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Men at work

Real wages from annual and casual labour in southern Sweden 1500–1850

Gary, Kathryn; Olsson, Mats

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PO Box 117
221 00 Lund
+46 46-222 00 00

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in southern Sweden 1500–1850*

Kathryn E. Gary & Mats Olsson

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Department of Economic History, Lund University
Postal address: P.O. Box 7083, S-220 07 Lund, Sweden
Telephone: +46 46 2227475
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Men at work

Real wages from annual and casual labour in southern Sweden
1500–1850

Kathryn E. Gary
Mats Olsson

Abstract

In this paper, we use a brand new dataset to estimate and compare wages for casually and annually hired workers in early modern southern Sweden. We ask whether men in either situation could have supported families on the basis of their earnings. Findings indicate that casual earners would have been able to out-earn annual employees for most of the period 1500–1850, but by the eighteenth century when food prices had risen their relative comfort likely reversed. Similarly, while it was possible for long periods of time for men to earn a respectability basket on the basis of approximately 150 days work this was no longer true by the end of the eighteenth century. By that time, both groups would have increasingly struggled and other family members needed to contribute. Not only is this account inconsistent with the standard story of a nineteenth century male breadwinner family but it suggests that industriousness might not have been prompted by a desire to consume new commodities but by the need to maintain basic standards.

Key words: wages, casual labour, annually hired, Early Modern, Sweden

JEL code: N33

Introduction

How did people in the past make a living, and what did they earn? Was one person's income enough to get by, or did the whole family have to chip in? How much did these things change over time, and why? The basic survival and wellbeing of common people have been some of economic history's central questions for nearly the last century. Countless real wage series of various types of labourers and over different lengths of time have investigated these questions. However, nearly all have relied on the same set of methodologies and data sources: using the wages of (male) day labourers to somehow impute changes in well-being on a national level, or at least for a class of workers.

Only recently has the research field come to explicitly and empirically address the limited descriptive function on this approach, with studies that address wages both in this type of casual employment as well as new analysis of income from annually positions. Fixed-term contracts were a more standard labour practice in early modern and medieval Europe, but this type of work has not been previously empirically addressed in the same way as casual wages. The hesitance to deal with annual wages has predominantly been due to the nature of employment and the difficulties inherent in measuring the actual compensation; most workers of this sort were paid predominantly through room and board, with only a small component paid in wages – how then to quantify their 'pay'?

In this paper, we use a brand new dataset to estimate and compare wages for casually and annually hired workers in early modern southern Sweden. This allows for a much more sophisticated and in-depth investigation of early modern living standards and well-being, but more importantly allows for an interrogation of some of economic history's most important questions, in a somewhat more 'typical' early modern economy than the leader, England. We follow methodology laid out by Humphries and Weisdorf in recent analysis of England (2015, 2017) and add the cost of living to the cash wage to estimate a wage-equivalent for annually employed workers who received room and board from their employers.

More directly, we ask who was better off; those working by the day or those working on fixed annual contracts? How much would a casually employed worker need to work to make the same income as someone employed on a year-long contract, and how did this relationship change? How did urban and rural wages differ? These findings allow us to understand the early modern labour market more clearly and to get at a more realistic understanding of what the standard of living and typical income might have been. These findings further facilitate a deeper investigation into the impact of changing labour markets due to population

development and the proletarianization of the Swedish workers: in what ways did the labour markets change with population and urban development? Do results support the theory of an ‘industrious revolution’, an increase in time spent in market work in order to maintain or increase consumption?

Research on Swedish labour market before the industrial revolution has influentially been characterized as a mercantilist labour regime (Lundh 2002 and 2004, 104). This is connected to the regulation of trade and most other economic activities, national decrees regarding working conditions and even wages, and a patriarchal foundation of labour relationships. We will show that this institutional framework is only partly accurate as a general characteristic of the early modern labour market: changes in demand and supply due to population development or external shocks caused by events such as wars or local disasters affected wages – both for annually and casually hired workers.

Real wages in economic history

Real wage studies of course tell us something about the progression of wages and what workers could afford at certain times, and this has been a useful and important tool for understanding the back-and-forths of a population’s well-being at a more concrete or relatable level than, say, GDP per capita.

But wages have also been used to formulate and test some of the major debates and theories in economic history, through their use alone, in comparison with other wage data, and in contrast to other statistics. Part of this is because wage data are often the most frequent survivors of history’s cull of written information. Wages were and are ubiquitous, and are paid to top-level employees as well as casual farm hands. Though not all were written down, many of course were, and it is upon these which we have based our quantitative investigations of the past.

Because of both their usefulness and their relative frequency in archival sources, wage data is at the backbone of many of economic history’s most important and perennial debates (see Gary 2018a) However, wages are not straightforward. While they in some ways feel intuitive and simple to interpret, the ways in which wages are calculated, manipulated, and compared have massive impacts on what type of market functions they represent, both at the global and at the household level. So too can a focus on a particular type of data – either because of convention or difficulty in finding and using other data – lead to significantly different interpretations of both local and global developments.

It is difficult to overstate the importance of the differences in interpretation and results that different uses – or misuses – of wage data have led to, and how they have shaped and reshaped the meta-interpretations of early modern European economic development. Wage studies have been the foundation for the most influential theories in the development of the modern economy; high real wages in the late medieval period are the cornerstone of Robert Allen's (2009) explanation of the Great Divergence and why England industrialized first – high wages and low costs of factor endowments such as coal led to employers and capitalists to invest in labour-saving capital and machinery, which in turn led to innovation and mechanization. Earlier, the increase in day wage rates after the Black Plague is connected to both transition to economic growth in the North Sea region as well as to women's increased engagement in paid labour and late age at marriage (de Moor and van Zanden 2010). Wages are also the foundation of the Industrious Revolution hypothesis (de Vries 1994; 2008), which posits that English workers increased their engagement in paid work after 1650. A growing gap between nominal wages and GDP per capita indicated an increase in the amount of work being done per person, which would generate higher GDP while wage rates themselves did not change. Many of these theories are grounded in the gaps between (British) real wages and GDP (see Gary (2018a) for a discussion).

These theories are all based on men's day wages. But a different story can emerge when different kinds of wages are investigated; Humphries and Weisdorf (2017) demonstrates that incomes from annually employed men much more closely match developments of GDP and other macro-level indicators in England, while casually earned wages were famously out of synch. Reassessing historical trends with a focus on annually earned wages eliminates many of these divergences and calls for a reassessment of many economic historical theories. This is a strong indicator that the focus on casual employment has led toward some misleading understandings of relationships between wages and economic development, and that a focus on more 'typical' labour, such as annual contracts, might help refine our understanding of early modern lives and well-being.

A first step in this process is to collect data and to estimate different kinds of wages for a broader section of early modern Europe. This paper takes this step for the first region outside of England: southern Sweden. By examining casually earned wages together with annually earned wages, the sets of data together are able to offer more than the sum of their parts and provide significant insight into labour markets and living standards in an early modern society.

Wage labour in Early Modern Sweden

Early modern Sweden was largely a rural society with a predominantly agrarian economy. As late as in the 1860s about 70 percent of the population was occupied in agriculture, while only 10 percent was occupied in manufacturing industry and another 5–6 percent in building and construction (Schön and Krantz 2012). Even in this time, some 90 percent of Swedish people were living in rural environments.

Annual labour in early modern Sweden was a largely a life course event, especially in the countryside, typically performed by young people between leaving home and the time of marriage. Almost all young people left home between the age of 15 and 20 (Dribe 2000), and the mean age at first marriage in Sweden overall was high; around 28 for men and 26 for women (Sundbärg 1907). In Scania, the southernmost province and the source of the data used here, age at first marriage was higher: in seven Scanian parishes from 1650–1750 men married at an average of 34.3, and women at 29.1, sinking by 1850 to around 29 for men and 27 for women (Lundh 2003). With the young age of leaving home and late age at marriage, the Western European marriage Pattern was well established in Sweden, which meant that there was a considerable group in their twenties living on wage labour (Harnesk 1990).¹

In the dominant agricultural sector this meant young people would serve as a farmhand or maid on one-year-contracts, but the pattern was similar in the towns, although often more strictly formalized for men with the master – journeymen – apprentice system (Edgren 1987). Women mostly served in town households, though these were also important employers for male labour. But there were also people that were more permanently hired on annual basis and outside of this lifecycle system, both within the towns and out in the countryside. Some of them were in administrative or managerial positions, often married. Others belonged to the relatively large group (10–15 percent) of the population that never was married. With increasing proletarianization and landlessness after the mid-1700s, the proportion of married annually hired wage labourers started to rise, first in agriculture with the system called *statare*

¹ Economic historians have separated day labour and casual labour by the groups of people who be employed in these sectors. Annual unskilled labour is closely associated with young, unmarried young people, especially in rural areas, while casual labour is more closely associated with married adults. This model is based around the Western European Marriage Pattern (EMP). The EMP was first coined by Hajnal in his 1965 paper, in which he describes several broad and general differences in marriage and life-cycle patterns between the north-western parts of Europe and the East and South, as well as the majority of the rest of the world. According to Hajnal (1965), there is an imaginary line across Europe from St Petersburg to Trieste; to the north and west the EMP dominates, while to the south and east a more ‘traditional’ marriage pattern is more common.

