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RESEARCH ARTICLE

Prospering despite the adverse terms of emancipation? Accumulation of wealth by peasant farmers in the tsarist Russian province of Livonia, 1853–1913

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Abstract

The article addresses the issue of wealth accumulation by peasant farmers in the post-emancipation era in the Russian Baltic province of Livonia. The Baltic emancipation schemes stand out as the least beneficial for peasants as they set neither time limits nor land price levels, and the state government did not provide any credit to the purchasers of farms. However, in northern Livonia the nominal value of peasant farmers' wealth grew as much as tenfold from 1850 to 1913. The study reveals that the advantages and disadvantages of high farm purchase prices should be considered in combination with other factors affecting agricultural growth. In the Baltic context, the large size of the farms, land consolidation, well-developed infrastructure, and the commercialisation of production helped the farm owners amass a relatively large amount of wealth within a generation. Technological improvement also contributed to the rise in productivity and wealth.

Introduction

Peasant emancipation schemes differed considerably across Europe. According to the conventional view, how and when serfdom ended in the respective countries shaped subsequent economic development there.[1] In most territories with a manorial system, the reforms gave the current tenants direct ownership of land (e.g. in return for giving up pieces of the land) or the right to purchase the land at regulated prices.[2] By contrast, in the three Baltic provinces of Russia (Estonia, Livonia, and Courland), the transformation of leaseholds into freeholds on noble estates was based upon a 'freely negotiated contract' between the estate owner and the tenant farmer.[3] The reforms set neither time limits nor land price levels, and the state government did not provide any credit to the purchasers of farms.[4] From this perspective, the Baltic emancipation schemes stand out as the least beneficial for peasants. As a result, the shift from tenancy to freehold was a drawn-out process that was not completed even after 100 years, since part of the peasant land was still owned by the estate owners and many farm purchasers still owed payments to the estate owner and/or noble mortgage bank. Given the specific circumstances mentioned above, the peasant farmers' opportunities to increase wealth in the post-emancipation era are of interest.

This article addresses the issue of wealth accumulation by peasant farmers based on the example of Livonia. Using more than 200 probate inventories, the article studies the value and composition of wealth of peasant farmers in northern Livonia (today southern Estonia) in the late nineteenth and early twentieth century (Figure 1).[5] Recently, probate inventories have been used to estimate the increase of farmers' wealth in Sweden and Finland from 1750 to 1900.[6]

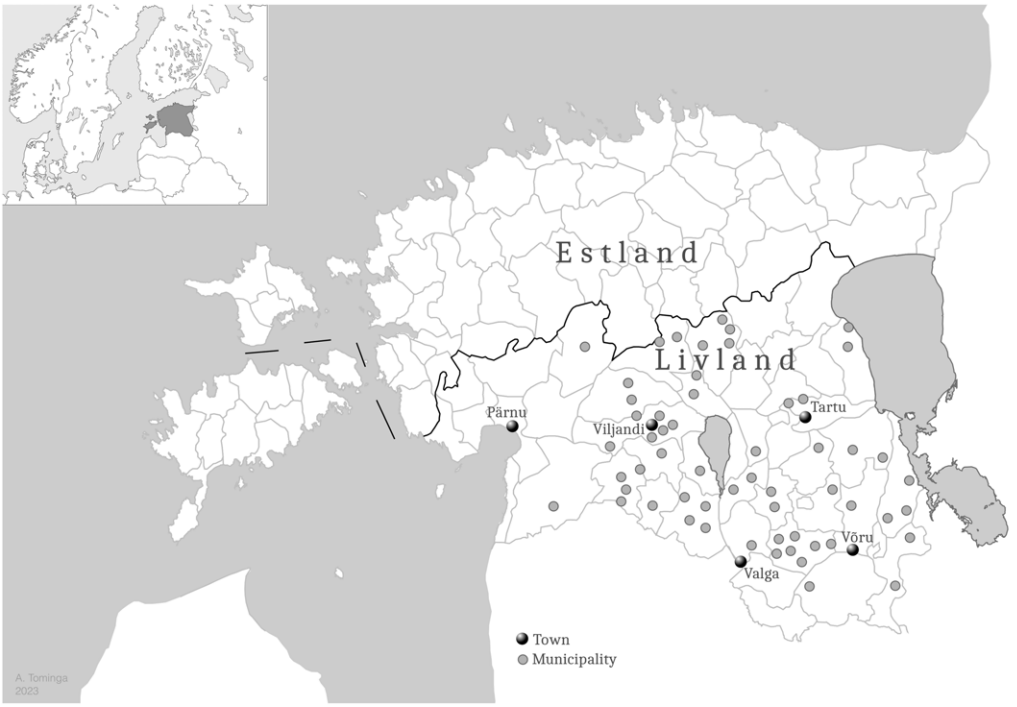

Figure 1. The province of Estonia (Estland), northern Livonia (Livland), and rural municipalities (62)* covered by the study in the nineteenth century. Mapped by Ago Tominga. *The number of archives is smaller than the number of municipalities (i.e. communities) included in the study because 1) data on 13 communities derive from higher-level courts (inheritance claims), and 2) in some places, one community court had jurisdiction over two or more smaller communities.

Traditionally, quantitative research on agricultural dynamics and growth in the former serf societies measures increases in yields, agricultural output, GDP per capita, real wages, and/or the decline of the proportion of the total labour force employed in agriculture. However, the lack of complete and homogenous data series in the less developed parts of Europe complicates the analysis of long-term trends in productivity and living standards there.[7] This paper provides a complementary approach to measuring rural living standards, one that has not previously been tried in research on post-emancipation Eastern Europe. Individual-level data on wealth give a nuanced picture of the standard of living both within a given society and across societies. Such data allow inter- and intra-regional comparisons, differentiation of the gains from reforms by socioeconomic status, and illumination of the consumption levels, credit market characteristics, and sources of income. To put the wealth accumulation process into context, the article uses aggregate data on agricultural dynamics such as changes in the distribution of sown area, grain productivity, land rental, and sales prices, as well as individual farm-level data on commercialisation of production and cash-earning activities. For the latter, the sources range from court cases to the Russian Peasants' Land Bank's on-the-spot appraisals.

This study contributes to the literature on peasant emancipation in three ways. To start with, drawing on individual-level data, it provides the first attempt to estimate the wealth level of former serfs in Estonia after they had become freeholders. While their growing wealth is a well-established fact in historiography,[8] its actual value has not been considered before. The wealth level of the peasant farmers is interesting for several reasons. They are a key group in the Estonian national historical discourse.[9] Baltic German advocates of the transformation of tenants into freeholders saw the 'peasant aristocrats' (i.e. freeholders) as a 'bulwark against rural labourers', guaranteeing

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social stability.[10] Baltic German noble estate owners, who were at the head of the agrarian revolution, wielded more material and social power than peasant farmers until the end of Russian tsarist rule. However, the freeholders formed the backbone of the socio-political order of the Estonian village and, after the collapse of the tsarist regime, the economic basis of the emerging Estonian nation.[11]

Secondly, the study aims to advance the discussion of the favourable and unfavourable peasant emancipation terms in Eastern and Central Europe. On the one hand, generous terms were not enough to boost agricultural growth and prosperity if other factors cancelled them out, as happened in Russia proper and the Kingdom of Poland.[12] On the other hand, the prohibitive costs peasants faced in order to buy land could actually favour the landed peasantry.[13] It is widely held that regions in which the emancipation reforms expropriated large segments of peasants and divided the village population into two distinct groups, the proprietors and the proletarians, tended to experience substantial agricultural growth as well as the advancement of the well-to-do elements of the peasantry.[14] Growth has been explained by the rapid adjustment of farm production to market needs and increased labour mobility within the rural sector, as well as inter-sectoral mobility. Such reforms created a large reservoir of cheap farmhands for manors and farms alike. The reforms in the Russian Baltic provinces (1816–9) likewise divided the former serfs into two groups – tenant farmers and landless rural workers – but progress in the farm economy was long to come.[15] In the second half of the nineteenth and the early twentieth century, noble estate owners sold farms to peasants at high prices, but despite the costs, within a generation a group of well-off peasant landowners emerged. It raises the question of whether high land prices advanced the peasant economy by generating pressures for expansion and intensification (new crops, breeds, tools, and farming techniques) or held back growth.

The role of rural indebtedness in the evolution of capitalism has been highlighted by Julien-François Gerber. According to him, debts fostered market discipline by forcing the borrower to calculate, pay, trade, work, and intensify.[16] Through its remarkable carrot-and-stick nature, the credit/debt duality represents a powerful mechanism of social selection. Following his line of argument, it would be tempting to compare the wealth levels of two categories of peasants in Livonia – former noble peasants and state peasants. On average, redemption payments on state land were one-half to one-third of the purchase prices on noble estates.[17] Comparison of the wealth levels of these two peasant categories would make it easier to assess the effect of more favourable purchase conditions on the one hand and the stimulating effect of (large) debt on the other hand. Unfortunately, the number of probate inventories of peasant farmers on state land is too small to allow for direct comparisons. Comparing the two peasant categories is further complicated by the fact that only current tenants could redeem the land on state estates, that is from the very beginning of the redemption process, there was no social selection. On noble estates, by contrast, the fluidity of land ownership generated prerequisites for land to go to the best-suited candidates. On state estates, aside from farmers who subsequently increased the value of their estate severalfold,[18] underachieving farmers who made their redemption payments late, or did not pay them at all, also kept their holdings.[19]

Thirdly, the discussion of the pros and cons of various emancipation schemes is related to a larger debate over the role of institutional factors in agricultural growth. According to the institutional approach, differences in property rights institutions and contracting institutions played a major role in deciding whether and when agricultural growth could take place in Europe. Besides growing market demand, institutional factors affecting the incentives and the organisation of production (like property rights and enclosures) were a very important element in the increase of income and wealth among Swedish farmers.[20] Sheilagh Ogilvie has pointed out that farmers needed secure property rights, as well as rules maintaining those property rights; farmers had to be able to employ labourers readily, borrow money easily, sell profitably to customers, and find cheap supplies of goods they no longer made at home.[21] Other works of economic history, by contrast,

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have questioned the role of institutional changes in agricultural dynamics in the post-emancipation era.[22]

The paper proceeds as follows: after a summary of current developments in research and a description of the sources and methods, the two main sections explore changes in the peasant economy and wealth levels in southern Estonia in the second half of the nineteenth century and the early twentieth century. The final section summarises the findings and places them in a wider research context outlined in the two introductory parts.

