



LUND UNIVERSITY

School of Economics and Management

Master Program in Economic Growth, Population and Development:

Economic History Track

# Income Inequality in the Swedish City of Malmö

Evidence of The Great Leveling 1905-1950

by

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*Abstract:* From the 1920s to the 1970s, a great leveling in incomes occurred throughout the industrialized world. However, our knowledge on the trends and causes of the great leveling are inconclusive, especially as research primarily has focused on the trends of the top 10 percent of income earners. By compiling a new micro dataset on the individual level from tax records for specific top and low-income districts in Malmö, the third-largest city in Sweden, this thesis explores income inequality trends, going beyond the narrow scope of observing the top 10 percent of income earners. The Malmö sample confirms previous findings of increasing inequality 1905-1920. The bottom 50 percent was hit hard by the price increases of World War I, while the top 10 were beneficiaries of this period's developments. On the other hand, 1920-1950 was the total opposite to the previous period, as the real incomes rose substantially for the bottom 50 percent, especially female bottom income earners. Additionally, from 1935-1950, the top 10 percent in Malmö saw a collapse in their real incomes. The joint movement of rising bottom- and declining top-incomes reinforce previous findings of a great leveling in incomes, while the timing and accounting of the reduction indicates that both political - and market forces had equalizing tendencies.

*Key words:* Income Inequality, Income, The Great Leveling, Tax Records, Sweden, Malmö

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# Table of Contents

<b>1</b>	<b>Introduction .....</b>	<b>1</b>
1.1	Purpose of the Study .....	2
1.1.1	Why Study Income Inequality in Malmö? .....	3
1.2	Research Questions .....	5
1.3	Outline of the Thesis .....	5
<b>2</b>	<b>Background and Literature.....</b>	<b>7</b>
2.1	The Economic and Social Development of Malmö from Small Town to Industrial City.....	7
2.1.1	The Road from Conflict to Prosperity.....	10
2.2	Theories and Research on the Causes of the Great Leveling.....	14
2.2.1	The Role of Structural Shifts and Market Forces.....	15
2.2.2	The Role of Politics and Crises .....	16
2.2.3	Summary of Literature on the Causes of the Great Leveling.....	18
2.2.4	Income Inequality Studies on Swedish Cities .....	19
<b>3</b>	<b>Data and Methods .....</b>	<b>22</b>
3.1	Source Material .....	22
3.2	Sampling Strategy .....	27
3.3	Descriptive Statistics .....	30
3.4	Measuring Income Inequality.....	32
<b>4</b>	<b>Empirical Results .....</b>	<b>35</b>
4.1	Trends in the Income Development of Malmö .....	35
4.2	Malmö's Income Inequality Trends 1905-1950 .....	44
<b>5</b>	<b>Conclusion.....</b>	<b>49</b>
	<b>References .....</b>	<b>51</b>
	<b>Appendix A: Structure of the Malmö Tax Records .....</b>	<b>58</b>
	<b>Appendix B: Estimating Incomes Based on Municipal Taxes for 1935 and 1950.....</b>	<b>59</b>
	<b>Appendix C: Samples of Districts and Quarters .....</b>	<b>60</b>
	<b>Appendix D: Structure of the Church Records.....</b>	<b>61</b>
	<b>Appendix E: Estimating Income Decile Mean Income Using the Income Structure of This Own Thesis Sample.....</b>	<b>62</b>
	<b>Appendix F: Mean Nominal Gross Income of Different Income Deciles in 1905, 1920, 1935 and 1950, Not Including Non-Taxpayers .....</b>	<b>63</b>
	<b>Appendix G: Mean Nominal Income for the Three Social Groups.....</b>	<b>64</b>
	<b>Appendix H: Top Income Earners 1920, 1935 and 1950 .....</b>	<b>65</b>

# List of Tables

<i>Table 1: Female and male employment structure in Malmö 1910 and 1960 and total employment structure for Sweden .....</i>	<i>9</i>
<i>Table 2. Income development in Malmö 1871/1875-1911/13 and 1939.....</i>	<i>12</i>
<i>Table 3. Quality of housing in Malmö 1920 and 1980.....</i>	<i>13</i>
<i>Table 4: Share of coverage in the tax records for Södervärn and Möllevången in 1905 and 1920.....</i>	<i>26</i>
<i>Table 5: Growth, unemployment, and inequality from 1905 to 1950 .....</i>	<i>29</i>
<i>Table 6: Descriptive statistics of the sample, including estimate for non-taxpayers.....</i>	<i>30</i>
<i>Table 7: Descriptive statistics of the samples' social group division.....</i>	<i>31</i>
<i>Table 8: Social group division in Malmö for the entire population.....</i>	<i>31</i>
<i>Table 9: Income per income decile in Malmö estimate, for male income earners before tax</i>	<i>33</i>
<i>Table 10: Mean nominal gross income of top 10, middle 40 and bottom 50† 1905, 1920, 1935 and 1950 (including estimate income for the non-taxpayer from church books) .....</i>	<i>35</i>
<i>Table 11: Mean real gross income of different income deciles in 1905, 1920, 1935 and 1950 .....</i>	<i>36</i>
<i>Table 12: Mean real income for the three social groups in 1905, 1920, 1935, and 1950, in 1905s prices.....</i>	<i>39</i>
<i>Table 13: Top income earners in the Malmö sample 1905.....</i>	<i>41</i>
<i>Table 14: Mean nominal/real income in the four districts of Malmö .....</i>	<i>43</i>
<i>Table 15: Income ratios between the different income groups .....</i>	<i>44</i>
<i>Table 16: Female income development within the bottom 50.....</i>	<i>45</i>
<i>Table 17: Mean income ratio before and after tax .....</i>	<i>46</i>
<i>Table 18: Income ratio between social groups .....</i>	<i>47</i>
<i>Table 19: Income ratio between the districts of city to the mean of the city.....</i>	<i>48</i>

# List of Figures

<i>Figure 1: Malmö's population, 1870-1950.....</i>	<i>8</i>
<i>Figure 2: Map of Malmö in 1904, were the districts sampled are marked out. ....</i>	<i>28</i>
<i>Figure 3: Annual change in consumer prices from 1905/06 to 1949/50. ....</i>	<i>37</i>
<i>Figure 4: Unionization rate of employees in Sweden 1900-1950.....</i>	<i>38</i>
<i>Figure 5: Mean income ratio of top 10 decile divided by bottom 50 deciles.....</i>	<i>44</i>





# 1 Introduction

The trends and causes of shifts in income inequality during the 20th century are important topics of debates in contemporary economic historical research. Throughout this debate, an agreement has emerged that most industrialized countries experienced a *Great Leveling* in economic inequality from 1920 to 1970 (Williamson, 2015). During this great leveling, the wealthiest assets and incomes collapsed (Piketty, 2020, p.462), while lower- and middle-income groups within the industrialized world benefited the most from economic growth (Jaworski & Niemesh, 2018; Gómez León & de Jong, 2019). However, the exact timing of when specific segments of the income distribution gained and lost out is still unclear and statistical analysis of causes is still insufficient. This thesis contributes to the debate on historical income inequality by analyzing the third largest Swedish city, Malmö, from 1905 to 1950. Sweden is one of the countries that arguably went the furthest in this income equalization during the great leveling. Roine and Waldenström (2008) have provided insightful long-run series on Sweden's development of the top 10 percent of the income distribution, strengthening the case for a great leveling from the 1920s up to the 1970s. The deficiency in the historical inequality literature in general, and Sweden especially, is the lack of data on the bottom 90 percent of the income distribution during the first half of the 20<sup>th</sup> century and, on the other hand, a need of more detailed data on the top 10 percent's incomes. This thesis contributes to this debate on the Swedish case during the great leveling by compiling a novel micro dataset over the income distribution in Sweden's third-largest city Malmö. In total, 2100 individuals from four districts in the city's tax records over four benchmark years from 1905 to 1950 are collected into a new dataset. Two top-income and two low-income districts of Malmö are analyzed to further the knowledge about the top 10 percent compared to lower-income segments.

This thesis' empirical results demonstrate two distinct phases in Malmö's income inequality development from 1905 to 1950. Firstly, inequality rose in 1905-1920, and secondly, inequality rapidly fell in 1920-1950. The analysis indicates that it primarily was a joint movement of rising bottom incomes, especially from 1920 to 1935, and falling top incomes from 1935 to 1950 which caused a great leveling in the Malmö case. Furthermore, this thesis has utilized an alternative way to measure city level inequality looking at the income ratio between primarily

the top 10 and bottom 50 percent incomes. Additionally, cross city inequality research is indicated to be a relevant approach for future comparative analysis.

## 1.1 Purpose of the Study

There are several considerable arguments in the contemporary literature to why inequality is a principal issue to disentangle. Firstly, the distribution of resources is stressed in recent research as a potential determining factor for living standards, especially poverty levels, in advanced societies (Atkinson & Bourguignon, 2015; Atkinson, 2015, p.23-27). Secondly, the concentration of economic resources is recognized in new institutional economic theory as a key determining factor for the distribution of political power (Acemoglu, Johnson, & Robinson, 2004. North, Wallis, & Waingast, 2006). Thirdly, there are several ideological and moral arguments in favor of and against different inequality regimes (Piketty, 2020). These philosophical and empirical questions go beyond the scope of the thesis, but they undoubtedly would benefit from further empirical analysis. By gathering new data and conducting comparative analysis on the case of Malmö, this thesis contributes to the debate on the long-run trends in income inequality in the peculiar Swedish case.

When it comes to the historical empirical pattern of inequality, almost every industrialized country has to a varying extent experienced a rise in income and wealth inequality, measured through Gini coefficients and top income/wealth shares since the 1980s (Atkinson, 2015, p.16-23). To the backdrop of rising inequality, most notable Thomas Piketty's magnum opus *Capital in the Twenty-First Century* (2014), which analyzed inequality's long-run causes, sparked a revival in scholarly attention towards the history of economic inequality. The impressive data gathering on the long-run income inequality development came to show that the rise in income inequality since the 1980s had been a break from a previous period of decreased income inequality, from around the aftermath of World War I up until the 1970s. Williamson (2015) came to name the period of decreasing income inequality from very high levels throughout the industrialized world as the great leveling. The great compression is the most common term for the US case (Goldin & Margo, 1992). Nevertheless, for the sake of clarity and Swedish focus of the thesis, the broader term great leveling will be exclusively employed when addressing this megatrend of decreasing inequality from 1920 to 1970.

The observation that, in principle, every industrialized country during the 20th century experienced two megatrends, firstly of declining and secondly of rising income inequality, stands out as a critical issue to examine in order to comprehend the causes of long-run changes in inequality. In this inquiry, the minor northern European nation of Sweden is examined. Sweden obtained one of the most equal income distributions in the industrialized world during the mid- and late 20th century (Björklund, 1998; Bergh, 2011; Piketty, 2014 p.329). Current evidence by Roine and Waldenström (2008) on the top income share, and several studies on the income distribution in different Swedish cities (Järnek, 1971; Gustafsson & Johansson, 2003; Olsson, 1972), demonstrate that Sweden did not have an exceptionally equal income distribution around the turn of the 20th century, which also is confirmed in Piketty's (2014, p.329) cross country comparison. Instead, Sweden experienced a remarkable shift from being just as unequal as the rest of the industrialized world to being uniquely equal in terms of income inequality during the great leveling 1920-1970. During this period, the top 10 percent's income share imploded from close to 50 percent in 1917 to 23 percent by 1980 (Roine & Waldenström, 2008). The Gini coefficient for Sweden in the 1980s was uniquely low in comparison to virtually any other industrialized nation (Björklund, 1998). Therefore, Sweden deserves to be at the center stage when analyzing the trend, causes, and consequences of increased income equality during the great leveling. The particular focus on the period 1905 to 1950 is motivated by the previous observation that two-thirds of the decline in the top 10 percent occurred during this period (Roine & Waldenström, 2008). Thereby, it becomes especially relevant to look closer at 1920-1950 while including part of the pre-equalization period 1905-1920 as a point of reference, to get an indicator of which direction inequality was headed before the great leveling.

### 1.1.1 Why Study Income Inequality in Malmö?

This thesis will primarily direct its attention to the Swedish city Malmö from 1905 to 1950. The thesis identifies two primary reasons for why it is relevant to conduct data gathering on incomes in Malmö to analyze the inequality trend in Sweden and lay the foundation for further comparative analysis between cities when analyzing inequality.

- 1) Malmö is a primary example of a rapidly expanding industrial city during the period under inquiry (Ohlsson, 1994, p.13). Thereby, Malmö is a case of a Swedish urban industrial center, which increasingly gravitated towards becoming the norm in terms of increased urbanization and employment throughout Sweden, due to the structural shift away from agriculture towards industry and services during the first half of the 20<sup>th</sup>

century (Schön, 2010, p.199). However, it is also important to note that Malmö is an urban industrial center and therefore cannot be seen as a case applicable to the rural parts of the country.

- 2) Data on Malmö could be employed in future studies comparing Malmö to other industrial cities throughout western Europe to shift the focus away from comparing nations to presenting an alternative approach to analyzing differences in inequality. Thereby, utilizing the differences in local labor markets throughout Europe could prove to be a useful comparative setting to analyze trends and causes of shifts in income inequality.

This thesis has gathered a strategic sample of tax records from four specific districts<sup>1</sup>, Old town around Stortorget, Möllevången, Södervärn, and Grönvången in Malmö. The reasoning behind this is to get a better understanding of specific income deciles and social groups<sup>2</sup> income distribution, utilizing the housing segregation to look closer at specific parts of the city with very different mean income levels. The districts of Old town around Stortorget partially, and especially Grönvången had a considerable concentration of high-income earners (Bjurling, 1985A, p.45-46; Bjurling, 1985B, p. 209; Bjurling, 1989, p.98). Grönvången has even been described as containing the “money-aristocracy’s splendid-villas” (Häger, 1989, p.424). The districts Möllevången and Södervärn were typical low-income quarters of town (Häger, 1989, p.424), described by the historian Stefan Nyzell to have been the most distinctive working-class areas of the town during the early 20<sup>th</sup> century (2009, p.84). It is essential to keep in mind that this thesis approach of a handpicked sample from four distinct districts measures the most extreme income differences within the city and therefore is not a measurement of the entire income distribution of the city. Martin Järnek’s (1971) study measured the entire income spectrum in Malmö, thereby lowering the relevance of conducting new data gathering with the same approach. However, Järnek’s (1971) study leaves much to wish for, as its measurement of inequality is hard to follow, and the raw data from his research is unavailable. This thesis’

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<sup>1</sup> The districts are defined by the tax authorities themselves, except for Old town around Stortorget which is an area within the official district Old town (Gamla stan), however Old town is very versatile with both top- and low-income areas and therefore the specific top income area around Stortorget is selected (Häger, 1989, p.425)

<sup>2</sup> Employing Statistic Sweden’s definition of social groups from 1928 to 1982 (Haldorson, 2016). The term is further discussed in chapter 3.4 measuring income inequality.

data sampling methods are different from Järnek's (1971), mainly in the sense that a strategic sampling instead is employed, instead of a random sampling. One of the major benefits of utilizing a strategic sample is that it enables a close analysis of the very same quarters and even the same people over time. A second critical benefit of this approach is that it provides very detailed and robust findings for the specific income groups which this thesis focuses on, namely low- and top-income earners.

## 1.2 Research Questions

Research question 1: *What can be said about the income development of the top 10 -, middle 40- and bottom 50 percent income earners in Malmö?* The purpose of the first research question is to outline and discuss the development of the top-, middle- and bottom-income earners in their respective cases. A specific emphasis on analyzing changes in real incomes is pursued to understand changing living standards for different segments of the income distribution and social groups.

Research question 2: *What was the overall income inequality trends in Malmö from 1905 to 1950?* The second research question aims to answer how the overall income distribution of the city developed. Inequality will be measured on the axes of income disparities between social groups, quarters of town and income deciles. This approach is pursued in the aim of further understanding the Malmö trend which can be discussed within the framework of local differences and broader national inequality trends. The thesis findings will also be discussed in comparison to the previous research results on Swedish inequality and particularly city inequality.

## 1.3 Outline of the Thesis

The overall outline of the thesis is the following: Chapter two, firstly, provides an overview of the literature on Malmö's economic history for the first half of the 20th century, with an emphasis on the structural shifts, growth, and social conflict in the city. Secondly, it offers an overview of the literature on the great leveling throughout the industrialized world, to summarize the primary schools of thought and explanations for why it occurred. Additionally,

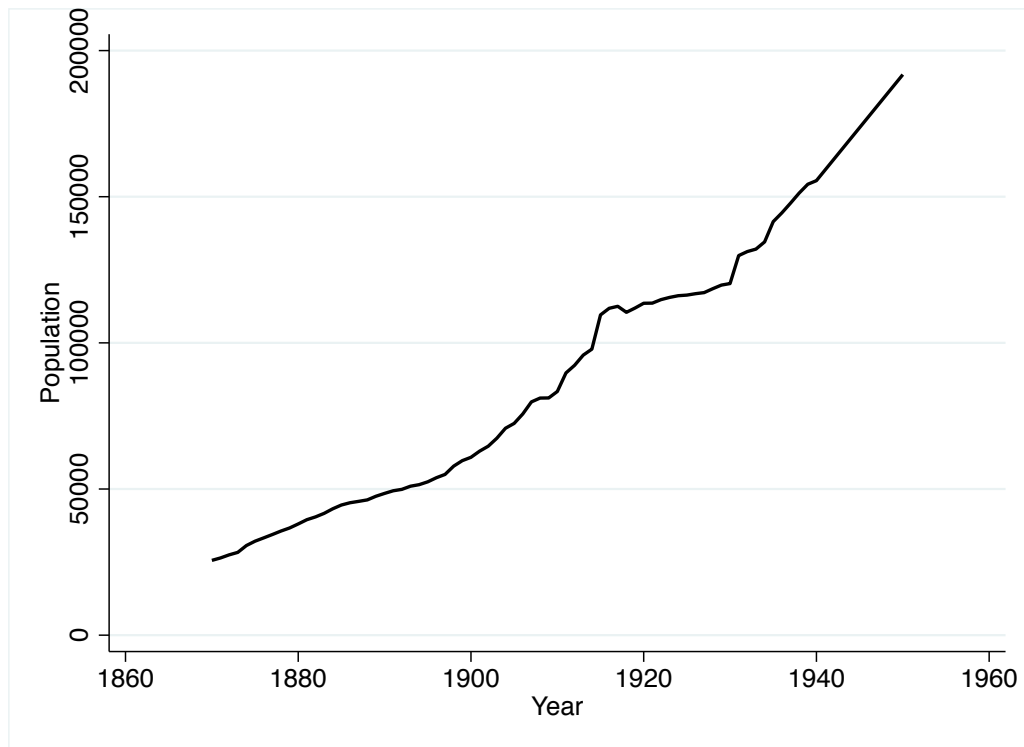
this chapter delivers an overview of previous empirical research on city inequality in Sweden. The third chapter describes the sampling strategy of the primary data collection and discusses the reliability, representativity, and validity of the tax records as a primary source. The third chapter further discusses the methodological considerations of the employed inequality metrics. The fourth chapter, empirical results, demonstrates and examines the results of the primary data gathering, both the real income and the income inequality development. The fifth chapter summarizes the results and provides suggestions for how city income inequality could be examined further.