Within regions characterized by the EMP children left their parental home in their mid-teens to go work for another household, and live in as domestic servants or farm hands. During the next several years they would work to accumulate enough wealth to marry and establish their own households upon marriage, which would typically take place in the late 20s for both women and men.

(married farmhands) (Utterström 1957), second in towns when industry expanded in the second half of the nineteenth century.

Swedish towns had undergone a state-subsidized, mercantilist wave of industrialization in the eighteenth century. This did not more than marginally impact the distribution of labour between agriculture and industry at a national level, but within the towns it did increase the number of skilled and unskilled workers. The heydays of these “manufactories” were in the 1750s, but from the international trade crises 1763 and onwards, the state subsidies were weakened or abolished and the whole sector was in decline (Nyström 1955, 242). This left a substantial portion of the urban workforce without employment.

We still know very little about the size of the annually hired workforce in preindustrial Sweden or about their wages and standards of living. This lack of information is even greater for casual and seasonal labour. There was a growing group of rural landless and semi-landless; in some areas, including the south of Sweden, they appear to have already been half of the population by the end of the eighteenth century (Lundh and Sundberg 2002) and they were definitely the majority in the whole of rural Sweden by 1850 (Winberg 1975). Poor relief systems existed, and were based on the parish responsibilities for their poor, but these were rudimentary and normally only supported one or a few percent of the inhabitants. Their focus was predominantly the disabled and the old (Skoglund 1992), which lent little relief to the unemployed. Those without land must have found ways of supporting themselves, but we still know very little about their actual paid day wages – the information we do have is more commonly from administrative wages which were set every year on the county level, but did not reflect actual labour and contain no information about typical work patterns (see Jörberg 1972 and Collin 2016).

More recent research on servants in eighteenth century Sweden by Carolina Uppenberg (2017) does give us some more insight into the relationships between those serving as annual contract workers and those working for day wages. The period was marked by a growing population, though one that was still largely bound by agriculture, with 80 percent tied to agricultural production for a living. However this was also a period of growing landlessness – as more children survived to adulthood and inheritances were increasingly split, fewer and fewer men could expect to end their period of servitude by becoming landowning farmers themselves, and instead were resigned to a lifetime of wage labour. This shift did not necessarily impact basic living standards, but it did change the incentivization for spending time as a servant. Previously, this life-cycle service as a servant on a neighbouring farm was a

training period for one's own time later as a farm owner; this was especially true for young men as they would hope to inherit land. When the chance to inherit decreased so significantly, the incentive to train on another's farm, where a servant's freedom could be severely restricted, was profoundly reduced. This shifted the lifecycle relationship of work. Some younger men preferred to immediately enter into casual labour, and others continued as year-long servants past their marriage. Land owners also sometimes shifted to temporary labour, though this of course could be a risk during harvest time for farmers (see Kussmaul's (1981) discussion on farmers' preferences for labour, also addressed in Uppenberg 2017).

Previous studies of Swedish servants have identified a general reluctance to submit oneself to annual contracts, despite the fact that this was perhaps the most secure means of earning a wage available to unskilled workers in the period (Uppenberg 2017, citing Harnesk 1990). Those who did take work as annually employed servants typically did not stay on above the minimum one-year requirement (see also Dribe 2000). The same investigation found that servants tended to work to meet their consumption needs, and would prefer to substitute their time for leisure rather than additional consumption – this is also in line with Allen and Weisdorf's 2011 investigation of British workers.

Day versus annual labour – compensating differentials

There were of course benefits and downsides for individuals employed in both casual day labour and for those working on a fixed term on a contract. Construction work was seasonal, and of course depended on general demand; it would be difficult to guarantee work both within a given year and from year to year. Economic theory states that there must be some wage differential to induce workers to undertake seasonal work, where the risk of some degree of unemployment was high or even certain. On the counter side, there are many non-wage benefits to be considered with fulltime or contractual work, which could induce a more risk-adverse individual to take a lower paying job if they were sure that the job was stable. One could assume that this is especially true if a position covered all of an individual's daily living needs for the year.

Other costs and benefits affect both work types: Assuming a large enough market, working in construction by the day could in theory give a worker more flexibility over their own working schedule or to work for a different employer if the conditions did not suit them; a person working on annual contract would have no such flexibility, at least not regularly. It is fairly

established that once an annual worker in service accepted a contract they were in many ways at the mercy of their employer (Kusssmaul 1981; Dribe 2000). However, much of early modern Europe, especially Sweden, was highly rural, and a large enough market to support substantial amounts of paid casual work may not have existed (see also Gary 2019).

Employers also had to make a calculation; in a market where timing was very important – such as in agriculture, especially during the harvest period – it was also important to have labour on hand at short notice. The cost of paying day labourers could be extremely high if there was competition with other farmers, and there was a risk of lost income if there were not workers available. However, supporting a fulltime servant could also be expensive, though there was perhaps some economy of scale in providing room and board. During times of high food prices, one of the first household survival tactics would be to dismiss annually-hired labour in order to save more food for the family – in this sense, the calculation of how to split between annually and casually hired labour is likely to draw more on the employers’ decisions than on the workers’.

Contemporary investigations of equalizing wage differentials – that is, higher wages for short-term or non-fixed labour contracts to compensate for the risk of non-employment – find mixed evidence to support its presence in the real labour market; when there is evidence the differential tends to be moderate at best (see discussion in Brown 1980). Historical evidence is more difficult to come by; we expect transaction costs due to transit and information flows to have been much higher the further back in time we go (Collin 2016). It is also quite likely that social trends or expectations, such as lifecycle employment, would have some overriding effect over workers’ assessment of work options – it is not unreasonable to assume that for many in annual service, casual labour was not a true option.

That a system largely reliant on annually employed labour persisted so late into the early modern period in Sweden, beginning to dissipate only in the late eighteenth century and lasting in practice far into the nineteenth, would indicate that the need of having labour on hand as well as the cultural norm of lifecycle service gave preference to annual service for a large proportion of Swedish labour.

Casual versus annual work

The types of jobs represented in casual and long-term employment are different, as are the people who worked them. The rural portion of the annually employed sample are

predominantly servants who lived in, working in rural manor houses. These positions are commonly associated with life-cycle service, working as maids or farmhands. The most common titles for men include various types of manservant (*dräng*), most commonly *dräng* and *stalldräng*, a stable hand. Other occupations include pastoral tasks like shepherds or bull-herds (*fäherde*, *fäherde för tjurar*) or agricultural work such as threshing (*tröskman*).

Work in annual service was prescribed by the state; legal acts regulating the servant-master relationship were first legislated in 1644, and were revised approximately twice a century from then through the middle of the nineteenth century. These acts were read publically at least once, and sometimes twice a year, which meant that they were well understood by the population in general (Uppenberg 2017). While these acts offered some protection to servants, they also mandated that unlanded individuals be registered as servants and under the protection (or control) of a master or mistress, or they could be subject to vagrancy fines. This applied to both married and unmarried individuals; unmarried people were more likely to live in with their employers, whereas married people were more likely to live in a small cottage or croft on their masters' land, and pay their rent with occasional work. This means that annual hires were more likely to be unmarried, while day labourers were more likely to be married, for both men and women – this is in line with similar assumptions for England made by, for example, Humphries and Weisdorf (2015). Regulations did gradually lessen through the eighteenth and nineteenth century, both allowing married people to more easily work as live-in servants in 1762 and then exempting married people from service in 1805 (Uppenberg 2017).

The urban annually employed sample are individuals who worked for municipalities. These data come predominantly from public institutions such as city councils, churches, and hospitals. These workers are clearly city servants, with many custodians/caretakers either for the city or churches (*stadstjänare*, [*stads*]*vaktmästare*). The sample also contains many sailors stationed in the city of Malmö and town of Kristianstad. This proportion of the labour force increased during the early modern period as Sweden underwent an important phase of state formation. This increase was necessary not only as municipalities themselves grew but as the role of formalized taxation became increasingly important as a mechanism for funding the state apparatus (Ågren 2014). This increased employment led to a large number of low-level officials tasked with carrying out the more mundane tasks of the city and taking care of the town; it is these types of workers that make up the urban annually employed sample. There is much less expectation that these individuals would be part of the lifetime service

system; instead, these men are more likely to be married and to stay in these positions for many years. It is clear that many of these men who are annually employed in the city are not part of the life-cycle pattern of service which we observe in the rural sector; there are explicit mentions of stipends or pensions made to sailors' widows, and some of the city custodians are employed for very long periods of time. This is a useful test of wage payments made to men who are outside of the 'youth' period where low wages, or compensation mainly in kind, would not necessarily be expected.

