Houses, yards and sheds: Real-property prices in Stockholm up to 1600[1]

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Introduction and questions

Land was the primary material resource in Swedish medieval society. Extensive source material has been preserved providing information about the value of property and how it was distributed in various respects, for example between men and women. Thousands of documents tell us what kind of people bought or sold properties. Despite the wealth of source material, few attempts have been made to describe the urban real-estate market.[2]

In the discipline of economic history, the interest in long time series of prices for real estate has probably never been as strong as now. The background is, of course, concern for new real-estate crises. One question is to what extent the land market was exposed to speculative forces. Large amounts of data have been collected on land prices and land rent in search of what may have been the first real-estate bubble. Such bubbles can occur if the prices of property differ greatly from what this property may have yielded. Increased knowledge of the property market's historical trends may be relevant not just for our view of the pre-industrial economy but also for our understanding of the current situation.

The overall question in this chapter is how the real-estate market developed in the short and long term in Stockholm during the Middle Ages and the 16th century. We highlight four sub-questions, the first two of which directly concern the way the real-estate market functions. The first sub-question is about price fluctuations in the short and long term. Here we investigate whether the long-term price trends of urban properties show similarities with the strong and persistent downturn that characterizes rural land prices in late medieval Europe. When the population fell in the wake of the Black Death from the mid-14th century and subsequent epidemics, land became a less scarce resource. If urban prices fell in the same way as in rural areas, this would

1 This chapter is based on Söderberg and Franzén (2018).

2 For various rural areas see Söderberg, (2013) pp. 82–99; Bjarne Larsson (2010).

strengthen the image of the crisis of the late Middle Ages as a general and profound phenomenon. The second sub-question is whether it is possible to assess the short-term impact of known plague epidemics on real-property prices in Stockholm.

The last two sub-questions deal with the allocation of resources. First, tentative results are reported concerning the possibility of using the spread in urban property prices as an indicator of economic inequality. We then examine whether women's activities as buyers and sellers in the property market changed in the transition from medieval to early modern times. These two issues are not so much directed at price formation as at prices as an indicator of how material resources have been distributed between groups and individuals.

The chapter is arranged as follows. First, we describe previous research, source material and methods. After that there is a longer section about the development of property prices in Stockholm, which is compared to Arboga, situated west of Stockholm. Both towns were closely connected by the iron trade. For Stockholm a calculation is then made of the plot price per square metre in order to create a more homogeneous series than those (among other things) in size more varied properties. The three following sections deal in turn with the resulting effects of plagues, the level and change of economic inequality, and the position of women and men in the real-estate market. Finally, there is a summary discussion.

Keys and lock from the Middle Ages displayed at the Medieval Museum in Stockholm.
Source: https://stockholmskallan.stockholm.se/post/30978.

Previous research, sources, and methods

For Swedish towns during the Middle Ages and the 16th century, the source material in the form of notes in land books as well as in memory books (see below) is well known. Occasional quotations are often mentioned in the literature about Stockholm. Valuations of real estate and their importance in the credit system in Arboga during the late Middle Ages have been examined by Bo Franzén. Birgitta Lager has described in detail the property stock in Stockholm based on the 1582 house tax list.[3] We will refer to her investigation several times in the rest of the chapter. For some rural areas in Sweden, land prices during the Middle Ages and the 16th century have been mapped.[4]

Real-estate valuations and prices can provide an invaluable basis for the analysis of the distribution of income and wealth. There is a long European tradition, from the Middle Ages onwards, of valuing properties for tax purposes. Such material has been increasingly recognized in studies of economic inequality. One advantage of this source material is that the top layer of wealth owners is usually well represented. Recent research emphasizes that this top layer greatly influences the overall distribution of income and wealth. We will later refer to surveys of inequality trends in different parts of Europe in the pre-industrial era.

Research about the gender distribution in real-estate transactions during the Middle Ages and the 16th century is quite extensive. Selected Swedish rural areas have been investigated by several researchers, most recently by Gabriela Bjarne Larsson.[5] A consistent result is that women rarely bought properties. They mainly acted as sellers. This also applies to medieval Arboga studied by Bo Franzén.

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Information about prices for properties in Swedish towns in the Middle Ages and the 16th century is mainly found in the Swedish 'town books', which have long been available in printed editions. In Stockholm, these town books include, among other things, the series of land books 1420–1498 and memory books (in Swedish: "tänkeböcker") starting in 1474. The word memory book more than suggests what kind of sources we have at our disposal. It comes from a word borrowed into Swedish from German, *denkebôk*, which literally means *memory book*. In other words, the fact that the leading burghers in Swedish towns began to make use of memory books during the late Middle Ages was a practice of German origin. The memory books can be

3 Lager (1962).

4 Pioneering work in this field was done by Göran Dahlbäck (1981). See also Söderberg (2013) pp. 82–99.

5 Bjarne Larsson (2010). See also the notes on Table 5.8 below.

described as memorial notices from an oral office exercise,[6] a characteristic that also applies to the land books of Stockholm. The latter occupy a special position with their epic details and storytelling about the buildings in the town and other artefacts. For Stockholm, the price information contained in both land books and memory books has been used.

Although there is much information in the memory and land books, the total stock of real-estate or property owners is never accounted for. It is only when a property is sold, inherited, etc. that we receive information about it. Even then, the value of the property in money or other units of account were often not given. The same property transaction was often entered into both the land book and the memory book. In addition to Stockholm, medieval town books have also been preserved from Arboga, Kalmar and Jönköping. However, Stockholm stands in a class of its own regarding the extent of data, followed by Arboga. We have extracted 2,976 prices from real-estate transactions in the four towns from 1297 until 1600.[7] The vast majority of observations come from Stockholm, the focus of this study, and Arboga with 2,359 and 543 cases, respectively.

Consequently, Stockholm accounts for 79 percent of the price data, Arboga for 18 percent. Jönköping and Kalmar contribute only one and two percent respectively of the total number of observations. Onwards, these are not used in our quantitative analysis. We have consistently adjusted the value of real estate for entire properties where sub-values are stated. For example, where half a yard has been traded at a certain price, this has of course been doubled. In most transactions, the price is reported in money, although payment is sometimes stated in goods or commodities such as cloth or copper. In a few cases, we only have one commodity as a value of account. Based on contemporary prices, this commodity has been converted into a monetary price.