## 2 Background and Literature

This chapter will outline central research on Malmö, that is, the context of the city which economic and social environment in which the cities' income inequality levels developed. Especially the industrial structure, political and social environment, and the Swedish and international trends impacting the city's economic and social development will be discussed. Furthermore, primary research and theories on long-run trends in inequality are reviewed with a specific focus on the trends during the great leveling. This subchapter additionally dedicates specific attention to previous studies on Swedish cities' level of inequality to compare this thesis analysis with.

### 2.1 The Economic and Social Development of Malmö from Small Town to Industrial City

During the late 18<sup>th</sup> century, Malmö was a small country town with no more than 4000 inhabitants within the northern peripheral country of Sweden (Edgren, 2021, p.35). However, Malmö came to take a leading position in Sweden during the within this industrial transformation process from 1870 to 1950. Meanwhile, the city experienced what Ohlsson (1994, p.14) describes as explosive population growth, outlined in Figure 1, going from 26 000 inhabitants in 1870 to 200 000 by the 1950s, solidifying Malmö's position as Sweden's third-largest city. This enlargement of the city occurred primarily through internal migration from rural parts of Sweden and partially high birth rates (Ohlsson, 1994, p.58).



*Figure 1: Malmö's population, 1870-1950.*

Sources: Population 1870-1913 from Bjurling (1985B, p.192), population data for 1914-1939 from Häger (1989, p.251) and population data for 1940 and 1950 from (Ohlsson, 1994, p48)

Infrastructure investments and the city's geographical location next to the European continent are recurring explanations for Malmö's rapid industrialization during this very first period of Modern economic growth<sup>3</sup> in Sweden. The infrastructure investment in railways, building the *Stambanan* connecting Malmö with the rest of Sweden, and the *Grevebanan* between Malmö and Ystad connecting Malmö with the other major trading port in Scania are stressed as crucial for the expansion of the city (Fridlitzius, 1985, p.456-457). Another major infrastructure investment that furthered the market integration of Malmö was the harbor expansion. Several improvements of the harbor's capacity in terms of dept, length, and new technical equipment made it a central component of the Swedish trade network with the rest of the European continent (Fridlitzius, 1985, p.478). The railway and harbor expansion jointly drove down transportation costs and thereby expanded the reach of Malmö's exporting markets,

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<sup>3</sup> Following the definition of modern economic growth by Kuznets (1973) of a sustained GDP growth per capita above 1 percent not the result of decreasing population



further integrating the city into the Swedish and partially global economy (Fridlitzius, 1985, p.456-457). Parallel with, or potentially partially due to, the infrastructure investments, several successful industrial companies arose during the late 19th century; textile-, tobacco- and engineering industries were critical sectors of the local economy (Bjurling, 1985B, p.159). The returns from these early industries were later reinvested into the growing industrial center, laying the ground for further industrial expansion into shipbuilding and other more advanced machinery industries (Bjurling, 1985B, p.160). Additionally, surpluses from the increasingly commercialized agricultural sector, which had developed simultaneously since the early 19th century, were reinvested into Malmö's industrial sector. Together with the rapid increase in the labor supply, these investments in infrastructure and industry are by Bjurling (1985B, p.158-161) suggested to be crucial factors for the emergence of the industrial city of Malmö.

*Table 1: Female and male employment structure in Malmö 1910 and 1960 and total employment structure for Sweden*

Sector	F Malmö 1910	M <sup>‡</sup> Malmö 1910	Sweden 1910	F <sup>†</sup> Malmö 1960	M Malmö 1960	Sweden 1960
Agriculture	3%	1,5%	47,8%	1%	1,7%	13,5%
Industry	38,2%	54,7%	29,4%	33,2%	58%	45,4%
Private serv	19,6%	30,7%	17,9%	28,9%	27,2%	28,6%
Public serv	5,7%	7,1 %	0,048%	21,3%	7,3%	12,7%
Rest	33,5%	6 %	-	15,6%	5,8%	-

Sources: Malmö employment structure data from Ohlsson (1994, p.33) and Swedish aggregate data from Enflo, Henning & Schön (2014). ‡: Male †: Female

Already by 1910 54,7 percent of Malmö's male population was employed within industry, and the corresponding share for women was 38,2 percent, see *Table 1*. Comparing the Malmö employment structure to the Swedish average clearly illustrates how the city was at the forefront of the industrial development, as Sweden on average only had an industrial employment of about 29 percent in 1910 (Enflo, Henning & Schön, 2014). That Malmö's share of employed in industry only increased by a few percent 1910-1960 while Sweden experienced a rather substantial increase indicate that Malmö, compared to Sweden, early reached a high degree of industrialization early. The industrial character of Malmö's economy created favorable circumstances for the city, with municipal incomes 30 percent above the municipal Swedish average during the post-war period (Malmsten, 1989, p.226). However, how these growing resources from industrialization were divided are uncertain. Did the industrial profits create a type of inclusive growth benefiting all or at least most groups within the city's economy or was

the economic growth exclusively beneficial to the economic elite? And when did Malmö's shift towards equalization observed by Järnek (1971) from 1925 the mid 1960s begin?

### 2.1.1 The Road from Conflict to Prosperity

Social historical research on Malmö during the late 19th and early 20th century has frequently stressed the clear class division within the industrial city. The living conditions in low-income areas such as Lugnet, Caroli, Möllevången, and Södervärn are described as unhealthy and filthy environments with overall low living standards. This is in sharp contrast to the upper-class districts both in the city center and the western districts along the beach Grönvången and Västervången, which are described as green, healthy, and wealthy (Bjurling, 1985B, p.209-212).

One aspect of this stark class division is the emphasis on class conflict in the city's history, exemplified by *Amaltheadådet* 1908, where a young anarchist bombed a ship containing strikebreakers, resulting in one dead and the immediate arrest of the anarchist (Bjurling, 1985B, p.383). *Möllevångskravallerna* 1926, with clashes between polis and workers, are another example of early violent conflicts (Nyzell, 2009), illustrating how Malmö was a place of conflict and material grievances from the side of the workers. Furthermore, the Swedish socialist movement had Malmö as its birthplace, with the early socialist agitation by August Palm and the early founding of the social-democratic association in the city (Bjurling, 1985B, p.235-243). The geographical position of Malmö close to the continent probably played a large part in why it was here that socialist movement first emerged. The strong early support for socialist ideas in Malmö also suggests that the city's workers were susceptible to ideas of reforming the economic system potentially due to grievances over their material living standards.

The literature also emphasizes the high strike and lockout intensity from the 1900s to the 1920s as a critical emblem of class conflict in the Malmö case and of how workers were dissatisfied with their return from the growing productive capacity of society (Bjurling, 1985B, p.375) and with the high unemployment rates. The results of these strikes varied when it comes to outcome, but overall, they seemingly strengthened the laborers' bargaining position on the labor market (Bjurling, 1985B, p.375-380). However, the World War I was a backlash to the labor movement due to the rapidly increasing prices, which only partially was compensated for by increased

wages (Häger, 1989, p.270). The worsening conditions during World War I once more lead to a spike in labor market conflicts during the late 1910s. The high conflict levels continued during the 1920s as the subsequent business boom was utilized by laborers to compensate for previous income losses in Malmö (Häger, 1989, p. 270-272). However, high strike intensity is not unique to Malmö, some observers have estimated that Sweden overall had the world's highest strike intensity per worker in the 1920s (Korpi & Shalev, 1980). By the 1930s, the conflict levels subsided as Sweden moved towards a new labor market regime, which overall was more favorable to labor (Lundh, 2004, p.120-125). The cause of this decrease in strike intensity during the 1930s and 1940s has been debated, but that it resulted in a more peaceful labor market is not disputed (Lundh, 2004, p.123-125).

Unemployment was another primary social issue of the early 20th century. The unemployment rate peaked two times, firstly during the early 1920s financial crisis and secondly due to the Kreuger crash in 1932 with up to 14 percent unemployment in Sweden by 1934 (Stenberg, 1999). Malmö specifically stood out with a higher share of the adult population seeking unemployment support than the national average, but one cannot be entirely sure of statistics due to the limited share of unemployed seeking support<sup>4</sup> (Häger, 1989, p.254). Nevertheless, after the second unemployment peak following the Kreuger crash, unemployment quickly subsided throughout Sweden and Malmö (Häger, 1989, p.254), going from 14 percent in 1934 to 2 percent by 1946 (Stenberg, 1999). This trend of declining unemployment could be seen as another indicator of how the city experienced more shared growth after the mid-1930s, as labor gained more bargaining power from low unemployment, enabling employees to demand higher wages from the wide availability of work.

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<sup>4</sup> There was nothing special with Malmö's unemployment support which would make it incomparable to the rest of Sweden, therefore the comparability to other Swedish cities. The absolute numbers from the unemployment support numbers should, however, not be seen as an accurate indicator of total unemployment (Åke-Häger 1989 p.254)

Table 2. Income development in Malmö 1871/1875-1911/13 and 1939

Period	Nominal income	Real income in 1905s value	Real income growth
1871/1875	245	230	
1876/1880	279	287	24,8%
1881/1885	282	289	0.7%
1886/1890	280	331	14,5%
1891/1895	304	346	4,5%
1896/1900	386	425	22,8%
1901/1905	506	515	21,2%
1906/1910	616	555	7,8%
1911/1913	635	546	-1,6%
1939	-	-	50% <sup>†</sup> 0-15% <sup>‡</sup>

Source: Data for 1871/1875-1911/13 from Bjurling (1985B p.219) in the fourth volume of Malmö city history, data for 1939 from Häger (1989 p.416-417) in the fifth volume of Malmö city history.

†: Wage increases for industrial workers

‡: Wage increase for clerks and office workers

On the other hand, another string of research has emphasized the positive development in living conditions in Malmö during the industrialization period from the late 19th and early 20th centuries, especially after World War I. That the population could expand so dramatically and still experience overall rising real wages by the 1890s and 1900s (Bjurling, 1985B, p.295-296, 338) indicates that economic growth at least partially came to benefitted large segments of the population, see table 2. During the turbulent period around World War I up until the end of the interwar period up in 1939, wages fluctuated in Malmö with an overall increasing trend. The exceptions were during the first world war, the years 1922 and 1928, and some years around the Kreuger crash in the 1930s. The development resulted in a 50 percent real wage increases from 1913 to 1939 for industrial workers, while clerks and office workers saw only 10 to 15 percent gains (Häger, 1989, p.416-417). This real wage increases for workers indicates that an equalization between the bottom 50 and middle 40 income deciles and between *social group 3* (blue collar workers) and 2 (white collar workers) eventually occurred. That unemployment was not higher before the 1920s crisis, with high internal immigration, is another indicator of a beneficial economic environment able to absorb a growing labor force. Another development which benefitted equality was the introduction of six years of mandatory higher education from

1842, which is considered to have been rather paternalistic but which indispensably created a more of an equal starting position<sup>5</sup> for the youth in Malmö (Back, 1989, p.162-164).

*Table 3. Quality of housing in Malmö 1920 and 1980*

	1920	1980
Electricity	72%	100%
Bath/shower	7%	97%
Central heating	8%	99%

Source: Ohlsson (1994 p.21) in Malmö city history

Some key figures over the longer run changes in quality of housing illuminating living standards are highlighted in table 3. For example, electrification was already relatively high by 1910 but was universal by 1980. Bath/showers and central heating were rare in 1910; however, by 1980, they had become close to universal. The share of households living in small one-room apartments rapidly decreased, from 48 percent in 1910 to 16 percent in 1985 (Ohlsson, 1994, p.20). This development was, of course, gradual over the course of the 20th century but seen in hindsight, these material improvements in the average household over a few decades are hard to describe as anything other than revolutionary.

Bjurling has researched the absolute top income earners in Malmö by 1914 (1985B, p.338-339), finding that his sample of the very top 104 income earners had an advantageous position just before the first world war. Even the lower half of these top income earners had incomes around 30 to 50 thousand SEK, in comparison to the typical construction worker with an average annual income of 1116 SEK (Bjurling, 1985B p. 342), demonstrating how there were notable income differences within the city. However, this is far from any thorough inquiry on the income relations in the city; it is first with Järnek's (1971) analysis of the income distribution in Malmö starting in 1925, that we start to get any real idea of the city's income distribution. This lack of knowledge before 1925 is a critical reason for why conducting further data gathering on the income distribution in 1905 and 1920 is done in this thesis. This is especially aimed at to establishing who benefitted from this period of rapid economic development during the first two decades of the 20th century. The additional data gathering for 1935 is entirely novel in

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<sup>5</sup> However, it is important to note that up until 1950 the system was highly segregated with both "Folkskola" for the working classes and "Realskola" for the higher social strata and some study talented from the lower classes (Stanfors 2007 p.182)

relation to the observations conducted in Järnek's inquiry, which looks at 1925, 1948 and 1964. Lastly, gathering data in 1950 finalizes this series with its unique approach of strategic top and low-income sampling to the post-world war era of record growth (Schön, 2010) and what is perceived to be a period of increased equalization (Roine & Waldenström, 2008. Järnek, 1971; Gustafsson & Johansson, 2003). Additionally, the particular districts this thesis gathers data from are pinpointed in the literature to capture the opposite ends of the income distribution, and thereby becomes an especially suitable material to analyze the more extreme ends of the income distribution.

To summarize, the relevant historical literature on Malmö's economic and social development during the first decade of the 20th century demonstrates that the city stands out as an industrial frontrunner. Furthermore, the literature identifies clear lines of conflict along capital and labor during the first decades of the 20th century. However, towards the late 1930s to 1950s, the emphasis on conflict is increasingly exchanged with cooperation and mutual understanding. To what extent shift in narrative, from conflict to cooperation, coalesced with increased income inequality in Malmö is partially unknown, especially before 1925, which makes it relevant to conduct further empirical analysis of this industrial center's income distribution which gravitated towards becoming the norm in the Swedish case.

## 2.2 Theories and Research on the Causes of the Great Leveling

The causes of the great leveling described in the international literature can be categorized along the three following lines:

1. Market forces from increasing supply of highly skilled and rising demand for low skilled laborers (Margo & Goldin, 1992) and the role of structural shift due to a completion of the structural transformation process away from agriculture to industry and services (Kuznets, 1955)
2. Political/institutional forces, primarily in the form of increasing power for labor unions (Collins & Nimesh, 2019), increased progressive taxation (Piketty, 2014; 2020; Gustafsson & Johanssonm 2003), increased social policy (Piketty, 2020; Korpi & Palme, 1998), and expansion of higher education (Margo & Goldin, 1992; Gordon, 2016, p.620-624; Lindert & Williamson, 2016).

3. Destruction and shocks, primarily from the great depression (Roine & Waldenström, 2008), decolonization, and the two world wars (Piketty, 2014, 2020. Scheidel, 2017)

The main arguments, logic, and empirical support for each explanation are reviewed in this subchapter. Additionally, a review of previous literature on the Swedish city inequality during the great leveling will follow. The research on causes of changes in income inequality provides a relevant lens through which to discuss the Malmö empirical results.

### 2.2.1 The Role of Structural Shifts and Market Forces

Simon Kuznets (1955) has provided one of the most commonly used frameworks for understanding the decline in income inequality during the great leveling through the theory which came to be known as the Kuznets curve. The main idea of the Kuznets curve is that during the initial phase of industrialization, inequality would rise as the result of increased polarization in incomes due to some being employed in the productive urban industrial economy, while others were left in the low productive rural agriculture. However, when a clear majority started to amass in the more productive sectors of industry and partially services, inequality would decline as the differences generated by sector productivity differences subsided (Kuznets, 1955). However, it will be impossible to test this on the Malmö case as agricultural employment was scarce in the city. Nevertheless, some aspects of occupational income differences will be discussed, which enables an inquiry into one aspect of the Kuznets hypothesis in the specific Malmö case.

Claudia Goldin and Robert Margo (1992) have provided an, if not the most influential narrative for *The Great Compression*<sup>6</sup> in the US. They emphasize how increased supply and insufficient increases in demand for high-skilled workers drove down income inequality in the US during the 1940s and 1950s. Goldin and Margo's (1992) primary finding was that the income equalization had been minor during the great depression and that it was first during World War II that income inequality declined, as a result of a more planned economy through the National labor board, labor shortage, and later expansion of higher education. Similar narratives emphasizing market forces and skills as reasons for changes in the income structure, through

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<sup>6</sup> The term the great leveling is usually not used in the US (Goldin, & Margo, 1992)

the idea of skilled biased technology change (SBTC), have also been popular in explaining the post great leveling rise in income inequality (Berman, Bound, & Machin 1997). The role of demand and supply for education will be considered when analyzing differences in pay between different social and occupational groups, thereby partially considering this research in the Malmö case.

## 2.2.2 The Role of Politics and Crises

In contrast to the market force and market structure driven approaches, new explanatory frameworks for the rise in inequality have amassed attention and scholarly support. The explanations vary but the two recurring explanations are those who emphasize politics and crises. Most notably Thomas Piketty (2014) stands out as the primary proponent of these narratives. The implication of Piketty's (2014) main theoretical framework that  $R$  (return to capital) is larger than  $G$  (growth of the economy)<sup>7</sup>, is that an unregulated capitalist economy tends to always generate growing inequality, indispensable of temporary equalizing forces in the market, contrary to the narrative of the Kuznets curve. Piketty (2014; 2020) argues that it was due to massive upheavals, from both politics and crises, that capital returns during the 20<sup>th</sup> century saw a decline, thereby upsetting capitalism's natural tendency to increase income inequality and causing the great leveling. Thereby Piketty contradicts the narrative that the leveling was the result of some structural shift of the economy from agriculture towards industry. According to Piketty's book *Capital and Ideology* (2020) the specific policies and crises which caused the great leveling varies between countries, but in general three specific forces are pinpointed as accounting for around a third of the demise of total wealth<sup>8</sup>. These forces causing a great collapse in total wealth were, destruction of capital during the world wars; expropriation, nationalization; and lowered returns to investment during the world wars (Piketty, 2020, p.477-479). The reduction in wealth especially harmed the largest wealth holdings, thereby resulting in a more equally distributed capital stock which in turn led to

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<sup>7</sup> It is uncertain to what degree Piketty even believes in this theorem, considering that his new 1100 page book does not mention it once. Indispensably, the theorem of  $R > G$  is a useful way of conceptualizing how Piketty views capitalism as inherently unequal in his book *Capital in the 21st Century* (2014).

<sup>8</sup> However, Piketty's entire conceptualization of total wealth has been criticized as it assumes that the monetary value of wealth is the only thing that matters while the productive and physical components of capital, such as real factories, technology, and machinery are disregarded in Piketty's theorizing (Mason 2020)



reduced top incomes from capital (Piketty, 2020, p.494). The increased marginal-, wealth-, and inheritance tax in the interwar and post war era contributed to restructuring the reemerging capital stock in an increasingly equal way. Both public wealth and programs such as pension saving programs and housing investment created more shared wealth (Piketty, 2020, p.500-512).

Sweden in general and Malmö specifically are difficult cases to apply these generalized explanations to, as Sweden did not participate in any world war and did not have any colonies to dispatch of. Nevertheless, the politically centered part of Piketty's explanation could prove applicable to Sweden. The reemergence of a more equal capital stock in the post war period, under the guidance of a new social democratic inequality regime, which Piketty (2020, p.555) describes as the successor to the period of destruction, with high marginal taxes, and new social benefits could very well correspond with Sweden's trend, considering it is something of the archetype of the social democratic universal welfare model (Esping-Andersen, 1990, p.26; Korpi, & Palme, 1998). The Swedish city literature (Järnek, 1971; Olsson, 1972; Gustafsson & Johansson, 2003) as well as in Roine and Waldenström (2008) on the top income share, all to a varying degree stress the role of taxes and transfers in the intra and post-world war periods equalization, taxes which were raised in the purpose of building the social democratic welfare model. Furthermore, the substantial work by Lindert and Williamson (2016) on income inequality in the US argues that political intervention in the form of regulation of the financial market hindered concentrated capital gains from increasing inequality.