State of the art

Emancipation legislation involved political and economic compromises, and the differences between the laws in different places have been attributed to the political power constellations in a given country or province.[23] In general, ruling elites acted swiftly and decisively in an existential crisis, but otherwise, they lacked the political will to abolish serfdom or remove its vestiges.[24] In the case of Prussia, however, the 'big bang' theory attributing the decisive role to the military catastrophe in 1806 has recently been challenged. Instead, reform-minded bureaucrats had been waiting anxiously for an opportunity to act, and domestic factors were decisive in whether the leeway created by Napoleon was exploited to implement liberal economic reforms despite opposition from the powerful landed nobility.[25] About a decade later than in Prussia, by contrast, the landed nobilities of Estonia and Livonia opted to liberate the serfs due to the economic inefficiencies of the institution of serfdom and traditional agriculture and for self-defence in the face of imperial intervention in the lord-peasant relationship.[26] The Baltic emancipation legislation, as well as the mid-nineteenth-century peasant laws, worked out by the local nobilities under the watchful eye of the imperial government stuck to the principle of 'free contracts' and gave the peasants the short end of the stick.

International research on the economic development of former serf societies in the post-emancipation era largely focuses on Prussia and Russia proper. Recent research increasingly challenges conventional views of economic developments in the pre- and post-reform era. Serfdom, traditionally conceptualised as economically stagnant, is now increasingly recognised as a dynamic institution sustaining a considerable rate of economic growth.[27] In a similar vein, studies of the post-emancipation era emphasise that agriculture grew and modernised regardless of reforms. Revisionists contend that the reforms neither induced nor greatly influenced the agricultural change in nineteenth-century Prussia.[28] In Russia proper, emancipation reforms, even if limited, did not inhibit economic growth, or if they did, it was less than historians thought earlier, and the period from 1861 to 1914 is seen as an era of steady improvement in both agricultural production and living standards.[29] It has also been claimed that some changes in post-emancipation Russian agriculture continued to build on trends and processes that preceded the reform, while others such as changes in crop rotation, cultivation and planting, and land tenure resulted directly from the reforms.[30] The standard critique – namely that Russian communal ownership of land and collective liabilities for taxes and redemption payments was a major impediment to economic development – has found support in some studies[31] but has been subject to revision in several others.[32] Even if the communal tenure system undermined the benefits of serf emancipation, it did not eliminate them.[33] The commune could neither save the peasants from proletarisation nor prevent wealth polarisation among them. However, it managed to slow down this process.[34]

Baltic emancipation schemes have often been compared to the Prussian 'model'. As redemption, Prussian peasants either handed over large portions of land to the landlords (if those peasants had non-hereditary tenures) or paid in cash 25 times the annual value of services and dues. This compensation, however, did not impede the emergence of a large class of family farmers in the East Elbian lands.[35] Sean Eddie concludes that the Prussian reforms actually 'safeguarded

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the peasantry'.[36] Authors challenging the institutional approach and downplaying the role of the state and reforms emphasise the gradual and broadly based impetus for rural transformations. They argue that East Elbian agricultural growth accelerated long before the agrarian reforms and that the reforms had no sizeable impact on agricultural growth as it was demand-driven, resulting from population growth and the expansion of employment outside agriculture.[37]

Estonian historiography has traditionally highlighted the introduction of peasant land ownership, land consolidation, and increasing participation in the market production as essential preconditions for agricultural growth.[38] In times of labour rents, peasants' market production was very limited. Before the transformation of tenancies into freeholds, on noble estates tenancies were short-term and unstable. The sale of peasant land considerably increased the value of noble estates; their profitability tripled or quadrupled from the 1840s to the 1880s.[39] Large revenues from peasant land sales as well as the transfer of part of the manor's mortgage loan to farmsteads enabled the landlords to quickly accumulate large sums of capital for investments in production capacity.[40]

To assess peasant wealth levels or material welfare in Russia proper, studies have used data on asset indicators (ownership of land and livestock), income, and consumption.[41] Researchers have emphasised the need to consider several indicators, because any single indicator taken alone may misrepresent the reality.[42] *Zemstvo* data on peasant consumption and wealth holdings figure prominently in several studies, but increasingly, researchers have acknowledged the data's limitations.[43] Moreover, an anthropometric approach has been applied to the measurement of living standards.[44] For various German regions, property tax registers have been used to study long-term trends in wealth inequality.[45] In nineteenth-century Prussia, there was no rule for or custom of establishing post-mortem inventories, and studies have not looked at wealth at the household level in post-reform East Elbian Prussia. Furthermore, the improving economic conditions of farmers have not been dealt with separately. In Westphalia, a substantial growth in farmers' wealth has been indirectly inferred from the dramatic increase in inheritance portions attributed to non-succeeding heirs, as well as bank savings.[46]

Sources and methods

For the research on peasant farmers' wealth level, the information about its size and composition derives mostly from probate inventories and in some cases from wills, deeds of gifts, and inheritance contracts. Peasants' probate inventories have been extensively examined, for example, in Sweden and Finland, where they are abundant and rich in data. Unlike in Sweden and Finland, in the Baltics probate inventories were not mandatory for peasants, so surviving records are scanty. However, it was common to probate the deceased estate if the decedent had minor children.[47] Probate inventories were made under the auspices of the community courts and archived there. The inventory was carried out by court members who used their own judgement to assess the value of the movable property.[48] Out of 166 community court archives, the study uses materials stored in 36 archives (Figure 1).[49]

While some of the problems with the use of probate inventories are similar across various historical settings over Europe (e.g. wealth bias, fragmentariness, and undervaluation of movables[50]), others are context- and location-specific.

In Estonia, very few written sources mentioning peasants' estate value exist for the first half of the nineteenth century, because the value of estates was often negligible and oral contracts were still the dominant tradition. Since probate inventories were made only for a tiny minority of the deceased, the sources for this study were randomly sampled. As it was common to probate the estate of those who had minor children and the presence or absence of minors was not connected to the size of the estate, I assume there was not a systematic bias towards either lower or higher levels of wealth. The lists had to be complete and meet the other criteria set for this research

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(see below). As the study considers the wealth of active farmers, probate inventories of retired farmers were not included in the analysis. Inventories drawn up several years after the decedent's death were also omitted. Altogether, about 1,200 inheritance and guardianship files were checked.[51]

The study draws on 184 probate records dating from 1889 to 1913. The sample covers 1.4 per cent of the 13,000 farms purchased outright on the noble estates in southern Estonia.[52] The time frame under study was chosen for three reasons. First, to make the sample more homogenous, probate inventories were used of those farmers whose farms had been bought out by either themselves or their predecessors at least 15 years before the compilation of the inventory. On noble estates, farm prices were not regulated, and the farm purchasers were involved in purchase agreements of several years and in loans from estate owners and noble credit associations.[53] Normally, the purchaser had to repay the estate owner the bonds covering part of the purchase price within 10–20 years, while the rest was covered by a mortgage loan from the noble credit association. From 1864 onwards, the Livonian noble credit association allowed the transfer of part of the manor's mortgage loan to farmsteads, which caused sales to mushroom.[54] Selecting only inventories compiled at least 15 years after the purchase date allows us to estimate the value of estates from a similar phase of the land buyout process and also considerably expands the window of observation, which otherwise would have been limited to the first 15–20 years. Repaying the mortgage loan to the noble credit association was much less of a burden than paying off the estate owner. The mortgage loan covered about one-third of the farm price,[55] and the repayment period was longer (52 years). After they paid off the estate owner, farmers' prospects of increasing their wealth and investing in the farms improved remarkably. Secondly, until 1889 the community courts recorded almost all of their activities in the same protocol book, which makes it extremely time-consuming to find cases of interest. From 1889 onwards, community courts started to create case files. These are now digitally searchable by topic in the archival information system, allowing for a full picture of the preserved files in every court archives. Thirdly, the observation period, 1889–1913, also enables comparisons with data on Swedish peasants' wealth in the years 1890–1910.

Using Estonian probate inventories in studies about wealth, three major problems had to be solved: (1) undervaluation of the real estate's value, (2) undervaluation of the farm product's value, and (3) overestimation of the size of mortgage debts. In addition, claims might occasionally have been omitted, and in many inventories, the value of cash in hand was missing. In only one-third of the cases (60), the inventories include private debts.

For real estate, normally purchase prices were used in the inventories. Purchase prices were market values at the time of the purchase but not at the time of the creation of the inventory. On average, the time gap was 27 years. Farm prices roughly doubled from 1850 to 1905, but they rose unevenly over the decades. For the analysis of wealth level, the average annual increase in land prices was calculated and added to the purchase price, taking into account the number of years between the purchase date and the compilation of the inventory. If on average, farm prices increased 80 per cent from 1855 to 1905, the annual increase was c. 1.2 per cent.[56] For the estimation of rural real estate values, the taxation values would be of little use, because land was taxed by area, and the taxation values (70 roubles per *dessiatin*) lagged behind market values (Figure 3).

With regard to movables, the biggest occasional omissions were grain and flax, the value of which ranged from 15 to 35 per cent of the movables.[57] Only a few inventories include supplies such as hay, straw, firewood, or building materials. Capital goods like animals, wagons, and tools were listed in the inventories, while consumer goods were normally limited to furniture and main household goods. If the estate was sold at auction, it is possible to compare the inventory valuations of individual items and animals and their auction prices. Undervaluation seems to have been a problem, especially in the case of livestock.[58]

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For mortgage loans, the inventories typically show their original amount, as long as they were not fully repaid. With the help of land registry files, it is sometimes possible to correct the figures and subtract the repayments to the noble credit association, but in most cases, mortgage debts were included in the analysis as fully unpaid. It derives from the fact that the noble credit association required full and timely payment of interest but not repayment of the principal. If the delay in the payment of interest was over three months, an auction was held. Farm owners often preferred to invest in the farms or in their children's education rather than repay the principal. Farm owners could also easily re-borrow the repaid principal for investments. Inventories show the debt to the estate owner in inconsistent ways: sometimes the original amount is listed, while other times the outstanding debt is listed. If the original amount was listed, I checked the land registry files or the lists of debtors of 1891 and 1900.[59] If these sources did not prove the partial non-payment of the debt to the estate owner, then for the purpose of the analysis, we considered the debt fully paid, since according to the contract, the farm purchaser had to pay off the seller within 10–20 years, and the inventory was compiled after the expiration of the repayment period. If the mortgage debts are overestimated and the debts to the estate owner are underestimated, biases in the estimation of the debt size will, at least partly, cancel each other out.