For Stockholm, it might be possible to identify single properties as stone houses in today's Old Town (via location and measure indications). Localizing individual properties is beyond the scope of this survey but could be the basis for a future study.

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6 The memory book of Jönköping provides us with a long note from 1547 with a uniquely detailed insight into how this oral function could work in practice. A named royal soldier brings an action of the ownership of a yard before the council in the town on behalf of his wife. The town's magistrate decides to hear two men's testimony in the matter. However, because of their high age, these cannot walk to the council house, but the councillors instead move to the town's hospital where the two men are now resident. Subsequently, their sworn testimony follows directly into the sum of six changes of ownership for this yard in chronological order, which include two inheritance, one pledge and three purchases. See *Jönköpings stads tänkebok 1456–1548* (1910–1919) pp. 155–156.

7 The vast majority of documents are printed in the series *Stockholms stads jordebok* (1876), *Stockholms stads tänkebok 1524–29* (1929–1940), *Stockholms stads tänkeböcker 1474–1600* (1917–1953), *Arboga stads tänkebok 1–4* (1935–1950), *Jönköpings stads tänkebok (1919)* and *Kalmar stads tänkebok* (1945–49). A few more documents have been obtained from the database of the Swedish Diplomatarium's main library of medieval charters (*SDHK*) at the National Archives (Sw. Riksarkivet). Most notes relating to real-estate transactions in the memory and land books for the four towns are not reproduced in *SDHK*.

Kalmar's memory book has recently been used as a basis for mapping the late medieval town and this shows the potential for further studies. Göran Dahlbäck has summarised previous, extensive research on medieval Stockholm and in his book presents a figure showing various source series in 1250–1550 and provides suggestions for further studies of the town.[8]

The basic data are, as indicated, of very different kinds. They range from a single entry about a sold cellar to detailed descriptions of yards and stone houses with their many inclusions. The vast majority of transactions, however, consist of purchases of property, although prices are also found in credit notices, participation of the joint property, donations and what were called estimates (Sw. "skattningar") – genres between which there are no sharp lines. Estimates were typical of the era – particularly common in the early record books of Arboga. A group of men, never a woman, are said to have jointly evaluated a given property. This valuation was expressed with few exceptions in monetary terms, even though other units of account existed.[9] Besides buyer-sellers, creditors-debtors and estimators, additional actors are to be found. These include mayors and councillors, witnesses, representatives in case of a person's absence, and spouses who gave their consent to transactions.

The property data have been entered into an Excel file which we call "Database of real-estate prices in Stockholm and Arboga". There we have recorded a description of the property, type, date of transaction and price. Notes on which actors were connected with the property in question are also recorded. All transactions found in the sources mentioned that contain information about the type of property, year and price have been included. However, it should be pointed out that a large number of notices, including detailed ones, lack price information.

The general price level was roughly ten times higher in 1600 than it was in 1297, largely a result of the deterioration in the silver content of coins. This means that comparisons between nominal monetary amounts can easily become misleading. We have used a consumer price index (CPI) to calculate the real prices, i.e., the prices obtained when the nominal values have been deflated.[10]

8 See also Ferm (1987) p. 268; Dahlbäck (1988) p. 189.
9 Franzén (1998) pp. 96–100.
10 Edvinsson and Söderberg (2010), pp. 443–445.

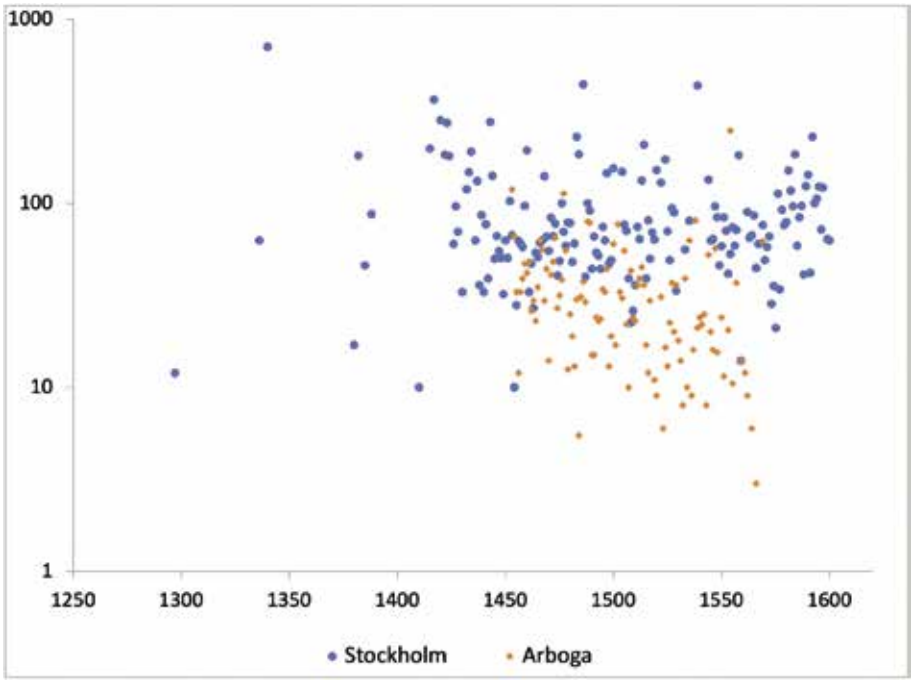
Property prices in Stockholm

2 öre minted in 1573, which contained much less silver than previously. The debasement led to rampant inflation in the 1570s, which is important to consider when house prices are analyzed for that period.

Source: https://digitaltmuseum.se/021027342272/mynt.

Figure 5.1 presents annual median prices for all properties in Stockholm up to 1600 in Swedish mark pence ("mark penningar" in Swedish) recalculated into 1500 year's prices. Thus, these are fixed prices where the effects of changes in the value of money are eliminated. Not until the beginning of the 15th century were price quotations so frequent that trends can be discerned.

