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# Historical roots of the dual-earner model: Women's labour force participation in Sweden, 1870–1960

*Jakob Molinder\**

## *Abstract*

Today, Sweden has one of the highest female labour force participation rates in the developed world, but how deep are the roots of women's involvement in gainful employment? In this article, I present new estimates of women's labour force participation rate between 1870 and 1960, the time when the country shifted from a predominantly agrarian economy to an industrial and services-based society. The revised data give a very different pattern from existing series; I find that female participation displays a clear U-shape: falling from the late nineteenth century, reaching a trough in the 1940s, and then starting to rise from the 1960s. Falling employment in agriculture was not balanced out by expanding opportunities in manufacturing, but women's gainful employment started expanding as the white-collar services sector grew and women's education increased - following the pattern set out by Goldin's theory of the U-curve. The male breadwinner period was short and less pronounced in Sweden than in most other countries however. Participation among adult women in the late nineteenth century was above 55 percent, and never fell below 40 percent at the lowest point. My findings lend support to the idea that the dual-earner model of present-day Sweden could be the outcome of a longer historical trajectory.

**Keywords:** Female labor force participation; Sweden; Dual-earner; Breadwinner

**JEL-codes:** N33; N34; J21

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# 1 Introduction

Goal number five of the 2030 UN Sustainable Development Goals is to achieve gender equality and to empower women in the economy and society. In order to make progress on this front, both researchers and policymakers are interested in understanding the roots of the very different outcomes for men and women that we can observe across the world today. A key aspect that varies greatly is the extent to which women are engaged in the labour market. Sweden is famous for its dual-earner model where both spouses are gainfully employed and contribute to household income. Female labour force participation in Sweden is presently one of the greatest in the OECD, with a rate of 81.1 percent in the ages 15 to 64 – reaching more than 96 percent of the level for men.<sup>1</sup> Sweden also scores high on comparative gender equality indices, such as a first place in the EU-wide Gender Equality Index, and a third place in the global UN Gender Inequality Index. But how deep are the historic roots of women’s involvement in gainful employment? Is it the cause of the progressive policies of the present, or do the origins run deeper?

There are two narratives about the origins of the Swedish dual-earner model. One interpretation sees the rising female labour force participation from the 1960s and onwards as a break with the past. According to Yvonne Hirdman, Swedish welfare state policies prior to the 1960s built on a breadwinner-model, a “homemaker contract”, and the labour market was dominated by men.<sup>2</sup> In the 1960s, the model shifted and began instead to emphasize married women’s employment.<sup>3</sup> Such an interpretation is also supported by the numbers for women’s labour force participation that appears from the raw population census figures, such as the widely cited series by Silenstam (1970). These statistics give the impression that female labour force participation never rose above 30 percent during the pre-WW2 period, something that prompted Qvist (1974) to conclude that: “until the 1930s, married women played an insignificant role on the labour market.”<sup>4</sup>

A contrasting perspective sees instead the modern Swedish dual-earner model as the outcome of a historical contingency. According to Lena Sommestad, Sweden faced a number of great reproductive challenges in the late nineteenth century in the form of emigration and falling fertility which shaped a distinctive combination of social policies, characterized by

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<sup>1</sup> These numbers come from the OECD database. Only Iceland had a higher female participation rate. The male LFPR for 2019 was 84.6.

<sup>2</sup> Hirdman (1990); Hirdman (1992), p. 1992.

<sup>3</sup> See Åmark (2006) for a similar argument.

<sup>4</sup> Qvist (1974), p. 41.

public intervention and comparatively gender-neutral solutions to social provision. The idea of “separate spheres” never gained a foot in Sweden, and an interventionist and weak breadwinner welfare state model was visible at an early date.<sup>5</sup> She argues further that the dominance of small-scale agriculture and poverty fostered a “mentality of work” among Swedish women and a pride in being a provider. Their status was tied to working capacity and physical strength, rather than to motherhood or domestic virtues, an attitude that they kept after they had left agriculture.<sup>6</sup> This interpretation is supported by historical studies underlining the strong position of married women in rural society.<sup>7</sup> In line with this, Nyberg (1989) has argued that if we apply modern definitions, most farmer’s wives would have been regarded as employed rather than inactive as the census would suggest. Göransson (1988) also emphasises the difference between different classes of workers. For blue-collar occupations where the men were earning higher wages, such as train drivers or skilled workers in the engineering industry, the breadwinner-homemaker ideal was attainable already in the early twentieth century, while for occupations where the man was making less had to consist of two earners. According to Carlsson (1986), the majority of working-class families were thus dependent on the wife for wage labour at least until the 1910s. In line with this, Franguer (1999) argued that the “mentality of work” described by Sommestad extended to the female underclass more generally.

A discrimination between the two narratives have been hindered by a lack of reliable information on women’s labour force participation, however, and many observers have noted that the Swedish population census does not provide an accurate picture of women’s labour market activities, in particular that of married women.<sup>8</sup> In this paper I provide a new revised estimate of the female labour force participation rate (FLPR) in Sweden between 1870 and 1960, in order to give a more accurate depiction of the historical trajectory of women’s gainful employment. The period spans the time when the country shifted from a predominantly agrarian economy to an industrial and services-based society, and which saw the introduction of democracy and the first stages in the development of an encompassing welfare state. I apply a definition of labour force participation conforming as closely as possible to the recommendations of the International Labour Organization (ILO) and as applied in modern labour force surveys in the European Union and the United Kingdom. My method consists of adjusting female employment using alternative sources going through each sector of the

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<sup>5</sup> Sommestad (1997).

<sup>6</sup> Sommestad (1995).

<sup>7</sup> Lossman (1987); Göransson (1992)

<sup>8</sup> See for example Nyberg (1989) and Stanfors (2014).

economy step by step. The approach additionally allows me to track the changes in the occupational structure and to break down female labour force participation into its sectoral components.

The new revised series displays a much higher level of participation than depicted in existing series relying on the raw census figures. Previous series have portrayed either stability or increasing participation prior to the 1960s. According to my revised estimates, as much as 55 percent of all women aged 15 and above were in the labour force in the 1870s, displaying stability until the 1920s, and then a decline during the interwar period reaching a low of just above 40 percent in the early post-World War II period. From the 1960s onwards, labour force surveys reveal an increase in participation peaking at about 60 percent in 1990. The new results suggest the potential for a continuity in the participation of Swedish women in the labour force, as the trough in female labour force participation was short and the male-breadwinner system never gained a strong foot. When the participation rate started rising from the 1960s, it did so with a legacy of high participation and from a level that was already high by international standards.<sup>9</sup>

The study relates to the growing literature on the role of women's empowerment for economic and social outcomes.<sup>10</sup> As Humphries and Sarasua (2012) put it: "there can be no real understanding of how and when economic growth happens without clarity about the extent of women's participation and their contribution to national incomes."<sup>11</sup> The female participation rate is itself an important input in studies of the impact on female empowerment on economic growth and various other social outcomes, and the trajectory of women's labour force participation over the course of countries' economic development has been a key focus of this research.

The discussion about women's labour force participation in a longer historical perspective has been dominated by the theory presented by Claudia Goldin. Her framework suggests that the trajectory of women's labour force participation over the course of economic development follows a U-shaped pattern: decreasing at the early stages of economic growth before increasing as the economy matures. The reasoning can be summarized in the following way. In poor economies, agriculture is the predominant economic activity and production

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<sup>9</sup> Of the countries in Costa's (2000), p. 113, comparison of female labour force participation rates since 1960, Sweden had the highest rate of all the countries in Europe already before the rapid increase ensued in 1965. Gaddis and Klasen (2013) likewise finds that among high-income OECD countries, Sweden together with Iceland are those with the highest female labour force participation rate regardless of time-period or level of economic development.