Undervaluation of some assets presents a larger problem with regard to deeds, wills, and inheritance contracts, in which the farm implements and livestock were not listed but reported as a total value. If an heir's share exceeded 1,000 roubles, inheritance tax (one per cent of the value) was levied. This created strong incentives for the contracting parties to suppress the wealth.

In the sampled probate inventories, large farms are slightly over-represented and small farms under-represented. For the quantitative analysis, the inventories were adjusted to the social structure of the farms.[60] The age at death is known for 160 cases out of 184. The average age at death was 56.5 years.[61] There were clear regional differences in wealth accumulation, but the small size of the sample prevents reliable analysis in this regard.

Agricultural statistics have been drawn from a variety of different sources and studies. Some sources provide data on peasant farms and large-scale estates separately, while others ignore the large differences between the farm economy and the manor economy. Some studies consider Estonia within its current borders, while others follow the administrative division of the tsarist era. Some studies and sources cover short or long periods, while others provide snapshots of particular time points (e.g. survey data). This data, even if fragmentary and not uniform, nevertheless help to depict the trends and processes in the post-emancipation farm economy. Depending on the sector and period, the productivity on peasant-operated farms was 10–33 per cent lower than on noble estates.[62] The difference was mostly due to the use of advanced technology, higher-yielding breeds, and varieties of crops on estates. As a result, estates accounted for about half of agricultural commodity production, although they had considerably less cultivated land and livestock. It is widely held that nineteenth-century industrialisation was a golden age of labour-intensive family farming which outcompeted more extensive large-scale capitalist farming based on wage labour.[63] The Baltic region does not fit well into this picture.

Occasionally, illustrative data are provided on the basis of individual-level sources. On-farm appraisals by the Russian Peasants' Land Bank in 1907–14 encompass farms either bought outright in those years or heavily in debt. The appraisers employed by the bank, however, described not only the particular farms but also the local context in the neighbourhood or community.

Advancements in agricultural production

On noble estates, the replacement of labour rent by rents in money gained full momentum in the 1860s. In the 1860s, the massive sale of farms to peasants also started, and by 1905 peasants had bought outright 90 per cent of the peasant land on noble estates in Livonia.[64] With the transition

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to cash rent and the transformation of tenancies into freeholds, peasant farmers were increasingly subject to market changes in prices and in demand, and self-sufficiency no longer led to expanding wealth. Self-sufficiency was combined with growing commodity production. The shift from traditional non-marketable crops to more marketable crops was an important factor in enhancing the benefits of emancipation. The Livonian peasant economy, which typically produced mostly grain and a small bit of livestock, slowly shifted to dairy farming. Expansion, diversification, improvement, and the adoption of 'rational' farming were the keywords of the transition era. This section deals with the main market commodities, as well as with the growth in agricultural productivity, measured directly in yields and indirectly in land rental and sales prices.[65] It also considers improvements in farming technology.

Livestock, flax, and milk showed up as major cash-earning products, but their share in the total cash income of farmers varied considerably by period, region, and farm. Occasionally, farmers also rented out parcels of land or earned supplementary income by transporting goods.[66] Some farmers profited from flax trade or trade in consumer goods like salt, herring, or boots.[67] Probate inventories and court files also refer to profiting from money lending, often in the form of open-end bonds or promissory notes. Several farmers also earned interest on state, bank, or mortgage bonds and deposits.

Area under cultivation as well as the sown area expanded considerably.[68] In the early twentieth century, the Peasants' Land Bank's appraisers often mentioned in their reports that arable land had doubled since the farms had been bought outright.[69] The share of arable land sown with grain decreased, and commercial food grain production lost its importance as grain from Russia and overseas flooded the market.[70]

Scholars of agricultural history regard crop yields as the most reliable statistical source by which to analyse the dynamics of agricultural growth prior to the First World War.[71] Figure 2 illustrates the slow and continuous growth of winter rye yields (measured as the ratio of grain yield to seed), interrupted by occasional harvest failures.

Growth in peasant land prices (Figure 3)[72] and rental prices (Table 1) also reflects rising yields and incomes. According to some authors, land rents roughly reflect developments in agricultural productivity.[73] It is a useful measure if data on agricultural production and factor input are rare. Rental prices increased sharply, by 66 per cent, at the time of transition to money rent, but thereafter the rise was more gradual. Farm prices jumped over one-third in the 1860s and again in the 1880s. The increase in land prices lagged behind Sweden, where prices tripled from 1850 to 1900 due to the changes in the land market and growing demand for agricultural products.

The advancements in farming reached the peasant farms gradually and unevenly. In southern Estonia, the consolidation of the farmsteads into united lots and the enclosure of common pastures were most intensive in the 1860s and 1870s[74] and by 1881, most southern Estonian farms had replaced the traditional three-field system with such of crop rotation.[75] The introduction of potatoes in the first half of the nineteenth century and clover in the third quarter of the century transformed the traditional farming and crop rotation systems, as well as tillage technologies.[76] Overall, the decline of fallowing on farms was considerably slower in Estonia than in the Nordic countries and on southern Estonian farms, the share of fallow land dropped slightly below 20 per cent by the 1920s.[77]

Until the 1880s, market demand encouraged the cultivation of flax, which was mostly exported to Great Britain. In terms of quantity, the export of flax peaked in 1870.[78] The extent of its cultivation reached 15 per cent of the peasant fields in Livonia by 1879,[79] but following the decline of flax prices in the 1880s, its share gradually decreased to about five per cent of sown area in southern Estonia in 1916.[80] The role of flax as a major cash crop and revenue source is evident from multiple sources.[81]

Development in animal farming had a strong regional as well as local component. On noble estates, the transition to livestock production was almost completed by the start of the First World War, but on farms, dairy farming became important only from 1905 onwards.[82] Proximity to

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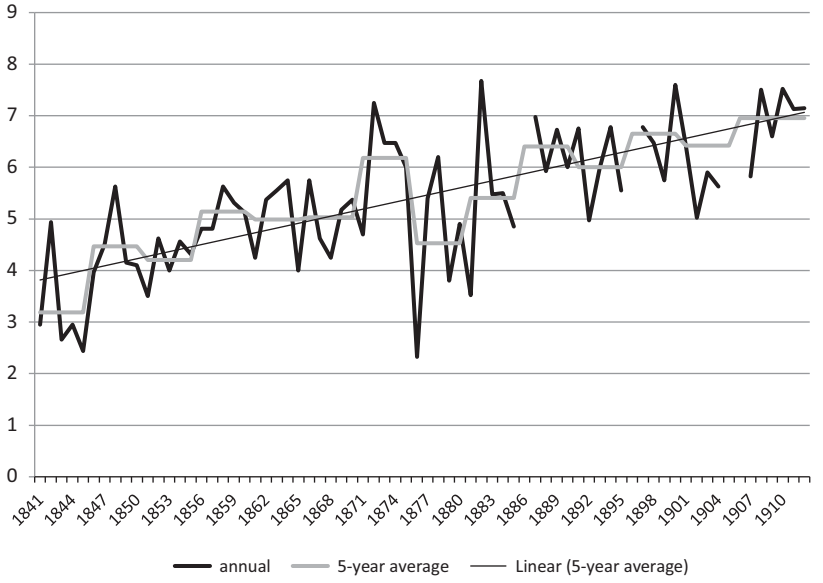

Figure 2. Grain productivity (grains per sown seed) in southern Estonia, 1841–1912. *Notes:* Figure 2 presents the average rye yield on farm and demesne land (combined). Rye was the main food crop in Livonia. Sources: For 1841–87, the harvest statistics are taken from county police reports (included in the Livonian governor's annual reports), and for 1888–1912, they are taken from Russian imperial statistics. Livonia was not included in the Russian *zemstvo* statistics, and therefore, the data are not as reliable as on Russia proper. Comparison with the annual reports of the Livonian governor reveals a 10–15 per cent difference in the harvests (*pud* per *dessiatin*) in 1907–10 (*Obzory Liflandskoi gubernii*): Kersti Lust, 'Teraviljahinnad Eesti kohalikel turgudel ja neid mõjutanud tegurid 1840–1900' [Local grain prices in Estonia and price influencing factors, 1840–1900], *Ajalooline Ajakiri,* 2 (2013), pp. 240–3; *Urozhai 1888–1912 goda. Statistika Rossiiskoi imperii* (St. Petersburg, 1889-1913), data on 1905–6 unavailable to the author. For Russia and the quality of data, see Markevich and Zhuravskaya, 'The economic effects', p. 1084; Kopsidis, Bruisch, and Bromley, 'Where is the backward Russian peasant', pp. 429–30.

urban markets or estate dairies,[83] the estate owner's help in getting breeding animals, the processing of milk and the marketing of its products,[84] the extent and quality of grasslands,[85] the farmers' ability to organise and cooperate, and agricultural exhibitions all factored into local variations in the spread of dairy farming. Given the small number of peasant cooperative dairies in the early twentieth century and the tiny percentage of cows 'cooperating' in 1923 (for that year, nationwide statistics exist), the share of milk that was marketed before the First World War could not have been large.[86] In the early 1900s, low-yielding country breeds still dominated in the peasant households.[87] Cattle were kept to provide food for the farmer's household and labourers, manure, and offspring, as well as surpluses, which could be sold. The intensification of livestock raising increased manure, which made it possible to expand the fields as well as increase their productivity through better fertilising.