Over the course of the last years a considerable group of scholars have also come to stress the role of politics. For example, Maria Gómez León and Herman de Jong's (2019) study on the great leveling in the UK and Germany from 1900 to 1950 find an interesting pattern of often opposing inequality trends for the two countries. During World War I, inequality surged in Germany while inequality in the UK plummeted. During the interwar period this reversed as the Weimar republic in Germany became overall more economically and politically equal while the UK saw the opposite trend. However, when the national socialists came into power, unions were banned and subsequently German income inequality soared (Gómez León, & de Jong, 2019; Bartels, 2019), while in the UK the great depression and increasing union bargaining power during the rearmament decreased the inequality (Gómez León, & de Jong, 2019). What is fascinating in Gómez León and de Jong's (2019) study is how the crises of the first half of

the 20<sup>th</sup> century caused very different results depending on the political reaction, strengthening that politics matters and shape the outcome of crises.

Up until this point, state centered political and institutional forces, in the form of taxation, regulation, and social policy, been stressed when explaining the decrease in inequality. However, much of the institutional/political research on inequality also emphasizes the role of unionization, this is for example examined in the between regional analysis by Collins and Nimesh (2019) for the US, outlining how unionization seems to have been essential to the US great leveling, when observing how regions in the US with increased exposure to unionization experienced substantial decreases in inequality in the 1940s to 1960s. Similar results emphasizing the role of unions for the growing wage shares during the mid-20<sup>th</sup> century of the total economy on the expense of capital have been obtained for Italy by Gabbuti (2020) and in Germany by Bartels (2019), and in a larger cross country analysis by Bengtsson, Rubolino, and Waldenström (2020). This demonstrate how different political forces could be at work during the great leveling. The rise of unionization increasing the bargaining strength of labor which is the more equally distributed production factor (Waldenström, & Bengtsson, 2018) is one possible mechanism. Redistribution from taxes and transfers is another, as has previously been stressed in the Swedish case (Korpi, & Palme, 1998). The effect of taxation will be dealt with directly by estimating how much the income inequality fell by comparing income for different income deciles and social groups before and after taxation. The effect of price- and financial shocks, regulation and unionization can only be assessed through observing the timing of when different macroeconomic variables changed and how these coincided with the trends in income inequality in Malmö.

### 2.2.3 Summary of Literature on the Causes of the Great Leveling

To summarize the most essential literature on the causes of the great leveling, it can be concluded that factors such as shock, market forces, and political forces have been stressed. The forces highlighted as drivers of increased equality will be considered in this analysis of the Malmö case during the great leveling. No real econometrical testing will be conducted due to the scarcity of the data. Nonetheless, the overall development of different macroeconomic variables and how they coincided in time with the changes in the income distribution of the Malmö case will be examined. For example, how changes in inequality coincided with changes in unionization, the introduction of new labor market laws, overall growth rates, and economic

crises, unemployment, and educational expansion will be discussed. Some factors will also be accounted for directly. For example, is the role of taxation included in the tax records, thereby enabling a direct analysis of the role of the emerging increases to marginal tax rates. The Malmö case does not allow for determining which of the explanations presented in previous literature that caused the great leveling, both due to the narrow focus on Malmö and the scarce data. However, this thesis' data on Malmö do allow for an educated discussion in a setting where specific factors can be found relevant. Furthermore, it is imperative to note that the aim of the research questions is to provide novel and detailed descriptive overview of the income inequality for specific segments of the income distribution to provides further evidence for the literature on the equalization process.

#### 2.2.4 Income Inequality Studies on Swedish Cities

There are three pervious major data gathering projects on Swedish income inequality in specific cities, by Järnek (1971) on Malmö from 1925-1964, Kent Olsson (1972) on Gothenburg 1919-196 and a more recent one by Gustafsson and Johansson (2003) on Gothenburg 1925-1958. Results from these studies will be summarized to give a picture of what previous analysis in city level income distribution in Sweden has been able to conclude and contribute to the broader inequality debate.

The previous study on Malmö by Järnek (1971) who utilized a random sample of tax records on the household level provided a thorough analysis for the years 1925, 1948 and 1964. Järnek's (1971) study both analyzes the overall household differences in inequality and narrowly examines how increased female labor participation impacted between household differences and living standards. The primary finding by Järnek (1971, p.78-79) is that inequality indeed fell throughout the period 1925-1964 in Malmö. However, an interesting finding is that it primarily was between 1925-1948 that the income inequality decrease occurred in Malmö, indicating that inequality mostly declined before the welfare state expansion and tax increases. Järnek (1971, p.85) concludes that tax increases were not absent between 1925-1948, taxes just did not grow as quickly as in the later period 1948-1964. However, even if taxes increased quicker 1948-1964, the level of inequality decreased much slower compared to the previous period. Järnek (1971) concludes that taxes most certainly did contribute to lowered inequality as these after all redistributed resources from top- to the lower income groups trough progressive taxation and social policy. However, the effect on the level of income inequality

was marginal in comparison to the effects of what can be summarized as the result of structural transformation in Järnek's (1971) analysis. Järnek (1971) finds that the declining share of lower paying jobs in favor of higher paying jobs in more modern sectors of the economy was the primary force in explaining the decrease in Malmö inequality. This might at first sound like a very market driven process, following the logic of the Kuznets (1955) curve or Margo and Goldin (1992). However, in Järnek's narrative this process of structural transformation is not entirely framed as the result of market mechanisms. Instead, the political goal to root out low paying jobs by labor unions is identified as a component in this shift towards a lower overall level of inequality which is seen to have made an impact on the local level in Malmö (Järnek, 1971, p.84). Thereby Järnek's analysis could be summarized as a narrative which emphasizes the joint forces of markets and unions in a dynamic way shaping the labor market resulting in overall lowered income inequality. Additionally, Järnek's (1971) household comparison finds an overall trend of increasing household differences in income from increased female labor participation, due to only some households experienced increased female labor market participation. However, on an individual level the increased market capacity and changed demand for female workers lead to female wages going from half to four fifths of the corresponding male wage during the period of analysis (Järnek, 1971, p.179), leading to overall lowered inequality between individual (instead of between household). The reason for this shift in female labor participation throughout the 20th century has been the subject of some research which overall has found that changing norms, new technology, and politics have fundamentally altered the female labor participation (Stanfors, 2007, p.92-94)

Kent Olsson's analysis of income inequality and living standards in Gothenburg is one of the few other studies on city level inequality in Sweden. Olsson's (1972, p.61) analysis focuses extensively on specific occupations, namely engineers, teachers, machinists, clerks, mailmen, turners, construction -, lower construction -, and textile workers. The primary findings of Olsson (1972) are similar to Järnek's (1971), as an overall decline in income disparities between the households from 1918 to 1960 is observed. Two of the central factors for the inequality decline in Olsson's (1972, p.107) analysis is, firstly, the waning incomes from capital for high income groups, secondly tax and transfers (Olsson, 1972, p.177). Furthermore, Olsson (1972) observes a significant shift in the income structure where low paying income groups, such as female textile workers, saw a 350 percent increase to their income from 1918 to 1960, while high income groups such as engineers and teachers only saw a 75 and 45 percent wage increases respectively. This resulted in a major reshuffle of the market income structure, which in turn

resulted in lower overall income inequality (Olsson, 1972, p.211). To take the example of textile workers and teachers further, by 1918 a textile worker only had 15 percent of the income of a teacher. By 1960 the textile worker had 30 percent of the teacher's income (Olsson, 1972, p.211-212). While there was still a large gap between the two occupations this indicates how the market income disparities contracted. The Olsson study has a rather descriptive character with few attempts to explain the causes of the equalization. The partial role of increased taxes and social support for older households and households with kids naturally becomes an explanation emphasizing the role of the emerging welfare state in the post war era. However, except for taxes few mechanisms are presented to account for diminishing market income inequality (Olsson, 1972). The explanation by Järnek (1971) of the narrowing income structure from both market- and political forces could very well fit with Olsson's (1972) results, but no such argument is made.

The third and most recent study which examines city inequality in Sweden was conducted by Björn Gustafsson and Mats Johansson (2003). Their very detailed study of the income distribution in Gothenburg, just like the two previous city studies, confirms that a great leveling in income inequality occurred between 1925-1958 (Gustafsson, & Johansson, 2003). The mechanism outlined for the decrease is quite similar to the findings by Järnek (1971) and Olsson (1972), according to whom an initial decrease occurred due to falling capital income for top income earners. This is also emphasized by Roine and Waldenström (2008), and is inferred to be the result of the great depression, overall lowered yields on capital with decreasing rents and later a more equally distribution of capital (Gustafsson, & Johansson, 2003). Meanwhile lower incomes also came to increase, but the causes of this are not really that well understood or explored in the paper by Gustafsson and Johansson (2003). However, some of Gustafsson and Johansson's results do differ from previous studies. In particular, they stress the role of taxation as one of the key changes which seemingly accounted for a large share of the inequality decrease, because the average tax became close to five times larger, from 5,7 percent in 1925 to 23,9 percent in 1958. Their primary support for this notion stems from their decomposition of the Gini coefficient, which shows that income taxes decreased income inequality the most, and that this decrease in inequality from taxes had the largest effect between 1936-1947. Meanwhile the period with the largest decrease was 1925-1936, when capital incomes decreased the most, indicating that the great depression and lowered interest rates also were essential to the Swedish income inequality decline (Gustafsson, & Johansson, 2003).

## 3 Data and Methods

This chapter evaluates the source material utilized to estimate incomes for top and low-income earners in the city of Malmö, namely municipal taxation records. Furthermore, the chapter elaborates on why tax records are a reliable source material frequently used to measure income inequality in general and for the Swedish case in particular. The choice of utilizing a strategic sampling strategy is discussed. Additionally, the operationalization and methods of employing differences/inequalities between social groups, income deciles, and districts are outlined.

### 3.1 Source Material

The source employed to estimate income inequality in Malmö is municipal tax records (*taxeringslängder*) kept at the Malmö city archive. These records are a rich source of economic historical information as they contain several relevant variables on an individual level, most relevantly the amount of municipal taxes paid, total earned income from capital and work<sup>9</sup>, title, and some lumpsum payments for social provision in the form of sick pay and accident insurance (Appendix A). It is important to note that this thesis compares the incomes between individuals and not households. The motive for comparing between individuals is that the overall structure of the dataset with detailed data on every individual enables analysis on this level. However, the data could be compiled along the lines of household, by linking the family ties through *mantalslängder*<sup>10</sup>. However, as Järnek (1971) already has conducted a study on inequality between households in Malmö, and there is a growing contemporary literature on inequality between individuals, this thesis has chosen the individual as the unit of analysis. Another benefit of the tax records as a source is that they are structured along lines of specific districts

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<sup>9</sup> Unfortunately, the payments for capital and income are not separated, except for 1950, which makes it impossible to track capital incomes separately over time

<sup>10</sup> Mantalslängder are the Swedish states census up until 1991

and contain detailed descriptions of the taxpayers' addresses – thereby enabling a close analysis of distinct geographical areas of the town.

The tax records employed in this study were commenced during the 1862 municipal reform. The municipal reform was part of the modernization process of the Swedish public administration. For example, poor relief and schooling had been the church parishes' domain but through the 1862 reform they became the municipality's responsibility. These new obligations created a dire need for funding, subsequently resulting in the introduction of municipal income taxation of one percent (Fridh, & Dahlberg, 1962 p.449-452). The reach of the municipality's duties, as well as taxation, expanded over time (Fridh, & Dahlberg, 1962 p.452-454). However, the records' way of reporting taxes and income, professions, and lumpsum payments for social provision are nevertheless comparable over time. This source thereby enables an overtime tracking of everyone's income and several other essential variables such as profession. However, for Malmö specifically the income from capital or business is not registered separately in the tax records, except for 1950, which is a major shortcoming in comparison to the Gothenburg primary data (Gustafsson, & Johannsson, 2003). Considering the detail and scope, it is surprising how seldom empirical research on Swedish economic history has utilized tax records to estimate income inequality with the notable exceptions of the studies of income inequality in Swedish cities by Järnek (1971), Olsson (1972) and Gustafsson and Johannsson (2003).

There is one aspect of the Malmö tax records' accounting that changes over time, namely that total income is no longer accounted for post 1931. This poses a considerable challenge to the overtime tracking of income from the tax records. However, as the flat rate municipal income tax is still accounted for, one can multiply the tax rate to obtain a total income for 1935 and 1950. In Appendix B, the exact methods for conducting the estimates for total income in 1935 and 1950 are presented. To summarize in 1935 the tax rate and deductions presented in the last year of total income estimates in the tax records are utilized (1931), which is reasonable considering the small changes in taxation between 1931-1935 (Fridh, & Dahlberg, 1962 p.462-464). By 1950 we know the exact Malmö flat municipal tax rate (Malmsten, 1994, p.227), making it easy to estimate total income.

Information from tax records is internationally a well-established source to utilize when researchers estimate historical income inequality (Casson et al, 2020 p.50). Primarily tabulated compilations of tax records have been employed to estimate income inequality (primarily top

income shares) in several of today's most essential publications on income inequality, in studies concerning the top share in the US (Piketty, & Saez, 2003), France (Piketty, 2003) and Sweden (Roine, & Waldenström, 2008). Due to tax records being a source from public authorities and rather detailed it is considered to be one of, if not the most, well-regarded primary source in income inequality studies. When it comes to the reliability of the Swedish data, one must look at the reliability of the Swedish public administration and its ability to correctly estimate incomes. Public administration researchers have emphasized how the Swedish state developed into a rather efficient and non-corrupt apparatus during the mid-19<sup>th</sup> century's public reform (Rothstein, 2016, p.96-100), strengthening the conclusion that the Swedish state is to be deemed as a competent and reliable source. Even before the 19<sup>th</sup> century, the Swedish state is considered competent – Sweden's church books' censuses starting in 1749 were probably among the most detailed in the whole world at that time (Bengtsson, 2020, p.152). To summarize, Swedish administration has a long and lasting ability to accurately account for its population and its endeavors.

Another central issue when dealing with the reliability of tax records is the issue of tax avoidance. There is overall scarce evidence of tax avoidance in the 20<sup>th</sup>-century Swedish case, except for four studies, one on the period 1930 to 1950 (Bentzel, 1953) and three on the 1980s to 1990s (Apel, 1994; Löfqvist, 2001; Malmer, & Persson, 1994), which all find consistency in the tax avoidance, at around 2-7 percent of total revenue during the first period and 4-6 percent during the later. The lack of data for the pre-1930s period is in no way optimal. However, the consistency and relatively low levels of tax avoidance after the 1930s are still an indicator of how the Swedish public administration has been able to keep track of individual's incomes and overall economic activity. It is quite impressive how the administration seemingly has been able to track taxes although the incentives to avoid taxation have increased due to increased marginal taxes during the post war period. The Swedish tax avoidance literature strengthens the claim that the Swedish tax authorities and the public administration were efficient and non-corrupt. However, as Roine and Waldenström (2008) point out, there is no specific study on tax avoidance among top income earners, who have the largest incentive and capacity to avoid taxation. Nevertheless, they find limited evidence that tax avoidance would have had anything more than a marginal role in the income inequality trends, except for the 1990s and 2000s, which is far outside the scope for this thesis (Roine, & Waldenström, 2008 p.374).



On the other hand, there is a potential risk that individuals would want to overstate their tax during the first benchmark year 1905. That anyone purposefully would overstate their own taxes might at first sound counterintuitive. However, in Sweden from 1862 until 1909 one gained votes in proportion to the tax one paid, sometimes resulting in individuals and corporations holding a majority of the votes in specific municipalities (Lindgren, Pettersson-Lidbom, & Tyrefors, 2017). However, there is no systematic research indicating that any elite purposefully was trying to increase their voting power by overstating their taxes. Therefore, this potential concern in the first benchmark year of 1905 is seen as very minor.

Another key concern recognized in the literature about the use of taxes when estimating inequality is who did and did not pay income tax. In almost all societies before 20th-century's democratization and welfare state reforms, the share paying income tax was rather limited (Atkinson, 2007). In the ongoing project, Sweden's transition to equality, Erik Bengtsson (2021) has created an extensive appendix researching who is below the threshold and how to deal with the non-taxpayers when estimating total income inequality. Firstly, Bengtsson (2021) estimates how many non-taxpayers there were in Sweden at different points in time. He concludes that around 30 percent of all adults paid municipal income taxes in 1900 and that by 1950 this number had grown to 67 percent. Thereby, virtually all income earners at that point paid income tax. In urban areas, the share of taxpayers was higher, as the economy was more advanced. Subsequently, wages were higher, leading to more wage earners meeting the minimum requirement to pay taxes (Bengtsson, 2021). However, for the ones in the taxation list that did not need to pay any income tax this study uses an approximate income, based on Roine and Waldenström's (2010) estimate of the total national income, which assumes an average income for the non-taxpayer at 80 percent of the cutoff point. Thereby a 480 SEK likely income is assigned to each non-income taxpayers in this thesis. This approach can in no way provide a totally accurate estimate, but currently it is the primary way in which the research frontier estimates income for groups below the threshold to pay income tax in Sweden. Similar approaches of assuming below tax threshold incomes have been employed when estimating inequality in Norway (Aaberge, Atkinson, & Modalsli, 2020) and Denmark (Atkinson, &

Søgaard, 2016). Furthermore, to account for major income differences between men and women<sup>11</sup>, an additional 100 SEK is taken away from the female incomes below the threshold.

The issue of estimating the number of non-taxpayers is dealt with by calculating how many in the low-income districts Södervärn and Möllevången who did not pay tax. This is done through comparing the number of individuals in the tax records to the total number of adults (persons born after 1890 for 1905, and 1905 for 1920) in church records which contain every single individual for both the benchmark years 1905 and 1920. Based on the number of men not paying income tax, a corresponding number of men are added to the dataset with the 480 SEK income. For the number of women not paying income tax a corresponding number of women with an income of 380 SEK is added to account for the lowest income groups, not otherwise included in the sample. For the benchmark years 1935 and 1950, this approach of calculating and adding non-taxpaying income earners is no longer needed, because by then, most income earners were obligated to pay income tax, as indicated by Bengtsson's (2021) estimations.

*Table 4: Share of coverage in the tax records for Södervärn and Möllevången in 1905 and 1920*

	Total in tax records	Total number in census	Total share (%) included in tax records	Share (%) of women in tax records	Share (%) of men in tax records	Number of women added to dataset	Number of men added to dataset
1905	272	464	59	28	88	164	28
1920	261	368	71	55	88	88	20

Source: tax records from Uppbördsverket one and two from Malmö city archive and Malmö St. Johannes church archive from the online church archive at riksarkivet.se looking at the Södervärn quarter Abel, and Möllevången quarters Fanan, Gillet and Hagen (Appendix C).