<sup>10</sup> Scott (1986); Mammen and Paxson (2000)

<sup>11</sup> Humphries and Sarasua (2012), p. 59.



mostly takes place on family-farms. Women are engaged as unpaid family assistants and in home workshop production, which allows them to combine work with childcare. As the economy grows, production shifts from the family to the factory. Increased household incomes in combination with a social stigma against women's factory work serves to depress the female labour force participation rate. As economic growth progresses, more women receive secondary education and the services sector grows which increases women's employment opportunities in white-collar occupations, for which much less of a stigma exists. This in turn leads to a rising female labour force participation rate at the later stages of economic development.<sup>12</sup>

There is significant debate on the existence of such a U-curve for women's labour force participation. Several studies relying mostly on cross-country patterns in modern data have found evidence in support of the theory.<sup>13</sup> Attempts at measuring individual countries trajectories are hampered by the problems inherent in historical data when it comes to the enumeration of female employment, and there is much less evidence on the downward portion of the U.<sup>14</sup> Olivetti (2014) finds that the U-curve is more pronounced when looking at historical data for advanced economies. She conjectures that this could result from the lesser stigma of factory work today, when the work is cleaner and requires less body strength. It cannot be ruled out that the measurement of women's labour force participation is flawed for these earlier times, however. It has also been pointed out that cross-country differences trump the variance stemming from variation within countries over time, suggesting a large role for historical contingencies.<sup>15</sup>

My new series shows that the U-curve for Sweden traces out much clearer once the census figures are adjusted for underreporting and a consistent definition of labour force participation is applied. This opens up the possibility that the U-curve could emerge for other economies industrializing around the same time as Sweden as well, if the existing figures are revised for undercounting of women's employment in the past. My approach also allows me to break down labour force participation into its sectoral components. This reveals that the pattern conforms quite closely to Goldin's theory. Participation fell with the contraction of the primary sector while relatively fewer employment opportunities were available to women in the expanding manufacturing sector. The tertiary sector provided many more opportunities for

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<sup>12</sup> Goldin (1990, 1995).

<sup>13</sup> See e.g., Boserup (1970); Goldin (1995); Mammen and Paxson (2000), Clark, York, and Anker (2003); Luci (2009); Tam (2011).

<sup>14</sup> Humphries and Sarasua (2012), p. 51. Gaddis and Klasen (2013) argue, for example, that in modern data, the U-curve cannot be traced out for individual countries over time.

<sup>15</sup> Gaddis and Klasen (2013).

women, and female labour force participation rose with the expansion of the service economy. The theory is also supported by the evolution of white-collar work and the share of women with a secondary-level education. The Swedish case illustrates that while the female labour force participation is likely to follow with the structural changes in the economy, participation can remain higher or lower at all levels of economic development as the result of other institutional and societal factors. Taken together, my study shows the ubiquity of women's work in the agricultural economy in Sweden, and highlights the brevity of the period when a majority of adult women were exclusively engaged with household work.

The rest of the paper is organized in the following way. The investigation starts in the ensuing section with a closer look at historical literature on women's work in Sweden, the potential mismeasurement of female employment in the Swedish population censuses, and a survey of previous attempts to measure the trajectory of women's labour force participation rate. I then proceed in section three by presenting my new adjustments to the raw census figures, starting with the primary sector and continuing with the secondary and tertiary sectors. In section four I present my new revised series for women's labour force participation in Sweden and make a comparison of the new series to other contemporary societies. In section five I examine whether the trajectory of women's labour force participation follows the theoretical predictions from Goldin's model by examining employment patterns by sector, women's education levels, and the expansion of white-collar work. Finally, in section six I offer conclusions.

## 2 Women's work, the problem with the census, and existing estimates of women's labour force participation in Sweden

### Women's work

What does the historical records tell us about women's work in Sweden? While the country industrialized rapidly after 1870, the primary sector remained the principal economic activity until the 1920s. Agriculture was dominated by family farms that combined production for the market with a large component of subsistence agriculture. On these family farms, the main responsibility of the female head of the household was housekeeping and those activities tied to the provision of food, clothing, and housing. This included daily work with the care for infants, swooping of the kitchen, repairing of clothes, getting water, heating, preparing food

and doing the dishes. Other non-daily tasks were concentrated to periods outside the peaks. This included handling of textiles which was partly concentrated to the winter, pig slaughter, brining and preservation during late fall, baking and washing during spring and fall and cleaning before Christmas and in early summer.<sup>16</sup> It was also the women's job to cut the sheep in the spring and in the fall, and to card and spin the wool. From the resulting fabric they knitted clothes, sometimes in combination with herding the cows. Weaving and spinning was not governed by the seasons but was delegated to periods when other activities demanded less attention. The weaving chair would be set up when the household was not involved in the field, mostly during the winter, when the men were often working in the forest.<sup>17</sup>

In addition to the household chores, women also had the main responsibility for all husbandry, except that which had to do with the horses. All small animals, birds, pigs, and sheep, was under the auspices of the female head who had help from daughters and female farm-hands. The cowshed and the cattle were traditionally a female activity. The farm's women, sometimes aided by young boys and older men, would muck, feed, and give water to the animals. It was almost exclusively a female task to milk the cows, even though this traditional division was broken up over time.<sup>18</sup> Before the industrialization of dairies, the production of butter and cheese were also female-dominated areas.<sup>19</sup> Women were also often involved in outdoor work during seasonal work peaks. This included forage, harvest, threshing and the picking of potatoes.<sup>20</sup>

In certain geographical areas there were many small farms where the output from the farm alone was not enough to support the household, and additional income was derived from handicrafts and seasonal outwork. This could include work during harvest peaks on other farms on the plains, digging ditches or doing construction work. In the north it also became widespread to take up seasonal work in the growing sawmill industry as well as work in the forest with tree felling, timber driving and log floating.<sup>21</sup> Especially work on the sawmills affected the division of labour on the farm, since it had its peak season during the spring and summer when agricultural work had to be done at the same time. As a result, the women and younger boys would increasingly be left on the farm, even during the haymaking and the

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<sup>16</sup> Morell (2001), p. 51.

<sup>17</sup> Morell (2001), p. 53.

<sup>18</sup> Sommestad (1992, 1995). Morell (2001) p. 52–53.

<sup>19</sup> Sommestad (1992).

<sup>20</sup> Morell (2001), p. 49–50; Löfgren (1982). As pointed out by Niskanen (1995), some of the wives' work was devoted to supporting the farming activities by cooking and providing other services for those employed on the farm.

<sup>21</sup> Morell (2001), p. 49–50.

harvest. On these smaller farms where the men were doing outwork, the women tended to do everything, also in the field. This was true in particular in the northern regions and on the coasts.<sup>22</sup>

In addition to the farmers, who owned or rented their own land, rural society also consisted of semi-landless and landless households. These groups grew in number especially during the nineteenth century. The process reached its zenith in the 1870s, when there was almost as many semi-landless and landless as peasant farmer households. After this point, the numbers started decreasing and by 1910 there was only 60 for every 100 peasant farmers.<sup>23</sup>

The semi-landless group of crofters (*torpare*) farmed a smaller unit connected to a larger farm, and paid rent to the landowner in the form of *corvée* labour. The amount of work was specified in crofter contracts which determined the number of work days the croft had to provide. These contracts stipulated the labour obligations of men and women individually. The members of the crofter household could also do additional work for the landowner for payment in cash or in kind, which could be voluntary or likewise stipulated in the contract.<sup>24</sup> The work of the wife mirrored in many ways that of the wife of small-scale farmers, with the addition of the specified labour duties on the landowner's farm. Since the husband was working many days on the landowner's farm doing *corvée* duties as well as paid labour, the wife also had to take much of the responsibility for the production on the croft.<sup>25</sup>

The landless in turn consisted of three types of labourers. First was the unmarried farm-hands and maids who were typically hired on yearly contracts and who lived with the farmer's family. Traditionally, this group consisted of young individuals from a rural background who took up service in the household between leaving home and getting married. This system of labour service worked to even out the supply and demand for labour during the family life cycle of the peasant household; farmers and crofters could hire servants when their demand for labour was high, and let their own children leave home and go into service when the family labour force was in excess of the demands of the household.<sup>26</sup>

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<sup>22</sup> Morell (2003) p. 3. Nyberg (1987), p. 58–59.