Improved tools, techniques, and machines ensured a more effective use of labour as well as improved productivity of crops. In the first half of the nineteenth century, improved tools like mouldboard ploughs, wooden harrows with iron teeth, threshing rolls, and hand-powered flax machines barely made their way into the villages.[88] Scythes very slowly replaced harvesting by sickles. In the second half of the century, manual or horse-driven flax brakes were among the first machines used on the farms.[89]

Wealthy farmer households had diverse sources of income, and in a few cases, their wealth levels were very impressive. Probate inventories of two particularly rich men, Jaan Iir (d. 1894) and Peeter Rabisson (d. 1911) from Abja, show that their paths to prosperity followed a largely similar pattern.[90] Their farms were bought outright in the mid-1850s, a time when prices were low. They

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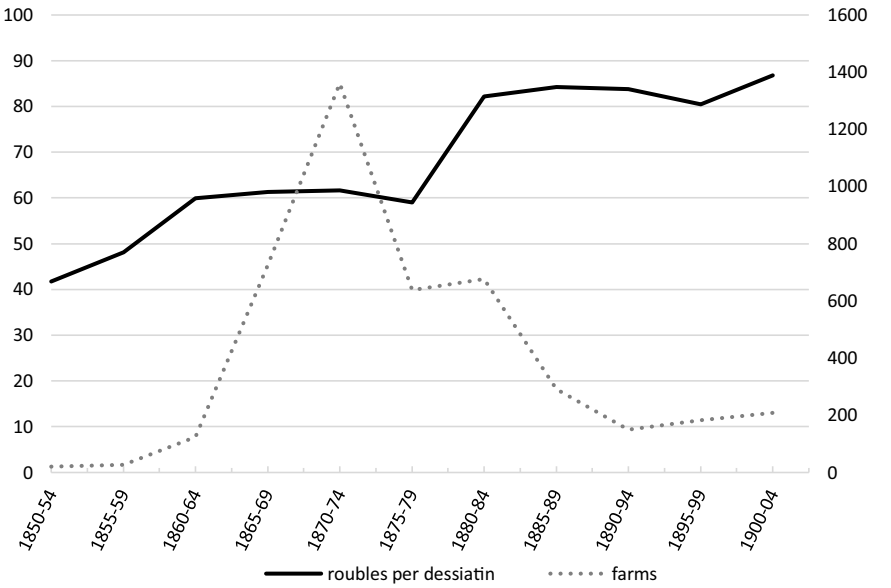

Figure 3. Farms bought outright on average per year and land prices (roubles/*dessiatin**), 1850–1904**. *Notes*: *Dessiatin = 1.09 ha. **On peasant land. Each noble estate had three categories of land: peasant land held by farmers, 'quota land' (taken by the landlord from peasant land under his or her own management), and untaxed estate land managed by the landlord. *Source*: Hermann von Engelhardt, *Zur Geschichte der Livländischen adeligen Güterkreditsozietät* (Riga, 1902), pp. 209–10, for 1902–1904, Tobien, *Agrarnyi stroi*, p. 11.

grew flax, bought additional real estate (either forest land or farms), lent huge sums of money for interest and developed diversified agriculture on their farms (grains, flax, dairy cows, pigs, etc.). In the course of 60 years (between the purchase and compilation of the probate inventory), the nominal value of Rabisson's real estate almost tripled, from 8,629 to 25,000 roubles,[91] while over 40 years, the value of Iir's real estate roughly doubled, from 6,377 to 13,000 roubles.[92] The net value of Iir's financial assets (mostly claims) amounted to 22,239 roubles (about 60 per cent of his wealth's net value); Rabisson's financial assets – 14,485 roubles – made up roughly a third of his wealth's net value. Differences in the proportions reflect Rabisson's larger investments in production. Credit relations among peasants were extensive, since they had almost no access to credit from the banking sector until the early twentieth century. Instead, access to credit was provided by various forms of familial, neighbourly, and business networks. Some large producers or traders of flax acted as informal bankers ('parish bankers').[93] A handful of substantial credit suppliers were also typical in Swedish villages, which saw a strong concentration on the supply side.[94]

To sum up, the peasant economy witnessed considerable production expansion (along expansion of arable land and sown area), improvement, and the adoption of rational farming in the period under study. Agricultural yields showed a continuous rise but lagged considerably behind the Nordic countries. On southern Estonian peasant farms, grain yields were much lower than, and the share of fallow land nearly twice as large as, in the Nordic countries.[95] The level of mechanisation was very low, and farmers' production for market was relatively limited. In Sweden, the level of commercialisation of farmers reached a half even in the north and the further south the farms (and the larger the farms) the more commercial their production was.[96] Contemporary agricultural books and journals viewed conditions in Estonian agriculture as generally poor.[97] It featured low mechanisation, outmoded cultivation methods, infrastructural

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Table 1. Peasant land rental prices (roubles/*thaler**) in the province of Livonia, 1853–98

Year	Roubles
1853–4	3.97
1868–9	6.62
1873–6	6.68
1881–2	8.32
1898	9.61

Notes: *The size of farms was measured in thalers. One thaler of land amounted to roughly 2.2 hectares of agricultural land. There are no data on rental prices in roubles per dessiatin. Size in thalers, estimating the productivity of arable and meadows, measured the economic potential of a farm much better than the size in hectares or dessiatins as soil fertility varied considerably across southern Estonia. Unfortunately, there are no long-run data on land purchase prices in roubles per thaler. Sources: Kozin, *Ocherki*, pp. 31–2, 303; Friedrich von Jung-Stilling, *Statistisches Material zur Beleuchtung livländischer Bauerverhältnisse* (St. Petersburg, 1869), p. 11; von Jung-Stilling, *Materialien zur Kenntniss*, 1883, Table 10.

weaknesses (e.g. the lack of a suitable credit system), and limited cooperation. In the development of dairy farming, the trickle-down effects from the large noble estates were notable.

Wealth levels

Dozens of community court records on the size of deceased tenants' wealth from the decade before the start of massive land sales reveal that the value of tenant farmers' estates was normally modest, ranging from 100 to 400 roubles.[98] In some cases, it was even less than 100 roubles.[99] In one extreme case, the heirs forfeited their rights to any inheritance in favour of a single heir in order to avoid the loss of the farm.[100] Occasionally, however, the value of an estate amounted to almost 1,000 roubles or more. Interestingly, in some areas with better access to the (flax) market, the amount of cash considerably exceeded the total value of other assets.[101] It might be that a lack of long-term tenure security, as well as the power of the estate owner to unilaterally increase the peasant obligations or rent, undermined peasants' incentives to invest in the farm, and the well-to-do elements among them instead accumulated cash.[102] In Russia proper, the fast increase in agricultural productivity right after emancipation in 1861 has been attributed to the fact that the level of peasant obligations was thereafter fixed and was no longer subject to arbitrary decisions by the landlords.[103] This increased peasant effort and incentives, which quickly helped to boost agricultural productivity.

In southern Estonia, the value of real estate, that is, land and buildings, was the most important part of farm owners' wealth. The average estimated value of the real estate was 4,437 roubles (Table 2), but due to large mortgage and bond loans (i.e. the unpaid part of the farm purchase price), its net value was considerably lower – 3,158 roubles. The mean value of inventory and stock was 721 roubles. Hence, the value of real estate was roughly four times as large as the value of livestock, equipment and inventories (i.e. movables except for financial assets).

Animals, wagons, and grain (and occasionally flax) represented the largest part of the movable wealth. According to the probate inventories and farm appraisal reports, the number of dairy cows per farm was rather high, usually ranging from three to six and sometimes even exceeding 10.[104] However, in comparison with the 1850s and 1860s, it was not so much the quantity of livestock that increased but rather their performance (and breed) and value. The latter increased threefold or more, as the overall market demand for Eastern European agricultural products rose considerably.[105] Large amounts of expensive products like flax and clover also contributed to the increase in estate value in the probate inventories over the decades. Alongside the traditional

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Table 2. Farm owners' wealth (in roubles) by categories and farm size groups, 1889–1913

	N	Real	Real estate*	Purchase debts	Other debts	Financial assets	Movables**	Net wealth
Large	94	0.4	6,290	1,848	397	273	1,244	5,289
Medium	71	0.48	3,555	1,000	193	200	852	3,214
Small	19	0.12	1,785	498	138	22	363	1,512
Mean	184		4,437	1,279	268	229	950	3,840 (860-12,882)

Notes: *projected as explained in the section 'Sources and methods'. **All, including financial assets. 95 per cent confidence intervals in parentheses.

wooden ploughs, harrows, wagons, sleighs, and sledges, more valuable tools and vehicles with iron parts were recorded. In the early 1900s, a wooden wagon was valued at 5 roubles, while one with iron axles was valued at 20 roubles. At that time, most farms were equipped with such 'modern' tools as two-horse mouldboard ploughs ('German ploughs'),[106] spring-tooth harrows, and manual flax brakes.[107] Expensive machines were very rare. Few had a seeding plough,[108] mower, horse rake,[109] horse-powered threshing machine[110] or flax brake, milk separator, or the like. If several farmers banded together, they could afford a steam-powered threshing machine, which cost half of an average farmer's net wealth.[111]

Earlier research has established the importance of (informal) credit in the redemption process, as well as in the agricultural transformation in Europe.[112] In the Baltic provinces, where the central government did not provide any credit to the purchasers of farms on noble manors, both mortgage credit from the noble credit associations and informal credit made it possible to buy land and improve farm production capacity. Credit also increased demand for land and in turn led to price increases. The outright purchase of peasant land expanded the informal credit market. As has been shown before, farm purchasers and upstarts like manor leaseholders and others often borrowed from several people, mostly from family members, close relatives, and those with whom they had dealings.[113] Flax traders and other petty traders, millers, innkeepers, and prosperous peasants were the key figures in the local credit networks. In rural Sweden, private loans accounted for at least two-thirds of total credit as late as the early 1900s.[114]

Forty-seven of the farmers studied owned financial assets; they ranged in value from 6.5 to 4,783 roubles, with a mean value of 855 roubles. If we include in the calculation farmers with zero value in financial assets, the mean value was 229 roubles. Only in seven inventories were deposits recorded, which might be explained by the late establishment of rural savings banks and credit associations in the early twentieth century, much later than, for example, in Sweden.[115] However, mortgage bonds, government bonds, or bonds of Russian banks were also owned by a very few, although these debt instruments had been available for quite a while. Interestingly, open-ended bonds were also found in few inventories, even though they were fairly common in the informal credit market. Direct private lending still predominated in the village, but roughly a third of the financial assets owned by the farmers in the analysed sample were institutional loans.