As illustrated in *Table 4*, 59 percent of the total adult population of the low-income districts were included in the tax records when comparing this record to the population church books

<sup>11</sup> Female incomes were in general half the male wage in Malmö (Järnek 1971 p. 179). However, this was not evenly distributed along the income scale and therefore the female income is only a 100 SEK less than 480 SEK, to account for the fact that gender income differences were not as wide in the bottom of the income distribution as it was at the top (Häger, 1989, p.418-419)

census. However, who is not included in the tax records are highly connected to gender, as only 27 percent of women compared to 88 percent of men are covered. Thereby 164 women with the estimated yearly income of 380 SEK are added while only 28 men with the income of 480 SEK are added to adjust for the low-income segments with incomes below for the tax threshold. In 1920, the tax records coverage had extended significantly and covered 71 percent of the total adult population, observed in the church books for the specific quarters which this thesis has conducted primary data gathering from. The extension of who is included in the tax records is entirely driven by an increase in the share of women included in the tax records from 28 to 55 percent, while the male coverage is kept constant at 88 percent. Thereby an additional 88 women and 20 men are added to the 1920 sample to adjust for the below tax threshold groups of low-income earners.

## 3.2 Sampling Strategy

This thesis has collected primary data on the income distribution in Malmö. A strategically handpicked sample of four specific districts over time is employed. The sample contains 130 individuals from each of the four districts for every benchmark year. See figure 2 for an illustration of where in town these districts are located. The first district is Old town around Stortorget inhabited by some of the wealthier population in the inner city. This area contains some high-ranking state officials and merchants, while at the same time including a sample of lower-income female workers residing at hostels. The second and third districts are Södervärn and Möllevången, both working-class districts in the southeast corner of the city, located in and around Möllevångstorget, a primary area of settlement for the growing rural population migrating into the cities to find work in the growing industrial center (Bjurling, 1985B, p.160). Fourthly, the upper-class district of Grönvången (modern-day Fridhem) is included to catch the very wealthy industrial directors, professors, doctors, and merchants residing in this part of town (Häger, 1989, p.424). However, the wealthy part of town in and around Grönvången also contains servants living in the houses of the top income earners. In total, this thesis provides a sample of 520 individuals for each of the four-benchmark years containing the four distinct districts with varying economic conditions, a sample large enough to conduct a further educated inquiry on income disparities in town. Gustafsson and Johansson's (2003) study of income inequality in Gothenburg included between 1600 and 3300 individuals per sample. However, the difference in the size of the cities and the size of the projects are both substantial.

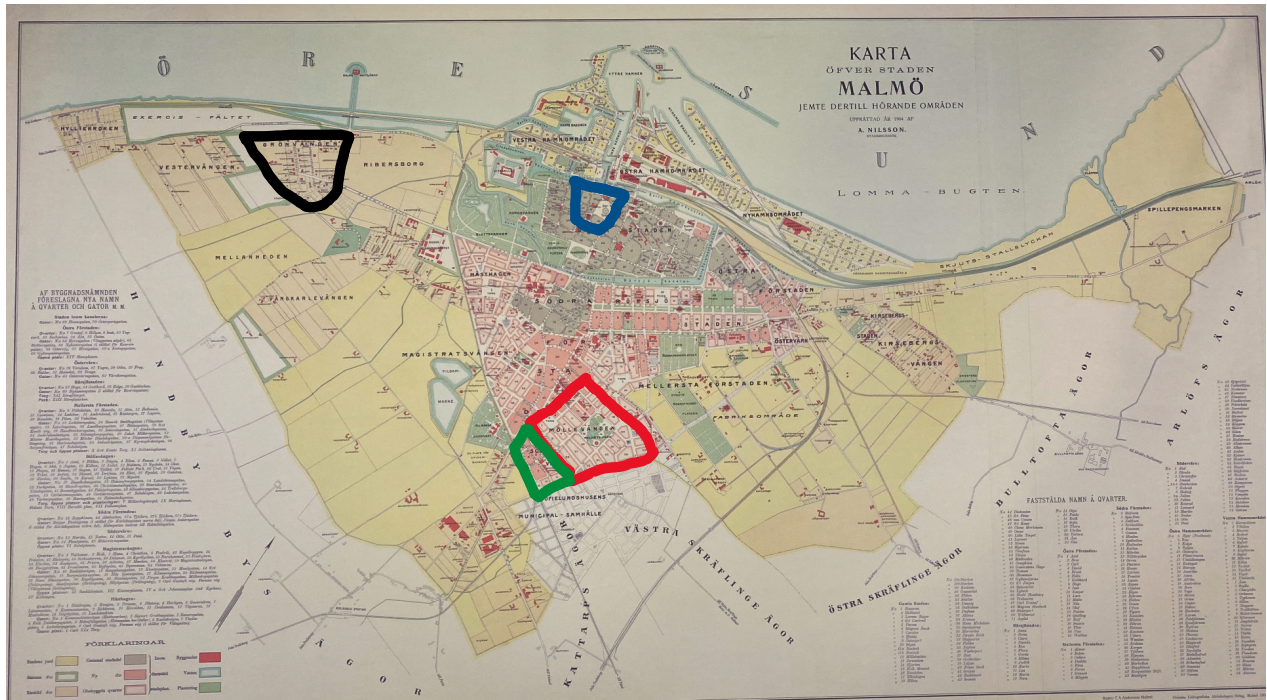


Figure 2: Map of Malmö in 1904, where the sampled districts are marked out.

Definitions: The green district furthest south is Södervärn, the red district just north of Södervärn is Möllevången, the blue district in the middle of town is the old town around “Stortorget”, and the black district along the beach is Grönvången (modern day Fridhem).

Source: Map photographed at Malmö city archive.

The thesis concentrates the data gathering extensively in specific quarters of each district to have a transparent and replicable data gathering process. The specific quarters<sup>12</sup> sampled from each district is gathered in Appendix C. The quarters in Old Town around Stortorget, Södervärn, Möllevången and Grönvången are a random sampling for 1905 but then the same quarters are employed for all the four benchmark years, in order to have a replicable and comparable dataset. Additionally, this thesis samples income earners from the year after each benchmark year, as the taxes and income declared would be for the previous year. Therefore, the 1906 tax record is utilized to calculate incomes in 1905, 1921 for incomes in 1920 and so on. The one exception for this is that tax records for 1908 are used to calculate incomes in Grönvången 1905, as this district was not included in the taxation records before. No definite answer is found to why

<sup>12</sup> Quarters are a term used in the tax records to break down the districts in smaller units, usually containing one housing block.

Grönvången was not included before 1908, but an educated guess is that the district was not officially included in the city before 1908. To deal with this issue, the 1908 data, which are incomes for 1907, are inflation-adjusted to better match incomes for 1905.

*Table 5: Growth, unemployment, and inequality from 1905 to 1950*

Year	Annual GDP per capita growth rate (%) in Sweden <sup>‡</sup>	Unemployment rate (%) in Sweden <sup>†</sup>	Annual GDP per capita growth rate (%) in Malmöhus <sup>††</sup>	Top income shares (%) of total income in Sweden <sup>‡‡</sup>
1900-1909	2.7	-	5	45
1910-1919	1	-	1.5	50
1920-1929	3.5	6	4.5	37
1930-1939	2.2	9	1.7	36
1940-1950	3.7	2	4,7	34

Source: Schön and Krantz (2015) on Average annual GDP per capita in Sweden.

Unemployment in Sweden from Stenberg (1999) for 1920 to 1950. Average annual GDP per capita in the Malmöhus region (Enflo, Henning & Schön 2014). Top income share (Roine & Waldenström 2008).

<sup>‡</sup>In constant 1910/1912 prices, the GDP per capita growth number is the growth rate on average for each year during that decade

<sup>†</sup> Unemployment in the middle (5) of each decade

<sup>††</sup>Malmöhus was the western region of modern-day Scania

<sup>‡‡</sup> Top income shares for the year in the middle of each period

The choice of the specific benchmark years is also strategic. The interval of 15 years in between each benchmark is, of course, systematic, but the choice of observing these periods is made with clear historical motivations. The first benchmark year, 1905, captures what is today regarded as an unequal period in Swedish history, with limited suffrage, high incomes (Roine, & Waldenström, 2008), and wealth inequality (Bengtsson et al. 2018). Bengtsson (2020, p.55 characterizes the time period as the old persisting inequality regime, but with an overall high growth rate (table 5). The second benchmark year, 1920, is just before the first election with female suffrage in 1921. 1920 is also just after World War I food shortages and before subsequent price hikes, and in the beginning of the quite severe 1920s economic crisis with rising unemployment and a sharp GDP drop in 1921 (Schön, 2010, p.247; Häger, 1989, p.254). The third benchmark year, 1935, is during the turbulent interwar period after the great depression, and at the start of the long social-democratic rule initiated in 1932, lasting until 1976. The fourth benchmark, 1950, is when the dust of the world wars had settled, and Sweden underwent a great leveling in income inequality (Roine, & Waldenström, 2008). This was a long-lasting period of economic prosperity and welfare state expansion (Schön, 2010, p.314-318).

The benefit of a strategic sample is twofold. Firstly, it will analyze the same districts and partially the same individuals over time. Secondly, it enables the analysis to get a significant sample of specific income groups, primarily the very rich (top 1 and top 10 percent), which tend to be statistically insignificant in random samples (Keister, 2014). However, through strategic oversampling, utilizing known housing segregation, this issue is dealt with. Nevertheless, there are also obvious downsides of utilizing a strategic sampling, and it decreases the validity of estimating inequality for the entire Malmö trend. However, by comparing the results for these specific districts to the previous study of Malmö 1925-1964 by Järnek (1971), this issue can partially be compensated for. However, this study has a higher validity compared to a random sample for the specific districts and quarters of the city it does measure. The previous study by Järnek (1971), with a random sample in the Malmö case, additionally lowers the need for a new study with the same framework. Instead, four distinct districts are carefully chosen in order to represent the very opposite ends on the income distribution in Malmö. This thesis therefore researches the lower- and upper-income segments and does not provide a full account of the entire income distribution.

### 3.3 Descriptive Statistics

*Table 6: Descriptive statistics of the sample, including estimate for non-taxpayers*

Year	Sample size	Share (%) of men in the sample	Mean income	Mean real income †	Income standard deviation	Max-min income
1905	N:547 (750)	77 (54)	3765 (2453)	3765 (2453)	8380 (6916)	95990- 380*
1920	N: 520 (628)	49.5 (45.7)	6896 (5720)	2137 (1773)	27722 (25113)	404280- 380
1935	N: 520	56.5	5603	3036	16508	156430- 600
1950	N: 520	52.7	6913	2233	13384	145150- 580

†: 1905s prices, based on Edvinson and Söderberg (2011) in SEK

N: Number in sample not including non-taxpayers and companies

\*The tax threshold is 600 but when including estimate incomes for women below the tax threshold, a 380 SEK income is obtained for women included in the tax records but who did not file an income tax based on methodological considerations outlined in subchapter 3.1 source material on how to estimate female non-taxpayer income

( ): Adjusted results after including non-taxpayers

Source: Calculation on income based on primary data gathering from tax records at Malmö city archive fond *Uppbördsverket* one and two, and total population estimate from church books fond *St. Johannes kyrkoarkiv* (see Appendix D for structure of the church records).

Overviewing some of the key descriptive statistics in Table 6, a couple of numbers stand out. Firstly, during the first benchmark year 1905, 77 percent of the sample were men, which has to do with the exclusion of women in the dataset as they had below tax threshold incomes. When including the estimates from the church books to include the total adult population, a more even share between men and women is obtained. There is also a significant drop in the nominal and real income observed in table 6 when the adjusted numbers including estimates for non-taxpayers' income are included.

*Table 7: Descriptive statistics of the samples' social group division*

	Social group 1	Social group 2	Social group 3	Unknown	Companies
1905	111 (19.5%)	75 (13.2%)	316 (55.6%)	40 (7%)	24 (4.2%)
1920	60 (11.5%)	62 (11.9%)	383 (73.6%)	10 (1.9%)	4 (0.77%)
1935	76 (14.6%)	74 (14.2%)	327 (62.8%)	36 (6,9%)	7 (1.3%)
1950	61 (11.7%)	75 (14.4%)	343 (65.9%)	41 (7.9%)	0

(): share in sample belonging to specific social group

Source: social group share in the sample extracted from the tax records

*Table 8: Social group division in Malmö for the entire population*

year	Social group 1	Social group 2	Social group 3	Unknown
1925	4	27.6%	56.5%	11.9%
1948	4.2	31.7%	57.1%	7%

Source: From Järnek's (1971) random sampling of tax records in Malmö

Regarding the social group division, the share of the different social groups in the dataset in table 7 shows that the sampling strategy outlined in subchapter 3.2 of a conscious oversampling of top and low-income districts is present. There is a clear oversampling of social group 1 at between 11 to 19 percent of total sample (business owners, high officials, and these social groups family) compared to 4 percent the city overall, see table 8. The same oversampling can be observed for social group 3, in table 7 (workers, in private and public sector, unemployed, smallholding farmers) at between 55.6 percent to 73.6 percent in comparison to 56 percent of the Malmö population overall, see table 8. Social group 2 (white collar workers) on the other hand are under sampled (table 7), compared to the city overall (table 8).

## 3.4 Measuring Income Inequality

There are several established ways of estimating income inequality, where the share of the top 10 percent and Gini coefficient are the primary estimates. This thesis does not conduct a sampling of the entire city but focuses on specific income distribution. Therefore, for the purpose of this thesis finds it is appropriate to calculate neither of these inequality estimates. Instead, three other distinct inequality estimates will be calculated as outlined in the section below:

1. One way this thesis estimates inequality is by comparing the mean incomes of the different social groups. Social group (socialgrupp) is a socioeconomic status term utilized by Statistics Sweden from 1925 to 1982 (Haldorson, 2016). There are three social groups in the Statistics Sweden definition. *Social group 1* is defined as major employers and higher officials. *Social group 2* are lower officials and minor business owners. *Social group 3* are workers in both the private and public sector. Wives and widows married to someone in a specific social group gains the same categorization as their spouses. Pensioners are classified according to their previous professions (Haldorson, 2016).
2. Another way this thesis measures income inequality is through comparing incomes for different income deciles. By utilizing Järneks (1971) estimates on the threshold for belonging to a specific income decile, this thesis can categorize the individuals in different income groups. See Table 9 to see the threshold for belonging to different income deciles in 1925 and 1948. As Järnek (1971) has no data before 1925, Järnek's data will be adjusted by a wage index from Larsson (2005) to account for the income structures to in 1905 and 1935. The use of 1925s income distribution to define income deciles is, of course, not optimal as it assumes the same distribution in 1925 and 1905. This assumption is not entirely correct; therefore, the 1905 definition of belonging to the top 10 and bottom 50 has to be seen as a proxy in lack of a better measure of the entire income structure. The thesis' own data will be separated along the lines of top 10, middle 40 and bottom 50 to create a robustness check of the income structure. By comparing the mean income of the individuals in each of the income deciles, this thesis will provide novel data on the average living standards and the relative standing of the different income deciles in the city.



3. This thesis additionally measures city income inequality by comparing the mean income for each city district by creating ratios of the income distribution, having the mean income of the entire city as the denominator, and each of the districts as the numerator. This approach enables a closer look at disparities within Malmö, showcasing the degree of housing segregation and changing living conditions over time. As there are clear income/social group divisions between the districts, this metric of district differences in income is a relevant way of measuring differences in Malmö inequality overall.

*Table 9: Income per income decile in Malmö estimate, for male income earners before tax*

Deciles	1905	1925	1935	1948
90-100	2041 <	7000 <	7210 <	10800 <
80-90	1341-2040	4600-6999	4738-7209	8200-10799
70-80	1079-1341	3700-4599	3811-4737	7200-8199
60-70	933-1078	3200-3699	3296-3810	6700-7199
50-60	845-933	2900-3199	2987-3295	6100-6699
40-50	758-844	2600-2899	2678-2986	5600-6099
30-40	642-758	2200-2599	2266-2677	5100-5599
20-30	496-641	1700-2199	1751-2266	4100-5099
10-20	292-495	1000-1699	1030-1750	2400-4099
0-10	0-474	0-999		0-2399

Source: Järnek (1971). For 1905 and 1935 the income scale is adjusted for income changes, from the income index by Larsson (2005)

The use of top income shares and Gini coefficients has undoubtedly been invaluable to economic inequality research. Top income shares utilizing tabulated tax records and historical national accounts provide an innovative long-run inequality measure. This metric is especially impressive as it permits visualization and analysis on income inequality before we have tax records over the entire income distribution. Top income shares are calculated through compiled tabulated data on the top income earners (in the Swedish case from the Ministry of finance) who did pay tax at that time, taking this income group's share and dividing it by the total income based on calculations from the national accounts (Roine, & Waldenström, 2008). However, the shortcoming of this approach is also apparent and recognized; a total focus on the top 10 percent results in a neglect of the lower-income segment's shares of the national income, especially the changing dynamic within the bottom 90 percent such as changing shares between the middle

40 and bottom 50 percent of the income distribution (Fisher-post, 2020). The Gini Coefficient captures changes along the entire income distribution. However, Piketty (2014, p.278) still warns about using this "synthetic" metric to summarize very complex distributional realities. Piketty (2014, p.278) argues that Gini coefficients are doomed to confuse and lead to discussions about topics that should not be measured simultaneously. This discussion of the shortcomings of these two primary workhorses of modern income inequality analysis – top income shares, and Gini coefficients – is not to say in any way that these metrics are worse than the inequality metrics of comparing means utilized in this study, but rather that there are shortcomings in every currently viable method. This makes it relevant to utilize different metrics to further our understanding of income inequality. Especially measurements that can simultaneously capture changes in the top and bottom and, furthermore, be disaggregated to provide detailed info on both ends separately. The main strength of this thesis' approach is the ability to look at top 10, middle 40 and bottom 50 income earners, based on estimates from primary tax records, which provides micro data on each individual instead of tabulations summarizing the entire records' results.

## 4 Empirical Results

This chapter outlines the main empirical findings from the primary research gathering to answer the two research questions posed in this thesis. Firstly, the overall income development, especially the real income development in the city between income-, social groups, and districts of the city, is outlined. Secondly, the income inequality trends between the income-, social group, and city districts is outlined. Additionally, the chapter discusses the inequality trends in relation to the major economic and political trends reviewed in chapter two.

### 4.1 Trends in the Income Development of Malmö

*Table 10: Mean nominal gross income of top 10, middle 40 and bottom 50<sup>†</sup> 1905, 1920, 1935 and 1950 (including estimate income for the non-taxpayer from church books)*

	Mean income 1905	Mean income 1920	Mean income 1935	Mean income in 1950
Top 10 percent	10 232 <sup>††</sup> N:98	55 069 N:46	47 885 N:31	30 667 N:45
Middle 40	1218 N:229	4108 N:89	4399 N:32	7726 N:64
Bottom 50	472 N:168	980 N:338	1459 N:307	3281 N:299
All 100	P:361 2453 P:711	P:445 5720 P:578	5603 N:370	6913 N:408

<sup>†</sup>: Boundaries for belonging to the income groups set by Järnek (1971) illustrated in table 9

<sup>††</sup>: Nominal value in SEK

N: Numbers of observations, excluding non-taxpayers and companies

P: Number of observations, including non-taxpayers from the church records for 1905 and 1920

Sources: Primary data gathered from tax records at the Malmö city archive and added number of non-taxpayers from the church records at the online church archive.

A noteworthy trend in the nominal income development for the different income segments in table 10 is the mean nominal income rise for both the bottom 50 and middle 40 throughout 1905

to 1950. There was a decline in the top 10 percent’s income after the peak in 1920. These trends had apparent implications for income inequality, but for now, the focus is directed towards income development and its connection to living standards. However, nominal incomes say very little about the actual standard of living because it does not account for the price of the typical consumer basket. Therefore, this thesis will primarily direct attention to the real income, which holds the price level constant in 1905s price level, presented in table 11.