Figure 5.1 *Prices for all properties in Stockholm 1297–1600 and Arboga 1453–1569. Mark pence ("mark penningar") in year-1500 prices, medians*



Source: Database of real-estate prices in Stockholm and Arboga.

The following tables present a breakdown on property types. Stone houses were relatively more expensive. During the late Middle Ages, more and more stone houses were built in the "Town between the bridges". Often, they were two-storey houses, built in brick on a wall of grey stone. The houses were so narrow that they generally did not have space for more than one or two rooms per floor. A timbered single-family house inside the courtyard sometimes comprised the living quarters. In the stone houses with two floors, the ground floor was usually used for sheds or workshops, while the dwelling was situated on the upper floor. The building of stone houses reduced the danger of fire while it simultaneously signified increased prosperity among the burghers. In individual cases, the town council could require that a certain house should be built in stone and not in wood. There was no general ban on wooden houses, however. From the 1520s onwards, three-storey high brick buildings became more common.

There is an ambiguity in the medieval language use of wooden houses. These were often referred to as "a wooden yard", but the same word could, albeit more rarely, designate an area where, for example, vegetables could be cultivated, a kind of garden. We have in each case tried to determine whether the transaction referred to

wooden houses or gardens. The Swedish word "trägård" without further determination can in the sources simply refer to a wooden building and be used synonymously with "a garden". North and south of the island where the actual fortified town was situated between bridges going north and south, we find "Norrmalm" and "Södermalm" which literally meant The North and South sand fields. A yard there towards the end of the 16th century was usually a plot with a wooden dwelling house with additionally buildings and a small courtyard space. The plots on the northern and southern sand fields were considerably larger than in the town between the bridges.

A model of the Soul Yard (Själagården), habited by the old and sick in the Old Town in the fifteenth century.
Source: https://stockholmskallan.stockholm.se/post/31542

Table 5.1 shows the number of transactions with different types of properties in 1297–1600 as well as the total property stock according to the house tax list of 1582. The latter list, which covers the town between the bridges, is a unique source that has been processed by Birgitta Lager.[11] This register is intended to account for the total amount of houses of different kinds, unlike memory and land books, which only register changes in the form of purchases, inheritance, etc. It should therefore be

11 Lager (1962) pp. 83, 85 (plot sizes), pp. 9–11 (tax list).

possible to get an idea of the extent to which the property transactions reflected the total portfolio.

Table 5.1 shows that the distribution of transactions with different types of properties during the last period, 1550–1600, is indeed similar to the distribution of properties according to the house tax list of 1582. This indicates that the real-estate trade at this time well reflected the different categories in the total stock of real estate.

In Table 5.1 we see that wooden houses (including yards) accounted for almost half of the transactions in the town between the bridges until the end of the 15th century. The proportion of stone houses seems to fall slightly in the second half of the 15th century and remains at the same level during the first half of the 16th century. Not until the second half of the 16th century has the category stone houses become dominant in the transactions. Here, however, it should be noted that the number of unspecified houses increases gradually. Judging by the prices of those houses, they were probably stone houses, as discussed below. If the unspecified houses are added to the stone houses, this expanded category will be the dominant one from the second half of the 15th century and will reach almost three quarters of the number of transactions during the latter half of the 16th century. It seems that over time the town scribes have increasingly come to perceive unspecified houses as stone houses.

Table 5.1 *Number of transactions with different types of property, 1297–1600, in the town between the bridges and total stock in 1582*

	Transactions				*Portfolio*
Type of property	*1297–1449*	*1450–1499*	*1500–1549*	*1550–1600*	*1582*
Stone houses	45	179	168	386	451
Wooden houses, yards	42	206	119	100	130
Half-timbered houses	0	0	1	69	92
Unspecified houses	1	43	65	87	70
Total	88	428	353	642	743
% Stone houses	51	42	48	60	61
% Wooden houses, yards	48	48	34	16	17
% Half-timbered houses	0	0	0	11	12
% Unspecified houses	1	10	18	14	9
Total	100	100	100	100	100

Source: Database of real-estate prices in Stockholm and Arboga; portfolio 1582: Lager (1962) p. 57.

Table 5.2 *Price in mark pence ("mark penningar") for different types of properties in Stockholm, medians in year-1500 prices*

Type of property	*Transactions 1297–1449*	*1450–1499*	*1500–1549*	*1550–1600*
Stone houses	343	299	238	184
Unspecified houses	44	199	250	152
Half-timbered houses			128	96
Wooden houses	84	69	53	52
Commercial buildings	62	60	39	22
Plots	30	36	26	23
All	83	76	98	87

Source: Database of real-estate prices in Stockholm and Arboga.

Stone houses fell in price during the period examined (Table 5.2). The median price during the second half of the 16th century was only slightly above half of the equivalent price during the period 1297–1449. Two other property types, wooden houses (including yards and cottages) and commercial buildings, as well as stone houses, show a clear fall in prices.

The authorities had limited ability to reduce the share of wooden buildings. In the years 1570–1587, King Johan III issued about ten decrees for the demolition of wooden houses.[12] The main motive was the risk of fire, but the King also thought wooden houses made the town uglier, especially around the squares and the main streets. However, the regulations were not very well respected. As can be seen from Table 5.1, every sixth house in the town between the bridges can be counted as wooden houses, wooden cottages or yards even in the year 1582. Although the threats of demolition often were not carried out, there are examples that they created concerns, and subdued demand, among potential buyers.[13]

However, the building of half-timbered houses or "stonework" houses, as they were also called, was allowed. In 1577, it was ordered that ten wooden houses should be demolished every year and that as many stone houses or half-timbered houses were to be built in the town. The condition was a façade of "one stone thick", corresponding to the width of a brick, so that no wood was visible. This may have contributed to the half-timbered houses becoming common objects of sale in the real-estate market during the second half of the 16th century, from having previously been

12 Lager (1962) p. 57.

13 Mickel Persson had bought a wooden shed from Mrs. Brita but did not want to stand by the purchase with reference to the order to demolish all wooden buildings. The court rejected Mickel's request. *Stockholms stads tänkeböcker 1576–1578* (Stockholm 1943) p. 357.

registered only in individual cases. As shown in Table 5.2, half-timbered houses were more expensive than wooden houses, but considerably cheaper than stone houses and unspecified houses.