Sixty farmers had debts to other persons (henceforth 'other debts') besides the estate owner. Such debts ranged from 23 to 8,561 roubles. In half of the cases (33), they were below 500 roubles and in 14 cases over 1,000 roubles. In the latter cases, the farmers also owned slightly more movables, although the difference from the average value of movables was negligible (six per cent). These results do not support the hypothesis that the larger the 'other debts' were, the more farm implements and livestock the farmers had – or in other words, that they were the most actively enterprising farmers. However, some striking examples from the Peasants' Land Bank's appraisal files of farmers having debts larger than the farm's purchase price but being well supplied with modern agricultural techniques, draft animals, and dairy cows, however, might point in this

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direction, too.[116] In one extreme case, the deceased farmer was in debt to 20 people.[117] In the analysed sample, the third biggest debtor owed two-thirds of his debt to a local credit and savings bank, 27 per cent to his brother, and smaller sums to another close relative and a man from the same community.[118] Another large debtor owed almost one-half (500 roubles) to his brother (or some other family member) and smaller sums to seven individuals from five different rural communities.[119] Sometimes the debts were unpaid transactions or wages. Larger creditors (owed 1,000 roubles or more) were typically either close relatives and family members or wealthy villagers whose names figure in several loan transactions.[120] Occasionally, debts might have their origin in inheritance divisions.[121]

In southern Estonia, the mean net value of the wealth of peasant farm owners was about 3,900 roubles.[122] The variation within the freeholders is wide, connected to the inequality within the peasant-farmer class. This makes the averages discussed above less certain, and they should be treated with some caution. However, it is safe to assume that on average, the net value of peasant farmer's estates had increased ten times compared to the 1850s and early 1860s, while the consumer price index grew at a much lower pace.[123] The growth of wealth was not limited to freeholders. Judging by the few surviving probate inventories, the leaseholders could own as much in movables as freeholders.[124] In some cases, however, their value was below 400 roubles, similar to the pre-transition period.[125]

Comparison with peasant wealth levels in Sweden reveals that, on average, southern Estonian freeholders were slightly less well-off their counterparts in Lagunda (4,284 roubles) and half as wealthy as those in Sjuhundra and Bara.[126] In these three regions, wealth accumulation was very intense, and farmers were richer than the national average in Sweden. The mean value of movables owned by southern Estonian freeholders, however, was half the value of those held by farmers in Lagunda. On average, southern Estonian farmers had between one-half and one-fifth as many movables as their counterparts in the four wealthy areas studied in Sweden. This difference probably reflects the differences in living standard and level of farming between the two countries better than the differences in real estate values. Large purchase payments left few resources for consumption as well as capital goods (e.g. breeding animals, machines, etc.).

In Sweden, the wealth of the average farmer roughly doubled from 1850 to 1900.[127] The increase in wealth resulted from market growth for agricultural produce, the growth of land values, and the increased productivity connected to stock-raising and early mechanisation.[128] With the growing demand for agricultural products in cities and abroad, farmers who were well placed in terms of natural conditions, geography, and infrastructure benefited the most. In southern Estonia, most of the immense growth in wealth derived from the transformation of tenancies into freehold. Real estate prices also almost doubled. The need to pay off the estate owner and reimburse the mortgage loan interest increased peasant incentives to expand and intensify production. Among southern Estonian farms, stock-raising and mechanisation were in their infancy, and commercialisation was rather limited. By contrast, Swedish farmers marketed a substantial portion of their produce; the proportion varied across the country's vast territory but did not fall below one-half on the plains. In Estonia, commercial foodstuffs and industrial crops did not discourage farms' commitment to self-sufficiency. The slower rate of increase in land prices in Estonia reflects slower improvements in agriculture. In terms of grain or milk yields, Estonia lagged considerably behind Sweden.

In terms of wealth, in the second half of the nineteenth century, the farmers' position improved most dramatically in Finland as a result of the rapid expansion of the forest-based industries, combined with the reorientation from grain production to animal products.[129] As the Finnish peasants owned most of the forests, they benefitted the most from the growth of forest-based industries and timber exports. Proceeds from livestock farming quadrupled from the 1860s to the 1890s, with the strongest growth taking place in the 1880s.[130] In the Estonian peasant economy, reorientation to dairy farming took place at least two decades after it did in Finland. Very few

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Estonian farmers were able to benefit from forest-based industry, since forest land mostly belonged either to the noble estates or to the state.[131]

Conclusion

From 1850 to 1910, in southern Estonia grain yields and rental and peasant land prices, in nominal terms, roughly doubled. In the same period, the nominal value of peasant farmers' wealth grew as much as tenfold. Wealth levels, which incorporate several different elements of the transformation of the peasant economy, vividly illustrate the immense changes in the peasant sector. Wealth data show that large farmers, at least, were quite well-off by the early twentieth century.

High farm prices both advanced the peasant economy by generating pressures for expansion and intensification and held back growth by limiting investments in the farms. Wealth data as well as agricultural statistics reveal that farm owners expanded and intensified farming and increased market production. Their efforts might be attributed to their need to repay the purchase price. Large debts and frequent resales of the farms in the first 10 years after they were bought out, however, show that farmers were overwhelmed with large payments, which posed an obstacle to investments (in dairy farming and technology) and wealth-building.[132] At the end of their lives, farmers owed, on average, five times as much for their land than they did for all other debts. Real estate represented the majority of the peasant farmers' wealth, but at the same time, its value represents a major redistribution of resources from peasants to the noble estate owners. The Baltic manorial economy flourished. The fragmentary evidence suggests that the average nominal value of movables of peasant farmers only roughly doubled. The study revealed that the advantages and disadvantages of high farm purchase prices should be considered in combination with other factors affecting growth. In the Baltic context, the large size of the farms, land consolidation, well-developed infrastructure, and the commercialisation of production helped the farm owners amass a relatively large amount of wealth within a generation. Credit also played an important role in the transformation of peasant agriculture, and credit relations and credit markets in Eastern Europe deserve further study. Technological improvement, most importantly, the use of mouldboard ploughs, flax breakers, and milk separators also contributed to the rise in productivity and wealth.

The Baltic example illustrates the importance of property rights in the (initial phase of) agricultural transformation. Despite the slight rise in grain yields and expansion of the sown area, the peasant economy withered in the first post-emancipation decades, which featured insecure tenancies, short-term leases, and labour rent. Essentially, in farming the major innovations were limited to the expansion of potato growing and harvesting by scythe. After the transition to money rents and introduction of peasant land ownership, changes proliferated, and a segment of well-to-do farmers emerged. The example of Polish Kingdom, however, suggests that property rights were merely one of several factors that promoted agricultural growth in the post-emancipation era. Other important institutional factors include farms' size, farm inheritance practices, land tenure regimes (open fields vs. united lots), and the development of infrastructure (railways, credit facilities, cooperatives, etc.). Recent literature overemphasising the market-driven growth in the post-emancipation era presents only a partial picture of the complex historical processes, without due attention to the institutional factors that either accelerated or impeded the growth.

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Notes

1 Johannes C. Buggle and Steven Nafziger, 'The slow road from serfdom: Labor coercion and long-run development in the former Russian Empire', *Review of Economics and Statistics,* 103:1 (2021); Steven Nafziger, 'Serfdom, emancipation, and off-farm labour mobility in Tsarist Russia', *Economic History of Developing Regions*, 27 (2012), 2–3; Andrei Markevich and Ekaterina Zhuravskaya, 'The economic effects of the abolition of serfdom: Evidence from the Russian Empire', *American Economic Review*, 108:4-5 (2018); Daron Acemoglu, Davide Cantoni, Simon Johnson, and James A. Robinson, 'The consequences of radical reform: The French Revolution', *American Economic Review*, 101:7 (2011); Toni Pierenkemper and Richard Tilly, *The German Economy during the Nineteenth Century* (New York, 2004).

2 Jerome Blum, *The End of the Old Order in Rural Europe* (Princeton, 1978).

3 In fact, bilateral 'free negotiation' is a euphemism, since the estate owners enjoyed a monopoly on the land market.

4 In Russia proper, by contrast, 80 per cent of the land value specified in the buyout contract was financed by the state in the form of a 49-year state loan to peasants, who had to pay back a fixed redemption amount annually: Markevich and Zhuravskaya, 'The economic effects', p. 1084.

5 Today's Estonia consists of the former province of Estonia and the northern part of the province of Livonia. Agriculturally, the province of Estonia clearly lagged behind its southern counterparts, Livonia and Kurland. If not indicated otherwise, in the following Estonia stands for today's Estonia.

There are more than 200 inventories in all, including those of tenants from different periods.

6 Erik Bengtsson and Patrick Svensson, 'The wealth of the Swedish peasant farmer class (1750–1900): composition and distribution', *Rural History*, 30:2 (2019); Erik Bengtsson, Anna Missiaia, Ilkka Nummela, and Mats Olsson, 'Unequal poverty and equal industrialisation: Finnish wealth, 1750–1900', *Scandinavian Economic History Review*, 67:3 (2019).

7 Max-Stephan Schulze and Michael Kopsidis, 'Economic Growth and Sectoral Developments, 1800–1914', in Matthias Morys, ed., *The Economic History of Central, East and South-East Europe* (London, 2020), pp. 39–68. Prussia is a notable exception.

8 For general overviews, see Andrejs Plakans, *A Concise History of the Baltic States* (Cambridge, UK, 2011), pp. 220–21; Toivo U. Raun, *Estonia and the Estonians* (Stanford, 1991), 2nd ed., pp. 68–70; Anu-Mai Kõll, *Peasants on the World Market. Agricultural Experience of Independent Estonia, 1919–1939* (Stockholm, 1994), pp. 26–7.

9 Priit Pirsko, 'Talud päriseks: protsessi algus müüjate ja ostjate pilgu läbi' [The start of the process of farm sales from the perspective of the sellers and buyers], in Jaanus Arukaevu and Ea Jansen, eds., *Seltsid ja ühiskonna muutumine. Talupojaühiskonnast rahvusriigini* [Societies and changing society. From a peasant society to a nation-state] (Tartu, 1995), p. 106; Johan Eellend, *Cultivating the Rural Citizen. Modernity, Agrarianism and Citizenship in Late Tsarist Estonia* (Stockholm, 2007), pp. 72–3.

10 Gert von Pistohlkors, *Ritterschaftliche Reformpolitik zwischen Russifizierung und Revolution. Historische Studien zum Problem der politischen Selbsteinschätzung der deutschen Oberschicht in den Ostseeprovinzen Russlands im Krisenjahr 1905* (Göttingen, 1978), p. 29; Pirsko, 'Talud', p. 101. Prussian reforms, indeed, succeeded in transforming peasants into mainstays of the old political system.

11 Ea Jansen, 'On the economic and social determinants of the Estonian national movement', in A. Loit, ed., *National Movements in the Baltic Countries during the 19th Century* (Uppsala, 1985), pp. 41–57; Kõll, *Peasants*, p. 11.