All unskilled casual labourers in this dataset are construction workers, both in the country and in urban areas. Job titles or identifiers include unskilled worker (*hantlangare*), a mortar mixer or mason's assistant (*kalkslagare*) or a digger (*grävare*). A sample of only building labourers from manorial as well as urban sources is in some ways unusual in a European context; in many Western European countries, including England, there would have been a fairly large market for casual labour in the agricultural sector, especially during the harvest season. But in Southern Sweden there was a *corvée* labour system, under which tenants paid part or all of their annual rent in agricultural labour, which took care of the majority of agricultural labour needs at the landed estates through the late eighteenth century (Olsson 2002). In combination with the wide-spread life-cycle servant system discussed above, this means that there was very little market for paid casual labour in agriculture, even during peak seasons (see Gary 2018a for more discussion). Because of this we can operate with the understanding that the casual labour that is found in the data is likely to be more representative and capture a greater portion of the casual labour market than similar types of data in other institutional contexts.

Data and methodology

Primary data for men's daily and annual wages come from archives around southern Sweden. This paper is concerned with the wages paid to unskilled men both in annual employment and service and to those men who work in the casual construction industry. Both types of data come from the same set of bureaucratic, church, and manorial sources around the south of what is now Sweden. There are 21,348 observations of casual work payments and 4,822 of annually hired men. It is important to note that the unit of observation is different for each group. For casual workers a full year of work is one observation. For annually hired men each paid day of work is an observation. For both groups each observation is treated equally; if one institution hired two workmen during the same year for the same rate, each entry is counted. In the same way, if one individual is observed to work several times in the same year on a

casual basis, each paid workday is also counted. A deeper discussion of the processing of the archival data and estimation of wage values can be found in Gary (2018b).

Casual wages

Moving from a yearly estimation of a pay rate for casual labour to an annual income is deceptively complex and has been the subject of many spirited debates in recent years (see discussion in Gary 2018a). The calculation to take day rates to an annual real wage requires three components. In the numerator is the day rate itself, together with the number of days worked to calculate the annual nominal wage. In the denominator is the CPI (consumer price index), basic living costs. From Allen (2001) calculations of historical real wages have typically included a fourth component, household size, in order to develop real wage indices which refer to an entire household. This has been a useful technique for normalizing wages to a useful consumption unit, but has also not been without difficulty when the needs of a growing and aging family are taken into consideration (see Humphries 2013, Allen 2015).

Allen (2001) and the majority of those who have followed his methodology have used a guestimate of 250 work days to inflate the daily pay rate into an annual nominal wage, but this number has not found substantial empirical support. Gary 2019 examines the probable length of the working year in early modern Sweden and estimates that 140 days is a more likely number of working days for an early modern Swedish man's casual working year. Because of this the analysis will focus predominantly on the real wage calculated with a 140 day working year, but will also include reference to a 250 day working year to enable readers to more easily reference the international literature. Some assumption is necessary to directly compare casual earners with annual earners, but it is important to keep in mind that these are both assumptions.

Table 1. Components of consumption baskets

	Subsistence	Respectability
kg bread	–	234
kg grains	155	–
kg peas	20	52
kg meat	2.5	13
kg salt fish	2.5	13
litres beer	–	182
kg cheese + butter	3	10.4
eggs (n)	–	52
kg soap	1.3	2.6
m linen	3	5
kg candles	1.3	2.6
litres lamp oil	1.3	2.6
M BTU fuel	2.0	5.0
rent	5%	5%

Source: Gary 2018b

Prices are collected for commodities from Southern Sweden, following the methodology of Allen (2009). Some adjustments are made to more accurately reflect a Scandinavian diet; the most substantial is replacing half of meat consumption with fish, based on Morell (1989) which shows high consumption of fish in Swedish institutions (see Gary 2018b). Table 1 shows the components of the consumption baskets at both the subsistence and the respectability levels. A subsistence price basket represents the cost of maintaining an adult man on only the most basic and cheapest commodities. A respectability basket represents the cost of maintaining an adult man with a large variety and higher quality of consumables. Both meet the same level of caloric requirements, with approximately 2100 calories per day. However, the value of enjoyment is very different; the subsistence basket is basic to the extreme, and does not reflect what people would actually hope to be eating throughout the year (Myrdal 1933). Because of this, the respectability basket is used for the majority of the analysis. .

This paper is interested in the earning capacity of individual men, and so does not make an assumption on the size or caloric needs of a dependent family. The final value of the real wage represents how many ‘consumption baskets’ earner would be able to purchase with his yearly wage. A final value of one indicates that the wage would exactly support the earner. A value of two indicates that needs could be met two times over, and a value below one

indicates that earner would be suffering from hunger and a lack of resources or would depend more heavily on additional household production or wage labour.

Annual wages

When workers were employed on fixed contracts, the wage payments they received often represented only a portion of their full compensation: in many cases, workers were paid a relatively small cash wage, but received full room and board, and possibly other perquisites, as a part of their contract. This is difficult to quantify since it is typically not explicitly recorded. This paper follows the methodology established in Humphries and Weisdorf (2015), by assuming that workers employed on long-term contracts received room and board approximately at the value of the respectability basket.

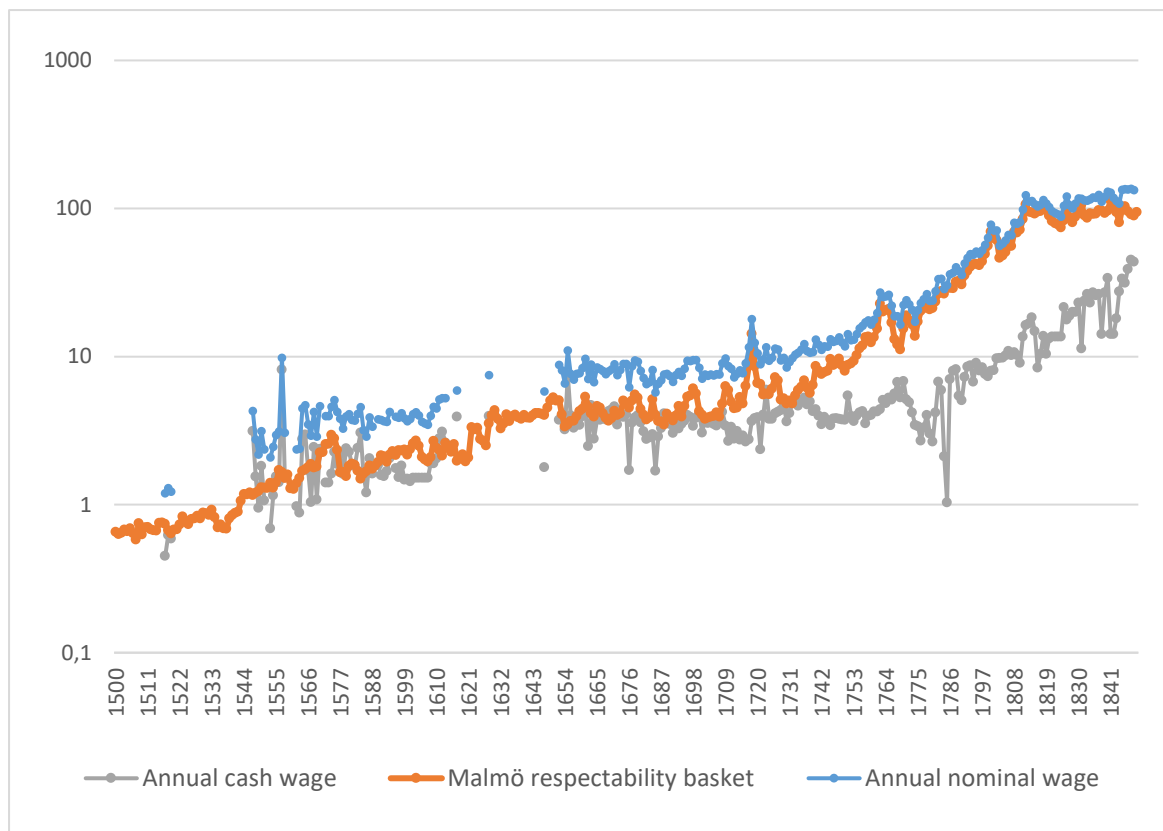
To estimate the total value of annual compensation, the value of the respectability basket is added to the cash wage; this sum is treated as the nominal wage for annually-employed workers (see Humphries and Weisdorf 2015, 2017). The respectability basket is selected because we believe it more fully reflects the consumption of servants. According to Uppenberg (2017), one of the few reasons that a servant could be given permission break an employment contract and seek employment elsewhere was because of an unreasonably lean diet – the Servant Acts of 1805 officially codified this. Of course servants' complaints could be relative to the times; there were reports that farm servants on Sweden's west coast protested against the excess of salmon they were expected to eat on a weekly basis (Magnusson, 2013). Myrdal (1933), in his study of the cost of living in Sweden during the nineteenth century, reports a Swedish household budget roughly in line with Allen's 2009 respectability budget for the earlier part of the nineteenth century. Morell (1989) also describes consumption at a level closer to Allen's 'respectability' levels in his study of diets and consumption by Swedish poor-relief hospitals from the sixteenth through the early nineteenth centuries. These institutionally provided diets had a relatively high proportion of proteins from fish and meat, above what is included in Allen's household consumption baskets, though Morell does find an increasing dependence on grain through the period. Humphries and Weisdorf (2015, 2017) also prefer the respectability basket as the base for the nominal wage portion of annual workers' wage estimates; selecting the same base gives our wage levels better comparability.