<sup>23</sup> Myrdal and Morell (2011).

<sup>24</sup> Morell (2001).

<sup>25</sup> The first systematic investigation of the living standards of agricultural workers was the 1920 budget investigation (*Levnadsomkostanderna på landsbygden i Sverige vid år 1920*). The investigation does, however, not specify the work done by the man and the women on the own farm. This was however done in the much smaller investigation undertaken around 1890 by Urban von Feilitzen for the Lorénska foundation. For four crofter households in the region of Östergötland, he estimated that the wife did 50, 70, 70, and 90 days of labour on the croft respectively, while the men did 15, 15, 22, 62 days of work. In no case did the wife thus do less than 70 percent of the work. In addition to this, all but one of the wives earned additional income from day-labour (von Feilitzen, 1890, p. 85–108).

<sup>26</sup> Dribe and Lundh (2005), p. 53–56.

Second was the cottagers who typically lived on the outskirts of the village and who made a living by working as seasonal farm workers on other farms and supplementing the income with a small amount of land, producing handicrafts, and the like. Wives of cottagers usually worked in other households for pay on a daily basis, in particular milking and potato picking.<sup>27</sup> In most cases these households also held livestock such as a cows, pigs, sheep or hens, which would then be the responsibility of the wife.<sup>28</sup>

Third was the contract-workers (*statare*). They were typically hired by the large estates and their payment included housing provided by the owner, payment in kind and in cash. In kind payments included food, feed for animals and a garden plot.<sup>29</sup> The contract-workers' wives were often required to help with milking, but also with root-vegetable cultivation and harvesting, and it was not uncommon that the contract-worker wives were used to help with the laundry and cleaning in the employer's household. The kitchen garden was also the responsibility of the wife.<sup>30</sup> The contract-worker system grew from the mid-nineteenth century and it replaced the *corvée* duties done by tenant farmers and the labour performed by unmarried farm-hands and maids, and allowed agricultural workers without access to their own piece of land to marry and form a household.<sup>31</sup>

Structural change was not gender neutral as women were faster than men to leave agriculture in the period after 1870. This pattern was accentuated in the 1920s and 1930s when younger farmer's daughters and female farm-hands left the sector at a rapid pace. As a result, the agricultural sector became increasingly male dominated over time.<sup>32</sup> During the post-war period, the drop in the number of farms was fast, and those that remained, there was an increase in the number of hectares per homestead as small farms fell and the number of larger entities increased through mergers.<sup>33</sup>

In the late nineteenth century, most industrial production was still produced either by professional artisans or in the household. The preparation of textiles for selling on the market

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<sup>27</sup> Lundh and Olsson (2011) p. 309; Hushållsundersökningen, 1920 p. 67.

<sup>28</sup> *Levnadsomkostanderna på landsbygden I Sverige vid år 1920*, 1920 p. 32. The value of sales of animal products are not included in the budgets, which makes it difficult to value the wives' contribution to the monetary income of the households.

<sup>29</sup> Lundh and Olsson (2011) p. 303. Åkesson (1985), p. 381.

<sup>30</sup> Lundh and Olsson (2011) p. 306. Nyberg (1987), p. 58.

<sup>31</sup> Lundh and Olsson (2011) p. 300–301. For contract-workers as well as crofters it was also not uncommon to also earn some money from room and board, and it happened for cottagers as well even though it happened less often. Crofter households sometimes housed workers hired by the family to perform their *corvée* duties. In those cases, it would be the wife's job to provide board and lodging for the resident (*Levnadsomkostanderna på landsbygden I Sverige vid år 1920*, 1920 p. 69.).

<sup>32</sup> Morell (2003) p. 5.

<sup>33</sup> Bäcklund (1988), p. 173–174.

took place in some regions continuously throughout the whole year. It was common even in areas without strong proto-industry for female heads on small farms to gain additional income by weaving or sewing. Most textile work was done for own consumption however.<sup>34</sup> Home production in rural households was in decline from the late nineteenth century as a result of the increased competition from the manufacturing industry, but in some other areas, such as the *Sjuhäradsbygden* textile area in the west of the country, still played a significant role at least until the interwar period.

Factory production began to expand from the 1860s. Female employment was concentrated to a couple of branches of industry. In particular spinning and weaving mills, knitting and sewing factories, the tobacco industry and bookbinderies, carton mills, and match factories, while very few women were employed in the sawmills, the paper and pulp factories and the engineering industry. Overall, the expansion of manufacturing did not provide widespread employment opportunities for women, and the female share of factory employment even declined slightly prior to World War One.<sup>35</sup> Some industrial occupations became increasingly feminized over the period however. This was particularly true for the textiles and clothing industry, where women became a majority of the workforce in the 1910s. For other sectors the development went in reverse. As the occupation of dairyman and dairymaid became increasingly industrialized during the first half of the twentieth century, women, who had previously dominated the business, was increasingly replaced by men.<sup>36</sup> There was also a difference in that while many of the rapidly expanding Swedish industries employing many men were located on the countryside, female factory workers were concentrated in urban areas.<sup>37</sup>

While most female industrial workers were single, some industries employed a significant number of married women. This was particularly true in the textile and tobacco industries. Between 17 and 30 percent of female workers were married in the cork manufacturing, cigar and cigarette rolling, wool and spinning, and weaving industries in Stockholm in the mid 1890s, between 17 and 20 percent in a wool factory and a cotton mill in the industrial city of Norrköping in 1895, 17 percent in the tobacco industry in 1898, and as much as 60 percent of all female employees at a textile factory in the textile area of mark in

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<sup>34</sup> Morell (2001), p. 60.

<sup>35</sup> Karlsson (1996), p. 9–10; Wikander (2006).

<sup>36</sup> See Sommestad (1992). Women dominated the dairy industry until the interwar period. In 1920 they made up 64 percent of the skilled workforce, by 1933 their share was down to 44 percent and by 1939 further to 25 percent. By the early post-World War Two period the share was down to only five percent (Sommestad, 1992, p. 14–15).

<sup>37</sup> Karlsson (1996), p. 10–11.

1910.<sup>38</sup> A comprehensive survey of female factory workers in 1909 found the share of married women varied from below 5 percent in printing, paper and pulper and building industries, while it was above 15 percent in leather, hair and rubber, mineral processing, and tobacco.<sup>39</sup> In both tobacco and textile, it was common for the wives of male workers to be employed in the same plant as their husband.<sup>40</sup> Among cigar workers, women with children worked almost as much as non-mothers, and the impact of marriage on hours worked was very small.<sup>41</sup>

Industrial homework, which involved workers who were employed by an industrial enterprise for wages for the processing of goods in their home, remained an important part of industrial employment and expanded together with factory employment at least until World War Two.<sup>42</sup> The large majority of industrial homeworkers were women and employment were concentrated to the textile and clothing industry. Industrial homework was flexible, employees worked on piece-work contracts and had to provide their own means of production. The adaptable nature of the work was reflected in that fact that almost half of female industrial homeworkers were married. While many female industrial homeworkers started their line of work prior to having children, a large fraction shifted from factory work to the working from the home when they had their first child.<sup>43</sup>

Starting in the early twentieth century, white collar and clerical occupations began to increase in number as well. This provided many employment opportunities for women as this line of work also became increasingly feminized.<sup>44</sup> The occupations included teacher, bank teller, clerk in the postal services and the railways, as well as telegraph and telephone operator. In addition to this, office work in other sectors expanded as well, such as in the large manufacturing firms and in the public administration. For the public sector, which in addition to the schools and most of the railways, also ran the postal, telegraph, and telephone service, the hiring of women was explicitly seen as a way to reduce costs.<sup>45</sup> In this line of work, women

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<sup>38</sup> Leffler (1897); Key-Åberg (1896); *Arbetstatistik II* (1899); Winberg (1989). See Karlsson (1995) for a collection of these studies. Interestingly, in the study of the two factories in Norrköping, the author noted that the married women appeared to have had a stable pattern of employment (see Karlsson, 1995, p. 18).