Before proceeding, it is worth briefly discussing how the operationalization of income groups using the boundaries for belonging to a specific decile group such as the top 10 from Järnek (1971) affects the results. Instead of only using Järnek’s boundaries in Tables 10 and 11, this thesis also examines the top 10, middle 40 and bottom 50 percent of income earners from the own sample. The same trends are observed in the real and nominal income development and income inequality ratios, in Appendix E. The main difference between table 10 and 11, which use Järnek’s thresholds, and appendix E, which uses this thesis own boundaries, is the overall higher level of inequality when using the latter. The higher level of inequality when employing the thesis’ boundaries is due to the increase of sample in middle 40 on the expense of bottom 50, leading to only the absolute bottom income earners in Järnek’s (1971) analysis being left in the bottom 50 sample. Even if Järnek’s (1971) boundaries are applied, it is essential to note that the very same trends are observed when utilizing an alternative approach, but that the alternative approach of the own thesis’ own boundaries seemingly would exaggerate the level of inequality because the top of the low-income earners would wrongfully be categorized as middle-income earners.

*Table 11: Mean real gross income of different income deciles in 1905, 1920, 1935 and 1950*

	Mean real <sup>†</sup> income 1905	Mean real income 1920	Mean real income 1935	Mean real income 1950
Top 10 percent	10 232	17 065	25 944	9711
Middle 40	1218	1273	2383	2495
Bottom 50	472	304	790	1060
All 100	3091	2137	3036	2233

<sup>†</sup>: Real income In SEK calculated by multiplying with the cost-of-living index from Edvinsson and Söderberg (2011).

Source: Based on the same primary data gathered for this thesis as table 10

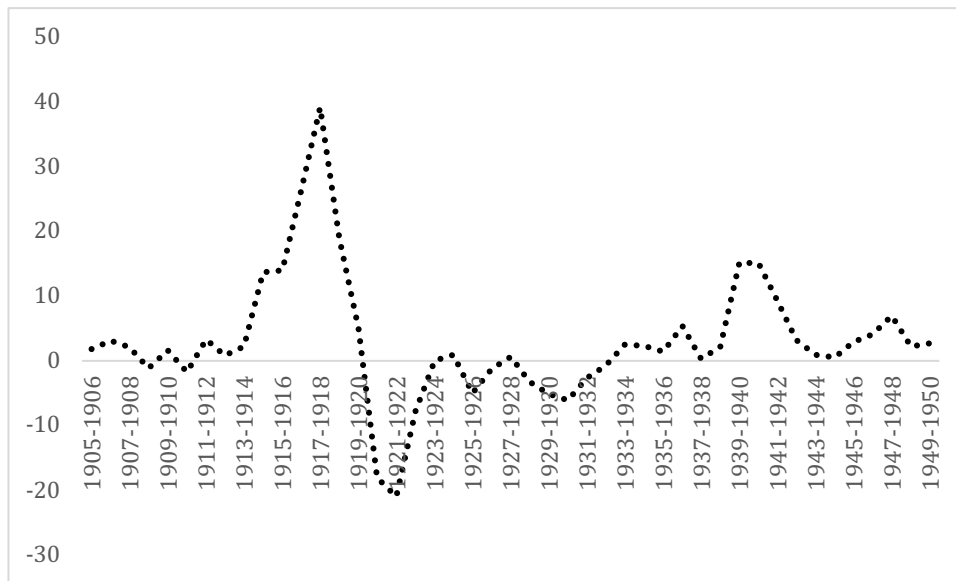


Figure 3: Annual change in consumer prices from 1905/06 to 1949/50.

Source: Edvinsson and Söderberg (2011)

The real income development in Malmö 1905-1950, presented in table 11, offers a more informative picture of the material conditions for the different income segments. Firstly, the very drastic inflationary pressure during World War I, seen in figure 3, did not only eradicate the income gains of the bottom 50 percent when converting the nominal income development into real terms, but seemingly resulted in a negative real income development 1905-1920. The middle 40 percent's incomes stagnated 1905-1920, while the top 10 percent saw significant gains in the same period. The disadvantageous development for the bottom 50 1905-1920 gives real meaning to the saying that in times of inflation, wages walk the stairs while prices take the elevator (Häger, 1989, p.416). Furthermore, this grim real income development fits with the overall picture of harsh conditions during the late 1900s and 1910s, with significant material grievances, sparking strikes and protests (Prado, 2010). Hunger strikes and protests were a recurring theme in Malmö, especially during 1917 (Häger, 1989, p.415), and the mean real income trend obtained from this thesis data gathering for the bottom 50 percent of the income distribution must be seen as corresponding to the historical literature which emphasizes the lower-income groups hardship during the 1910s. Furthermore, it is entirely plausible that this real income development could be one contributing factor to the high strike intensity observed during the 1910s and 1920s in Malmö, and similar mechanisms could plausibly be at work throughout Sweden as indicated by Prado (2010, p.495). However, whether or not the same dismal real income trend for the bottom 50 and middle 40, from 1905 to 1920, is observed throughout the entire city is uncertain. The bottom districts were distinctly working-class and

therefore might have had a uniquely negative development in the 1910s. Therefore, this remarkable result of observed falling real income 1905-1920 for the bottom 50 and middle 40 highlights the need for further research on the lower-income segments' real income development during the turbulent 1910s in Sweden.

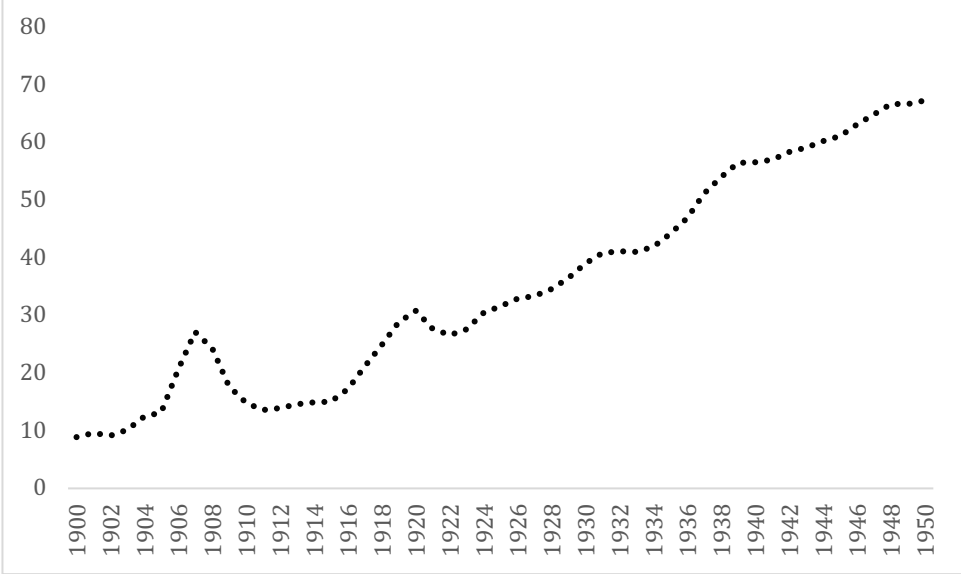


Figure 4: Unionization rate of employees in Sweden 1900-1950

Source: (Kjellberg, 2017 p.75-76)

Between 1920-1935, the real income trends were entirely different from the previous period. Real incomes experienced gains across the board. Especially the real income for the bottom 50 percent had a remarkable estimated increase of about 2.6 times. This trend fits with the notion that the 1930s and especially the great depression did not hit Sweden very hard, and that the country had a swift recovery (Schön, 2010, p.299-308). The GDP growth rate was 3.5 percent annually throughout the 1920s and 2.2 percent throughout the 1930s (table 5). Unemployment was one, if not the major, social issue but drastically declined shortly after peaking in 1934 (Stenberg, 1999). The Swedish economy was in a good state which is reflected in the mean real income development of the bottom 50 and partially middle 40 in the Malmö sample. Not least the ongoing modernization of the Swedish economy with substantial TFP growth has been presented as an explanation to the positive income development (Schön, 2010, p.259, 322). Malmö, with its high industrialization rate (table 1) and overall modern economy, fits this picture of a beneficial environment with increasing productivity resulting in higher incomes for laborers. However, another factor which also could have contributed to this increase in the bottom 50s real incomes is the rise of organized labor, see figure 4, which pushed for nominal wage increases and resisted wage decreases during the deflationary tendencies of the 1920s and the 1930s crisis (Lundh, 2004, p.116-120). Laborers had been organizing since the late 19th

century. However, much of the Swedish labor movement's early history was marked by setbacks such as the failed 1909 strike, leading to a massive drop in the organizational rate during the 1910s. First, by the late 1910s and 1920s, unionization surpassed its 1909 organizational rate (table 4), providing it with increased bargaining power to impact the wage-setting during the 1920s and 1930s. Previous empirical analysis on the Swedish case has also shown that unionization, strikes, and TFP growth during the interwar period made an impact on income development (Molinder, Karlsson, & Enflo, 2021; Bengtsson, 2014) – findings which are in line with the pattern of rapidly increasing real income between 1920-1935 in Malmö.

Even the top 10, which saw declining nominal incomes (table 10), experienced real income gains between 1920-1935 due to the strong deflationary pressure during the 1920s, see figure 3. The absence of a real income decline for the top 10 percent between 1920-1935 might seem surprising considering the substantial literature on how the great depression caused a decrease in the share of the top 10 percent in Sweden and throughout the western world due to the destruction of capital and falling returns (Roine, & Waldenström, 2008; Piketty, 2020). However, the decline in the mean real income between the great depression 1929 and the Kreuger crash 1932 up until 1935 is not accounted for, and it is therefore still unknown to what extent the great depression affected the top 10 percent's income. The only thing that can be said with certainty is that the financial crises of the 1920s and 1930s did not result in a large enough drop of the real income to have pushed the top 10 percent income in the Malmö sample below its 1920 level by 1935.

*Table 12: Mean real income for the three social groups in 1905, 1920, 1935, and 1950, in 1905s prices*

Social group	Mean real <sup>†</sup> income 1905	Mean real income 1920	Mean real income 1935	Mean real income 1950
1	10 775kr N:110	13 498kr 56	14 442kr 57	6603 49
2	3405kr N:75	1011kr 61	1252kr 60	2740 63
3	707kr N:506	407kr 403	873kr 242	1374 268

<sup>†</sup>: In SEK constant 1905 prices based on the price index by Edvinsson and Söderberg (2011)

N: Total sample plus non-taxpayers

Source: Income data based on tax records from Malmö city archive, includes estimate income for adult non-income taxpayers utilizing the method proposed to estimate non-taxpayers' income from Roine and Waldenström (2008)

Observing the real income of the different social groups, some apparent similarities between the top 10 percent and social group 1 and between the bottom 50 and social group 3 emerge. However, there is a surprisingly significant decline in real income among social group 2 compared to the middle 40, between 1905-1920. The nominal income of social group 2 stayed the same (Appendix F), but, in real terms, it was a period of rapid decline, indicating that some in social group 2 (lower officials and small business owners) were harmed more by the inflationary tendencies during World War I, in comparison to mean middle 40 income earners in general. However, except for this divergence between middle income and social group 2, the trends for the social groups and income segments are relatively similar. Social group 3, just like the bottom 50, lost out between 1905-1920 and after that experienced a period of recovery and a new wave of income growth to previously unseen levels. However, the absolute real income level of the social group 3 (table 12) compared to the bottom 50 (table 11) was substantially higher, indicating that some workers already by 1905 in terms of income belonged to the middle 40 (an income above 844 SEK by 1905, following the threshold from Järnek (1971), see table 9).

Another noteworthy trend, in table 12, is the rapid decline in mean income development of the top 10 percent and social group 1 from 1935 to 1950. This major decline in the real income of the top 10 and social group 1 is especially interesting in a Swedish context, considering that Sweden did not take part in the world wars, which have been presented as a significant explanation for the drop in the top income share of national income throughout Europe, due to destruction of capital (Piketty, 2020, p.477-479) Apparently, something else must account for the Malmö case of rapidly declining mean real and nominal incomes for the top 10 and social group 1. The growth rate was not at all low between 1935-1950, and the other income segments saw real gains between 1935-1950, indicating that something explicitly struck the top income earners. Another factor often stressed for the decline of the top 10 has been the role of growing marginal taxes (Piketty, 2014; Gustafsson, & Johansson, 2003), but the tables this far have all been on the gross (before tax) incomes. Therefore, we need to search for other explanations for the drop of the top 10 and the closely intertwined social group 1. One such alternative explanation is the declining relative bargaining strength of top income earners and capital



holders concerning labor due to unionization and a changing labor market institution. Lowered demand for high-skilled workers and increasing supply of highly educated workers have also been stressed as factors for the declining standing of top income earners (Goldin, & Margo, 1992). The extension of higher Swedish education was ongoing. However, only 14 000 studied at university by 1945 (UKÄ, 2017), showcasing how education still was a privilege for a small elite, which might not have monopolized but still limited the supply of more highly educated workers. Thereby, it seems likely that the supply of highly educated workers still was not a major equalizing force. Lower demand for highly educated workers compared to lower educated workers could have played a part, but this is hard to measure or conceptualize in any meaningful way.

Strict financial regulation has also been stressed as a reason for the decline in the top incomes, especially in the US case by (Lindert, & Williamson, 2016). Financial regulation could very well be a relevant factor in Sweden, as the country experienced what one of Sweden's leading economists Lars Jonung (2011, p.108) has called a *financial ice age*. The role strict regulation might have had for social group 1 and the top 10 percent's relative and absolute income standing from depreciated asset prices could be an excellent question for future research.

Table 13: Top income earners in the Malmö sample 1905

Title	First name	Surname	Income from work and capital	tax	District	Social group
Merchant	Nils	Wicklen	104 383	2862.56	Grönvången	1
Manufacturer	Robert	Pricker	85 000	3645	Stortorget	1
Merchant	Edvin	Lindquist	63 542	25712	Stortorget	1
Bank director	Emil	Malmsten	53 040	1237.4	Grönvången	1
Vice regional chef	Gustaf	Haggardt	40 254	1557.24	Stortorget	1
Merchant	Emil	Friis	35 446	844	Grönvången	1
Merchant	Ebbe	Möller	33 982	587.41	Grönvången	1
Director	Alexander	Hall	26 684	895.24	Stortorget	1
City architect	Sal	Sörensen	2 6307	424.88	Grönvången	1
Construction director	A.L	Thelander	26 100	355.05	Grönvången	1
Knight	Gustaf Adolf	Hedman	24 500	579.75	Stortorget	1
Bank director	Jan	Alfredson	24 075	418.52	Grönvången	1
Director	G	Malmström	23 935	701.05	Stortorget	1
Merchant	Anton	Gråberg	20 592	684.11	Grönvången	1
Director	James	Holyrin	20 000	286.75	Grönvången	1

Merchant	G.G	Stölten	18 350	251.3	Grönvången	1
Commandor Knight	H	Ramsten	17 894	289.12	Grönvången	1
Dentist	Axel	Bogren	15 506	408.21	Stortorget	1
Merchant	Fredrik	Trotzig	14 443	459.58	Stortorget	1
Knight	T.C	Lewbke	14 379	485.14	Stortorget	1
Merchant	Augusta	Holmberg	14 000	265.2	Möllevången	1
Merchant	Peter Christian	Iversen	13 982	182.01	Grönvången	1
Captain Knight	G.O	Wahlgren	12 961	176.3	Grönvången	1
Merchant	Herman	Lindberg	12 552	130.96	Grönvången	1
Doctor	Martin	Anfelt	12 110	153.8	Grönvången	1
Merchant	Nils	Wittren	12 058	176.09	Grönvången	1
Manufacturer	Jon P	Persson	11 997	213.83	Möllevången	1
Master tailor	H	Jönsson	11 910	284.25	Stortorget	1
Director	Axel	Wahlgren	11 830	162.25	Grönvången	1
Doctor	Johan	Holmström	11 760	278.75	Stortorget	1
Hotel manager	Herman	Krawen	11 400	271.8	Stortorget	1
Lawyer	Axel	Feube	10 951	142.9	Grönvången	1
Merchant	Sven	Söderberg	10 950	291.6	Stortorget	1
Piano manufacturer	Olof	Svensson	10 597	345.77	Stortorget	1
Director	Henry	Heid	10 417	141.38	Grönvången	1
Manufacturer	L.G	Kruse	10 113	254.06	Grönvången	1
Clerk	Axel Gottland	Nilsson	10 060	231.95	Stortorget	2
Merchant	Edita	G	9916	356.51	Stortorget	1
Dentist	Adolf Ludvig	Rof	9858	98.54	Grönvången	1
Merchant	Johan Fredrik	Lindqvist	9060	204.4	Stortorget	1
Manufacturer	Carl Herman	Riechten	8964	106.97	Grönvången	1
Merchant	Gustaf	Stenfelt	8770	191.5	Stortorget	1

Source: From tax records at Malmö city archive

Not surprisingly social group 1 is entirely dominant. The top 10 percent primarily resided around Stortorget in the old town and Grönvången and most frequently had the professions: merchant, director, and manufacturer. They were with a few exceptions men, and even though the share of men decreased over time, most other variables such as place of residence and

profession, except for knight<sup>13</sup>, stayed fairly the same over time. Another noteworthy exception is the increase in engineers among top income earners (Appendix G).

*Table 14: Mean nominal/real income in the four districts of Malmö*

	Mean income Stortorget	Mean income Möllevången	Mean income Södervärn	Mean income Grönvången	Mean income entire sample	Median income entire sample
1905	4609 <sup>†</sup> N:147	800 N:259	660 N:206	6705 N:101	3765 N:713	802
1920	5616 (1740) N:117	1794 (556) N:176	1415 (439) N:166	17 486 (5419) N:120	6896 (2137) N:579	1000 (310)
1935	3827 (2073) N:103	1849 (1002) N:92	1709 (926) N:81	14 616 (7919) N:93	5603 (3036) N:369	1535 (832)
1950	5561 (1796) N:105	4209 (1359) N:102	3959 (1279) N:93	14 359 (4638) N:93	6913 (2233) N:393	4147 (1339)

<sup>†</sup>: Income in SEK

( ): Mean real income in SEK in 1905s prices, based on price index by Edvinsson and Söderberg (2011)

N: Number of taxpayers in the sample for each district

Significant district differences in income are observed in table 14. The historical research which has emphasized how Möllevången and Södervärn were working-class and low-income districts (Nyzell, 2009) are confirmed in this thesis' empirical results. Grönvången can indeed be described as the money aristocracy area (Häger, 1989, p.424) based on this thesis' findings. The area with the most diverse trend is Stortorget which had significantly higher mean incomes in 1905 but later came to deteriorated. Already by 1920, the area saw a below mean income compared to the entire city, but still above the low-income districts.