Men's nominal wages for casual and annual labour

Because of the mechanical construction of each type of wage, the range of possible values for day and annual wages is different. When calculated from day wages the lower bound of annual income approaches zero, as wage values in the numerator decrease and food costs in the denominator increase. The lower bound of annual income when calculated from wages from long-term contracts is one; because the price basket is included in both the numerator and denominator, even as cash payments fall to zero, this method makes the mechanical assumption that all basic needs are met.

The inclusion of the price series in annual nominal wages also means that it is important to investigate both the cash portion and the value of the prices together, in order to understand which changes are driven by payment and which are driven by costs. Figure 1 shows the development of men's cash wages from annual service alongside the respectability basket,

Figure 1. Components of men's annual wages in SEK. Semi-log scale.



along with the full nominal wage, which is the sum of the cash wage and the respectability basket. These are shown in log scale; significant inflation in the middle of the eighteenth century means that developments are obscured when viewed with a linear scale. Tables with all annual values can be found in the appendix of Gary 2018b.

Prices rise through the sixteenth century, are fairly stagnant through the seventeenth, and then rise at a steeper pace in the eighteenth, finally levelling off again in the nineteenth. This is largely in line with what we know about Sweden's development from previous work such as the development of GDP (Schön and Krantz 2012).

The cash portion of the wage is almost always lower than the value of in kind perquisites, except for some scattered years in the early seventeenth century (figure 1). Typically, the cash component is between about 20 and 45 percent; the average value is about 33 percent.

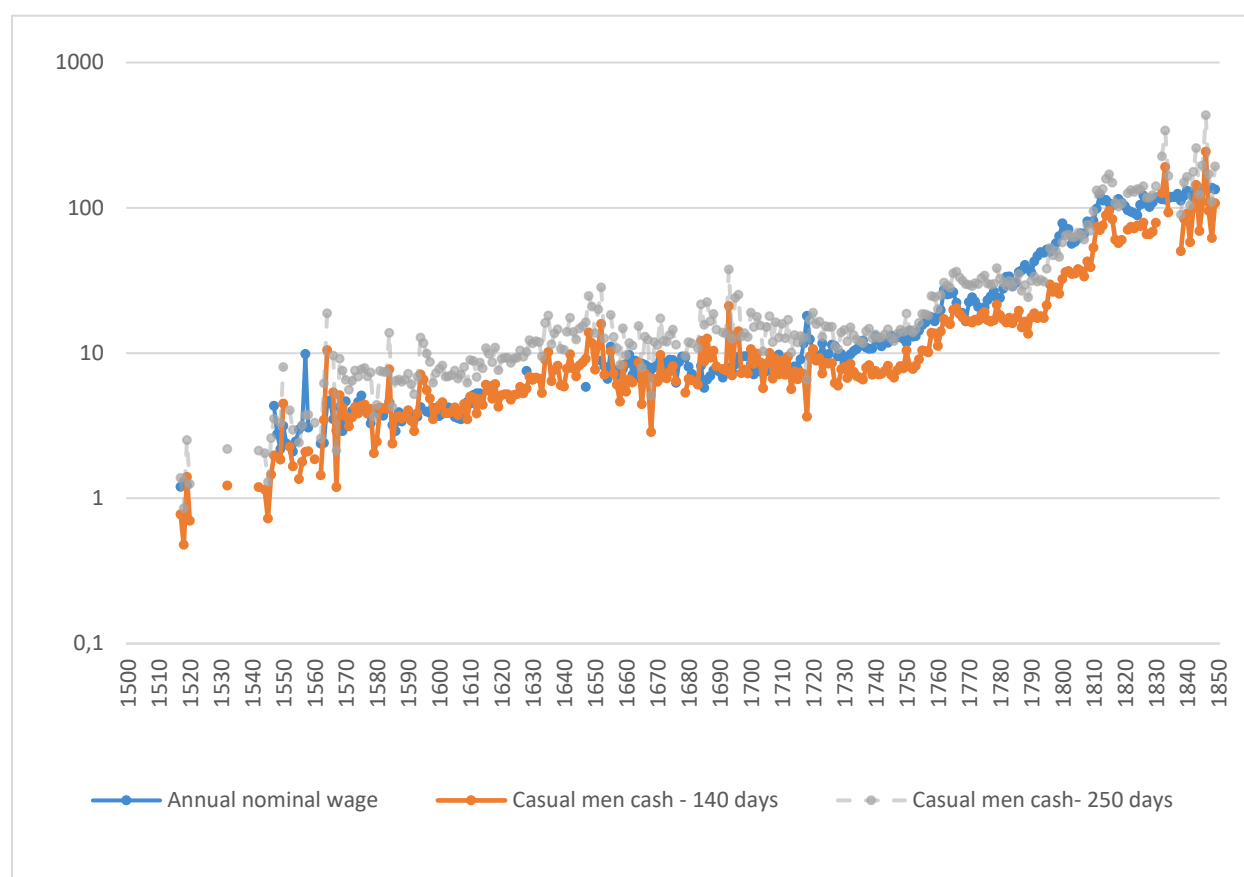
Because the room and board component is such a large proportion of the total annual wage, the total nominal wage is obviously not substantially higher than the value of the respectability basket, and is also strongly influenced by the development of the price basket.

The cash component of the wage is in general greater during the earlier parts of the period, especially in the late sixteenth and into the seventeenth century. There is a clear decrease in the relative value of the cash component into the middle of the eighteenth century; cash payments are stagnant for several decades while price increasingly accelerate. This means that developments at the end of the period, especially, are much more connected to price changes than to wage development.

Figure 2 shows the log-nominal development of the two wage series for men, with daily wages multiplied by both 140 and 250 to give a range of approximations of total income. As discussed above, 140 days represents the likely length of a typical working year in this labour market while 250 is the number used in standard practice. The largescale trends of both wage series are similar to those of the price series; increase in the sixteenth century, some stagnation in the seventeenth, a rise again in the eighteenth, and flattening out going into the nineteenth century.

Earnings with a 140-day work year are very similar to those from an annual contract; they only begin to diverge at the beginning of the 18th century. At this point the annually earned nominal wage pulls ahead, and by the end the period is higher than even the cash earned with 250 days of work. The period when annual wages begin to overtake 140 days' of casual wages is right after prices have recovered following the crisis of Sweden's 1721 defeat in the Great Northern War. Cash wages had been lower in previous years, but recovered after the war. While those working for the day before this point could probably have had an advantage, it is clear that the value of this type of work is quickly falling.

Figure 2. Comparison of different nominal wage types in SEK. Semi-log scale.



The huge decline in the relative value of casual work is readily seen by which series of casual income is on par with an annual salary's cash value. While 140 days of work is reasonably in line with the value of an annual wage for the majority of the period here, there is a clear divergence from the eighteenth century and the series for 250 work days is much more comparable. However, it is clear that even 250 days' work begins to be too little to equal an annual wage during some years in the middle of the nineteenth century.