<sup>39</sup> RD, *Betänkande angående införande af moderskapsforsakring* (1912).

<sup>40</sup> Karlsson (1995), p. 19.

<sup>41</sup> Burnette and Stanfors (2012).

<sup>42</sup> Kyle (1986); Karlsson (1996); Nilsson (2017); Nilsson (2006). Jonsson (1989) shows how married women in the rural area of Ljusne, often performed work for wages in sewing, knitting, and weaving still in the 1930s, which was done to order in the home (Jonsson, 1989 s. 101–110)

<sup>43</sup> Nilsson (2019a). Many married women took on lower-paid work making simpler products that earned them less money, while unmarried women tended to make products requiring more skill (Nilsson, 2015).

<sup>44</sup> Carlsson (1966), p. 275–276.

<sup>45</sup> Nilsson (1996), p. 16; Frangeur (1998), p. 50; Mårtensson, (1999), p. 88–89; Waldemarson (1996). The process of feminization of the telegraph service was very rapid. In 1865 only 4 percent of all permanent station staff was female, in 1875 it had grown to 30 percent, in 1885 to 44 percent and by 1895 it stood at 53 percent. The share was even higher among the non-permanent staff (Mårtensson, 1999, p. 97).

were paid less, had few opportunities for advancement, and were confined to the most low-ranked positions.<sup>46</sup>

A common occupation for women were that of telegraph operator in the state-run telegraph company and some also became telegraph station officers, especially at the smaller stations on the countryside. Most female telegraph operators came from higher-status families and the job required a secondary education, as well as knowledge of foreign languages. The occupation quickly became feminized. In 1865, women amounted to just four percent of the permanent staff. This grew to 53 percent by 1895, and their share of the non-permanent staff (*extra ordinarie*) was even higher, above 80 percent.<sup>47</sup>

Telephone operators became important later, but was completely dominated by women from the onset. They earned less than the telegraph operators, were recruited from a lower social stratum, and the job only required a primary school education. The rural switching stations were run in most part by women, and in cases when men were the official station manager, the actual work was often done by the man together with the wife. While after 1867 female employees at the telegraph and telephone service were not allowed to keep their permanent positions when they got married, they could remain as non-permanent staff. The marriage bar for permanent positions was revoked in 1917, however.<sup>48</sup> Another common white-collar occupation was that of postal clerk and post office manager. In 1910, 14 percent of all post office managers were women, and 30 percent of all postal clerks. Women were often managers at the smaller rural stations.<sup>49</sup>

The health sector was one of the fastest growing over the period and employed many women. The occupation of midwife was for a long time dominated by married women and maternity care took place in the home. It has been estimated that in 1894, 71 percent of all midwives were married or widowed, while the share fell to half by 1916. There was also a difference between rural and urban areas, while maternity hospitals in urban areas only hired unmarried women. The class background of midwives was working or lower middle class.<sup>50</sup> The occupation of nurse was not common in the late nineteenth century, but grew in the first decades of the twentieth century and numbered 11,000 by 1920. In the beginning, the occupation of nurse was seen as a calling, and the nursing schools required the completion of secondary schooling and were explicitly directed at middle-class daughters. Over time, the

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<sup>46</sup> Holmberg (2013).

<sup>47</sup> Mårtensson (1999), p. 87–97.

<sup>48</sup> Mårtensson (1999), p. 93–95; 100–101.

<sup>49</sup> BISOS M: Postverket (1910).

<sup>50</sup> Frangeur (1998), p. 53; Öberg (1996).



occupation became professionalised but the circumstance of the job: long hours, low pay, and the requirement to live at the hospital, made it unattractive for married women.<sup>51</sup>

When the occupation of medical doctor was opened for women in 1870, it was the first academic occupation. In 1873, women were allowed to graduate in all university fields except law and theology. For a long time, permanent positions in the state bureaucracy were not opened for women, however. After a public inquiry, the law was changed in 1923 which with some exceptions made it possible for women to gain these positions. The first female dentist gained her degree in 1875, the first lawyer in the bar association in 1918, the first pharmacy owner in 1928, first public university professor in 1937, and the first female priests in the state church in 1960.<sup>52</sup> The number of academically educated women was small however. A public investigation in 1919 showed that the number at that time was 768, not even one per mil of all adult women. The most common degrees were liberal arts followed by medicine.<sup>53</sup> In 1970, the share had risen to 5.4 percent, which can be compared to 7.1 percent among men in the same year.<sup>54</sup>

In the period after 1870, many women also became small business owners in retail trade, restaurants, pubs and hotels. Major areas with female ownership were milk shops, cafés, clothing stores, flower shops, and stores selling manufactured goods.<sup>55</sup>

The question of women's work was a debated issue during the period, and subject to parliamentary legislation at several points. With the new law in 1874, as the first country in continental Europe, women got the right to dispose over her own income. A couple could also enter into a prenuptial agreement. This implied that the wife had the right to decide over her own property and income, but was still not allowed to sign work contracts without the husband's approval or take on debt. However, when adult women were given age of majority in 1920 it was the last of the Nordic countries to do so.<sup>56</sup> With the introduction of freedom of enterprise in the 1860s married women were allowed to work in the private sector or open her own business.

Married women's work in the public sector was the subject of significant debate in the latter half of the nineteenth century. Female primary school teachers were allowed to be

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<sup>51</sup> Frangeur (1998), p. 52.

<sup>52</sup> Carlsson (1966), p. 275.

<sup>53</sup> *Behörighetskommitténs betänkande*, 1920, Appendix 2: "Statistiska data angående akademiskt bildade kvinnor i Sverige".

<sup>54</sup> Numbers from the 1970 Population and Housing Census.

<sup>55</sup> Frangeur (1998), p. 53–54; Carlsson (1966).

<sup>56</sup> Frangeur (1998), p. 46.

married starting in the 1850s.<sup>57</sup> A decision from parliament in the early 1860s stipulated that women could only be considered for higher public office in exceptional cases, and that married women could never be considered for those positions. In 1909, wage differentiation between men and women in the public sector was legislated.<sup>58</sup>

Night work was banned for women in certain industries in 1909, which affected in particular women working as typographers. The law was passed with the opposition from the united women's organizations.<sup>59</sup> It has been argued that the law did not have a major impact, however, as it only affect a small share of women workers.<sup>60</sup> It has also been suggested that the 8-hour day in effect in industry and services from 1920, made it easier for women with children to combine domestic responsibilities with factory work.<sup>61</sup>

The company policy of many offices in both the public and the private sector was to dismiss women from permanent positions when they became pregnant, and in some cases already when they got married. It was however far from always the case that married women were forced to leave, but those who stayed were lower down the hierarchy.<sup>62</sup>

During the economic downturn of the 1930s there were demands raised to legislate against married women's employment. Towards the end of the decade, the labour market improved and there was increased demand for female labour. 1939 saw the passing of a law that prohibited employers from dismissing married women.<sup>63</sup>

## Problems with the census for measuring women's labour force participation

All existing attempts to measure women's involvement in gainful employment in Sweden has relied on the population census, which was conducted every tenth year between 1860 and 1930, and thereafter every fifth year.<sup>64</sup> The census in Sweden is unique in that it did not involve census enumerators walking door to door. Instead, the information came from parish records that were kept on a running basis by the church, which created extracts for inclusion in each census.<sup>65</sup>

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<sup>57</sup> Frangeur (1998), p. 50–51, 57. Female junior school teachers were not allowed to apply for a permanent position prior to 1918, and only after then could they claim their right to remain employed after marriage.