12 For Russia, see below. For Poland, see Stefan Kieniewicz, *The Emancipation of the Polish Peasantry* (Chicago, 1969), pp. 180–9; Robert Blobaum, 'To market! To market! The Polish peasantry in the era of the Stolypin reforms', *Slavic Review*, 59:2 (2000), 407–8. As negative factors, researchers have mentioned the subdivision of farms, inadequate enclosures, and the absence of state legislation and institutions to promote and finance the expansion, development, and rationalisation of the peasant economy.

13 According to recent research, substantial land cuts and high redemption payments did not harm the peasant economy in Prussia: Sean Eddie, *Freedom's Price: Serfdom, Subjection, and Reform in Prussia, 1648–1848* (Oxford, UK, 2013), pp. 289–307.

14 Prussia (including Prussian Poland) and Schleswig-Holstein are notable examples of such developments. Michael Kopsidis and Nikolaus Wolf, 'Agricultural productivity across Prussia during the Industrial Revolution: A Thünen perspective', *Journal of Economic History*, 72:3 (2012), pp. 637–8; Kieniewicz, *The Emancipation*, pp. 195, 221–2; Stefan Brakensiek and Gunter Mahlerwein, 'North-west Germany, 1750–2000', in Bas J. P. van Bavel and Richard Hoyle, eds., *Rural Economy and Society in North-western Europe, 500–2000. Social Relations: Property and Power* (Turnhout, 2010), p. 263; Matti Peltonen, 'Agricultural Development in Scandinavia, c. 1800–50', in E. I. Kouri and Jens E. Olesen, eds., *The Cambridge History of Scandinavia,* vol. 2, 1520–1870 (Cambridge, 2016), pp. 718–26.

15 Kersti Lust, 'Institutions and agricultural change after the serf emancipation in the tsarist Russian provinces of Estland and Livland', *Jahrbücher für Geschichte Osteuropas* (forthcoming).

16 Julien-François Gerber, 'The role of rural indebtedness in the evolution of capitalism', *Journal of Peasant Studies*, 41:5 (2014), 729–47.

17 Mati Laur, Kersti Lust, Priit Pirsko, and Ülle Tarkianinen, *Talude päriseksostmine Pärnumaa andmestiku põhjal* [Purchasing farms in perpetuity based on data from Pärnu County] (Tartu, 2014), pp. 76, 80; Mikhail Kozin, ed., *Ocherki ekonomicheskoi istorii Latvii, 1860–1900* [An outline of the economic history of Latvia] (Riga, 1972), p. 291.

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18 For such examples, see National Archives of Estonia (hereafter RA, EAA), RA, EAA f. 3321, n. 1, s. 525 (hereafter 3321/1/525); EAA 3760/1/818; EAA 418/1/5737; EAA 418/1/5807. In 1904, the owner of Puiste farm in Aidu left behind farm inventory and livestock valued at 3,304 roubles (EAA 3314/1/462). In the analysed data sample, there are only three farmers whose inventory was valued higher.
19 Laur et al., *Talude päriseksostmine,* p. 87.
20 Mats Olsson and Patrick Svensson, 'Agricultural growth and institutions: Sweden, 1700–1860', *European Review of Economic History,* 14:2 (2010), 297–8.
21 Sheilagh Ogilvie and A.W. Carus, 'Institutions and Economic Growth in Historical Perspective', in Philippe Aghion and Steven N. Durlauf, eds., *Handbook of Economic Growth*, Vol. 2B (Elsevier, 2014), pp. 437, 439, 442.
22 Most notably German authors: Michael Kopsidis, *Marktintgration und Entwicklung der westfälischen Landwirtschaft 1780–1880. Marktorientierte ökonomische Entwicklung eines bäuerlich strukturierten Agrarsektors* (Münster, 1996); Ulrich Pfister and Michael Kopsidis, 'Institutions versus demand: Determinants of agricultural development in Saxony, 1660–1850', *European Review of Economic History*, 19:3 (2015), 275–93; Richard H. Tilly and Michael Kopsidis, *From Old Regime to Industrial State. A History of German Industrialization from the Eighteenth Century to World War I* (Chicago, 2020); Kopsidis and Wolf, 'Agricultural productivity'.
23 Shane O'Rourke, 'The emancipation of the serfs in Europe', in David Eltis et al., eds, *The Cambridge World History of Slavery*, vol. 4, AD 1804–AD 2016 (Cambridge, 2017), pp. 431–2; Tilly and Kopsidis, From Old Regime, pp. 79–81; Blobaum, 'To Market', p. 407; Blum, *The End of the Old Order;* Eddie, *Freedom's Price,* pp. 318–21, 326.

E.g. peasants living under German landlords in Schleswig-Holstein were emancipated at more beneficial terms than their counterparts in the core territory of Denmark. Russian Emperor freed Polish peasants in Congress Poland at favourable terms in order to punish rebellious Polish nobles.
24 O'Rourke, 'The Emancipation', pp. 431–2.
25 Michael Kopsidis and Daniel W. Bromley, 'Explaining German economic modernization: The French Revolution, Prussian reforms, and the inevitable continuity of change', *Annales. Histoire, Sciences Sociales* - English Edition, 72:4 (2017): 729–32, 741–4.
26 Kersti Lust, 'The impact of the Baltic emancipation reforms on peasant-landlord relations: A historiographical survey', *Journal of Baltic Studies*, 44:1 (2013): 3.
27 David Moon, *The Russian Peasantry, 1600–1930: The World the Peasants Made* (London, 1999); Tracy Dennison, *The Institutional Framework of Russian Serfdom* (Cambridge, UK, 2011); Markus Cerman, *Villagers and Lords in Eastern Europe, 1300–1800* (Basingstoke, 2012); Alessandro Stanziani, 'Revisiting Russian serfdom: Bonded peasants and market dynamics, 1600s–1800s', *International Labor and Working-Class History*, 78 (2010), 12–27; Alessandro Stanziani, *Bondage: Labor and Rights in Eurasia from the Sixteenth to the Early Twentieth Centuries* (New York, 2014).
28 Kopsidis and Wolf, 'Agricultural productivity'; Tilly and Kopsidis, *From Old Regime.*
29 Alessandro Stanziani, 'Russian Capitalism. Exceptionalism versus Global Labour-Intensive Path, 1700–1914', in Kaveh Yazdani and Dilip Menon, eds., *Capitalisms. Towards a Global History* (Oxford, 2020), pp. 95–127; Markevich and Zhuravskaya, 'The economic effects', pp. 1074–1117.
30 Moon, *The Russian Peasantry.*
31 Buggle and Nafziger, 'The slow road', p. 4. According to the estimates of Markevich and Zhuravskaya, the transfer of land into the hands of the peasant communes cancelled out nearly one-half of the overall effect of the reform of 1861: Markevich and Zhuravskaya, 'The economic effects'.
32 Stanziani, 'Russian Capitalism'; Alessandro Stanziani, 'Russian serfdom: A reappraisal', *Ab Imperio,* 2 (2014), 71–99; Steven Nafziger, 'Communal institutions, resource allocation, and Russian economic development: 1861–1905', *Journal of Economic History*, 68:2 (2008), 571; Michael Kopsidis, Katja Bruisch, and Daniel W. Bromley, 'Where is the backward Russian peasant? Evidence against the superiority of private farming, 1883–1913', *Journal of Peasant Studies*, 42:2 (2015), 425–47.
33 Steven Nafziger, 'Peasant communes and factor markets in late 19th century Russia', *Explorations in Economic History,* 47 (2010), 381–402; Markevich and Zhuravskaya, 'The economic effects'.
34 Aleksandr Ostrovskij, *Rossijskaya derevnya na istoricheskom pereput'e. Konec XIX– nachalo XX v* [Russian village at the historical crossroads. The end of the 19th and the beginning of the 20th century] (Moscow, 2016), p. 355; Natalia Rozinskaya, Alexander Sorokin and Dmitry Artamonov, 'Peasants' inequality and stratification: evidence from pre-revolutionary Russia', *Scandinavian Economic History Review*, 69:3 (2021), 259–60.
35 Eddie, *Freedom's Price*, pp. 316–8, 326; Kopsidis and Wolf, 'Agricultural productivity', p. 652.
36 Eddie, *Freedom's Price*, pp. 316–8.
37 Mark Finlay, 'New sources, new theses, and new organizations in the new Germany: Recent research on the history of German agriculture', *Agricultural History*, 75:3 (2001), p. 296; Kopsidis and Wolf, 'Agricultural productivity', pp. 638, 663–4; Tilly and Kopsidis, *From Old Regime*, pp. 59–81. For Austria-Hungary, see Schulze and Kopsidis, 'Economic Growth', pp. 39–68.
38 Otto Liiv, Hendrik Sepp and Juhan Vasar, eds., *Eesti majandusajalugu* [Economic history of Estonia] (Tartu, 1937), pp. 366, 379–86, 423–30, 457–8; Juhan Kahk, *Talude päriseksostmise aegu* [When the farms were bought outright]

(Tartu, 1993); Raun, *Estonia*, pp. 68–70; Toomas Karjahärm and Tiit Rosenberg, eds., *Eesti ajalugu* [History of Estonia], vol. 5 (Tartu, 2010), pp. 130–1.

39 Liiv, Sepp, and Vasar, eds., *Eesti majandusajalugu*, pp. 453–4; Kozin, *Ocherki*, pp. 68–70; Heide W. Whelan, *Adapting to Modernity: Family, Caste and Capitalism among the Baltic German Nobility* (Cologne, 1999), pp. 290, 302.

40 Liiv, Sepp, and Vasar, eds., *Eesti majandusajalugu*, pp. 456–7; Hans Kruus, *Eesti ajalugu kõige uuemal ajal* [Estonian history of the most recent age], vol. 2 (Tartu, 1928), p. 5.

41 Paul R. Gregory, 'Grain marketing and peasant consumption, Russia 1885–1913', *Explorations in Economic History,*17:2 (1980); Robert C. Allen, *Farm to Factory: A Reinterpretation of the Soviet Industrial Revolution* (Princeton, 2003), ch. 2; Tracy Dennison and Steven Nafziger, 'Living standards in nineteenth-century Russia', *Journal of Interdisciplinary History,* 43:3 (2013); Rozinskaya, Sorokin and Artamonov, 'Peasants' inequality'.

42 Rozinskaya, Sorokin and Artamonov, 'Peasants' inequality', p. 262

43 Peter Lindert and Steven Nafziger, 'Russian inequality on the eve of revolution', *The Journal of Economic History*, 74:3 (2014), 770–71, 779.