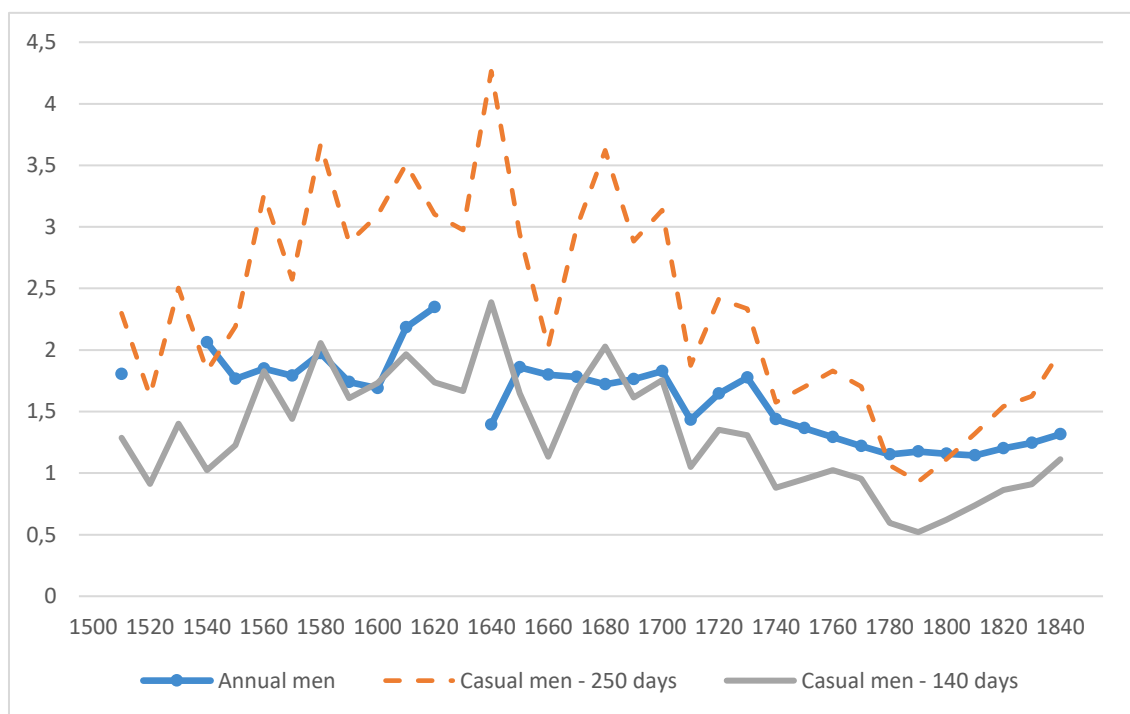
Men's real wages for casual and annual labour

We have demonstrated that the cash component of the annual wage was continually declining during this period, meaning that the value of the annual wage is increasingly dependent on the rising cost of living essentials. We have also seen that annual wages pulling ahead of casual wages in the eighteenth century. Given this relationship, how do these nominal wages compare to the costs of essentials?

In figure 3 daily-earned wages are again multiplied by 140 and 250 to represent two possible functions of the working year. These series, together with the cash value of remuneration

from annual work, are deflated by the respectability basket. Both annually earned wages and daily earned wages are divided by a single man's respectability basket, and show how they could support the earner directly. Despite some differences in development both wage types have a similar trend, with growth during the sixteenth century, peak wage levels in the beginning of the seventeenth, and decline through the rest of the period, especially from the 1770s and into the 1790s. Both wages have a slight decrease around the time of the Great Northern War in the early eighteenth century, while only casual wages indicate a decrease during the Second Northern War during the mid-seventeenth century, when Denmark lost Scania to Sweden. There is some recovery going into the nineteenth century, following a low point especially for casual wages in the last years of the eighteenth century.

Figure 3. Casual vs annual real wages.



As previously stated, the annual earned wages are not much above the annual cost of the basket, since the cash portion of the wages was rather low compared to the value of in-kind benefits. This leads to a slightly flatter development of annual wage values compared to casual wages. Annual wages range from just one basket to slightly above two baskets in some periods, keeping closer to this higher level for the majority of the seventeenth century and into the eighteenth. These wages are not necessarily expected to be high – as discussed above, the majority of people who were annually employed in the countryside would have been younger individuals, working outside of their parents' home while saving before marriage, and

working mostly for room and board (Dribe 2000). Within that context it is not surprising that their levels were close to one or two consumption baskets. However, the especially low wage levels during the end of the eighteenth and into the nineteenth century are surprising; the cash component has become especially low. It is quite possible that the relationship between cash and in-kind payments had been fairly consistent over the duration of the lifecycle servant system, which then breaks down as the Swedish economy and demographic character begins to shift entering the nineteenth century. This would account for the relatively stable and higher levels of annual income in the sixteenth century during decades when casual wages were lower, as well as the steady decline in wage levels toward the end of the period.

Wages earned by the day are more volatile. Assuming 140 days of work, they range from about 0.5 to about 2.4 baskets, a difference of a factor of 4.8. At this level of work intensity annual income from day labour is reasonably in line with income from annually-hired work. However, it is substantially lower in both the beginning of the period and in the majority of the eighteenth and into the nineteenth century. Wages earned by the day suffer a sharp decline from the beginning of the seventeenth century through the end of the period. While there is some indication of a resurgence at the beginning of the nineteenth century, this is only after daily wage rates hit their absolute bottom at the end of the eighteenth century. Wages in this period are so low that even when a work year of 250 days is assumed and subsistence basket prices are used, an individual man would not have been able to earn enough to support a typical family, showing how necessary it would have been for other family members to work or produce household goods. This decline is in line with what we know about the general development of Sweden entering the nineteenth century based on evidence from wages and GDP from Stockholm (Schön and Krantz 2012; Söderberg 2010; Gary 2018a) though the decline in Malmö is earlier and lower than in Stockholm. GDP per capita was falling, and at the same time there was a significant increase in landlessness and men looking for work in the casual-hire market, as opposed to year-long fixed contracts. There was also increased competition for year-long contracts as they were increasingly open to married men and families, where they had been previously restricted to predominantly unmarried men in the countryside.

Late sixteenth century high wage levels are likely connected to Denmark's strong export sector as well as state-led building programs that would have increased the demand for casual construction work in particular (see Gary 2018a). The middle of the eighteenth century saw a state-led push for small-scale industrial production in the cities; while the venture did not shift

the demographics of Sweden on a macro level, it did lead to an increase in the proportion of unskilled workers in the towns. The project ultimately failed (Walldén 1955, 343–47). This collapse together with a proletarianization of the Swedish peasantry and increasing number of landless workers resulted in higher rates of unemployment in the towns and a subsequent downward pressure on workers' wages. At the end of the eighteenth century these lower wages were compounded by a total currency change – in 1777 all old currency was replaced with an entirely new system which led to inflation and some monetary confusion (Edvinsson 2010). Grain prices had been rising since the second half of the century, but rapidly rose during the grain shortages of the Napoleonic Wars. The end of the eighteenth century was a difficult time for unskilled Scanian workers, with high unemployment, low wages, and high prices.

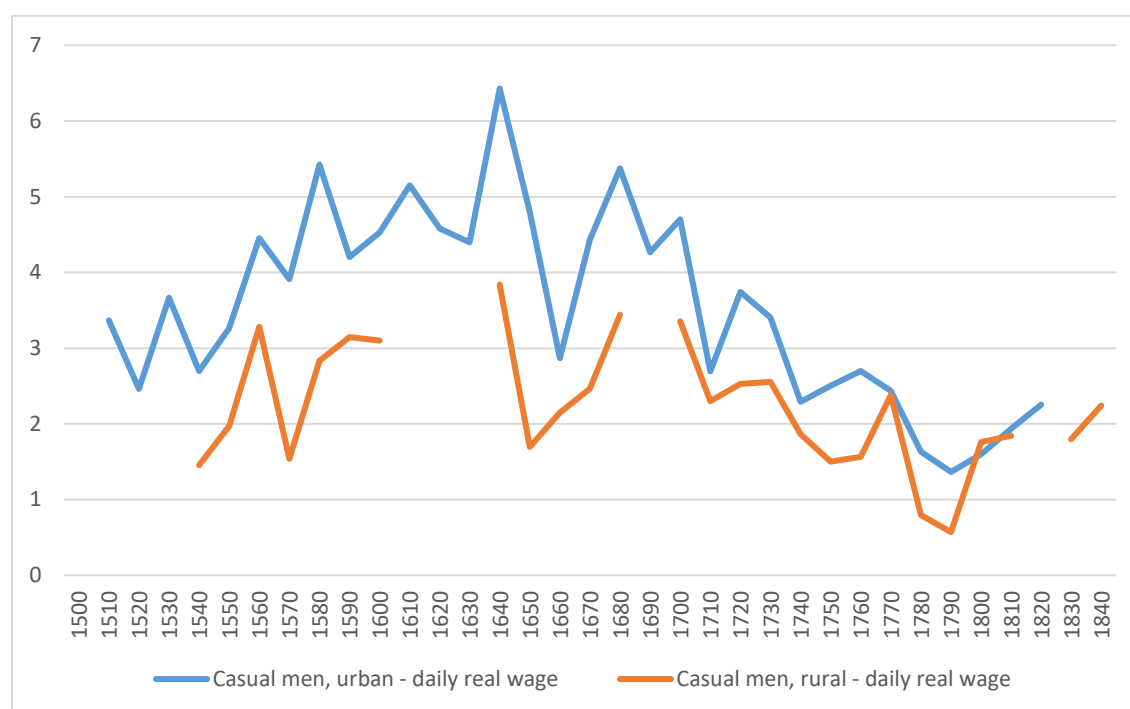
Annual wages develop with a similar pattern to day wages, and with 140 days of work they are also similar in levels. This indicates at least some degree of equilibrium or exchange between the two labour markets. The concurrent decline in (and possible convergence of) both annual and daily paid wages in the seventeenth and eighteenth century is strongly counter to the trend in England, where wages for both types are increasing, while annually paid wages increase faster and outpace income from day wages (assuming 250 days of work) by nearly a factor of four by the middle of the nineteenth century (Humphries and Weisdorf 2017). Apart from mere levels, the different developments indicate very different labour market settings entering into the modern period.