<sup>58</sup> Frangeur (1998), p. 52–57.

<sup>59</sup> Frangeur (1998), p. 54–55; Karlsson (1995).

<sup>60</sup> Nermo (1999), p. 33.

<sup>61</sup> Åkerblom (1988), p. 113–114.

<sup>62</sup> Wikander, 1991; Nermo (1999), p. 34.

<sup>63</sup> Nermo (1999), p. 35.

<sup>64</sup> With the exception for the census of 1955 which was cancelled.

<sup>65</sup> In Stockholm, a system of civil registrars was established in 1878 on the same principles, to relieve the church which was struggling to keep pace with the growth of the city at this time.

While this means that the Swedish census is of very high quality along certain dimensions, such as the correct reporting of ages, the early censuses were never concerned with the reporting of occupations using any consistent definition of employment status. This means that individuals, men as well as women, were not provided a chance to declare an occupation if they had wanted to, as it was the local priest who decided what to write down.

This pattern of the priest only noting the civil status and not the occupation of wives and widows has been noted by several authors, for example by comparing company records to the census enumeration of the same individual.<sup>66</sup> In particular, Wikström (2011) studies the city of Sundsvall in the 1870 to 1890 period and compares the population registers to several alternative sources such as newspaper ads, trade calendars, and patient registers. She finds that the large under registration of women's work came predominantly from the fact that married women and widows were not given occupational titles in the population registers.<sup>67</sup>

The Swedish census for 1880 through to 1910 has been digitized by IPUMS International, which makes it possible to break down reported participation rates by sex, marital status and age. I will make use of the micro files for 1900 to illustrate the magnitude of the problem of using the Swedish census to make inference of women's labour force participation. The results are shown in Figure 1, which displays the labour force participation rate, according to the census, of single women, married women, widowed women, single men, and married men, by age group.

If we were to believe the census, the male breadwinner norm would have been completely established in Sweden in 1900. According to the census enumeration, there were only 4,232 married women reported with an occupation, resulting in a labour force participation rate of 0.5 percent for the group as a whole. Some of the common occupations among the few reported are that of midwife, retail trader, and primary teacher.<sup>68</sup> As shown in figure, the low participation is present regardless of age. The same pattern is also evident when looking at married women with and without children; The participation rate is equally low among both. The graph clearly illustrates that, since the Swedish population census were more interested in

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<sup>66</sup> Winberg (1989), p. 193–196 in a study of the textile area of Mark estimated that 2/3 of the wives that were employed in the factories in the area were simply referred to as “wife” (*fru*) in the population registers. See also Frangeur (1998), p. 48; Nyberg (1987), p. 60–61. The public investigation into industrial homework in 1912 was clear on the fact that the Swedish census could not be used to shed light on this type of work. Stanfors (2014), p. 519 has also pointed out that the censuses mostly ignored those who worked part time. See also Stanfors (2003) p. 117-124 on the history of part-time work in Sweden.

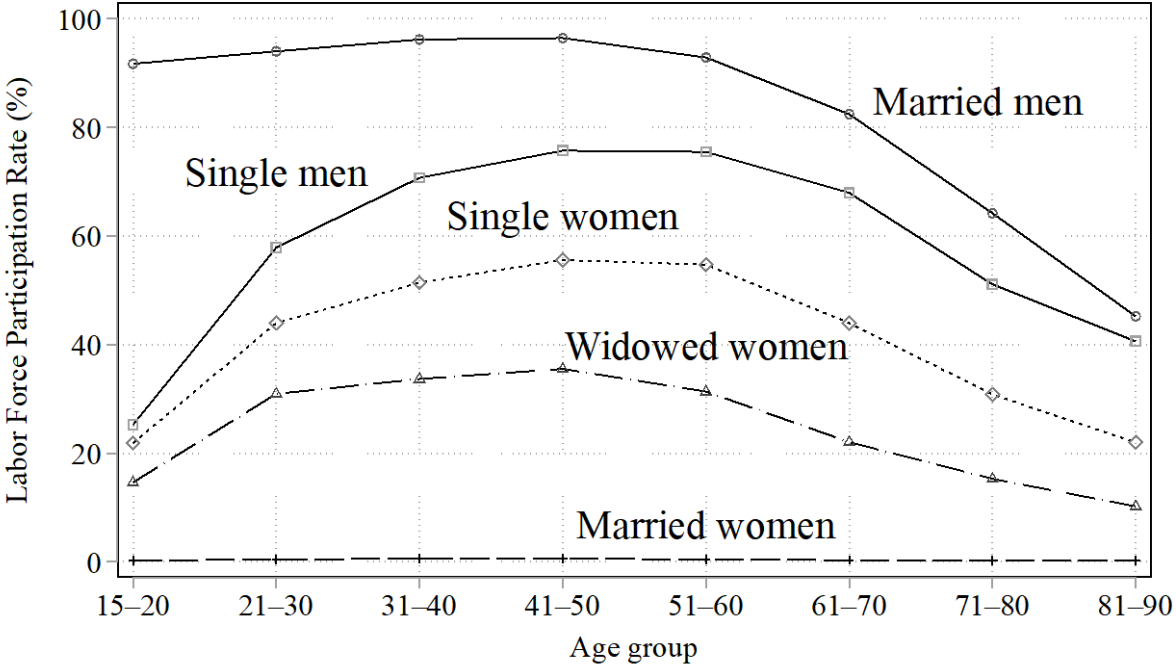
<sup>67</sup> Wikström (2011), p. 33.

<sup>68</sup> Nyberg (1987), p. 63; Gustafsson (1976).

registering women’s civil status, it suffers from severe deficiencies when it comes to the enumeration of their employment.

The figure highlights that this issue likely extended to widows, and to some extent even to single women, as well. For widows, which more often than not had to provide for both themselves and their children, they were likewise frequently only referred to simply by their civil status of “widow” (*änka*). Looking at figure 1, it also appears likely that single women’s employment was undercounted to some extent. In this case, it is probably the result of single women being titled as “daughter” (*dotter*) if they lived with their parents, regardless of their true employment status. This interpretation is supported by looking at single women over age 20 in the 1900 census micro-files. Only nine percent of those still living with their parents were assigned an occupation.

**Figure 1:** Labour force participation by sex, marital status, and age, in the 1900 census



*Note:* The figure shows the reported labour force participation rate for men and women, divided between marital status and age in the 1900 Swedish population census.  
*Source:* IPUMS International.

While the figure only refers to 1900, the micro-files available for the 1880, 1890, and 1910 census confirms that the problem was of a similar magnitude in those years as well.<sup>69</sup> It is likely that the census enumeration of especially married women’s work improved over time, however.

<sup>69</sup> In 1910, the number of married women with a reported occupation had grown to 11,241 resulting in a labour force participation rate of 1.3 percent.

The 1930 census is the first to have an instruction that asked for an occupation for all persons above 15 years of age if they had or exercised a particular occupation or service. In theory this included also wives, but in practice it appears that the income has been the guiding principle for whether the wife was considered gainfully employed or not.<sup>70</sup> It is stated that the work should bring an income, which by itself or in comparison with the husband, has been a source of income of “somewhat” large importance. What is meant by this is not explicitly stated however.<sup>71</sup> According to Nyberg (1989), in particular wives of farmers and workers with lower incomes were undercounted in the census, while the work of wives of higher-paid husbands, such as teachers, were more likely to be enumerated. In addition, the work of females with low-paid casual employment is especially likely to be misreported.<sup>72</sup> In the 1950 and 1960 census, the reporting of married women’s employment appears to have improved significantly, even though the problem with family assistants in agriculture remained.<sup>73</sup>

In 1935/1936 a special census was conducted which involved a sample of 20 percent of all households.<sup>74</sup> This was the first Swedish census with actual census canvassers walking door to door. The special census included, in addition to data on full-time employment of wives, also information on part-time employment. Employment was to be reported for any part-time employment, in the home or outside, for both single and married men and women. It did not include temporary employment, but all part-time work that was of a more stable and continuous character. Seasonal employment was also included if it was of a greater economic significance. Examples of occupations that were given were renting of rooms for students and summer guests, management of a local postal- or phone switching station, or cleaning and laundry service. Wives assisting in agriculture was still not included however.<sup>75</sup> Even with the exclusion of helpers in agriculture, the labour force participation of married women was 14 percent in the special census as compared to 8 percent in the regular 1930 census.