One of the more surprising results in table 14 and table 11 is the observation that the mean real income for the entire sample fell from 3036 SEK in 1935 to 2233 SEK in 1950. It is important to note that this negative trend was entirely driven by the oversampled social group 1, and top 10 percent, primarily residing around Grönvången (table 7) which did see a substantial decline,

<sup>13</sup> Knight is an example of someone using their title instead of occupation in the tax records

causing the mean of the overall sample to decline. The mean real income development for the two other social groups and income groups and the three other districts was positive between 1935-1950, demonstrating that the mean overall decline resulted from the dramatic decline among the top 10 percent. To further illustrate how it was the top driving down the mean, the median income for the entire sample is also presented in table 14 as the median due to the numerical size of the low-income earners shows an alternative picture of the income development in the city from this thesis sample. The median for the entire sample demonstrates that the real incomes were rising and not falling 1935-1950, as the mean seems to suggest. The median income demonstrates that the overwhelming majority, in the form of the bottom 50 and middle 40 of income earners and social group 2 and 3, gained from 1920 up until 1950, observed in Tables 11 and 12.

## 4.2 Malmö's Income Inequality Trends 1905-1950

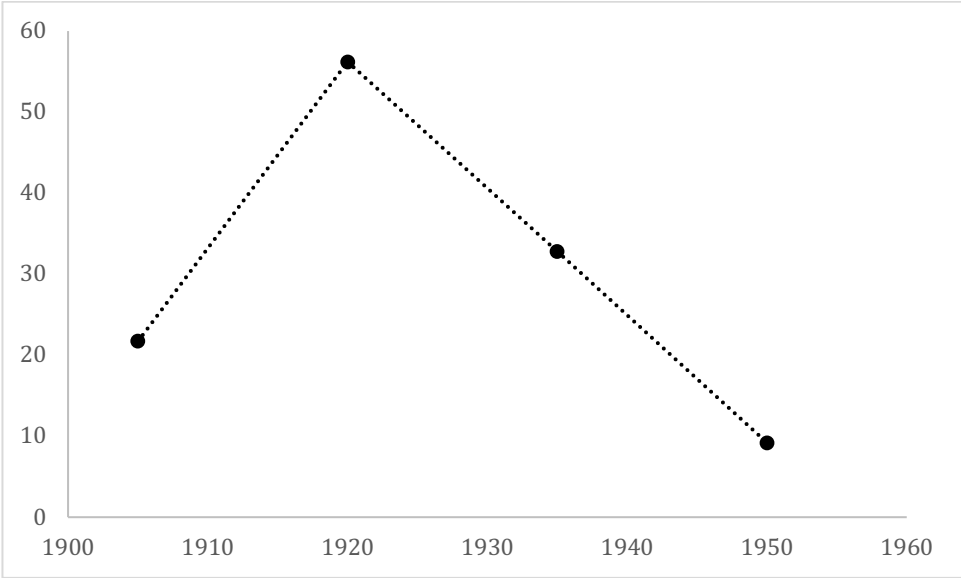


Figure 5: Mean income ratio of top 10 decile divided by bottom 50 deciles

Source: based on data for table 10

Table 15: Income ratios between the different income groups

	1905	1920	1935	1950
Ratio 10/50	21.7	56.2	32.8	9.2
Ratio 40/50	2.59	3.9	3	2.354

Source: Based on data for table 10

Table 15 and figure 5 illustrate the significant changes in the relative standing of different income groups over time. The overall pattern is that of, firstly, increasing inequality 1905-1920, and, secondly, falling inequality 1920-1950. The pattern of an initial rise in inequality during industrialization and later a decline in inequality corresponds with the Kuznets curve. However, the mechanism causing this equalization in the form of a structural shift away from low productive agriculture towards high productive industry suggested by Kuznets (1955), hardly fits as Malmö already had vanishingly low agriculture employment by 1910 (table 1). Thereby Kuznets' empirical observation of a rise and subsequent fall in inequality during the first half of the 20th-century fits but the hypothesis of its causes is less fruitful when understanding an urban environment.

The main driving forces of this decrease are in no way plausible to dissect and pin down precisely with four benchmark years. However, aspects of the data can still generate some ideas about plausible mechanisms causing the changes in inequality. Firstly, observing the increase in inequality between 1905-1920, the massive five times increase to the top's nominal income compared to the doubling in the income of the bottom 50 percent, indicates that the top caused the lion's share of the inequality increase in this sample. It is noteworthy that around a third of the top income earners were merchants, seen in table 15, which might very well have been primary beneficiaries of the rapid price increases on necessities such as food during the first world war. On the other hand, the nominal wage increases for the bottom 50 were unable to keep up with the rising prices. Thereby, social group 3 and bottom 50 percent lost out with a falling real income and relative standing compared to the top.

*Table 16: Female income development within the bottom 50*

	1905	1920	1935	1950
Bottom 50 female	427.3 <sup>†</sup>	685	1271	2579
Bottom 50 overall	470	940	1464	3281
Ratio female to overall bottom income	0.9	0.73	0.87	0.79

<sup>†</sup>: In nominal terms in SEK

Between 1920-1935, a 50 percent nominal income increase to the bottom 50s made up most of the contribution to the decreasing ratio between top 10 and bottom 50, while the drop by 13 percent in the top 10 percent's nominal income also slightly contributed to the equalization (table 10). In explaining the bottom 50 percent increase, the rise to bottom female incomes seems to be one contributing factor. The mean female income in the bottom 50 percent increased from 685SEK in 1920 to 1270SEK in 1935. The female income increases were essential to the bottom 50 in general as women in 1935 constitute 60 percent of the lower-income segments. The rise of low-income female laborers income also pushed up the mean income of the bottom 50 percent upwards. The increase in the low-paying female income can be observed through the narrowing of the mean income for women to the income of the bottom 50 percent overall, from 70 percent in 1920 to 87 percent in 1935. The mechanism causing this process has in previous research been linked to the ongoing process of increased female labor participation overall (Järnek, 1971) and a shift in which sectors women were employed, going from low paid housework to better-paid work in industries and services. The causes of this development are disputed, but two prevalent explanation are, firstly, that new machinery made physical strength in the industry less relevant, secondly, enhanced educational attainment among women (Stanfors, 2007, p.92-94). The changing structure of female employment and its impact on inequality can be seen as something of a Kuznets mechanism for decreasing inequality as it emphasizes structural change.

Table 17: Mean income ratio before and after tax

	1905	1920	1935	1950
10/50	21.7	56.2	32.8	9.2
	(20)	(36.9)	(28.8)	(6.5)
40/50	2.6	3.9	3	2.4
	(2.6)	(2.97)	(3)	(2.2)

() : After tax ratio within brackets

Examining the effect taxation had on the equalization by comparing the mean income ratio between the top 10 to bottom 50, and the ratio between the middle 40 and the bottom 50 before and after-tax in table 17, some notable results emerge. Taxation overall lowers the level of income inequality measured through the income ratio by between 7.8 percent in 1905 to 30 percent by 1950 (table 17). However, the after-tax reduction in inequality can only explain a small part of the equalization between 1920 and 1950; taxation contributed to lower the

differences between income groups, especially between 1905-1920, but the equalization cannot be linked to taxation between 1920-1950 because the level of equalization from taxation hardly changed, seen in table 17. This reinforces that it was market incomes that caused the equalization in the Malmö case, a conclusion also supported by Järnek (1971) and Olsson (1972), and Roine and Waldenströms (2008), who all find that most of the reduction in the top 10 percent occurred before the emergence of the welfare state. The equalization continued until 1980, and then factors such as welfare state expansion could be more prevalent when explaining the equalization in the Swedish case (Esping-Andersen, 1990; Korpi, & Palme, 1998). However, what explains this reduction in market income is still up to debate. Previous literature has emphasized unionization (Bartels, 2019; Bengtsson, Rubolino, & Waldenströms 2020; Collins, & Nimesh, 2019; Gabbuti, 2020; Gómes León & de Jong, 2019), labor market institutions (Gómes León & de Jong, 2019; Lundh, 2004), crises (Piketty, 2020; Roine, & Waldenström, 2008), financial market regulation (Lindert, & Williamson, 2016), increased supply of higher educated workers (Goldin, & Margo, 1992), and increased female worker incomes (Järnek, 1971). To dissect exactly to what extent each of these factors contributed to the leveling, we would need more than just a few datapoints for a couple of Swedish cities. Hopefully future research through further data gathering can dissect the role of these forces impacting the market income which is suggested to have been the main equalizing force during the great leveling in the specific Malmö case.

*Table 18: Income ratio between social groups*

	1905	1920	1935	1950
Ratio 1/3	12.1	33.2	16.5	4.8
Ratio 1/2	3.2	13.4	11.5	2.4
Ratio 2/3	3.3	1.63	1.51	1.97

Source: Based on the data from table 12

The social group ratios reinforce the overall inequality pattern in Malmö, with an initial rise in inequality between 1905-1920 followed by a sharp decline in 1920-1950. The level of inequality is generally lower between social group 1 and 3 than between the top 10 and bottom 50, which is linked to the fact that some middle-income earners were included in social group 3, and that pensioners and spouses to top income earners were included in social group 1.

Overall, the income ratio between social groups still strongly supports the hypothesis that a substantial income leveling occurred within the Malmö sample between 1920-1950.

*Table 19: Income ratio between the districts of city to the mean of the city*

	Stortorget	Möllevången	Södervärn	Grönvången
1905	1.22	0.21	0.175	1.78
1920	0.814	0.26	0.2	2.54
1935	0.68	0.33	0.31	2.61
1950	0.8	0.61	0.57	2.1

Source: Tax data from Malmö city archive

The income ratio between districts outlined in table 19 confirms the previous finding in table 14 that Stortorget experienced a deteriorating standing from an above-average income to a below-average income. This decline preceded the overall equalization from 1920-1950, indicating that the area was affected by changing preferences of the top income earners who no longer wanted to live in the city center.

Södervärn was the poorest district, followed by Möllevången, confirming that they indeed were working-class low-income districts. Grönvången, on the other hand, became richer compared to the city overall up until 1935, indicating that it solidified its position as a top-income district. Between 1935-1950, all districts converged to the mean income of town, indicating that inequality in the form of geographical differences in income were reduced, together with the overall decrease in income inequality between income and social groups, illustrated in Tables 17 and 18.

This thesis empirical results demonstrated that all three inequality dimensions between income-, social groups and districts of town experienced an equalization process 1920-1950 (Table 15, 18-19). The major decline of the top 10 percent and social group 1 in particular demonstrates that this equalization was not just a period of inclusive growth at the bottom but an actual deteriorating standard for the top 10 percent of income earners. The effect of taxation on the other hand is only found to have had a limited role for the equalization process. Instead, other factors impacting the market income, such as changing financial- and labor market regulation, increased unionization and female labor market participation could be relevant factors to research further.



## 5 Conclusion

This thesis has provided more detailed data on the income development in Malmö during *the great leveling* from specific top- and low-income districts. The empirical results identify two distinct phases in the Malmö sample's income development regarding real income and income inequality. The first period, 1905-1920, experienced increasing income inequality, as social group 3 and the bottom 50 percent of income earners in the sample saw a decline in their real income, while social group 1 and the top 10 percent experienced significant real income gains. The second period, 1920-1950, saw the very opposite trend with a rapid decline in inequality, from rising real incomes for the bottom 50 and middle 40 income earners and social groups 2 and 3 (Table 11, 12). Between 1935-1950, the top 10 percent and social group 1s real incomes deteriorated, in line with Piketty's (2020, p.462) observation that the incomes at the very top collapsed during this period. The empirical findings on the Malmö districts' income inequality development are also in line with previous research which has emphasized that Sweden did experience a substantial leveling in incomes between the 1920s to the 1950s (Järnek 1971. Olsson 1972, Gustafsson & Johansson, 2003. Roine & Waldenström, 2008).

This thesis' analysis has found that the leveling was primarily driven by an equalization of market incomes, as taxation only marginally enhanced the leveling post-1920. The market income of low-income female workers is found to have converged to the mean, emphasizing the role of changing gender relations on the labor market as a factor contributing to the overall equalization post-1920, in line with finding by previous city studies by Järnek (1971) and Olsson (1972). Falling real market incomes for the top income earners post-1935 are also a significant driving force for the equalization, in line with Roine and Waldenströms findings (2008). That market incomes for the top income earners fell 1935-1950, indicate that other factors than the direct asset price effects from the great depression and the Kreuger crash caused the reduction. Instead, other factors emphasized in previous literature such as stricter financial market regulation (Lindert, & Williamson, 2016), increased supply of higher educated workers (Margo, & Goldin, 1992) and changing power relations on the labor market (Bartels, 2019; Bengtsson, Rubolino, & Waldenströms, 2020; Collins, & Nimesh, 2019; Gabbuti, 2020; Gómes León, & de Jong, 2019) could have played a part in the top income reduction.

Estimating to what extent certain factors impacted the market income equalization is beyond the scope of this thesis due to the limits of the data. However, this thesis has shown the relevance of conducting further data gathering of tax records as this enables a more detailed analysis of the causes of this great leveling. For example, expanding the approach to compare strategic data gathering in different Swedish cities could provide the basis for cross-city comparisons, enabling an analysis of how changes in factors such as unionization, supply of higher educated workers, and social provision impacted income inequality within Sweden. Similar approaches of comparative cross-city analysis could be conducted by comparing Malmö to other industrial medium-sized cities throughout western Europe, such as Lille, Dortmund, Århus, Leicester, and Genoa during the early- and mid-20th century.

The research field of income inequality has not yet provided a complete explanation for the great leveling. However, by conducting further primary data gathering from tax records as this thesis has done, new insights can be gained. This thesis has especially stressed the role of factors impacting the market income as imperative for the Malmö samples equalization, possible to dissect thanks to the detailed individual microdata compiled from the Swedish tax records.

# References

## Literature

- Aaberg, R., Atkinson, A. B., & Modalsli, J. (2020). Estimating Long-Run Income Inequality from Mixed Tabular Data: Empirical Evidence from Norway 1875-2017. *Journal of Public Economics*, vol. 187, Available Online: <https://www.sciencedirect-com.ludwig.lub.lu.se/science/article/pii/S0047272720300608?via%3Dihub>
- Acemoglu, D., Johnson S., & Robinson, J. (2004). Institutions as the Fundamental Cause of Long-Run Growth. *NBER*, Working Paper 10481, Available Online: [https://www.nber.org/system/files/working\\_papers/w10481/w10481.pdf](https://www.nber.org/system/files/working_papers/w10481/w10481.pdf)
- Apel, M. (1994). An Expenditure-Based Study of Tax Evasion in Sweden, Tax Reform Evaluation Report, *National Institute of Economic Research*, vol. 1
- Atkinson, A.B. (2007). Measuring Top Incomes: Methodological Issues, in Atkinson, A.B & Piketty, T. (eds), *Top Incomes over the Twentieth Century: A Contrast Between European and English-Speaking Countries*. Oxford: Oxford University Press, pp. 18-42
- Atkinson, A.B. (2015). *Inequality – what can be done?*, Cambridge, Massachusetts: Harvard University press
- Atkinson, A.B. & Bourguignon, F. (2015). Income Distribution Today, in Atkinson, A. & Bourguignon, F (eds), *Handbook of Income Distribution*, vol. 2, pp. 17-64, Available Online: <https://www.sciencedirect-com.ludwig.lub.lu.se/handbook/handbook-of-income-distribution/vol/2>
- Atkinson, A.B. & Sogaard, J, E. (2016). The Long-Run History of Income Inequality in Denmark. *The Scandinavian Journal of Economics*, vol. 118, no. 2, pp. 264–291, Available Online: <https://eds.b.ebscohost.com/eds/pdfviewer/pdfviewer?vid=9&sid=b0f4ddf7-5193-4291-84ca-1841c7afbaa5%40sessionmgr103>
- Back, P.E. (1989). Från kommunalreform till världskrig, in Bjurling, O (ed.), *Malmö stads historia – femte delen (1914-1939)*, Arlov: Berlings, pp. 115-174
- Bartels, C. (2019). Top Income in Germany, 1871-2014, *The Journal of Economic History*, vol. 79, no. 3, pp. 669-707, Available Online: <https://www-cambridge-org.ludwig.lub.lu.se/core/journals/journal-of-economic-history/article/top-incomes-in-germany-18712014/C74EAC8F800F7A17E4691419F143757D>
- Bengtsson, E., Missiaia, A., Olsson, M., & Svensson P. (2018). Wealth Inequality in Sweden, 1750–1900. *The Economic History Review*, vol. 71, no. 3, pp. 772–794, Available Online: <https://eds-b.ebscohost-com.ludwig.lub.lu.se/eds/pdfviewer/pdfviewer?vid=4&sid=b0f4ddf7-5193-4291-84ca-1841c7afbaa5%40sessionmgr103>
- Bengtsson, E. (2020). *Världens jämlikaste land?*, Lund: Arkiv förlag.

- Bengtsson, E., Rubolino, E., & Waldenström, D. (2020). What Determines the Capital Share over the Long Run of History?, *IZA DP*, no. 13199, Available Online: <https://www.iza.org/publications/dp/13199/what-determines-the-capital-share-over-the-long-run-of-history>
- Bengtsson, E. (2021). Estimating the Incomes and Living Standards of Non-Income Tax Payers: Sweden, 1870–1950, appendix in *The Swedish transition to equality: income inequality with new micro data, 1862–1970, unpublished paper*
- Bentzel, R. (1953). *Inkomstfördelningen i Sverige*, Uppsala: Almqvist & Wiksell
- Bergh, A. (2011). The Rise, Fall and Revival of the Swedish Welfare State: What are the Policy Lessons from Sweden?, *IFN Working Paper*, no. 873, Available Online: <https://www.ifn.se/wfiles/wp/wp873.pdf>
- Berman, E., Bound, J., & Machin, S. (1997). Implications of Skill-Biased Technological Change: International Evidence. *NBER Working paper*, no. 6166, Available Online: [https://www.nber.org/system/files/working\\_papers/w6166/w6166.pdf](https://www.nber.org/system/files/working_papers/w6166/w6166.pdf)
- Bjurling, O. (1985A). Inte blott av bröd, in Bjurling, O (ed.), *Malmö stads historia – fjärde delen (1870-1914)*, Arlöv: Berlings, pp. 12-134
- Bjurling, O. (1985B). Stad i utveckling, in Bjurling, O (ed.), *Malmö stads historia – fjärde delen (1870-1914)*, Arlöv: Berlings, pp. 137-394
- Bjurling, O. (1989). Kultur och okultur i krig och fred, in Bjurling, O (ed.), *Malmö stads historia – femte delen (1914-1939)*, Arlöv: Berlings, pp. 13-111
- Björklund, A. (1998). Income Distribution in Sweden: What is the Achievement of the Welfare State?, *Swedish Economic Policy Review*, vol, 5, Available Online: <https://www.government.se/49b741/contentassets/aaf6322cd63f4b1089449ecff1dad11f/anders-bjorklund-income-distribution-in-sweden-what-is-the-achievement-of-the-welfare-state>
- Casson, C., Christ, G., Godden, C., Lee, J.S., Roddy, S., Rössner, P.R., & Smith, E. (2020) What do we analyse – Typology of sources, in (red), Christ, G. & Rössner P.R. *History and Economic Life: A Student's Guide to Approaching Economic and Social History Sources*, London and New York: Routledge Taylor & Francis Group, Available Online: <https://ebookcentral.proquest.com/lib/lund/detail.action?docID=6124711>
- Collins, W. & Niemesh, G.T. (2019). Unions and the Great Compression of Wage Inequality in the US at Mid-Century: Evidence from Local Labour Markets, *The Economic History Review*, vol. 72, no. 2, pp. 691-715, Available Online: <https://eds-b-ebshost-com.ludwig.lub.lu.se/eds/pdfviewer/pdfviewer?vid=29&sid=a068ccc2-72a8-4b3b-8e44-7a6a505f4e6a%40sessionmgr103>
- Edgren, L. (2021). *Stadens sociala ordning: Stånd och Klass i Malmö Under Sjuttonhundratalet*. *Studia historica lundensia*, vol. 34. Lunds universitet: Lund
- Edvinsson, R. & Söderberg, J. (2011). A Consumer Price Index for Sweden 1290-2008. *Review of Income and Wealth*, vol. 57, n. 2, pp. 270-292, Available Online: <http://www.roiw.org/2011/n2/270-292.pdf>

