive capacity decreased over time, farmers became much wealthier, and both farmers and labourers became more involved in output production for markets, especially in textile production. This highlights the presence of Smithian dynamics of market involvement in the Swedish economy of the eighteenth and early nineteenth century (as in Prak 2001; de Vries 2008), and an intensification of labour input over the eighteenth century in line with the industrious revolution hypothesis, albeit not necessarily induced by access to exotic consumption goods (Falk, forthcoming).

An obvious question raises itself: if the economy was so dynamic, then why did GDP per capita stagnate as in Edvinsson (2013) and Schön and Krantz (2015)? An important part of the answer is given by the growing inequality found here but also in previous research. While we find that both farmers' and labourers' households improved their lot on average, the wealth difference between farmers and labourers grew, and the share of households who belonged to the poorer labourer group also grew (Winberg, 1975; Söderberg, 1978; Bengtsson *et al.*, 2018). The composition effect of the landless group growing from a quarter of the rural population in 1750 to one-half in 1800 dampens overall growth in wealth and income, as the wealth and incomes of this group were lower and grew slower than the wealth and incomes of farmers. This is one aspect of how to reconcile the stagnation view and the dynamics view of the early modern Swedish economy. However, there is also a statistical issue. Historical national accounting is a very difficult business – how does one capture the true value of home-based output production, or value domestic work for that matter? – and Sweden's historical national accounts, as those for any other country where estimates are available, tend to be revised with each new study, not the least according to the degree to which the researcher focusses on capturing the value of home production (*cf.* discussion in Edvinsson, 2013). Our results suggest that there is still a degree of underestimation of the value of household production in the historical national accounts. The size of the bias is a significant issue for further research.

A second important question on the interpretation and limitations of the current research is: how representative are the results for Sweden as a whole? Our sources are all from southern Sweden and we have uncovered a pattern of decreasing cattle holding and instead increased focus on secondary employment in textile production. This is less likely to hold for central Sweden where Morell (2022) has argued that the agrarian revolution of the nineteenth century on the contrary meant that farmer households specialised in cattle holding. However, the increased market involvement is a common theme both in central Sweden and southern Sweden. The increased involvement with the market most likely coincided with changes in mentality. One cannot infer mentalities from probate records, but in a study of farmer diaries from the nineteenth century, Morell (2022: 320–322) argues that farmers responded to the increasingly regressive taxation of the post-1720 period, and the individualisation 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. Furthermore, the study of Ahlberger (1988) of a very different West Swedish area 1790 to 1850 showed similar developments as the rural population in that region became ever more dependent on the weaving of cotton for their incomes, and the purchase of foodstuffs for their subsistence. Nilsson (2015) shows the still important degree of home production of textiles in Swedish rural homes in the 1910s. We would suggest that a comparative study of different regions for a few benchmark periods – say, a benchmark from the mid-1700s and the mid-1800s – using probate inventories would be a very promising project to see if the dynamism uncovered here was present more widely in Sweden.

Overall, our study supports a dynamic view of the pre-industrial European economy (as in van Zanden, 2002; de Vries, 2008; Muldrew, 2011), with powerful market forces and changes in the division of labour even in seemingly remote rural households in the north of Europe.

Supplementary material. The supplementary material for this article can be found at <https://doi.org/10.1017/S0956793325000044>

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Competing interests. The authors declare none.

Notes

- 1 According to the Schön and Krantz (2015) data GDP per capita in 1990 US dollars averaged \$1,751 in 1650–99, \$1,720 in 1700–49, \$1,513 in 1750–99, and \$1,460 in 1800–49. 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.
- 2 The main exceptions to this rule would be strictly personal belongings of the remaining, non-deceased members of the household, such as clothes, and sometimes inherited land deemed as belonging to the family of the deceased rather than the household.
- 3 Only probate records presenting itemized and valued lists of household possessions were included in the sampling; those few which only contained the final sum of the probated household or lacked valuation for individual items were disregarded. Some 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.
- 4 The nobility had their separate courts (*hovrätter* rather than *häradsrätter*), so their probates are not found in the *häradsrätter* archives. This is not a problem for the present study, focused on work patterns of labouring and farmer households.
- 5 Excluding the retired population of the database, the average age at death for the working-aged individuals – based on those we have managed to collect information on age for – is 49.7 for the first period, 51.2 for the second, and 53.0 for the third.
- 6 It should be said that while we focus on plough and harrow as indicator of agricultural production, almost all households in our sample owned some basic garden tools like a spade, which indicates that most of them had access to a kitchen garden.
- 7 However, an extra 25% of labourers in the 1780s and 20% in the 1860s had tools to tend a vegetable garden or meadow.
- 8 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).
- 9 Recall, further, that if the wealth bias of probate incidence was decreasing over time, then these figures underestimate the increase in item ownership over time.
- 10 A cursory inspection of estate archives from southern Sweden suggests that spinning was a growing part of the land rent during the eighteenth century. E.g., Rydboholmssamlingen E7715, National Archives Stockholm (Skarhult 1720s); Torpaarkivet FI:6, National Archives Gothenburg (Marsvinsholm 1750s); Karsholm Estate Archives DI:3, National Archives Lund (Karsholm 1780s).
- 11 Centrala tullräkenskaper, landstullen och accisen, Kammararkivet, National Archives Stockholm. 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 (Ängelholms församling, husförhörslängd A11, National Archives Lund).

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Archival sources. The following district archives (*häradsrätter*), held at the National Archives (*Riksarkivet*) in Lund and accessed through ArkivDigital (arkivdigital.se): Bara, Bjäre, Frosta, Halmstad, Höks, Norra Åsbo, Oxie, Rönnebergs, Skytts, Södra Åsbo, Vemmenhögs, Östra Göinge. Note that the Tönnersjö probate inventories used in the study were found in the Halmstad district archive.

161 parish church archives, held at *Riksarkivet* in Lund and accessed through ArkivDigital (arkivdigital.se). In the parish archives we have used the death books (*dödböcker*) and catechetical interrogation books (*husförhörslängder*).

Cadasters (*mantalslängder*) from four parishes. See Online Appendix list of sources for full set of references to the church books and cadastres.

The dataset will be made freely available upon publication.