It is thus important to keep in mind that not only did the Swedish census not apply the same definition of gainful employment as the modern labour force surveys, over time, it did not apply any single consistent definition of employment. This means that changes in women’s labour force participation rate that appears from the raw census figures could potentially be the effect in its entirety of different reporting of women’s employment over time.

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<sup>70</sup> Nyberg (1989), p. 144–145.

<sup>71</sup> Nyberg (1989), p. 146.

<sup>72</sup> Nyberg (1989), p. 146–150.

<sup>73</sup> Nyberg (1989).

<sup>74</sup> The regular census was gathered in December of 1935, while the random sample was collected in March 1936.

<sup>75</sup> *Folkräkningen 1935/1936* part 8, p. 45; Nyberg (1989), p. 149.

## Existing series of female labour force participation

In this section I present the existing attempts to track the evolution of women's historical labour force participation rate in Sweden. The most extensively used and widely cited is the series by Silenstam (1970). Silenstam's goal was to measure the evolution of labour supply between 1870 and 1965, and in this effort, he relied on the census figures for tracking the evolution of women's as well as men's labour force participation. Silenstam made a few adjustments to the census figures however. He excluded adult farmer's daughters as employed but kept the farmer's sons.<sup>76</sup>

A second series is the one by Olivetti (2014), who presents figures for sixteen high-income countries over the period from 1890 to 2005, among them Sweden. The series was constructed using information reported from the International Historical Statistics by Mitchell (1998) and, for the post-1950 period, the International Labour Organization (ILO). The series is intended to give a harmonized dataset on terms of the definition of employment. Importantly, the data is supposed to conform with the ILO definition used in contemporary labour force surveys, among other things counting unpaid family assistants as employed. It is however, not possible to infer which data from the census that has been used.<sup>77</sup>

The third and final series is the one from Nyberg (1989). She criticised Silenstam's series for ignoring the labour input of the wives of small-scale farmers. Referring to historical portrayals of the work activities of farmer's wives as well as time-use surveys from the 1930s. She argues that they should be included as gainfully employed, since their work on the farm was so extensive. She therefore adds the group to the Silenstam series, but otherwise keeps it as is. For this reason, it is important to note that Nyberg's series is not supposed to represent a complete estimation of a women's labour force participation, but rather meant to illustrate the implications of treating farmer's wives as employed.

Figure 2 shows the three series together. In addition to the three historical series, the figure also includes the female participation rate as it appears from the labour force surveys starting in 1965.<sup>78</sup> The first thing to note is the difference in the general level of labour force participation depicted by the three historical series. Silenstam's series shows the lowest participation rate; About 20 percent of women were employed in the early 1900s. Olivetti's

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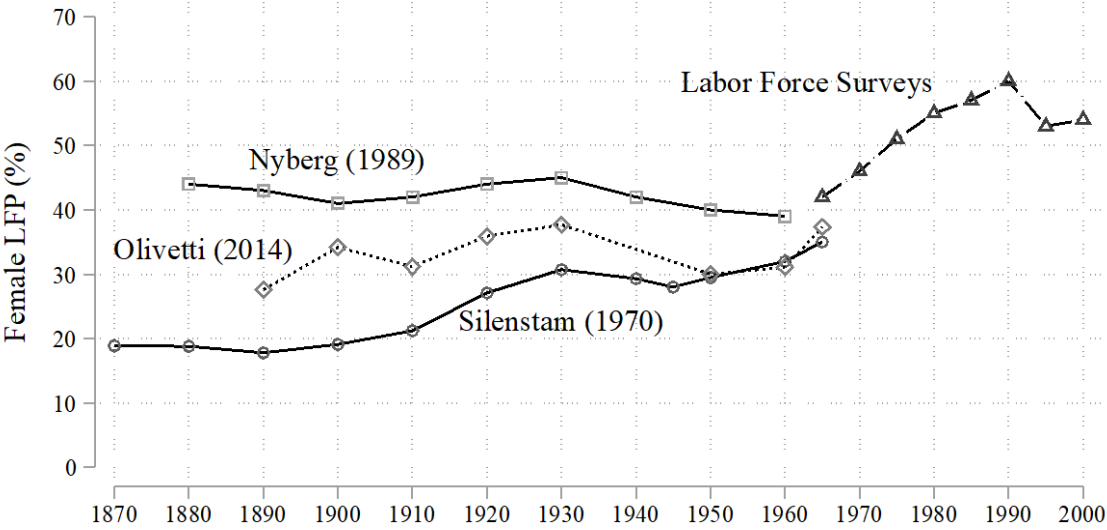
<sup>76</sup> Silensam (1970), p. 99.

<sup>77</sup> Olivetti (2014), p. 10.

<sup>78</sup> In a related study, Edvinsson and Nordlund Edvinsson (2017) calculate the number of homemakers from the censuses and show that their proportion of all women age 20-64 was stable just below 35 percent until 1930 and then rose to a peak of just below 50 percent in late 1950s. This conforms to their series for women's hours worked relative to men, which fell between 1940 and the 1950s, and then rose rapidly in the 1960s.

level is slightly higher, about 30 percent around the same time, while Nyberg’s series gives a rate of about 40 percent. The three series also give a different idea about the evolution of women’s participation over time. Olivetti’s and Nyberg’s series depicts stability with oscillations, while Silenstam’s suggest an increase in the participation rate starting in the 1910s. If we believe these numbers, they would suggest that Sweden did not experience a U-curved pattern for female labour force participation over the course of economic development as theorized by Goldin, since there was no initial period of decline.

**Figure 2:** Existing series of the female labour force participation rate



*Note:* The figures show existing estimates of the labour force participation rate for women ages 15 and above.  
*Source:* Silenstam (1970); Olivetti (2014); Nyberg (1989); Labour Force Survey (*Arbetskraftsundersökningen: AKU*).

From 1965 we can observe the female labour force participation rate from the labour force surveys, which apply a consistent definition of employment. The survey suggest that participation rose from just above 40 percent in the 1960s, and reached a peak of 60 percent before the economic downturn of the early 1990s. The crisis then brought down the participation rate for both men and women alike.

### 3 A new revised estimate of women’s employment

As argued in the previous section, the Swedish census gives a distorted picture of women’s historical labour force participation, making it difficult to evaluated women’s contribution to

different economic activities using these data. In this section I present the new adjustments I make to the raw census figures in order to arrive at a more accurate series for women's labour force participation over the 1870 to 1960 period. I apply as closely as possible the definition of labour force participation used in most contemporary labour force surveys as recommended by ILO and EU guidelines. In line with this, the contemporary Swedish Labour Force Survey (*Arbetskraftsundersökningen: AKU*) counts everyone as employed that works at least one hour per week. This includes employment as a paid employee, as self-employed, or as unpaid assistant in a family business. This means that unpaid work in family enterprises such as a family farm should be enumerated as gainful employment. The same definition is applied in the other EU countries, as well as in the Labour Force Survey (LFS) in the United Kingdom. These labour force surveys also follow the standard of defining labour force participation as being engaged in activities that are included in the System of National Accounts (SNA). Marketed products and services as well as products produced for consumption within the household is incorporated, while non-marketed services such as housework, care for children etc. are not included.<sup>79</sup>

I proceed in two steps. First, I code the raw census tables into a classification scheme that allows me to break down employment into sectors, subsectors, and social groups or "classes". I then go from sector to sector and adjust the census figures when appropriate using alternative sources for women's employment. In cases when an alternative source, such as official statistics, is available for male and female employment and which reports employment figures irrespective of civil status, I make use of the ratio of female-to-male employment in the alternative source and apply it to the census under the assumption that male employment is reported accurately.