Even unspecified houses fell in price in the 16th century. During the latter half of the century, these houses were sold at prices that far exceeded the prices of half-timbered houses, while their prices were only slightly below those of stone houses. It seems reasonable to assume that unspecified houses to a large extent also were stone houses.

A half-timbered house in Visby. Half-timbered houses were common in Stockholm in the sixteenth century, but disappeared later.

https://commons.wikimedia.org/wiki/File:Agrellska_g%C3%A5rden,_S%C3%B6dra_Kyrkogatan_5,_Laboratorn_4,_Visby,_Gotland_(6992374577)_(2).jpg

In Arboga, wooden houses dominated. The median price in all house transactions was 47 Swedish mark pence (deflated into 1500 year's prices), which can be compared to the median price in Stockholm (142 mark pence), which was three times higher. Over time the two towns show a similar, slightly downward trend in real-property prices. The fall in prices amounts to an average of 0.3 percent a year in Stockholm and 0.1 percent in Arboga. Might changes in prices for building materials or labour help to explain the falling trend in property prices? Göran Dahlbäck has investigated the cost of building two houses by a religious guild (Helga Lekamens gille) in Stockholm in 1517.[14] The first one was a stone house that cost nearly 400

14 Dahlbäck (1985) pp. 159–180.

Swedish mark to build. The second one was a simple wooden house that cost 60 Swedish mark. Interestingly, the distribution between building materials and labour was virtually the same in both cases. Building materials accounted for about half of the total construction cost. The material cost was dominated by the purchase of bricks, timber and boards, lime and iron components. Boards show a clear rise in price, lime a weak rise and bricks a slight decline. Of the goods mentioned here, only iron fell sharply in price during the period examined.[15] However, the amount of iron purchased was so small that this could only marginally have affected the construction cost.

Around half of the cost, therefore, consisted of labour in the (only) investigated cases. Real wages for unskilled labour in Stockholm fell by about 40 percent between 1430/1440 and 1590/1600.[16] This would, if we generalize Dahlbäck's results regarding the distribution of construction costs, mean a reduction of the order of 20 percent for building a house between the two points of time referred to. Reduced real wages can thus help to explain the long-term trend of falling property prices, while changing prices for building materials seem to have played a minor role.

Previous research has shown that the price of land in Sweden fell dramatically after the middle of the 14th century. In most of the rural provinces around Lake Mälaren, the real price per the so-called markland, that is, the nominal price in Swedish mark pence deflated by the CPI, fell by 90 percent between 1350/1399 and 1550/1599.[17] This corresponds to an annual price decline of 1.1 percent. The fall in prices in Stockholm and Arboga was thus not as strong as for agricultural properties around Lake Mälaren.

But even if the trends differed between the towns and the countryside, one could imagine that the price fluctuations would show some short-term connection. However, this does not seem to be the case.

For example, the annual percentage change in prices in the east Swedish *Markland area* do not correlate with the corresponding change in property prices in Stockholm. Both the different long-term trends and the absence of covariation in the short fluctuations can be interpreted as indications that Stockholm followed a different and more positive economic path than the surrounding countryside.

After the Black Death, the population of most towns in Europe slumped, but the decline was not as strong as in the countryside. Several scholars have pointed out that Nordic medieval urbanization followed largely the same phases of expansion and stagnation as the rest of western and central Europe. In Denmark, the Öresund region was a zone of growth with towns such as Malmö, Helsingborg, Helsingör and

15 Söderberg (2007) pp. 131–135, 148. For prices on bricks, boards and lime, see Jansson *et al.* (1991) pp. 45–47, 56, 58.

16 Söderberg (2010) p. 472. The real wages for carpenters fell by an estimated one-third between the mid-15th century and the end of the 16th century.

17 Söderberg (2013) p. 85. The Swedish *markland* was not an area measure, but rather a measure of what the land property yielded. Like the monetary system there were 8 öresland (öre pence) = 24 örtugsland (örtug pence) = 192 penningland (penning pence) for each markland (or mark pence).

Landskrona. They were able to benefit from the growing trade between the Netherlands and the Baltic.[18] Swedish towns also seem to have been less affected by the Black Death and subsequent epidemics than rural areas. According to the estimates by Sven Lilja, most towns already had a population in 1370 that was at least as large as the one before the Black Death, more precisely in 1330. Several towns, including Kalmar, Vadstena, Uppsala and Norrköping, continued to grow in the 15th century. Even though a few towns decreased in population after the mid-14th century, the population share of the realm that lived in towns gradually increased.[19] Towns did not experience the long-term decline in population, settlement and cultivation that affected the countryside after 1350.

The relationship between country and town seems to have changed in that agrarian decline did not restrain urban expansion. By all appearances, urban economic life became less dependent on the surrounding countryside. Agrarian desolation does not seem to have led to crises in towns. Part of the explanation may be that some towns reoriented their activities and participated in the growing long-distance trade in commodities such as fish, livestock and metals. However, the interaction between towns and their surrounding areas in the late-Middle Ages has been incompletely studied.[20]

Plot size and price in Stockholm

At first glance, it thus appears that real-estate prices in real terms were pushed down. However, these prices are far from ideal as an indicator of price developments over time. The buildings were divided into different categories mentioned above, but within each type, the variation was large in terms of size, quality, etc. For example, a stone house could be described as small, old and decayed, while another was described as brick-built with several floors, a free basement, loft and sheds.

One way to create more homogeneous categories is to utilize the information available about the size of the plots. With knowledge of length and width, the area of the plot can be approximated and thus also the price per square metre for different categories of property.[21] In just over 700 transactions in Stockholm – about one third of the total number – the plot's length and width are stated. It was thus com-

18 Andrén (1985); Krongaard Nielsen and Poulsen (2016), pp. 269–280; Lilja (2000) pp. 43–54. The late medieval fishing villages can be seen as a part of a social specialization that from the middle of the 14th century pushed forward an urban expansion in towns such as Skanör and Falsterbo; Lars Ersgård (1988) pp. 198–208.

19 Lilja (2000) pp. 49–50, 428–430. By the middle of the 14th century, Kalmar had become one of the kingdom's most important towns. In the 15th century it advanced further and functioned both as an economic and political centre; Harrison (2017) p. 139.