Urban-rural differences

The sections above have shown the major development trends of prices and wages in the south of Sweden in the early modern period. This has examined the entire region, with wage data coming from both rural and urban sources. However, there are important differences between these types of data.

In the first instance, the types of work being done by annually employed men were different, as were the likely age and background of these workers. Casually employed were working in construction in all areas.

Figure 4. Per-day real wage rate for urban and rural casual construction workers.

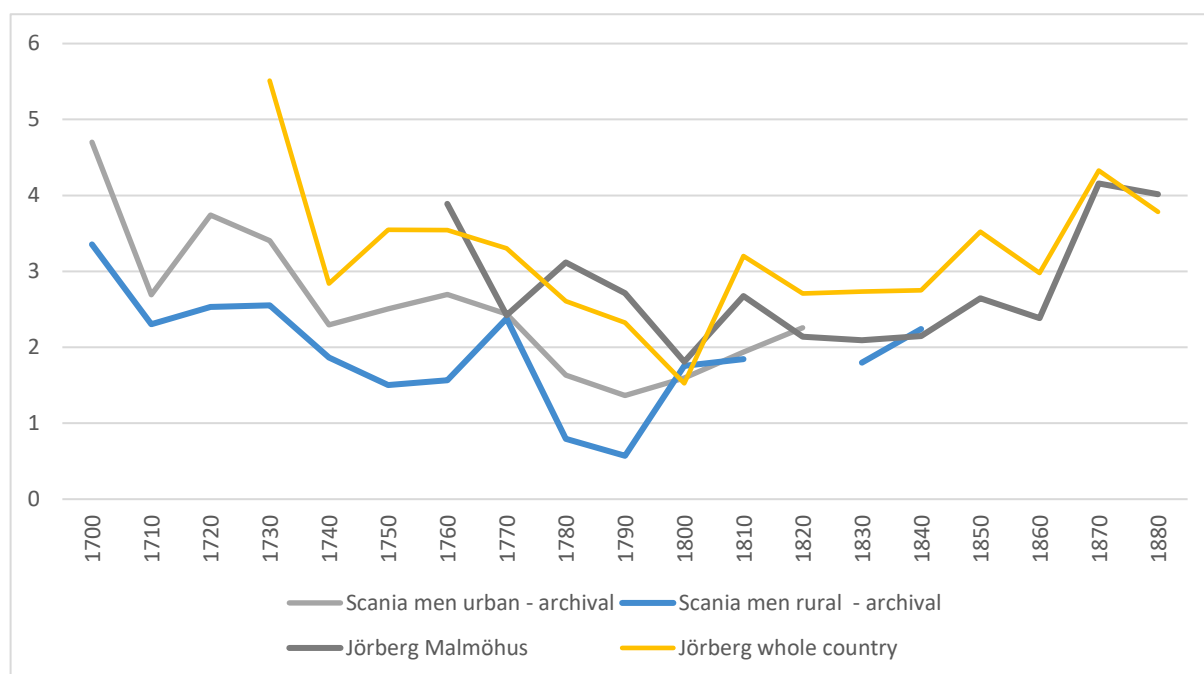


The second important difference is how the two types of work changed. While Sweden was still very rural and agricultural throughout the entire period studied here, there were still important development in urban centres. One of the clearest is the increase of an urban bureaucracy. This is readily apparent in the records themselves; in Malmö for example, the payrolls list 32 people in 1517, the earliest year in which they are available. In subsequent decades, the count could be as low as 7 or 9, and throughout the sixteenth century was rarely more than 25. During these periods the payroll was typically dominated by unskilled and unspecialized men, such as city custodians (*bysven*). By the end of the 1760s, after which the recording system was reorganized, the annual payroll had grown to almost 90 people, and a much larger percentage were skilled and specialized workers including city councilmen (*rådsman*), police (*profoss*), tax inspectors (*tullinspektör*), and city midwives (*stadsjordemoder*).

In the previous comparison between casually and annually earned wages, the low annual wages in the eighteenth century were surprising; this is especially surprising when it becomes clear how many earners in the sample lived in urban areas and were not a part of the lifecycle service pattern. The following sections will disaggregate the data to tease out some of the differences between urban and rural earners.

Real wages for urban and rural casual workers are shown in figure 4; they are shown here as daily real wages; the numerator is the day rate and the denominator is the annual CPI divided by 365. This allows us to look at the relative development of these different wages without any assumptions about the length of the working year. Rural wages are consistently slightly lower than urban wage. The development patterns are almost identical, and there is increasing convergence in the eighteenth century. The difference in wage levels is probably somewhat misleading, as rural prices were likely to have been somewhat lower, indicating a closer parity of urban and rural casual wages.

Figure 5. Comparison of urban and rural casual wages with administrative (market scale) wage rates. Daily real wages, decadal averages.



Sources: Scanian archival wages: Gary 2018a. Jörberg market scale wages: Jörberg 1972. Price deflator: Gary 2018a.

Currently, the most-used wage series for early modern wages outside of Stockholm are from Jörberg (1972), who relies on market scales to estimate wage series for agricultural workers in each of Sweden's 24 counties. Because they are virtually the only wages available so far in the past, and because of their extensive coverage and level of disaggregation, these are regarded as the 'canonical' wage series in Swedish economic historiography. However, these are not observed actual wages but contemporary estimates in order to commute taxes in labour to taxes in cash. The wage levels were agreed on annually after a process of mediation on district level.

There were of course different power dynamics at work when these wage levels were being determined; Utterström reports that the peasantry was often upset at the rates which were agreed upon, complaining that they were far too high for the actual labour market, and must instead be the price levels in the cities (Utterström 1957, 877).

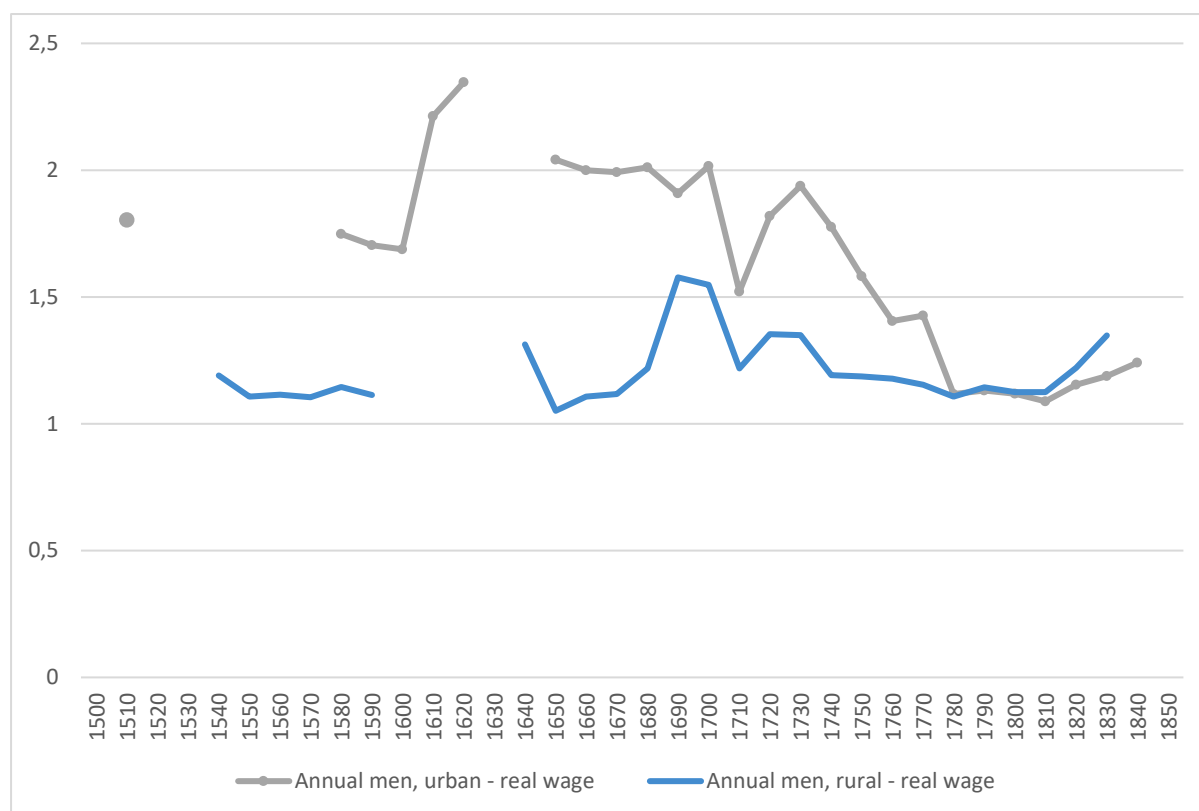
Figure 5 shows real wage levels – again in real wages calculated by the day – for the observed wages of the urban and rural workers examined here, as well as the market scale wage rates from Jörberg (1972). Based on the comparison, the upset peasant farmers were reasonable in their frustration: the market scale rates for Malmöhus County are fairly consistently above the observed wage rates in the Scanian countryside, and are often above those in the cities as well. The national average is even higher, though of course this figure incorporates more high-priced markets as well. The differences, while shifting, are as large as two respectability baskets, though are probably more accurately presented as one basket's difference. This is considerable, given the low wage rates at the time.