## Classification scheme

To organize the collection of the numbers provided by the census, I code employment into a classification scheme that divides the economy into three broad sectors: primary, secondary, and tertiary, and these broader sectors are then divided further into subsectors. The primary sector consists of the subsector "Agriculture, forestry, and fishing". The secondary sector is divided into ten subsectors including "Mining and metal" and "Textile, clothing, leather and hair". The tertiary sector is divided into eight subsectors including "Trade" and "Personal and

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<sup>79</sup> Gaddis and Klasen (2013), p. 643; OECD (1995).



social services”. There is also an “Other” category for those that cannot be put into a specific sector. Within each subsector employment is divided between social groups, or “classes”. These include “Farmers”, “Salary-earners”, and “Wage-earners”. The components of the scheme are given in Table 1. The scheme has been designed to fit with the industrial and occupational detail in the Swedish census reports, while also allowing a match with the alternative sources of women’s employment that I use.

**Table 1:** Summary of the classification scheme

b) Sectors and subsectors

No.	Sector	No.	Subsector
1.	<i>Primary</i>	1.	Agriculture, forestry, and fishing
2.	<i>Secondary</i>	1.	Mining
		2.	Metal and engineering
		3.	Quarrying
		4.	Wood
		5.	Pulp, paper, and printing
		6.	Food, beverage, and tobacco
		7.	Textile, clothing, leather, and hair
		8.	Chemical and rubber
		9.	Building and construction, gas and waterworks
3.	<i>Tertiary</i>	1.	Trade
		2.	Transport and communication
		3.	Insurance and banking
		4.	Personal and social services
		5.	Education and professions
		6.	Administration and military
		7.	Domestic services

b) Social classes

No.	Social class
1.	Capital owners; incl. CEOs, wholesale traders, merchants
2.	Farmers
3.	Semi-landless
4.	Working owners, artisans etc.
5.	Salary-earners
6.	Wage-earners; incl. landless and agricultural workers
7.	Family assistants in agriculture

## Primary sector

While the historical record clearly indicates that farmer’s wives in Sweden were heavily engaged in the work on the farm, there is no hard data on hours worked prior to the 1930s. Nyberg (1989) cites the survey of the agricultural economy (*jordbruksekonomiska*

*undersökningen*) for the year 1939/1940 on the number of hours worked by the wives that assisted their husband on the farm by field acreage. The wife worked longer hours on smaller farms and more in the north than in the south. On farms with less than 20 hectares wives worked between 20 and 33 hours per week in the farm. The higher numbers in the north are the consequence of the focus on dairy production in combination with the husbands being engaged in outwork for long periods of the year. On the farms with less than 5 hectares in the north, the amount of work by the women on the field and in the barn was almost the same as the men. But even on the largest farms in the south, those with more than 30 hectares of arable land, those wives that were engaged in work on the farm worked 10 hours per week.

There is no indication in the historical record that the situation was much different in the late nineteenth century, if anything, the contribution of wives on the farm were likely even larger than in the 1930s. For this reason, I will make the following addition to the census numbers of employed women. I assume that all wives of farmers with less than 20 hectares of arable land were gainfully employed, working in their husband's business for more than 1 hour per week. For farms with between 20 and 100 hectares, I assume that 50 percent were gainfully employed, following the numbers given in the survey used by Nyberg (1989). I also assume that no wives were employed on farms with more than 100 hectares.

To apply the calculation to the census, it is important to establish how the size distribution of farms developed over time. Table 2 presents of agricultural holdings by field acreage between 1890 to 1961, the period for which there is good data from the agricultural statistics.<sup>80</sup> The years are those closest to the census years. As the table indicates, the distribution of field acreage was extremely stable over time. By far the most common holding was less than 20 hectares, which made up about 90 percent of the total throughout the period. The only time with some change was the 1950s, when the share of small farms decreased while the share of mid-sized farms increased.<sup>81</sup> There is no data prior to 1890, but based on the stability over the period, I assume that the distribution was the same in 1870 and 1880 as in 1890.

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<sup>80</sup> The data refer both to own and leased land.

<sup>81</sup> The data from the agricultural statistics refer to agricultural holdings and not to farmers households, and one family could have more than one holding. This applied in particular to the small holdings of less than 2 hectares. The 1950 census is the first to provide detailed information on the number of farmer households by field acreage. The information from this year clearly demonstrates that it applied only to small plots. The share of farmer households with less than 20 hectares is nearly the same as for holdings, but the share with less than 2 hectares is much smaller, only nine percent.

**Table 2:** Distribution of agricultural holdings by field acreage, 1890–1961

	<b>–20 ha</b>	<b>20–100 ha</b>	<b>100– ha</b>
1890	89%	10%	1%
1900	89%	10%	1%
1910	90%	9%	1%
1919	91%	8%	1%
1927	92%	8%	1%
1937	91%	8%	1%
1951	90%	9%	1%
1961	86%	13%	1%

*Note:* The figure shows the distribution of agricultural holdings by field acreage for available benchmarks over the period from 1890–1961.

*Source:* Historical statistics for Sweden: Tab. D 12. p. 26; Tab. D 14., p. 27.

My adjustment differs from that of Nyberg (1989) in that she assumes that all farmers' wives were employed in the family business, while I make accommodations for the size of the farm. They also differ in that I make adjustments for other groups than farmers' wives. As was evident from the historical depictions of the work of wives to landless and semi-landless households, they should also be viewed as employed following the same logic as for farmers' wives. They did extensive work with the animals held by the households, and assisted in the field work as well. In addition to this, wives of crofters would often be obliged to work on the main farm, and wives of contract-workers were employed to milk and to perform other activities on the manor. In my adjustments, I include as employed the wives of crofters, cottagers, and contract-workers.

In addition to the modifications for wives, I also include as employed the farmers' daughters above age 15 living on the farm. The Silenstam and Nyberg series only include the sons. Second, I also include other unpaid family assistants, such as daughter-in-laws and siblings.

## Secondary sector

### *Factory workers, artisans, and artisans' workers*

For the secondary sector, there is a rich set of sources to estimate the number of women working. The most important is the manufacturing statistics that report the number of employed men and women in industrial establishments without consideration of the marital status of the employees. To adjust the census figures, I use the ratio between the number of employed

women and men to adjust the figures reported in the census. The data is published annually, so I can use the ratio between the number of women and men for each of the census years.

In the early part of the period, a large fraction of industrial products was not produced in factories but was instead manufactured in artisan shops, however. Prior to 1913, the manufacturing statistics also report the number of registered artisans as well as the number of workers they employed, both divided by male and female. These statistics become more complete only from 1903 when, for example, seamstresses are included for the first time. For this reason, I use the 1903 ratios for 1870, 1880, 1890 and 1900, while I use the 1910 numbers for that year. The change between 1903 and 1910 is very small, leading me to believe that the bias from back-casting the figures for 1903 to 1870 should be relatively small. After 1910, the industrial statistics no longer present numbers for artisans. However, by that time this group had diminished greatly as a share of the labor force. For this reason, I do not make any adjustment to the number of artisans after this point.

For 1900, these adjustments add about 11,600 female wage-earners to the roughly 42,000 reported in the census, and 2,200 female artisans to the 3,400 originally reported. Interestingly, this suggests that the extent of underreporting was something like 22 percent of female wage-earners, which is slightly larger but quite close to the 15 percent of factory workers that were married or widowed in the 1909 survey for the implementation of maternity insurance. The underreporting of artisans appears even larger, about 40 percent. This makes sense, as the female artisans missing from the census are quite likely in many instances to have performed their activity in connection to the home and are therefore likely to have been titled just “wife” or “widow” in the census reports.