20 Andrén (1985) p. 100.

21 We have converted the area from Stockholm square cubits to square metres. A cubit is assumed here to be 55 cm before the year 1444 and 59 cm after the year 1471. Between those years, both systems of measurements were in use; Söderström *et al.* (eds.) (2014), p. 26.

mon that the Swedish town law, which stated that the length and width of the plot was to be entered into the land book of the town, was not followed.[22] Around 300 cases refer to plots that can primarily be classified as building sites. The rest provide information about the size of the plot for other types of property, mainly wooden houses and stone houses.

Construction in Slussen, south of the Old Town in Stockholm, from the 1540s excavated.
https://stockholmskallan.stockholm.se/post/31135

Plots are inevitably a heterogeneous category. Some plots are referred to as "bare", without buildings, while others contained simpler wooden buildings or basements, or were used as cabbage lots. It does not seem to have been allowed to own a plot without intending to build upon it, as a case in the memory book from 1545 shows.[23] In another case, it was required that deserted plots should be fenced in order to prevent waste being deposited there.[24]

The buildings were densified over time. The median size of plots fell from 94 square metres during the period 1422–1449 to 74 square metres during the second half of the 16th century. The densification is evident in the case of stone houses, whose plots shrank from the median value of 127 square metres during the former period to 96 square metres during the latter (Table 5.3). We see a similar downward trend for wooden houses. The difference between the town between the bridges versus Norrmalm and Södermalm was, as expected, significant. On the latter, there is no clear trend towards smaller plots. There, the plots were about three times as large as in the town.

22 Holmbäck and Wessén (1966) p. 73.
23 Stockholms stads tänkeböcker 1544–1548 p. 74.
24 Stockholms stads tänkeböcker 1553–1567 p. 253.

Table 5.3 *The size of the plots in square metres, 1422–1600, in Stockholm according to house type, medians*

	Period				
Type of property	*1422–1449*	*1450–1499*	*1500–1549*	*1550–1600*	*Total*
Stone house	127	129	107	96	110
Unspecified house		50	59	72	59
Half-timbered house				60	60
Wooden house, yard, cottage	107	77	75	79	78
Commercial building	30	53	66	62	55
Plot	82	96	84	70	83
Total	94	87	79	74	82

Source: Database of real-estate prices in Stockholm and Arboga.

Table 5.4 shows the plot price per square metre in fixed prices from 1422 to 1600 by district. The dominance of the town between the bridges is striking. There, the price level was much higher than on Norrmalm and Södermalm, because the town itself was an unmistakable financial centre. A lot of activities that were smelly, inflammable or space-consuming were located in Norrmalm and Södermalm. There were also plots for cabbage and herbs, stables and barns, brewery houses and bathing huts, sheds for the manufacturing of train oil along with boat houses. The resident population of Norrmalm and Södermalm consisted largely of workers, craftsmen, fishermen and boatswains.

Table 5.4 *Plot price per square metre in Stockholm, 1422–1600, by district, medians, mark pence ("mark penningar") in 1500 year's prices*

	Period				
District	*1422–1449*	*1450–1499*	*1500–1549*	*1550–1600*	*Total*
The town between the bridges	0.99	0.87	0.61	0.62	0.76
Norrmalm	0.12	0.09	0.13		0.11
Södermalm	0.08	0.09	0.10		0.09
Total	0.82	0.78	0.57	0.62	0.69

Source: Database of real-estate prices in Stockholm and Arboga.

Table 5.5 *Plot price per square metre in Stockholm, 1422–1600, in the town between the bridges according to type of house, medians, mark pence ("mark penningar") in 1500 year's prices*

	Period				
Type of property	*1422–1449*	*1450–1499*	*1500–1549*	*1550–1600*	*Total*
Stone house	3.2	3.1	3.0	2.8	3.0
Half-timbered house				1.5	1.5
Wooden house	1.2	1.1	0.7	0.8	1.0
Plot	0.6	0.7	0.5	0.4	0.6
Total	1.4	1.3	0.9	1.2	1.2

Source: Database of real-estate prices in Stockholm and Arboga.

The median price per square metre of land in the town between the bridges largely decreased during the investigated period (Table 5.5). The plots for stone houses fell by six percent between the first and the last period, while the price of plots for wooden houses fell considerably more, by about one third. The difference in the price of plots for stone houses and wooden houses thus increased. This may have to do with the fact that stone houses were more often built to the height of two or more floors. All in all, considering all types of property, the price per square meter was lower during the 16th century than it had been before.

For the wealthy, investing in real estate had several advantages. It provided social reputation and high-class accommodation for the family. For the merchants who dominated the economic elite, it was of value that properties could be mortgaged as needed,[25] a phenomenon that seems to have been a well-established practice before the Black Death. Real estate as security was the basis of the credit system, in Stockholm as well as in Arboga.[26] The owner could also let properties. The rent (i. e. interest) during the late-Middle Ages was usually five percent of the property's value, but then rose and often amounted to ten percent during the latter half of the 16th century.[27]Another frequently occurring financial practice was to sell the annual return on a property in capitalized form. For example, in 1516 Didrik Westfal, a

25 Lager (1962) pp. 62–63.

26 SDHK 4251 and 4581. The high medieval urban phenomenon of giving credit against pawned real estate has a parallel in rural areas. In one case, 1322–1370, the interest rate for these land credits can be reconstructed with an average of five percent; Franzén (2006) pp. 137–138. About Arboga, see Franzén (1998) p. 134 (pledges) and pp. 123–124 (interest rates).

27 See e.g. *Stockholms stads jordebok 1420–1474* (1876). For samples of higher rents and interest rates during the latter part of the 16th century, see *Stockholms stads tänkeböcker 1553–1567* (1939) p. 45; räkenskaper för Danvikens hospital, in Upplands handlingar 1567:19, 1571:17, Riksarkivet. For interest rates in late medieval Stockholm, see also Almquist (1939) pp. 269, 273–274.

burgher in Stockholm, sold the annual interest of 30 Swedish mark pence from his sauna in Söderström (between Södermalm and the town between the bridges) to Archbishop Jakob in Uppsala for 600 mark. In other words, here too the return was five percent of the property's value. To the financial income from urban properties, we must add the rents that the landless majority paid for a roof over their head, a research field where much remains to be highlighted.