There is significantly more divergence between urban and rural workers on long-term contracts (figure 6). As alluded to previously, this is likely due to the different types of occupations as well as the ways in which urban employment shifted in the later part of the eighteenth and into nineteenth centuries. While those working in the countryside were likely mostly working in husbandry in service, those in the city were more likely to be working in jobs that were not necessarily tied to lifecycle service, and more likely to be held for a longer period – many of these urban workers were city custodians, *stadstjänare*, and *tornväktare*, guards in the towers. This high wage period was also the peak of Danish state-led building and expansion – this could also have led to an upward wage pressure on state jobs.

Regardless, it is clearly these urban jobs which drive the annually-employed wage increase in the seventeenth century which parallels the increase in casual wages at the same time.

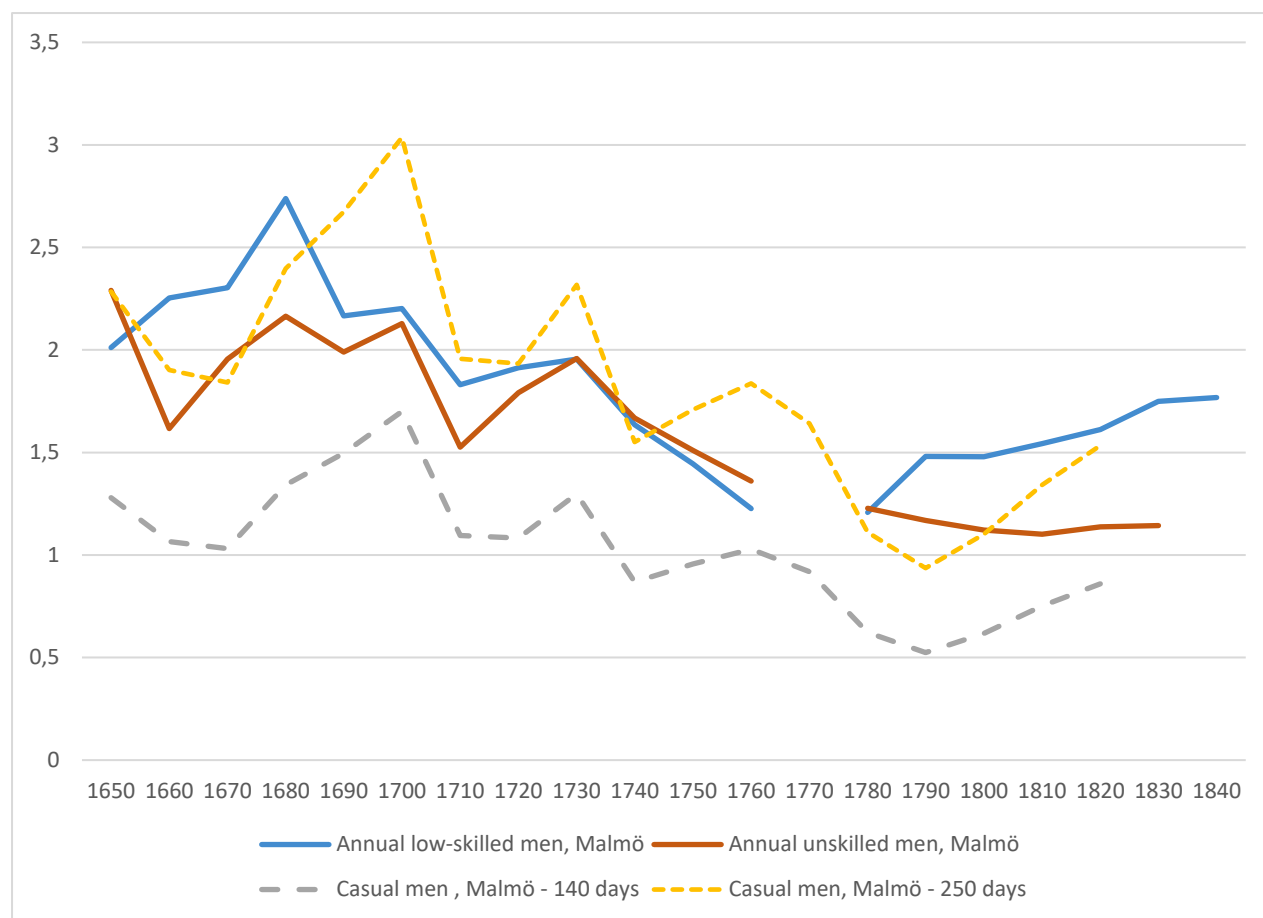
Unfortunately there is not data from rural workers at this time, so it is not possible to see if this wage spike is happening there as well.

Figure 6. Rural and urban annually earned real wages in consumption baskets.



More interestingly, urban unskilled wages dip to the level of wages in the countryside in the late eighteenth and into the nineteenth century. This finding is surprising; it would have been more expected that urban development would lead to increased wages in the cities relative to the countryside, and that urban wages would stay at least equal to, if not above, rural wage levels. But this wage inversion is taking place during a period when urbanization is just beginning to develop in Sweden, and with this budding urbanization came a growth of the public sector and of employment directly by the municipalities. It is abundantly clear in the data itself that public sector employment is increasing, both in the kinds and variety of positions as well as the number of employees per position. One of the dominant trends is the increase in employment of lower-skilled workers, most notable in Malmö, the largest city in the sample. These growing positions included occupations such as customs officials (*tullskrivare*) and city police (*stadsprofoss*), both positions which required some skill or connection, but which Ågren (2014) describes as being rather lowly, often disliked by the people of the city, and not very well paid. While these positions might require some literacy skills, they were only a small step up from the bottom.

Figure 7. Comparison of wage rates in Malmö.



This increase in more specialized work most likely pushed down the relative responsibility and remuneration of those workers in the least-skilled occupations, the ones which have been tracked in the previous analysis. We can expect some level of ‘de-skilling’ of these least-skilled positions, typically city custodians such as *bysven* and *stadstjänare*, as roles become more specialized. And in fact this is apparent in the urban wage development. Figure 7 shows men’s wage rates only in Malmö city, the largest town in the sample and the most important town in Scania, from 1650 until 1850. The yearly real wage for casual workers is shown at both 140 and 250 days of work, along with the wage for annually employed unskilled workers in Malmö. In addition, low-skilled men working on annual contracts are shown. These men’s wages develop largely in line with unskilled annually employed men’s, though are typically somewhat higher, as would be expected. There is convergence between them, especially in the early eighteenth century when wage levels are falling. At this point low-skilled workers even dip slightly below the unskilled workers, though this is not a particularly large difference.

Table 2. Annual and casual worker's wages in Kristianstad Hospital 1818–1821 (SEK).