- Enflo, K., Henning, M. & Schön, L. (2014). Swedish Regional GDP 1855-2000. Estimations and general trends in the Swedish Regional System, in Hansen, C. & Wolcott, S (eds), *Research in Economic History*, vol. 30, Emerald Group Publishing Limited, pp.47-89, Available Online: <https://lup.lub.lu.se/search/publication/29101808-1377-4a2c-aaec-d56718ba7e4c>
- Esping-Andersen, G. (1991). *The three worlds of welfare capitalism*. Princeton: Princeton University press
- Fisher-Post, M. (2020). "Examining the Great Leveling: New Evidence on Midcentury American Inequality", *unpublished paper*
- Fridh, G. & Dahlberg, H. (1962). Kommunernas finanser, in Palme, S.U (ed.), *Hundra år under kommunalförfattningarna 1862-1962*, Stockholm: Svenska Landskommunernas Förbund, Svenska Landstingsförbundet and Svenska Stadsförbundet, pp, 449-489
- Fridlitzius, G. (1985). Från spannmålstunnor till smördrittlar, in Bjurling, O (ed.), *Malmö stads historia – fjärde delen (1870-1914)*, Arlöv: Berlings, pp. 397-522
- Gabbuti, G. (2020). Labor shares and inequality: insights from Italian economic history, 1895-1970, *European Review of Economic History*, vol. 25, no. 2, pp. 355–378, Available Online: <https://academic-oup-com.ludwig.lub.lu.se/ereh/article/25/2/355/5891092>
- Goldin, C.D. and R. A. Margo. (1992). The Great Compression: The Wage Structure in the United States at mid-century, *The Quarterly Journal of Economics*, vol. 107, n. 1, pp. 1-34, Available Online: [https://www-jstor-org.ludwig.lub.lu.se/stable/2118322?seq=1#metadata\\_info\\_tab\\_contents](https://www-jstor-org.ludwig.lub.lu.se/stable/2118322?seq=1#metadata_info_tab_contents)
- Gómes, L.M. & de Jong, H. (2019). Inequality in Turbulent Times: Income Distribution in Germany and Britain, 1900–50, *The Economic History Review*, vol. 72, no.3, pp. 1073-1098, Available Online: <https://eds-b-ebshost-com.ludwig.lub.lu.se/eds/pdfviewer/pdfviewer?vid=23&sid=a068ccc2-72a8-4b3b-8e44-7a6a505f4e6a%40sessionmgr103>
- Gordon, R.J. (2016), *The Rise and Fall of American Growth: The U.S. Standard of Living since the Civil War*, Princeton: Princeton University Press.
- Gustafsson, B. & Johansson, M. (2003). Steps toward Equality: How and Why Income Inequality in urban Sweden changed during the period 1925-1958, *European Review of Economic History*, vol. 7, pp. 191-211, Available Online: [https://www-jstor-org.ludwig.lub.lu.se/stable/41363223#metadata\\_info\\_tab\\_contents](https://www-jstor-org.ludwig.lub.lu.se/stable/41363223#metadata_info_tab_contents)
- Haldorson, L. (2016). *Sociala grupperingar för nationellt och internationellt bruk*, Stockholm: Statistiska centralbyrån, Available Online: <https://www.scb.se/contentassets/b1ae4493ffd1404987a4d32cbf213ae5/sociala-grupperingar-for-nationellt-och-internationellt-bruk.pdf>
- Häger, B.Å. (1989). I skuggan av världskrig och världskris, in Bjurling, O (eds), *Malmö stads historia – femte delen (1914-1939)*, Arlöv: Berlings, pp. 245-461
- Jaworski, T. & Niemesh, G, T. (2018). Revisiting the Great Compression: Wage inequality in the United States, 1940–1960, *Historical Methods: A Journal of Quantitative and*

*Interdisciplinary History*, vol. 51, no.1, pp. 39-48, Available Online: <https://eds-a-ebsohost-com.ludwig.lub.lu.se/eds/pdfviewer/pdfviewer?vid=4&sid=22c3a7a1-a525-4d23-91f2-041e6e5c6d8b%40pdc-v-sessmgr01>

Jonung, L. (2011). Lärdomar från den svenska finanskrisen, *I Særtrykk til NOU 2011: 1: Notater utarbeidet til finanskriseutvalgets arbeid*, pp. 102-120, Available Online: [https://portal.research.lu.se/portal/files/78487274/L\\_rdomar\\_fr\\_n...\\_sid\\_102\\_120.pdf](https://portal.research.lu.se/portal/files/78487274/L_rdomar_fr_n..._sid_102_120.pdf)

Järnek, M. (1971). *Studier i hushållens inkomsterförhållanden 1925–1964*. Lund: Skrifter utgivna av Ekonomisk Historiska föreningen i Lund.

Keister, L. (2014). The One Percent, *Annual Review of Sociology*, vol. 40, pp. 347–367, Available Online: <https://www-annualreviews-org.ludwig.lub.lu.se/doi/10.1146/annurev-soc-070513-075314>

Kjellberg, A. (2017). Kollektivavtalens täckningsgrad samt organisationsgraden hos arbetsgivarförbund och fackförbund. (1 uppl.). *Studies in Social Policy, Industrial Relations, Working Life and Mobility*. Research Reports, vol. 2017, nr. 1. Lund: Department of Sociology, Lund University, Available Online: [https://portal.research.lu.se/portal/sv/publications/kollektivavtalens-tackningsgrad-samt-organisationsgraden-hos-arbetsgivarfoerbund-och-fackfoerbund\(6355bcfd-7d47-44c4-87bb-f2ee2329b9df\).html](https://portal.research.lu.se/portal/sv/publications/kollektivavtalens-tackningsgrad-samt-organisationsgraden-hos-arbetsgivarfoerbund-och-fackfoerbund(6355bcfd-7d47-44c4-87bb-f2ee2329b9df).html)

Korpi, W. & Shalev, M. (1980). Strikes, Power, and Politics in the Western Nations, 1900-1976. *Political Power and Social Theory*, vol. 1, pp.301-334, Available Online: [https://pluto.msc.huji.ac.il/~mshalev/Papers/Korpi-Shalev\\_StrikesPowerPolitics.pdf](https://pluto.msc.huji.ac.il/~mshalev/Papers/Korpi-Shalev_StrikesPowerPolitics.pdf)

Korpi, W. & Palme, J. (1998). The Paradox of Redistribution and Strategies of Equality: Welfare State Institutions, Inequality, and Poverty in the Western Countries. *American Sociological Review*, vol. 63, n. 5, pp. 661-687, Available Online: <https://eds-b-ebsohost-com.ludwig.lub.lu.se/eds/pdfviewer/pdfviewer?vid=13&sid=a068ccc2-72a8-4b3b-8e44-7a6a505f4e6a%40sessionmgr103>

Kuznets, S. (1955). Economic Growth and Income Inequality, *The American Economic Review*, vol. 45, n. 1, pp. 1-28, Available Online: <https://eds-b-ebsohost-com.ludwig.lub.lu.se/eds/pdfviewer/pdfviewer?vid=10&sid=a068ccc2-72a8-4b3b-8e44-7a6a505f4e6a%40sessionmgr103>

Kuznets, S. (1973). Modern Economic Growth: Findings and Reflections, *The American Economic Review*, vol. 63, no. 3, pp. 247-258, Available Online: <https://eds-b-ebsohost-com.ludwig.lub.lu.se/eds/pdfviewer/pdfviewer?vid=4&sid=a068ccc2-72a8-4b3b-8e44-7a6a505f4e6a%40sessionmgr103>

Larsson, S. (2005). Globalisation, Inequality and Swedish catch up in the late nineteenth century – Williamson's real wage comparisons under scrutiny, *Göteborg paper in Economic History*, no. 2, Available Online: <https://ideas.repec.org/p/hhs/gunhis/0002.html>

Lindert, P.H. & Williamson, J. G. 2016. *Unequal Gains: American Growth and Inequality since 1700*, Princeton: Princeton University Press.

- Lindgren, E. Pettersson-Lidbom, P. & Tyrefors, B. (2017) The Political Economics of Growth, Labor Control and Coercion: Evidence from a Suffrage Reform. *IFN Working Paper*. No. 1172, Available Online: <https://www.ifn.se/wfiles/wp/wp1172.pdf>
- Lundh, C. (2004). Institutional Change in the Swedish Labour Market, in Lundh, C. Olofsson, J. Schön, L. & Svensson, L. (eds), *Wage Formation, Labour Market Institutions and Economic Transformation in Sweden 1860-2000*, Lund Studies in Economic History, vol. 32
- Löfqvist, R. 2001. *Tax Avoidance, Dividend Signaling and Shareholder Taxation in an Open Economy*. Department of Economics, Uppsala University, Economic Studies, vol. 55
- Malmer, H. & Persson, A. (1994). Skattereformens effekter på skattesystemets driftskostnader, skatteplanering och skattefusk, In Malmer, H., Persson, A., & Tengblad, Å. (Eds), *Århundradets skattereform*. Stockholm: Fritzes
- Malmsten, B. (1989). Från världskrig till världskrig, in Bjurling, O (ed.), *Malmö stads historia – femte delen (1914-1939)*, Arlöv: Berlings, pp.175-241
- Malmsten, B. (1994) Den kommunala förvaltningen i Malmö, in Bjurling, O (ed.), *Malmö stads historia – sjunde delen (1939-1990)*, Arlöv: Berlings, pp. 203-355
- Mason, J.W. (2014). Piketty and the Money View, Available online: <https://jwmason.org/slackwire/piketty-and-money-view/>
- Molinder, J., Karlsson, T., & Enflo, K. (2021). More Power to the People: Electricity Adoption, Technological Change, and Labor Conflict, *The Journal of Economic History*, pp.1-32, Available Online: <https://www.cambridge.org/core/journals/journal-of-economic-history/article/more-power-to-the-people-electricity-adoption-technological-change-and-labor-conflict/63B6909C4CEC0038680E0802444862BB>
- North, D. C. Wallis, J.J. & Weingast, B. (2006) A Conceptual Framework for Interpreting Recorded Human History, *Mercatus Center, George Mason University*, vol. 4, Working Paper 75, Available Online: [https://www.nber.org/system/files/working\\_papers/w12795/w12795.pdf](https://www.nber.org/system/files/working_papers/w12795/w12795.pdf)
- Nyzell, S. (2009). *Striden ägde rum i Malmö – Møllevångskravallerna 1926. En studie av politiskt våld i mellankrigstidens Sverige*, Skrifter med historiska perspektiv, vol. 10, Malmö: Holmbergs, Available Online: <https://muep.mau.se/bitstream/handle/2043/10845/stefans%20bok.pdf?sequence=1&isAllowed=y>
- Ohlsson, R. (1994). I kranens tidevarv, in Bjurling, O (ed.), *Malmö stads historia – sjunde delen (1939-1990)*, Arlöv: Berlings, pp. 13-151
- Olsson, K. (1972) *Hushållsinkomst inkomstfördelning och försörjningsbörda – en undersökning av vissa yrkesgrupper i Göteborg 1919-1960*, Göteborg: Erlanders boktryckeri aktiebolag
- Piketty, T. (2003). Income Inequality in France, 1901–1998, *Journal of Political Economy*, vol. 111, no. 5, pp. 1004-1042, Available Online: <https://eds-b-ebshost->

com.ludwig.lub.lu.se/eds/pdfviewer/pdfviewer?vid=9&sid=f5a33cbc-2347-4762-ac2b-232502906be2%40sessionmgr102

- Piketty, T. & Saez, E. (2003). Income Inequality in the United States 1913–1998, *The Quarterly Journal of Economics*, vol. 118, no. 1, pp.1-41, Available Online: <https://eds-b-ebscohost-com.ludwig.lub.lu.se/eds/pdfviewer/pdfviewer?vid=6&sid=f5a33cbc-2347-4762-ac2b-232502906be2%40sessionmgr102>
- Piketty, T. (2014). *Kapitalet i det tjugoförsta århundradet*. Stockholm. Karneval förlag
- Piketty, T. (2020). *Kapitalet och Ideologin*. Stockholm. Mondial förlag.
- Prado, S. (2010). Nominal and real wages of manufacturing workers, 1860–2007, in Edvinsson, R., Waldenström, D., and Jacobson, T. (eds), *Exchange Rates, Prices, and Wages, 1277-2008*, Stockholm: Ekerlids förlag & Sveriges Riksbank, pp. 479-527
- Roine, J. & Waldenström, D. (2008). 'The Evolution of Top Incomes in an Egalitarian Society: Sweden, 1903–2004', *Journal of Public Economics*, vol. 92, no. 1-2, pp. 366–87, Available Online: <https://www-sciencedirect-com.ludwig.lub.lu.se/science/article/pii/S0047272707001041?via%3Dihub>
- Roine, J. & Waldenström, D. (2010). Top Incomes in Sweden over the Twentieth Century, in Anthony A.B. & Thomas, P (eds), *Top Incomes in Global Perspective*, Oxford: Oxford University Press, pp. 299–370
- Rothstein, B. (2016). Den svenska statsförvaltningens omvandling från försumpning till legitimitet, in Rothstein, B (eds), *Politik som organisation – Förvaltningspolitikens grundproblem*. pp. 87- 104, Lund: Studentlitteratur
- Scheidel, W. (2017). *The Great Leveler: Violence and the History of Inequality from the Stone Age to the Twenty-First Century*, Princeton: Princeton University Press
- Schön, L. (2010). *Sweden's road to modernity – An Economic History*, Lund: Studentlitteratur
- Schön, L. & Krantz, O. (2015). New Swedish Historical National Accounts since the 16<sup>th</sup> Century in Constant and Current Prices. *Lund Papers in Economic History*, vol.140, Available Online: [https://www.ekh.lu.se/media/ekh/legs/forskning/database/shna1300-2010/publications\\_shna/lup140.pdf](https://www.ekh.lu.se/media/ekh/legs/forskning/database/shna1300-2010/publications_shna/lup140.pdf)
- Stanfors, M. (2007). *Mellan arbete och familj – Ett dilemma för kvinnor i 1900-talets Sverige*, Stockholm: SNS förlag
- Stenberg, S.Å. (1999). Arbetslöshet och fattigdom i Sverige från 1920-tal till 1990-tal: En kombinerad makro- och mikroanalys, *Sociologisk Forskning*, vol. 36, Supplement: Valfärdsstat i brytningstid, pp. 172-191, Available Online: [https://www-jstor-org.ludwig.lub.lu.se/stable/20850395?seq=1#metadata\\_info\\_tab\\_contents](https://www-jstor-org.ludwig.lub.lu.se/stable/20850395?seq=1#metadata_info_tab_contents)
- UKÄ. (2017). Åren 1900-2000. Available online: <https://www.uka.se/fakta-om-hogskolan/den-svenska-hogskolans-historia/aren-1900-2000.html>
- Williamson, J.G. Latin American Inequality: Colonial Origins, Commodity Booms or a Missed Twentieth-Century Leveling?, *Journal of Human Development and*



*Capabilities*, vol. 15, no. 3, pp. 323-341, Available Online: <https://www-tandfonline-com.ludwig.lub.lu.se/doi/pdf/10.1080/19452829.2015.1044821>

## Primary Sources

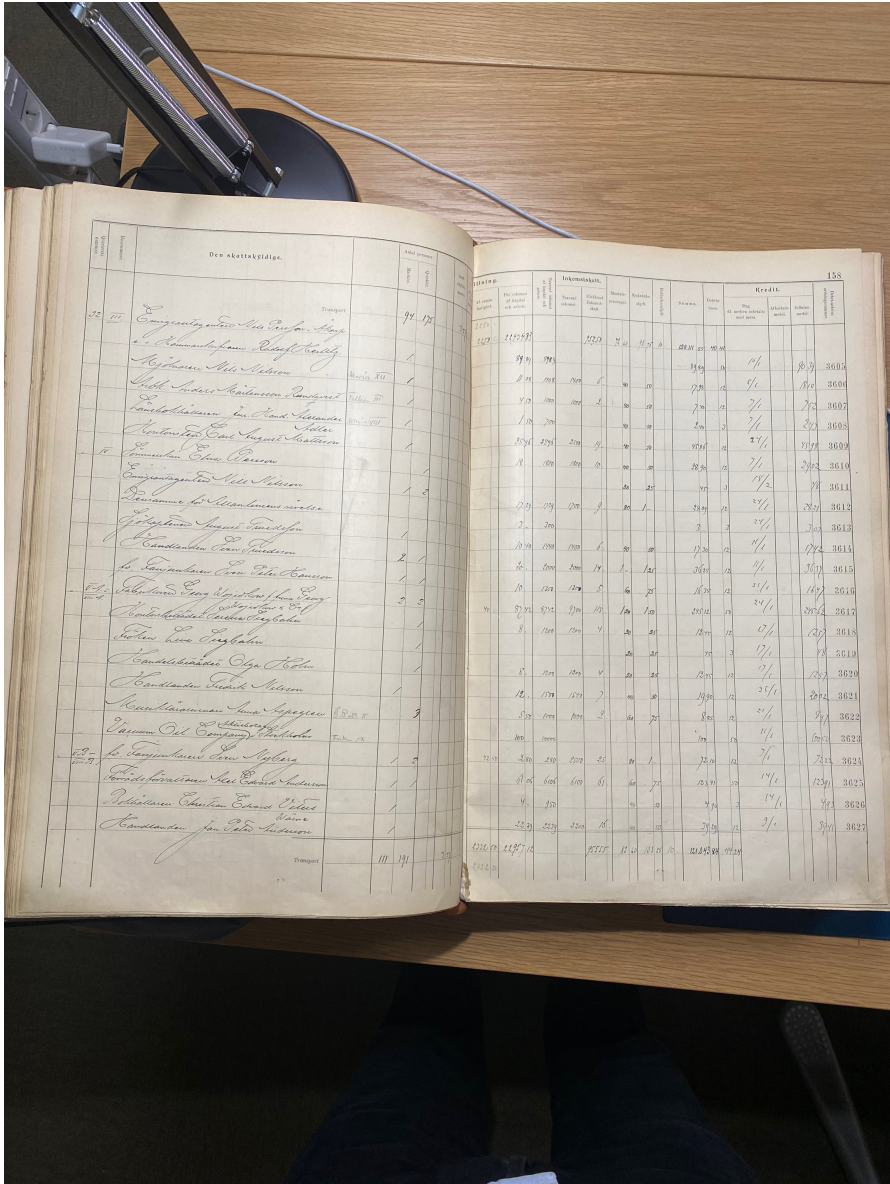
Riksarkivet. (2021A). Kronouppbördsböcker (inkomst- och taxeringslängder) 1862-1946: Uppbördsverket i Malmö 1, Available Online: <https://sok.riksarkivet.se/nad?sokord=SE%2fMSA%2f00999&postid=Arkis+ba0aa7f8-e311-457c-a4e2-4a2a56c09bdf&prependUrl=%2fnad&vol=n&s=Balder>

Riksarkivet. (2021B). Kronouppbördsböcker (inkomst- och taxeringslängder) 1947-1966: Uppbördsverket i Malmö 2, Available Online: <https://sok.riksarkivet.se/nad?Sokord=Uppb%3%b6rdsverket+i+Malm%c3%b6&EndastDigitaliserat=false&BegransaPaTitelEllerNamn=false&lk=Ladda+kategorier&AvanceradSok=False&typAvLista=Standard&page=2&postid=Arkis+afbc88d9-8f9e-4000-bbf8-8c4f438eefe6&tab=post&FacettState=undefined%3ac%7c&prependUrl=%2fnad&vol=n&s=Balder>

Riksarkivet. (2021C). Församlingsböcker 1906-1913: Kyrkoarkiv: Malmö S:t Johannes kyrkoarkiv. Available Online: <https://sok.riksarkivet.se/kyrkoarkiv?Arkivsok=malm%c3%b6&Lan=0&PageSize=100&Arkiv=SE%2fMSA%2f00617&tab=serie&Serie=0>

Riksarkivet. (2021D). Församlingsböcker 1913-1922: Kyrkoarkiv: Malmö S:t Johannes kyrkoarkiv. Available Online: <https://sok.riksarkivet.se/kyrkoarkiv?Arkivsok=malm%c3%b6&Lan=0&PageSize=100&Arkiv=SE%2fMSA%2f00617&tab=serie&Serie=0>

# Appendix A: Structure of the Malmö Tax Records



Note: Image of the Tax Books in 1905

## Appendix B: Estimating Incomes Based on Municipal Taxes for 1935 and 1950

As the tax records in 1935 (1936) and 1950 (1951) does not show the total income, only taxes, the taxes are multiplied to obtain a total income estimate.