Real estate was taxed only on rare occasions. 1582 was, however, one of the years it was taxed. The tax was then regressive in that virtually all properties were charged the same amount (four sw. daler). That year, there were 17 people who owned at least four houses each; altogether, their holdings amounted to one eighth of the entire stock. Of these owners, 14 were burghers, while three were in the service of the crown. The largest property owner in Stockholm at this time was the member of the borough Jöns Henriksson's widow Gertrud, who owned seven or eight stone houses among the dominating wealthy merchants.[28] But there were also other groups. A wealthy stratum of distinguished officials and craftsmen in royal service, often of foreign origin, was being formed towards the end of the 16th century.[29] The trading town of Stockholm also began to get the character of capital. the capital of Sweden.

To sum up, the prices of stone houses fell sharply during the period examined, while the size of plots decreased for this type of property (Tables 5.2 and 5.4). The fact that those prices fell was partly an effect of the plots in the town between the bridges having decreased in size. Stone-house prices per square metre were basically unaltered (Table 5.5).

The shift towards smaller plots in the town between the bridges suggests that the population grew in the long term, despite several outbreaks of plague and other epidemics. Sven Lilja has estimated that Stockholm in 1410 had about 6,000 inhabitants and just as many in 1490. In 1530 the population had increased to 8,000 and in the 1570s it reached 9,000.[30]

Thus, according to these estimates, the 15th century was characterized by demographic stagnation, while the following century was more expansive. However, in our study, the diminishing plot size suggests that the population grew during the 15th century as well as in the 16th century. The settlement condensed even though large areas of new land were gradually being created in the town between the bridges by reclaiming land from the sea. This also indicates that the town experienced an increase in population.

28 Lager (1962) pp. 69–70. In Arboga in the 1480s, Mrs. Gesa belonged to the selected group that traded with stone houses. She was the widow of the merchant Laris Hakonsson and she probably owned several properties; Franzén (1998) pp. 64–65.

29 Lager (1962) p. 146.

30 Lilja (2000) pp. 405, 428.

Plagues and property prices

In this section, the impact of plague epidemics on property prices in Stockholm is studied. The question we ask is whether plague epidemics affected property prices in Stockholm. Prices can be expected to be lower during plague years as the population declined. Real estate thus became a less scarce commodity.

Table 5.6 shows the effects during years of plague epidemics. The intention is to capture the effects of the larger and medium-sized epidemics that affected Sweden and especially Stockholm. The effect was noticeable in that the price per property during plague years fell by an average of 19 percent, from 157 to 127 percent. The price per square metre of plot fell even more, by almost a third.

Table 5.6 *Real-property prices in Stockholm 1421–1600 during years of plagues, years after years of plagues, and other years respectively. Mark pence ("mark penningar") in 1500 year's prices, averages*

Year	*Price per property*	*Price per square metre*
Years of plague	127	0.85
Other years	157	1.24
Change, %	–19***	–31**
Years after years of plague	171	1.51
Other years	150	1.14
Change, %	14	32*

Note: * significant at the ten percent level, ** significant at the five percent level, *** significant at the one percent level.

Janken Myrdal distinguishes between large, medium-sized and minor epidemics during the Middle Ages; Myrdal, *Digerdöden, pestvågor och ödeläggelse* (Stockholm 2003) pp. 161–162. Minor epidemics are not included in the calculations above. The epidemics before 1421 are not included because price data are missing. Sources: Database of real-estate prices in Stockholm and Arboga; Myrdal (2003) pp. 243–244. For the 16th century see Ingvar Peterzén, *Studier rörande Stockholms historia under Gustav Vasa* (Stockholm 1945) p. 90; Lager (1962) pp. 18, 150; Birgitta Lager-Kromnow, *Att vara stockholmare på 1560-talet* (Stockholm 1992) pp. 86–87; Immanuel Ilmoni, *Bidrag till historien om Nordens sjukdomar 2* (Helsingfors 1849) p. 118. The years count as plague years are 1422, 1439–40, 1451, 1455, 1464–65, 1472–74, 1484, 1495, 1548–49, 1551–52, 1565–66, 1572–73, 1575, 1580 and 1588.

If the plague pushed down prices, a recovery should take place after the epidemic had petered out. This also seems to be the case. As shown in Table 5.6, prices were higher during years that followed plague years than in other years. Urban immigration

probably increased after the plagues, so that the demand for real estate rose, while the decrease in mortality contributed to a degree of lesser houses being empty. A strong recovery is already noticed in years after plague years in terms of price per square metre, which rose by as much as 32 percent. The price per property did not increase as much, from 150 to 171 Swedish mark pence ("mark penningar"). There may be reasons to attach greater importance to the calculation of the price per square metre than to the price per property, since the former, unlike the latter, takes into consideration the change in plot size per property over time.

Prices were thus affected by demographic pressure. Declining prices when the population decreased was the market's typical way of responding, in the same way as the Black Death, and the following epidemics, led to rural property falling in price.

Property prices and economic inequality

In recent years, research on long-term economic inequality has exploded. An extensive debate started when the French economist Thomas Piketty in 2013 published *Le capital au XXIe siècle.*[31] The book is mainly about inequality over the last two centuries, but in other works, Piketty has an even longer perspective, sometimes even as far back in time as the beginning of our calendar.[32]

The discussion that Piketty started has inspired other scholars to explore long-term inequality. The economist Branko Milanovic is one of them. He argues that the pre-industrial era experienced waves of increased as well as decreased inequality. These waves were brought about by a fundamental Malthusian mechanism: If the conditions of the poor were improved for some reason, inequality decreased for a time. But this prompted a population increase which, in the next phase, led to falling incomes and increased inequality. Therefore, according to Milanovic, there is no reason to expect any long-term change in inequality before the industrial revolution. Such trends could not arise until the arrival of modern economic growth.[33]

However, there is no agreement on this. The Italian scholar Guido Alfani has put forward the hypothesis that growth is linked to increased income inequality, and that inequality rose throughout the pre-industrial era. Alfani believes that the overall trend over time in inequality has been driven by the top layer of wealth owners, an empirical regularity that has remained constant from the Middle Ages to the present. Only one period deviates: the century after 1350, which was characterized by equality. From around 1450, inequality started to increase again.[34]

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31 Piketty (2014). See also Bohlin (2014) pp. 686–697.