Zemstvo was a rural self-government at district and province level.

44 Boris Mironov, *Blagosostoyanie naseleniya i revolyucii v imperskoj Rossii XVIII-nachalo XX veka* [The Welfare of the Population and the Revolution in Imperial Russia between the 18th and Early 20th Centuries] (Moscow, 2012).

45 Alfani, Guido, Victoria Gierok, and Felix Schaff, 'Economic inequality in preindustrial Germany, ca. 1300–1850', *The Journal of Economic History*, 82:1 (2022).

46 Johannes Bracht, *Geldlose Zeiten und überfüllte Kassen. Sparen, Leihen und Vererben in der ländlichen Gesellschaft Westfalens (1830–1866)* (Stuttgart, 2013), pp. 93–5, 101–2, 232–4; Ulrich Pfister, Johannes Bracht Christine Fertig and Georg Fertig, 'Life Course Strategies, Social Networks, and Market Participation in Nineteenth Century Rural Westphalia: An Interpretative Essay', in Georg Fertig, ed., *Social Networks, Political Institutions, and Rural Societies* (Turnhout, 2015), pp. 89–124.

47 The laws stipulated that an inventory of property was only required when the heirs were minors, unknown, or absent, or there was a danger of waste of property: Lihwlandi Talorahwa-Seadus 13. Nowembril 1860 Kõigekõrgemalt kinnitatud (Tartu, 1863), §§ 957, 966; Volostnyi sudebnyi ustav Pribaltiiskikh gubernii 9.07.1889 (Riga, 1894), §§ 162–163, 206–219, 222.

48 Volostnyi sudebnyi ustav, § 214. The assessment was conducted in the presence of the decedent's heirs or their representatives, who were allowed to contest its results.

49 A total of 166 community court archives from southern Estonia contain materials from the period 1890–1913; 27 of them were on state land (i.e. not included in the study).

50 Sofia Murhem, Lars Karlsson, Rasmus Nilsson and Göran Ulväng, 'Undervaluation in probate inventories probate inventory values and auction protocol market prices in eighteenth and nineteenth century Sweden', *History of Retailing and Consumption*, 5:2 (2019), 87–110.

51 Most files either contain no inventories (because the inventory was to be taken only if there were minor heirs) or concern other peasants than farm owners. Farmers formed about 25–30 per cent of the peasants.

52 Out of the farms purchased by 1908: Arno Köörna, *Suure sotsialistliku Oktoobrirevolutsiooni majanduslikud eeldused Eestis* [The economic conditions of the October Revolution in Estonia] (Tallinn, 1961), p. 38. Out of 13,000 farms, 11,109 were located on peasant land. The sample might be fairly representative of the farm owners. For example, the analysis of farmers' wealth in Sweden, which is many times bigger, draws on about 400 probate inventories for each benchmark year: Bengtsson and Olsson, 'The wealth'.

53 For a general outline of the land purchase process, see Kersti Lust, 'No money, no farm? Mobilising resources for land purchase by migrants in post-emancipation Estonia', *Agricultural History Review*, 69:1 (2021).

54 It was a formal procedure, and the borrowers' creditworthiness was not checked by the credit association. Instead, the association trusted the seller's (landlord's) choice of buyer. This solution not only saved time and money but also incurred almost no risk, as the mortgage debt covered only one-third of the farm's price.

55 Lust, 'No money', p. 82.

56 In some cases, it is possible to compare sales prices over time. The following few examples accord with the general conclusion (Figure 3) that prices increased sharply in the 1860s and again in the 1880s. A new peak was reached in the 1910s. In the examples: Farm, purchase and resale year, purchase and resale price: Ursti, 1856 and 1864, 3,500 and 6,800 roubles; Püssimäe, 1856 and 1863, 2,700 and 5,325 roubles (RA, EAA 3760/3/6655, EAA 3760/3/6676); Ronimõis, 1865 and 1911, 4,250 and 8,700 roubles (RA, EAA 3760/1/4937); Naha, 1870 and 1886, 3,600 and 4,950 roubles (RA, EAA 417/1/6233); Praksi, 1873 and 1913, 7,200 and 11,500 roubles (EAA 2381/2/7544; EAA 2381/2/8596); Pilli, 1880 and 1911, 3,300 and 3,830 roubles (EAA 3760/1/1059); Käspre 1880 and 1913, 5,279 and 9,000 roubles (EAA 3760/1/1342). In 1912, the heirs of the small Mauri farm, bought outright for 1,000 roubles in 1870, estimated the real estate value at 2,000 roubles (EAA 3410/1/881).

57 Excluding financial assets.

58 Such comparative data is extremely rare. See RA, EAA 3541/1/1219 (1898). Such cases, however, might not be representative, as the auctions were held to cover the debts of the decedent. The huge debt load might have influenced the assessments of the court members.

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59 The statistical office of the Livonian nobility collected individual-level data on debts directly from the estate owners. Such data is highly accurate (RA, EAA 1427/1/file no-s 28–33).
60 Of the farms on noble estates in southern Estonia, 40 per cent were large, 48 per cent were medium-sized, and 12 per cent were small (Table 2).
61 On average, men who had reached adulthood lived longer. For men at age 20, average life expectancy was 42.6 years (1897): Kalev Katus and Allan Puur, 'Eesti rahvastiku suremusest elutabelite analüüsi põhjal' [Estonian mortality trend], *Akadeemia,* 3 (1991), 2540.
62 Juhan Kahk, 'Uue põllumajanduse algus Eestis 1860–1880' [The development of Estonian agriculture, 1860–80], *Eesti TA Toimetised. Humanitaar- ja sotsiaalteadused*, 43:2 (1994), 117. Between 1881 and 1900, differences in five-year averages for grain yields ranged from 10 to 30 per cent: Lida Balevica, 'Adelsgüter und Bauernwirtschaften in Südlivland und die Rolle der Adeligen Güterkreditsozietät 1880–1905', in Gert von Pistohlkors, Andrejs Plakans, and Paul Kaegbein, eds., *Bevölkerungsversciebungen und sozialer Wandel in den baltischen Provinzen Russlands 1850–1914* (Lüneburg, 1995), p. 113. Milk yields differed by one-third: Karjahärm and Rosenberg, eds., *Eesti ajalugu*, p. 121.
63 Kopsidis et al., 'Where is the backward Russian peasant', p. 441.
64 Aleksander Tobin, *Agrarnyi stroi materikovoi chasti Lifljandskoi gubernii* [Agrarian order in mainland Livonia] (St. Petersburg, 1906), p. 10.
65 More intensive cultivation of the land (land consolidation, crop rotation, deeper and quicker ploughing), as well as the adoption of labour-intensive agricultural innovation (potato, clover, flax, stock-raising, etc.), increased the land rent.
66 Tiit Rosenberg, 'Talude päriseksostmisest Sangaste kihelkonnas' [Buying of farms in perpetuity in the parish of Sangaste], in idem., *Künnivaod* (Tartu, 2013), p. 205; RA, EAA 536/1/177, appraisal report of the Mardi farm (in Soosaare), 23 September 1912; EAA 536/1/145, appraisal report of the Vahva farms (in Leebiku), 19th October 1911.
67 Lust, 'No money', pp. 87, 93.
68 Liiv, Sepp, and Vasar, eds., *Eesti majandusajalugu*, p. 445; Aleksander Ratt, *Mõnda maaviljeluse arengust Eestis läbi aegade* [About farming in Estonia through the centuries] (Tallinn, 1985), pp. 47, 73; Balevica, 'Adelsgüter', p. 109.
69 In Leebiku, Aidu, Karksi and Keeni: RA, EAA 536/1/145, 19th October 1911; EAA 536/1/147, 20th January 1911; EAA 536/1/113, 9th June, 10th June, 13th June, 15th June, and 16th June 1908; EAA 536/1/232, 14th July 1908, 1909 (undated).
70 According to farm appraisal reports, farms normally marketed 10–25 per cent of the grain production: RA EAA 536/1/210; EAA 536/1/232.
71 Kopsidis et al., 'Where is the backward Russian peasant?', p. 429.
72 In Pärnu County, land prices increased 2.5-fold from 1850 to 1910: Laur et al., *Talude päriseksostmine*, pp. 65–6.
73 Gregory Clark, 'Land rental values and the agrarian economy: England and Wales, 1500–1914', *European Review of Economic History,* 6:3 (2002); P.T. Hoffman, *Growth in a Traditional Society: The French Countryside, 1450–1815* (Princeton, NJ, 1996).
74 Gea Troska, *Eesti külad XIX sajandil. Ajaloolis-etnograafiline uurimus* [Villages in Estonia. Historical-ethnographic study] (Tallinn, 1987), p. 32.
75 Friedrich von Jung-Stilling, *Materialien zur Kenntniss der livländischen Bauer-Verhältnisse.* Riga, 1883, pp. 11, 13.
76 For data on potato growing, see Friedrich von Jung-Stilling, *Ein Beitrag zur livländischen Agrarstatistik,* Riga, 1881, p. 20; G. Stryk, *Die Landwirtschaft*, p. 17. For the introduction of clover, see Kahk, 'Uue põllumajanduse algus', pp. 113–4. By 1913, clover and other forage legumes took up 20 per cent of the sown area in Estonia: Ratt, *Mõnda*, p. 47.
77 In 1881, it was 20 per cent, and in 1922 it was 15.7–18 per cent: Hendrik Sepp, *Lõuna-Eesti põllumajanduse arengu suund 1880-ndais aastais* [The direction of southern Estonian agriculture in the 1880s] (Tartu, 1940), p. 364; Ratt, *Mõnda*, p. 120; Eesti põllumajandus. Statistiline aastaraamat [Estonian agriculture. Statistical yearbook] (Tallinn, 1923), p. 45.
78 Lust, 'No money', p. 77.
79 Jung-Stilling, *Ein Beitrag*, p. 20.
80 G. Stryk, Die Landwirtschaft, p. 17.
81 RA, EAA 934/1/1151, Loorberg to the parish court of the Sixth District of Pärnu County, 1866. Reports of the guardians, 21st September 1894 and 13th April 1891 (RA, EAA 3448/1/1914, EAA 1117/1/673); farm appraisal reports from Aru, Ahja and Keeni communities, 4th February 1911 and 1909 (undated) (RA, EAA 536/1/209; EAA 536/1/210; EAA 536/1/232, 5th February 1911).
82 Balevica, 'Adelsgüter', p. 111.
83 Karjahärm and Rosenberg, eds., *Eesti ajalugu*, p. 122. EAA 536/1/152, farm appraisal report, 18th May 1911.
84 Sirje Kivimäe, 'Piimakarjakasvatusele spetsialiseerumine Eestis' [Specialization in dairy farming in Estonia], *Eesti TA Toimetised. Humanitaar- ja Sotsiaalteadused*, 43:2 (1994), 139; Meinhard Karelson, *Veisekasvatuse kujunemisest ja arendamisest Eestis* [History of cattle farming in Estonia] (Tallinn, 1972), p. 13. Estonian research, however, has focused on the manorial economy.
85 RA, EAA 536/1/177, farm appraisal report from 16th January 1911 depicts the situation on the estate of Soosaare. It also mentions that only 10 out of 110 farm owners had not yet paid the estate owner the entire farm price.
86 Köll, *Peasants*, pp. 31–5.