### 1935

The total income in 1935 is based on estimating the tax rate in 1931, as this is the last year which contains both income and municipal taxes. From the 1931 record one can see that the municipal taxes in Malmö are 1 percent out of the total taxable income. Therefore, all municipal taxes are multiplied with a hundred to start with for 1935, an assumption which is highly likely due to the minimal changes in municipal taxation between 1931 and 1935 in Sweden overall (Fridh & Dalhberg 1962 p.462)

However, for low-income groups especially the once with taxes below 12 SEK the taxable income is far from the total income which is registered separately in 1931s tax records. For those who paid between 9 and 12 SEK in taxes, the total taxable income is overall 75 percent of the total income, due to different tax-deductions, especially “ortsavdrag”. Therefore, their municipal taxes are multiplied 150 times to get the total income.

Overall, the ones that paid between 3 and 9 SEK in municipal taxes, only declared 50 percent of their total income as taxable, due to the very same tax-deductions. Therefore, their municipal taxes are multiplied by 200 times to get the total income.

Overall, the ones that paid below 3 SEK in municipal taxes, only declared 25 percent of their total income as taxable, due to the very same tax-deductions. Therefore, their municipal taxes are multiplied 400 times to get the total income.

### 1950

The tax code is much more straight forward by 1951. By then most people paid 8 percent in tax and therefore everyone's sum of tax is estimated by the x sum of municipal tax to /0.08 to obtain total income. To control that 8 percent was paid across the board, the 1948 tax records, which contains both total income and municipal tax, is utilized.

# Appendix C: Samples of Districts and Quarters

## **Quarters in Old City (around Stortorget)**

Quarter no.30 Squalperup

Quarter no.31 Mercurius

Quarter no.32 Jörgen Kock

Quarter no.33 Skepparen

## **Quarters in Södervärn**

Quarter no.1 Abel

## **Quarters in Möllevången**

Quarter no.5 Fanan

Quarter no.6 Gillet

Quarter no. 7 Hagen

## **Quarters in Grönvången**

Quarter. Grönvången

Quarter. Mariatorp

Quarter. Milano

Quarter. Neapel

# Appendix D: Structure of the Church Records

*No 5 Janan N: I 1800-1800*

1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		23		24	
Tory, ämbetet, verk och handlingar m. m. under öfriga nämnda årtal.		Född		Född		Född		Född		Född		Född		Född		Född		Född		Född		Född		Född		Född		Född		Född		Född		Född		Född		Född		Född		Född		Född			
<i>Åker, Johan Sigfrid</i>		<i>82 2/3</i>		<i>Cl.</i>		<i>1807</i>		<i>Pöls</i>		<i>26/10</i>																																					
<i>K. Hilda Sigfridsdotter</i>		<i>82 2/3</i>		<i>sten</i>		<i>1</i>																																									
<i>J. Gunnar Sigfrid</i>		<i>83 2/3</i>		<i>Pöls</i>		<i>1</i>																																									
<i>Hansen, J. O. O. O.</i>		<i>77 2/3</i>		<i>Esrange</i>		<i>1807</i>		<i>St. Pauli</i>		<i>26/10</i>																																					
<i>K. Svaning Waldfrid</i>		<i>82 2/3</i>		<i>Anderslof</i>		<i>1807</i>																																									
<i>J. Svaning Fleming</i>		<i>85 2/3</i>		<i>St. Pauli</i>		<i>1807</i>																																									
<i>Paulsen, Johan Olaf Olsen</i>		<i>66 2/3</i>		<i>St. Pauli</i>		<i>1807</i>		<i>Pauli</i>		<i>26/10</i>																																					
<i>K. Karsten Nilsson</i>		<i>65 2/3</i>		<i>St. Pauli</i>		<i>1807</i>																																									
<i>Carlsberg, Fredrik August</i>		<i>77 2/3</i>		<i>St. Pauli</i>		<i>1807</i>		<i>Pöls</i>		<i>26/10</i>																																					
<i>K. Mathias Karsten Nilsson</i>		<i>83 2/3</i>		<i>St. Pauli</i>		<i>1807</i>																																									
<i>K. J. J. Paulsen</i>		<i>86 2/3</i>		<i>Pöls</i>		<i>1807</i>																																									

Note: Picture of the church books in 1905

## Appendix E: Estimating Income Decile Mean Income Using the Income Structure of This Own Thesis Sample

*Mean nominal<sup>†</sup> gross income of top 10, middle 40 and bottom 50<sup>†</sup> 1905, 1920, 1935 and 1950 (including estimate income for the non-taxpayer from church books), utilizing the sample's own shares instead of Järnek's (1971)*

	Mean income 1905	Mean income 1920	Mean income 1935	Mean income in 1950
Top 10 percent	14470 N:71	44900 N:58	41143 N:37	31919 N:41
Middle 40	1642 N:284	2478 N:231	2344 N:148	6214 N:163
Bottom 50	471 N:356	448 N:289	1102 N:185	2420 N:204
All 100	2453 N:711	5720 N:578	5603 N:370	6913 N:408

†: Value in SEK

*Mean real<sup>†</sup> gross income of top 10, middle 40 and bottom 50 1905, 1920, 1935 and 1950 (including estimate income for the non-taxpayer from church books), utilizing the sample's own shares instead of Järnek's (1971)*

	Mean real income 1905	Mean real income 1920	Mean real income 1935	Mean real income 1950
Top 10 percent	14470	13914	22291	10309
Middle 40	1642	768	1270	2007
Bottom 50	471	139	597	782
All 100	2453	1773	3036	2233

†: Real income, in constant 1905 prices, in SEK from Edvinsson and Söderberg (2011)

Ratios based on own share estimate

	1905	1920	1935	1950
10/50	30.7	100.2	37.3	13.2
40/50	3.5	5.5	2.1	2.6

## Appendix F: Mean Nominal Gross Income of Different Income Deciles in 1905, 1920, 1935 and 1950, Not Including Non-Taxpayers

	Mean income 1905 †	Mean income 1920	Mean income1935	Mean income 1950
Top 10 percent	13 826 (n98)	55 069 (46)	47885 (31)	30066,7 (45)
Middle 40	2000 (109)	4108 (89)	4238 (36)	7725,8 (64)
Bottom 50	916 (260)	1050 (338)	996 (321)	3281 (299)
Ratio between top 10 and bottom 50	15,093	52,45	48,07	9,16

†: Nominal value in SEK

n: Numbers of observations

## Appendix G: Mean Nominal Income for the Three Social Groups

Social group	Mean real† income 1905	Mean real income 1920	Mean real income 1935	Mean real income 1950
1	10775 N:110	43560 N:56	26657 57	20443 N:49
2	3405 N:75	3261 N:61	2311 60	8482 N:63
3	707 N:506	1314 N:403	1611 255	4254 N:268

†: In constant 1905 prices in SEK based on the price index by Edvinsson and Söderberg (2011)

N: number of observations



# Appendix H: Top Income Earners 1920, 1935 and 1950

## Top income earners in the sample 1920

<i>Title</i>	<i>First name</i>	<i>Surname</i>	<i>Income</i>	<i>Sum of tax</i>	<i>District</i>
<i>Merchant</i>	Nils	Nicklen	404 280	71073	Grönvången
<i>Director</i>	E Gottfried	Haim	272 880	39480	Grönvången
<i>Director</i>	Herman	Kramer	147 990	19039	Stortorget
<i>Merchant</i>	Ernst Lorentz	Borgström	132 690	15147	Grönvången
<i>Widow</i>	Ella	Larsson	110 530	14765	Grönvången
<i>Lawyer</i>	Carl Valdemar	Håkansson	105 160	11895	Grönvången
<i>Director</i>	Jens Charles	Hansen	103 650	9696	Grönvången
<i>Director</i>	Gustaf Fredrik	Malmström	98 910	9425	Stortorget
<i>Director</i>	Rieland John	Haim	96 490	8020	Grönvången
<i>Director</i>	Jens Edvard	Kock	81 740	8165	Grönvången
<i>Merchant</i>	Gustaf Fredrik	Fougetedt	80 600	7782	Grönvången
<i>Wife</i>	Sigrid Ester	Malmström	80 310	10595	Grönvången
<i>Lawyer</i>	Olof Leopold	Nordenstedt	77 890	6874	Grönvången
<i>Director</i>	Carl Axel	Wahlgren	71 470	6970	Grönvången
<i>Bank Director</i>	Josef Albert	Lejonflykt	57 720	4399	Stortorget
<i>Manufacturer</i>	Philipp	Zadig	48 320	5001	Grönvången
<i>Director</i>	Heinrich	Hartz	38 800	2048	Grönvången
<i>Engineer</i>	Gustaf	Valley	38 190	3465	Grönvången
<i>Merchant</i>	Johan	Wittsteen	36 580	2325	Möllevången
<i>Wine master</i>	Nils	Jönsson	34 060	2415	Stortorget
<i>Doctor</i>	Johan	Holmström	33 930	241	Stortorget
<i>Director</i>	Harald Malte	Malm	32 770	2498	Grönvången
<i>Engineer</i>	Ivan Otto Adolf	Wendel	28 790	1865	Grönvången
<i>Merchant</i>	Lars Gustaf	Kruse	27230	1952	Grönvången
<i>Merchant</i>	Johan Fredrik	Norman	24 940	1639	Stortorget
<i>Finans director</i>	Ragnar Gabriel	Olsson	23 020	1537	Grönvången
<i>Merchant</i>	Egon Gustaf	Netell	22 200	1261	Grönvången
<i>Merchant</i>	Adolf Theodor	Faxe	17 720	117	Grönvången
<i>Director</i>	Elis Hugo	Sjöberg	16 230	1205	Grönvången
<i>Bookkeeper</i>	Carl	Nielsen	15 030	810	Stortorget
<i>Director</i>	Bror Emil	Nilsson	14 100	719,05	Stortorget
<i>Director</i>	Carl H	Gerner	13 860	1102	Grönvången
<i>Lawyer</i>	Sven	Ekedahl	12 810	620	Grönvången
<i>Merchant</i>	Josef Jaeol	Kamras	12 810	1417	Stortorget
<i>Widow</i>	Hanna Martina	Malmeström	12 540	485	Grönvången

<i>Wife</i>	Anna	Kock	11 930	1880	Grönvången
<i>Merchant</i>	Gerda	Andersson	11 420	574	Södervärn
<i>Engineer</i>	Johan August	Holmen	11 260	515	Grönvången
<i>Sea captain</i>	Edvard	Jonsson	10 550	854	Grönvången

### Top income earners in the sample 1935

<i>Title</i>	<i>First name</i>	<i>Surname</i>	<i>Income</i>	<i>Tax sum</i>	<i>District</i>
<i>Consul</i>	Olof Ragnar	Hedberg	156430	41970,06	Grönvången
<i>Director</i>	Kurt Julius	Levin	126600	20749,15	Grönvången
<i>Consul</i>	Erik Gunnar Cornelius	Faxe	123390	34496,94	Grönvången
<i>Director</i>	Gustaf Fredrik	Malmström	96400	18204,29	Stortorget
<i>Doctor</i>	Sven Sture	Berggren	84000	13370,33	Grönvången
<i>General</i>	Carl Olof	Wahlgren	74000	13112,25	Grönvången
<i>Consul</i>	Erskine Gottfried	Folke	67150	9559,16	Grönvången
<i>Consul</i>	Carl Gunnar Fredrik	Holm	64570	9844,22	Grönvången
<i>Manufacturer</i>	Sven Adolf	Henry Anderson	63620	10149,78	Grönvången
<i>Director</i>	Oskar Paul Josef	Påhlsson	59350	16096	Grönvången
<i>Widow</i>	Hedvig Margareta	Engström	56750	14513,16	Grönvången
<i>Merchant</i>	Hugo Alfred	Swenson	53110	10335,38	Grönvången
<i>Doctor</i>	Kjell Johan Cornelius	Bergman	48300	7631,24	Grönvången
<i>Captain</i>	Jacob Henrik	Quensel	41470	5586,03	Grönvången
<i>Widow</i>	Anna Magna Kerstin	Gråberg	40990	11707,78	Grönvången
<i>Director</i>	Nils Robert	Bergsten	38500	3978,88	Grönvången
<i>Director</i>	Herman Kramers	Sterbhus	36080	2476	Stortorget
<i>Widow</i>	Olga	Kramer	33640	11176,33	Stortorget
<i>Director</i>	Gösta	Kramer	33070	4224	Stortorget
<i>Administrator</i>	Malte Carl August	Ström	28430	1679,25	Grönvången
<i>Wife</i>	Gerda	Levin	25780	7391,2	Grönvången
<i>Doctor</i>	Johan	Holmström	23270	2075,72	Stortorget
<i>Pharmacist</i>	Erik August	Flodmark	20980	2847,62	Grönvången
<i>Director</i>	Carl Herman	Richter	19800	1844,51	Grönvången
<i>Director</i>	Olof Emil	Dufberg	14300	1404,83	Grönvången
<i>Lawyer</i>	Inge Gunnar	Malmström	10650	665,41	Stortorget
<i>Wife</i>	Edith Maria	Berggren	9490	2807,82	Grönvången
<i>Chief</i>	Gustaf Ragnar	Brundin	8410	383,63	Grönvången
<i>Administrator</i>					
<i>Merchant</i>	Emma Fredrika	Löfberg	7440	546	Grönvången
<i>Lawyer</i>	Tor Gustaf	Löfberg	7340	380,89	Grönvången
<i>Director</i>	Henry	Ericsson	7140	362,33	Stortorget
<i>Chief engineer</i>	Otto Wilhelm	Printz	6800	479,55	Stortorget
<i>Floor layer</i>	Jöns	Ek	6000	9,47	Södervärn
<i>Miss</i>	Hilda Amalia	Quensel	5990	433,67	Grönvången

<i>Clerk</i>	Nils Sigfrid	Nilsson	5990	351,26	Stortorget
<i>Director</i>	Carl August	Nilsson	5930	1705,57	Grönvången
<i>Miss</i>	Maja Bertha Elisabeth	Hedberg	5740	456,27	Grönvången
<i>Brewer</i>	Bror Helmuth	Jeppsson	5300	341,16	Södervärn
<i>Director</i>	Ernst Henry	Pettersson	5240	219,42	Möllevången

### Top income earners in the sample 1950

<i>Title</i>	<i>First name</i>	<i>Surname</i>	<i>Income</i>	<i>Tax sume</i>	<i>District</i>
<i>Engineer</i>	Inge Gustaf	Erichs	145150,1	63311	Grönvången
<i>Shipbuilding director</i>	Ture Peter	Hillerström	134556,9	73332	Grönvången
<i>Director</i>	Gunnar	Mazetti-Nissen	119038,7	70480	Grönvången
<i>Engineer</i>	Sture Ludvig	Ohlsson	67262,6	43348	Grönvången
	Emma Albin	Svensson	66446,7	1424	Stortorget
<i>Engineer</i>	Pontus Lauritz	Gerdman	60889,8	27031	Grönvången
<i>Manager</i>	Hans Vilhelm	Hetling	57492,4	23271	Grönvången
<i>Engineer</i>	Georg Eugen	Thieme	47901,5	18458	Grönvången
<i>Engineer</i>	Nils Axel Tore	Husberg	31790,2	20171	Grönvången
<i>Engineer</i>	Carl Eduard	Von Seth	31473,6	9830	Grönvången
<i>Dentist</i>	Axel Einar Torsten	Oscarsson	26388,0	10716	Grönvången
<i>Painter</i>	Einar Henrik	Bager	25554,5	12266	Grönvången
<i>Director</i>	Hans Sigge	Kellquist	25332,9	7355	Grönvången
<i>Director</i>	Amanda Regina	Mattsson	23786,6	8141	Stortorget
	Ella Gunborg	Zadig	23275,5	8578	Grönvången
<i>Police chief</i>	Karl Viktor Bertil	Finnberg	22230,9	5887	Grönvången
	Ulrika Emelie Sophie	von Platen	21785,5	6562	Grönvången
<i>District chief</i>	Per Henrik	von Ehrenheim	21756,2	7473	Grönvången
<i>Engineer</i>	Einar Aage	Thuröe	20922,6	8744	Grönvången
<i>Engineer</i>	Einar Olof	Warholm	20563,9	5062	Grönvången
<i>Shipbuilding Administrator</i>	Oskar Emil	Weilgren	19718,6	6290	Grönvången
	Valborg Elisabet	von Ehrenheim	18147,7	6104	Grönvången
<i>Optic</i>	Salve	Preisler	18063,3	4328	Grönvången
<i>Merchant</i>	Axel Hjalmar Pettersson	Berhman	17820,6	6437	Grönvången
<i>Architect</i>	Karl Oswald	Harring	17608,4	4800	Grönvången
	Anna Charlotta	Thuröe	17493,6	13977	Grönvången
<i>Bank administrator</i>	Tyra Ingeborg	Nordzell	16892,1	9051	Grönvången
<i>Lawyer</i>	Nils Viktor	Ålander	15858,1	3605	Grönvången
<i>Administrator</i>	Karl Gerhard Frans	Schönbeck	15341,1	3609	Grönvången

<i>Director</i>	Ernst Lorentz	Borgström	14771,4	11899	Grönvången
<i>Teacher</i>	Bill Erik	Ekelund	14739,7	3205	Stortorget
<i>Artist</i>	Karl Richard	Björklund	14623,7	3259	Stortorget
	Ester Antoina	Paulsson	14307,2	2939	Grönvången
<i>Merchant</i>	Ivar Sixten Johan	Lundberg	13974,2	3530	Stortorget
<i>Merchant</i>	Anders Ivar	Johansson	13505,3	3245	Grönvången
<i>Director</i>	Knut Arvid	Holmberg	13051,6	3046	Stortorget
<i>Building Engineer</i>	Bror Axel Herman	Husberg	12640,1	4824	Stortorget