32 For example, Piketty and Saez (2014) pp. 838–843. At the Università Bocconi in Milan, several research reports on the theme of inequality during pre-industrial time have been published in the *Dondena Working Papers* series.

33 Milanovic (2016) pp. 46–117.

34 Alfani (2015) p. 1091. See also "Very long-term trends in economic inequality: Evidence of concentration in European wealth over seven centuries", < www.ehs.org.uk/press > (3/28 2017).

Because long-term series of income inequality can be impossible to generate, scholars often work with the distribution of wealth instead. Our basis is the aggregated purchase prices per buyer in all property transactions in Stockholm and Arboga. Here we do not have the opportunity to obtain information of the distribution of real estate among all owners. However, given certain assumptions, prices of properties sold can provide valuable information about the distribution. The top layer of property owners can be expected to be well represented. A prerequisite for the prices to give a good approximation of the wealth distribution is that the trade in property reflects the total stock of properties sufficiently well. This seems to be the case at least during the second half of the 16th century, when the transactions for different types of properties are compared with the stock according to the 1582 house tax list (Table 5.1 above).

Table 5.7 presents two measures of inequality. One is the coefficient of variation (CV), which is defined as the standard deviation as a percentage of the average. The second is perhaps the most widely used inequality measure, the Gini coefficient, which can vary between 0 and 1. The value is 0 when everyone owns identically, and 1 when the entire wealth is accumulated by a single owner.

Scholars do not agree on what is the best measure of inequality. It is well known that the coefficient of variation is sensitive to extreme values. This is a result of the deviations from the average being squared. The economist Amartya Sen sees several good points with the Gini coefficient. An advantage is that all information contained in the distribution is used in the calculation, another is that the Gini coefficient, unlike the standard deviation, does not have the average as an arbitrary reference point.[35] CV is easier to calculate than the Gini coefficient, though this hardly matters in a world filled with computers.

Table 5.7 *The coefficient of variation and the Gini coefficient for real-property prices in Stockholm 1297–1600, mark pence ("mark penningar") in 1500 year's prices*

Town	*Period*	*CV*	*Gini*
Stockholm	1297–1449	114	0.55
	1450–1499	128	0.58
	1500–1549	135	0.57
	1550–1600	125	0.57

Source: Database of real-estate prices in Stockholm and Arboga.

35 Sen (1973) p. 31.

The greatest inequality is noted for Stockholm during the latter half of the 15th century and the first half of the 16th century, depending on whether we measure using CV or the Gini coefficient. In the long term, a slight tendency towards rising inequality may be discerned in Stockholm. The fluctuations over time are limited in both towns. All calculations of the Gini coefficient end up between 0.55 and 0.58. This result seems reasonable given that values between 0.50 and 0.70 are the most frequent result in much of pre-industrial urban Europe research.[36]

The size of the Gini coefficient is close to estimates made for The Netherlands from the mid-16th century based on house rents. For Amsterdam, which then had around 30,000 inhabitants, the Gini coefficient is 0.56 and for all Dutch towns 0.52.[37] These values are nearly identical for the results for Stockholm in Table 5.7. Larger towns show higher levels of inequality, which may be due to their diversified economy as well as to the high mortality rate. As a result, there was an extensive immigration of people with little or no wealth.[38]

The Gini coefficient has been calculated for four Danish small towns around 1540, giving a median value of 0.47. The variation between the towns was large, with high values where there were wealthy merchants, and low values in their absence.[39] The outcome has thus mainly been determined by the top layer of wealth, which is consistent with the observations referred to above.

The change in inequality in Stockholm does not resemble the process observed by Alfani in his study of some small towns in north-eastern Italy. There, inequality tended to decline during the century after the Black Death, and then increased in the 16th and 17th centuries.[40] Our survey therefore does not support the hypothesis that inequality in wealth increased in Stockholm, or that it declined.

Women and men in the real-estate market

The issue addressed in this section is the position of women and men in the real-estate market. Did women's position as buyers and sellers of real estate change in the transition from the Middle Ages to the early modern period? As mentioned in the beginning, scholars have shown that the real-estate market was dominated by men in various parts of Sweden. Women did not often appear as sellers and even more rarely as buyers. It is also interesting to estimate how the property market may have been affected by the equal inheritance rights for women and men that applied in Swedish towns, but not in the countryside.

Equal rights of inheritance for men and women were applicable in Stockholm and

36 Garcia-Montero (2015).
37 Soltow and Van Zanden (1998) p. 28.
38 Ryckbosch (2014) pp. 15–16.
39 Krongaard Nielsen and Poulsen (2016) p. 421. The four towns are Husum, Tønder, Sønderborg and Ærøskøbing.
40 Alfani (2015) pp. 1 069–1 071.

Arboga. They were also applied consistently, as far as we have seen. Despite this, the real-estate market was dominated by men. A patriarchal structure lived on, in which men managed larger economic assets, although it was sometimes possible for women to be active.[41]

Table 5.8 *Percentage of women among sellers and buyers of properties in selected areas 1297–1603*

District	*Period*	*Sellers*	*Buyers*
Stockholm	1297–1449	18	6
	1450–1499	17	4
	1500–1549	19	10
	1550–1600	20	8
Arboga	1453–1523	15	3
	1524–1569	17	7
Dalarna	1545–1559	8	1
	1591–1603	20	8
Finnveden	1307–1500	17	2
Jämtland	1346–1510	9	1
Finland	1300–1500	10	3

Sources: Stockholm and Arboga: Database of real-estate prices in Stockholm and Arboga; Dalarna: Sjöberg (2001) p. 111; Finnveden och Jämtland: Bjarne Larsson (2010) pp. 164–165, 202; Finland: Lahtinen (2004) pp. 39, 41 (the proportion of women among the sellers refers to widows).