87 Karjahärm and Rosenberg, eds., *Eesti ajalugu*, p. 121; Karelson, *Veisekasvatuse kujunemisest*, pp. 16, 18; V. Krinal et al., eds, *ENSV majandusajalugu* [Economic history of the ESSR] (Tallinn, 1979), p 121. On average, one cow produced around 1,000 litres a year. A cow of the controlled herds, which tended to be best, yielded on average 1,920 kg a year.
88 Lust, 'Institutions'.
89 Karjahärm and Rosenberg, eds., *Eesti ajalugu*, p. 117.
90 The two extreme cases were excluded from the data sample (Table 2).
91 RA, EAA 3987/1/2749, probate inventory, 6th October 1911.
92 RA, EAA 3987/1/656, probate inventory, 2nd August 1894.
93 For more examples, see Salme Vainlo, *Mulgimaa võlu ja valu: valimik mulgi lugusid* [Charm and pain of Mulgimaa: Selected stories of the *mulks*] (Abja, 2011), p. 180. See also Kersti Lust and Tõnis Türna, 'Matsid mõisaladvikus. Eesti päritolu mõisavalitsejad ja -rentnikud ärkamisajal' [Peasants at the top of the manor hierarchy. Bailiffs and manor leaseholders of Estonian origin], *Tuna,* 25:4 (2022), 36.
94 Håkan Lindgren, 'Parish banking in informal credit markets: the business of private lending in early nineteenth-century Sweden', *Financial History Review*, 24:1 (2017), 85.
95 Kõll, *Peasants*, p. 124; Karjahärm and Rosenberg, eds., *Eesti ajalugu*, p. 115, 117. For mechanisation in Sweden, see Bengtsson and Svensson, 'The wealth', 140–1.
96 Ludvig Nanneson, *Räkenskapsresultat från svenska jordbruk* 7 (Stockholm, 1923).
97 Eellend, *Cultivating the Rural Citizen,* p. 82.
98 RA, EAA 1151/1/1, fos. 7v–8, 22, 23v–24, 33v, 38, 44–45, 26th May 1852; 10th August 1855; 19th May 1858; 11th January 1860; 29th May 1861; 31st July 1861; EAA 3671/1/5, 8th May 1848; EAA 3610/1/1, f. 23, 1November 1848; EAA 3113/2/3, fos. 18–19, 27, 13th December 1848; 21st March 1849; EAA 3113/2/4, f. 62v, 31st July 1853; EAA 3476/1/69, fos. 4, 14, 2nd December 1849; 22nd March 1850; EAA 3476/1/69, fos. 203v–204, 17th June 1858; EAA 1134/1/3, fos. 75, 89v, 26th September 1852, 29th March 1854; EAA 1134/1/4, fos. 24v, 33v, 48v, 63, 67v, 115–115v, 18th January 1857; 15th November 1857; 9th January 1859; 26th February 1860; 7 October 1860; 16th August 1863; EAA 1110/1/2, fos. 139–139v, 20th May 1860; EAA 3089/1/2, fos. 72–73, 76–76v, 96v, 11th August 1861; 1 November 1861; 8th March 1863; EAA 3112/1/2, f. 81, 17th May 1863; EAA 3257/1/6, f. 4v, 24th March 1867; EAA 3089/1/3, fos. 19v–20, 28th April 1867; EAA 3257/1/2, f. 39, 23 June 1867; EAA 3257/1/6, fos. 11v-12, 15v, 15th December 1867; 12th April 1868; EAA 3266/1/1, f. 56v, 6th June 1868; EAA 3987/1/6, f. 7, 3rd July 1864; EAA 1154/1/1, fos. 22–23, 27–27v, 15th October 1854; 15th April 1858; EAA 3317/1/1, f. 37, 10th June 1859. The estate's value gradually increased, especially in the 1860s, when it sometimes exceeded 500 roubles: RA, EAA 1134/1/4, f. 112, 10th May 1863.

Typically, the protocols include no values but only size and composition of livestock, most important tools, wagons, grain and potatoes. The values are rough estimates based on the values available in other protocols from the same time.
99 RA, EAA 1134/1/3, f. 71, 18th April 1852 (in Avinurme); EAA 1134/1/4, f. 14, 13th January 1856 (in Avinurme); EAA 3089/1/2, f. 35v, 19th April 1856 (in Pala); EAA 1110/1/2, f. 114v, 13th February1859 (in Alatskivi).
100 RA, EAA 1110/1/2, f. 10v, 6th April 1856.
101 RA, EAA 1151/1/1, fos. 2–3, 17v–18, 44v, 16th April 1851; 25th January 1854; 3rd July 1861.
102 Liiv, Sepp, and Vasar, eds., *Eesti majandusajalugu*, pp. 425–6, 437.
103 Markevich and Zhuravskaya, 'The economic effects', pp. 1101–3.
104 In less than 10 cases: RA, EAA 3410/1/842; 536/1/161; 536/1/258, 536/1/113.
105 Ivan Berend, *History Derailed: Central and Eastern Europe in the Long Nineteenth Century* (Los Angeles, 2003), pp. 91, 134, 138.
106 These ploughs revolutionised ploughing, and according to Peltonen, the improvement of tillage was perhaps the most important individual event to influence crop yields prior to the introduction of artificial fertilizers: Peltonen, 'Agricultural development', p. 723.
107 Based on farm machinery and equipment census from 1910: Ratt, *Mõnda*, p. 144.
108 Karjahärm and Rosenberg, eds., *Eesti ajalugu*, p. 118. Also mentioned in a few probate inventories: RA, EAA.
109 RA, EAA 536/1/232; RA, EAA 3987/1/2749, probate inventory, 6th October 1911.
110 Altogether, nine probate inventories include horse-drawn threshing machines (RA, EAA 3109/1/786; EAA 1152/1/625; EAA 3443/1/1810; EAA 3443/1/1818; EAA 3410/1/842; EAA 3410/1/881, EAA 3447/1/1883a; EAA 3257/1/1949; EAA 3314/1/462). Also mentioned in one farm appraisal report from 17th June 1908: RA, EAA 536/1/113.
111 RA, EAA 536/1/147, appraisal report of the Soova farm (in Aidu), 20th January 1912.
112 Lust, 'No money', p. 76.
113 Ibidem., pp. 95–6; Lust and Türna, 'Matsid mõisaladvikus (II)', *Tuna*, 26:1 (2023), p. 35.
114 Lindgren, 'Parish banking', p. 84.
115 The first associations were established only in the late nineteenth century. For Sweden, see ibid., p. 83.
116 E.g. the owners of the Kitse and Kekani farms in Karksi: RA, EAA 536/1/113, reports from 10th and 17th June 1908.
117 In most cases, only court records concerning failed credit relations allow us to identify the lenders and show how lenders and borrowers were related to each other. This kind of information would usually be impossible to reconstruct from other types of sources, including probate inventories. For more, see Lust, 'No money', pp. 81, 83.
118 RA, EAA 3443/1/1819 (1908).

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119 RA, EAA 3373/1/706 (1897).
120 RA, EAA 3273/1/461; EAA 418/1/5615; 3541/1/1219; EAA 3541/1/1231; 3257/1/1893.
121 RA, EAA 3333/1/2980 (1893).
122 As the grain was often missing in the probate inventory and the animals undervalued, the net wealth was actually higher.
123 E.g., according to some estimates of imperial statistics, the consumer prices increased by 39 per cent by 1913, compared to 1890–1900: Kersti Lust, 'Agricultural labourers and their wages in Estland, 1885–1913', *Ajalooline Ajakiri*, 121/122 (2007), 401. According to another consumer price index often used, the prices rose about one-fifth from 1885 to 1906 and one-third from 1885 to 1913: Pol Gregory, *Ekonomicheskii rost Rossiijskoj imperii (konec XIX - nachalo XX v.)* (Moscow, 2003), pp. 95–6, Table A, column 5. The other two indices concern urban centres: Moscow and St. Petersburg.
124 Since most farmers were freeholders, data on tenant farmers is scanty. The values of farm inventory and stock ranged from 570 to 1063 roubles, being on average 785 roubles: RA, EAA 3425/1/2032, 30th January 1892; EAA 3425/1/2021, 14th January 1891; EAA 3425/1/2047, 15th October 1891; EAA 3694/2/222, 6th March 1895; EAA 418/1/4886 1874 (undated); EAA 3202/1/659, 27th November 1901; EAA 3273/1/432, 15th March 1900; EAA 3443/1/1795, 21st August 1903; EAA 3558/1/1006, 16th December 1905, 24th January 1906.
125 RA, EAA 1146/1/903 in Sõmerpalu, 29th December 1900; EAA 3543/1/2323 in Taevere, 19th October 1895.
126 Bengtsson and Svensson, 'The wealth', p. 139, Table 4. Values are converted using Swedish consumer price index (1 Swedish kronor in 1800 = 2.9 Swedish kronors in 1900) and historical currency converter (https://www.historicalstatistics.org/): 1 rouble = 1.9 Swedish kronor.
127 Bengtsson and Svennson, 'The wealth', p. 135.
128 Ibid., p. 141.
129 Bengtsson et al., 'Unequal poverty', pp. 232, 244.
130 Matti Peltonen, *Talolliset ja torpparit. Vuosisadan vaihteen maatalouskysymys Suomessa* (Helsinki, 1992).
131 About two per cent of peasant land was forest land.
132 In southern Livonia, about a quarter of farms changed ownership within 10 years after they had been purchased from the estate owner (Balevica, 'Adelsgüter', pp. 121–3). There is no comparable data on the northern part of the province.

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