	Cash wage, men	Resp. basket	Total (nominal) wage, men
1818 Casual (250 days)	146		146
1818 Annual	5	91	96
1819 Annual	5	89	94
1820 Annual	5	83	88
1821 Annual	33	77	110

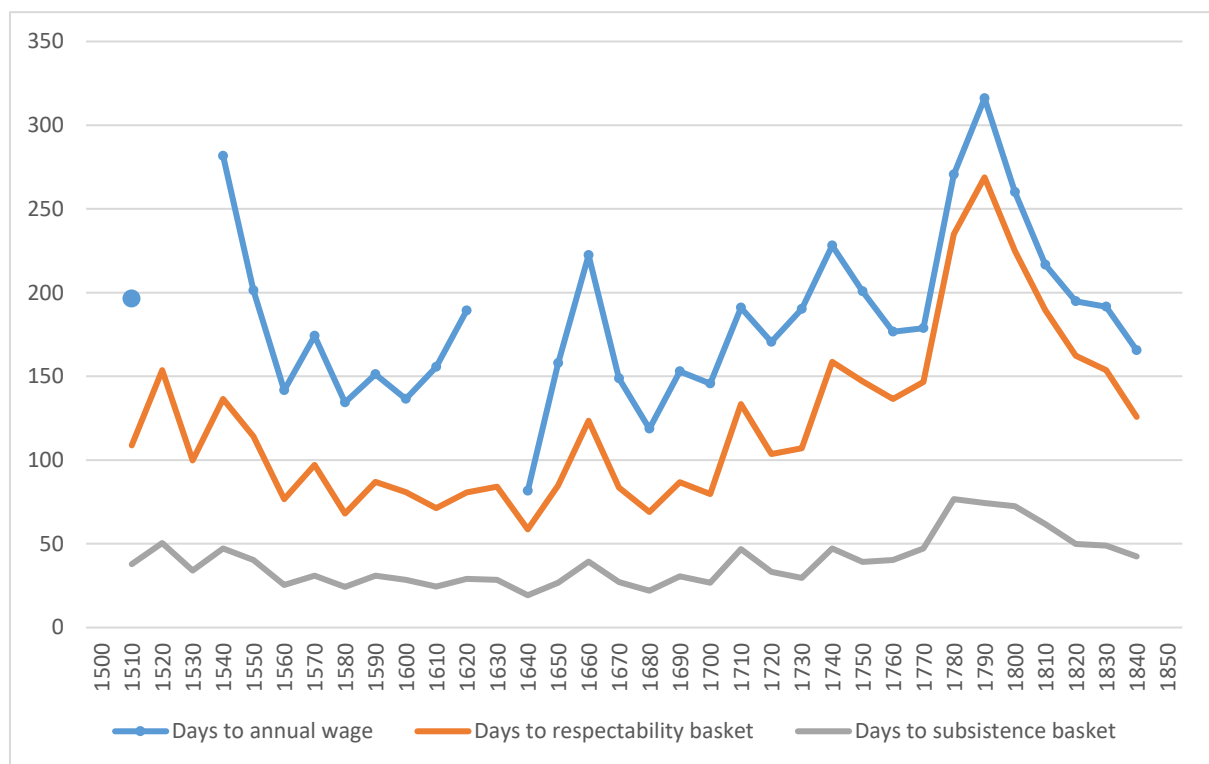
A substantial divergence is apparent between the two annual wage types from the 1780s, when unskilled wages remain stagnant while low-skilled wages increase, even as casual wages continue to fall. Low-skilled wages continue to rise and further diverge through the end of the period, indicating that the trend of specialization also continues. This is an indication that, as the end of the early modern period approaches, the classic ‘unskilled’ jobs which we have used to measure the working class might no longer be the most representative group.

Both the cash and in kind parts of annual wages tended to be sticky, so among workers employed by church or administration in towns and by manorial estates in the countryside. An example of the relationship between annual and casual labour can be found in Kristianstad Hospital 1818, when one of the two annual male workers died in the middle of the year. A casual replacement was hired to the price of 0,583 kronor (equivalents) per day for 127 days – an especially long period due to the need to replace the full time worker. The administrative set agricultural day wage (see above) for the county was 0.75 kronor that year, which implies that this was not an especially high payment. In Table 2, the actual wage paid to the replacement is normalized to 250 days for the full year comparison. Even with the respectability basket, the total salary for the annual hires is clearly below the cost of employing a casual worker for the full year. A couple of years later the cash wages at Kristianstad Hospital were substantially improved, rising from 5 to 33 kronor per year by decree from the Royal Serafim Order Guild, the organization which ran the hospital. We can only speculate whether this action was triggered by the salient wage gap that appeared when the replacement came in three years earlier.

Differences in work year needs – who was ‘better off’?

We have examined differences in the development of wages paid to different types of male workers in early modern southern Sweden, but has so far not quantified the differences in a way which describes the differences in labour needed to make an income large enough for annual support. Can we use these relationships to address who was ‘better off’ in early modern Sweden, or at least to explore the changing payoffs to different types of labour strategies? Answers to this question are in some ways rather elusive – it is difficult to compare directly the well-being from the two types of wages because the costs and benefits of each type are reciprocal to one another.

Figure 8. Days of casual work needed to equal an annual wage, a subsistence basket, and a respectability basket.



Recent literature has continually questioned the standard methodological approach which has, from Allen’s (2001) paper, assigned workers 250 days of work in a year. It did not typically take this long for workers to make enough to support themselves in England (Allen and Weisdorf 2011) and it did not take so many days of work for an English to make the same income as what a person in annual employ would make (Humphries and Weisdorf 2015, 2017). Other authors have criticized this methodological approach, correctly pointing out that

working so many days during peak wage periods would have made casual labourers much wealthier than their land-owning neighbours (Hatcher 2011). From a more practical level, long working years would not have been feasible during lower-wage periods, when the caloric needs for long working years might not have been met (e.g. Humphries 2013). Results from investigations on working patterns and seasonality in early modern southern Sweden also point to a much shorter working year (Gary 2019). Together, this research points to a degree of equilibrium in annual income levels throughout early modern societies, with the typical worker preferring to substitute toward leisure or home-based labour, and away from paid labour, on a casual basis, especially. To this end, it is not unreasonable to take annual earning and the baseline support needs as an indicator of what individuals would strive to earn in a year. This section builds on this premise to compare the different degrees of work which each type of occupation might entail.

Figure 8 shows the number of working days needed for a casually working man to earn the amount of money needed to equal a subsistence basket, a respectability basket, and an annual worker's cash-income-equivalent. The underlying assumption is that men would be aiming to earn an income at approximately the same value as a respectability basket or an annual income, but the 'work day' values of the subsistence basket also give us a range of 'survivable' working years.

Throughout the majority of the study period it would take only 150 to 200 days for a casually employed man to earn as much as an annually working man; he need only work 100 to 150 days to earn a respectability basket's value – as little as 50 days were needed for a subsistence level support. Up until the mid-to-late eighteenth century a man relying on casual work would have been able to meet their annual needs with far fewer work days than what an annually employed man was expected to work. He could then spend the rest of the year working on domestic production or in leisure.

The trend is fairly steady, with some fluctuations, until the late eighteenth century. Here nominal casual wages stagnate and prices rise, and real wage rates for casual workers in particular plummet. Söderberg (2010) connects this low point in real wages to an eighteenth century trend of rising grain prices, especially exacerbated at the end of the century by food shortages caused by the Napoleonic Wars. Here it became increasingly more work to earn the same cash equivalent as an annually employed man or respectability basket. At this point it would likely be more beneficial to be employed on an annual basis, especially if meals were guaranteed by the employer. Even if living standards for annually employed fell, they were

still housed and supported by their employers. The risk here though is that households (and municipalities) would cut employment when food costs rose too high. And in fact this seems to be exactly what was happening, as estates increasingly shifted peasants off their land over the eighteenth century and shifted towards casually-hired labour, and the Swedish population became increasingly landless.

Conclusions

In spite of a partly regulated labour market and sticky wages, there was a great deal of variation in salaries, both for annually and casually hired in Early Modern Sweden – wages and working conditions tended to fluctuate with changes in demand and supply. These fluctuations could be driven by long trends in population development and labour demand, but they could also be due to sudden shocks caused by events such as wars or local disasters.

We have seen a substantial departure between the casual and annual hire labour markets, with the relative wage earned by day labourers falling over the course of the early modern period. Their well-being per day of work also fell as prices rose faster than wages, especially during the second half of the eighteenth century. Rural wages were normally below urban, but converged around the year 1800. Findings also indicate a shift within urban labour markets, as the least skilled jobs which previously could provide reasonable support became less well remunerated; at the same time a growing class of low-skilled (versus non-skilled) workers took their place – a shift not seen in smaller towns. It is abundantly clear that workers in the towns were more likely to suffer wage insecurity over the long run, especially from the late eighteenth century.

An early modern day labourer normally had to work 150–200 days per year to equal the implicit wage of an annually employed man, and he could earn his bare bones subsistence with less than 50 days' work. However, this does not mean that he could support a family at a respectable consumption level – relying only on men at work was not sufficient for a household's consumption needs. Especially during the last two decades of the 1700s, additional work from other family members was necessary. This pushes back against a male breadwinner model – most unskilled households relying on their men would go hungry. Women would have needed to be well engaged in the labour force, and children's work, at home or outside, would have likely also been required. It is also further evidence for an industrious revolution though the eighteenth century, though not in order to decorate their

homes or indulge in new finery, as de Vries (2008) describes in some markets. Swedish working class families had to work more during the course of the eighteenth century in order to fight to maintain a decent consumption level.

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