The results in Table 5.8 confirm the prevalent picture that women appeared much more often as sellers than as buyers of real estate.[42] Approximately every sixth seller in Stockholm was female and this proportion was stable over time. Similar shares are noted for Arboga and for Finnveden in Småland.

41 From the year 1504, we find the following illustrative example of a woman appearing before the town council in her own business. She applied for court approval that a yard she just had bought in Stockholm should be listed as her separate property (*Stockholms stads tänkeböcker 1504–1514* (1931) pp. 4–5.):
"Furthermore, the afore mentioned Mrs. Cecilia, in front of honourable men, informed them that she had purchased this yard with her legal patrimony, which she had sold and collected the purchase-sum in Norrbotten, so that if her husband would infringe the law in some way, then said she that he should never be able to remedy what is hers, for she has enough of being violently assaulted by him in his beer boozing and dizzy madness."

42 The material from Arboga up to 1523 has been studied by Franzén (1998) pp. 149–150 (which also includes non-priced purchases).

Among the buyers, the differences between different areas were greater. In Stockholm, the proportion of female buyers reached at most ten percent, which occurred during the first half of the 16th century. This is only slightly larger than in Arboga during the late Middle Ages and Dalarna around 1600, but contrasts somewhat with the provinces of Finnveden, Jämtland and Dalarna in the mid-16th century.

The big change in the long term in Stockholm is the growing proportion of transactions where both a man and a woman act as sellers. Usually it is the wife giving her consent to the sale. The proportion increases gradually from seven percent during the period 1297–1449 to 21 percent during the second half of the 16th century. The tendency is the same as in Finnveden and Jämtland. The increase in the frequency of consent in these two areas is explained by Bjarne Larsson by the selling-off of hereditary land to distant relatives or even to non-relatives. This meant that the dependencies between buyers and sellers weakened.[43]

Anu Lahtinen has pointed out that women usually represented only a small part of the landowners in Medieval and Early Modern Europe. This applies to England and the continent as well as Scandinavia. Her own analysis of 400 medieval land transactions in Finland shows that women acted as buyers in only a few percent of those cases (Table 5.8). Here, as elsewhere, it was to a large extent men who handled the trade in land, even when it was the woman's property that was sold. According to Lahtinen, there are reasons to emphasize the continuity of land ownership and the distribution of power resources. She joins the American historian Judith M. Bennett, who believes that there were only modest changes in women's conditions between 1300 and 1700.[44] Our results for the real-estate market in Stockholm and Arboga fit well into this picture of small changes.

Concluding discussion

The chapter explores real-property prices in Stockholm before 1600 based on roughly 2 900 transactions, which is compared to the smaller town of Arboga. A consumer price index has been used to deflate nominal prices into real values. The analysis shows that houses made of both stone and wood became cheaper over time. In 1500 year's prices, the median price of a stone house in Stockholm was 343 Swedish marks in the period 1297–1449 compared to 184 marks in the period 1550–1600. For wooden houses, the same downward trend was evident: a drop from 84 marks in the first period to 52 marks in the second period. Part of the price decline is due to the fact that building plots became smaller, which suggests an increase in population in Stockholm. Declining real wages of labourers also exerted downward pressure on the cost of building a house.

Initially, the question was asked how the property in Stockholm varied in price in

43 Bjarne Larsson (2010) p. 211.
44 Lahtinen (2004) pp. 32–47.

the short and long term, which is compared to Arboga, another town for which there are rich sources. The long-term price trend for these towns is not at all similar to that of farmland in the rural provinces around Lake Mälaren, where prices fell dramatically in the late Middle Ages. Nor did we find any connection between the short price fluctuations in Stockholm and the surrounding provinces. This may indicate that the economy of Stockholm was not strongly and directly dependent on the agrarian economy.

Stone houses as well as wooden houses in Stockholm became cheaper over time, calculated in deflated prices, if we do not take into account the size of the plots. A closer look shows that the price decline was partly due to plots becoming smaller. In other words, the settlement was densified. The price per square metre of plot fell slightly for stone houses, while it fell more noticeably for wooden houses. This may indicate that the growth in population during the 15th century was limited, albeit positive. As the number of floors is usually not known, it is not possible to determine whether the densification increased.

An additional question is whether changes in the prices of building materials or labour contributed to the downward trend in property prices. Building materials can be expected to have accounted for about half of the total construction cost, labour for the other half. The main items in the cost of materials were bricks, timber and boards, lime and iron. Out of these commodities, only iron fell sharply in price during the period investigated. However, iron purchases were not so great that they could significantly affect the total construction cost. In contrast, falling wages may have pushed down construction costs. The real wage for unskilled workers fell by 40 percent between 1430/1440 and 1590/1600.

An interesting result is that the plague epidemics affected the property prices in Stockholm. During plague years, prices dropped, but they recovered quickly after the epidemics had ebbed away. This is a pattern that indicates that property prices were organized in a market economy.

We also presented tentative results on a theme that recently has received considerable attention in international research, i.e. long trends in economic inequality. The wealth distribution was captured using the aggregated purchase price per person in all real-estate transactions. Two common measures of inequality, the coefficient of variation and the Gini coefficient, were calculated. Stockholm shows roughly the same degree of inequality as Amsterdam. The changes over time prove to be small, in both Stockholm and Arboga. Thus, the hypothesis put forward in international research that inequality has increased in the long term throughout the pre-industrial era is not supported by this study.

Finally, we discussed whether it is possible to see any change in women's position in the property market during the late Middle Ages and the 16th century. In Stockholm and Arboga, it was predominantly men who bought and sold real estate. Around a fifth of the sellers in Stockholm were women. This proportion does not differ dramatically from what has been registered for several other areas in Sweden.

The proportion of female buyers varied between three and ten percent. This may seem like low numbers, but it is actually higher than has been found for several rural areas. The equal inheritance right in the towns in association with the presence of relatively wealthy widows, of which the above-mentioned councillor Jöns Henriksson's widow Gertrud is an example, probably contributed to this outcome. The proportion of female sellers shows no clear trend over time, but among buyers, there is a tendency of increase. These results do not indicate that the position of women in the property market deteriorated during the period studied, nor that it significantly improved. Continuity dominates.

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