The secondary sector also includes mining, as well as construction, power, gas, and waterworks. The census in 1900 reports that less than one percent of the labor force in these industries were female. The first available non-census benchmark for the subsector is the wage statistics for 1913, which reports employment numbers by sex for both subsectors. The female share in both cases is lower than 1 percent, suggesting that the extent of underreporting in the census is likely to be very small. As a result, I make no adjustments for these subsectors.

### *Industrial homeworkers*

An important source of employment for women was industrial homework, involving individuals who were employed by an industrial enterprise for wages for the processing of

goods in their home.<sup>82</sup> This type of work allowed for flexibility in the choice of working hours and the time of day that the work took place, and as a consequence, it was common for women to shift to this type of work when they became mothers.<sup>83</sup> This is underscored by the fact that the share of married women was much higher among industrial homeworkers than among manufacturing workers. The 1909 survey for the implementation of maternity insurance showed that 11 percent of the female factory workforce were married, while the corresponding number for those employed in industrial homework around the same time was over 50 percent.<sup>84</sup>

The first quantitative study into the prevalence of industrial homework is a 1912 public investigation, which was tasked with surveying the size of this activity as well as the social and economic situation of the industrial homeworkers. The investigation found that 43 000 workers were employed, and that as much as 80 percent of those workers were female. The dominant sector was the textile and clothing industry, which employed 88 percent of all such workers.

There is reason to believe that the female industrial homeworkers were not counted at all in the census, regardless of whether they were single, married, or widowed.<sup>85</sup> The 1912 investigation acknowledges this fact, stating that the census cannot be used to assess the size of the group.<sup>86</sup> For this reason, I choose to add the full number of female industrial homeworkers from the 1912 investigation to total employment in their respective industries in the 1910 census. This leads to 34.400 women workers in “Textile, clothing, leather and hair”, and a much smaller number in the other subsectors.

From 1913 onwards, the industrial statistics give data on the number of home workers employed in each sector of manufacturing which allows me to also calculate the evolution up to 1960.<sup>87</sup> While the absolute number of homeworkers reported is lower in the industrial statistics,<sup>88</sup> the share of all homeworkers employed in textiles and clothing is very similar in the two sources, however, leading me to believe that the industrial statistics’ numbers can be taken as a good approximation for the trend over time. I use the 1912 investigation’s numbers to adjust the census, and the evolution of employment from the industrial statistics to

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<sup>82</sup> Kyle (1986); Karlsson (1996); Nilsson (2017).

<sup>83</sup> Nilsson (2019).

<sup>84</sup> Karlsson (1996) p. 25–26; *Svensk hemindsutri* (1917). Nilsson (2019b) also shows that industrial homeworkers worked surprisingly stable hours over the year (8–10 hours per day), even on the countryside.

<sup>85</sup> Karlsson (1996) p. 27–28; Kyle (1986).

<sup>86</sup> *Svensk hemindustri* (1917) p. 36.

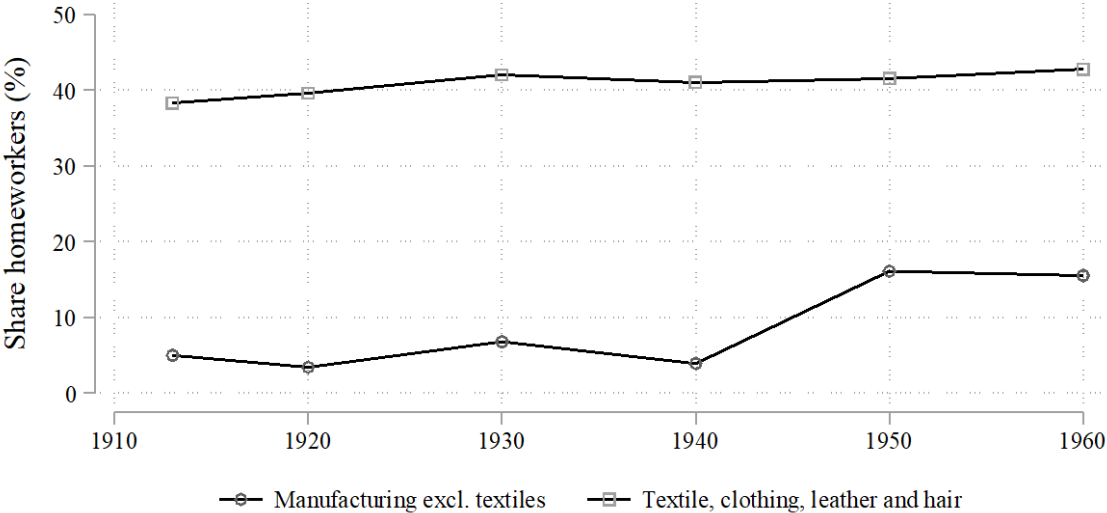
<sup>87</sup> Karlsson, (1996) p. 7; Jörberg (1961), p. 374–375.

<sup>88</sup> Only about 7 000 in 1913, compared to the 43 000 in the 1912 investigation.

extrapolate forward. The homeworkers' share of female blue-collar employment according to the industrial statistics calculated in this way is shown in Figure 3.

The figure highlights the dominance of textile, clothing, leather, and hair as the source for employment in industrial homework; The share of homeworkers was more than 40 percent in in this sector, while it was less than 10 percent in the other manufacturing industries combined for most of the period. The shares are very stable over time as well. For textiles its growing slightly in the 1910s and 1920s, while for the other industries, the share increases in the 1940s. Interestingly, given that manufacturing expanded significantly over this period, it is only after 1960 that employment in industrial homework began to fall in absolute terms.

**Figure 3:** Homeworkers as share of female blue-collar employment in manufacturing



*Note:* The figure shows the share of the female blue-collar workforce in manufacturing that were employed as homeworkers. Industries are divided between the textile, clothing, leather, and hair industry and the other manufacturing industries combined.

*Source:* Own calculations from Swedish industrial statistics (*SOS Industri*).

Unfortunately, there are no sources for the size of employment in industrial homework prior to 1912. For the 1870–1900 period, I therefore make the assumption that the share of homeworkers in total employment in each industry was the same as in 1910/1912. This seems like a reasonable assumption given the stability in the homeworkers' share after 1912.

### *White-collar workers*

From 1915 onwards the number of white-collar workers in each manufacturing sector divided by male and female is reported in the industrial statistics.<sup>89</sup> The share of white-collar workers in total employment in manufacturing rose from 6 percent in 1915 to 20 percent by 1960. The female shares within the group increased over the same period as well, from 20 percent to 27 percent. In making the adjustment to the census figures, I apply the 1915 numbers to 1910. I assume that the numbers were negligible prior to this. In 1900, there was only about 6 000 white collar workers, both male and female, in the secondary sector, while, already by 1910, the figure had risen to 21 000. For the 1920 to 1960 period, I apply the numbers for the corresponding years.

The same data exist for mining, and I apply the same formula for this subsector. From the same source there is also data on gas and waterworks but not for construction. The share of white-collar workers was very small in this industry, however. For this reason, I make no similar adjustment for this subsector.

## Tertiary sector

### *Trade*

This subsector was one of the most expansive in terms of employment over the period. According to the census, it grew from employing less than 3 percent of women in the late nineteenth century, to more than 10 percent by 1930 and further to 20 percent in the 1950s and 1960s. As it grew, it also became more female dominated. The share of women in total employment rose from 10 percent in 1870 to 50 percent by 1960.

The sector remained dominated by small family-run businesses at least until the second world war. In Sweden, were a majority of the population still lived on the countryside until the 1930s, retail remained dominated by so-called “country-stores” (*lanthandlar*). These country-stores sold all types of every-day goods such as food and drink, but also clothing and

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<sup>89</sup> The number of white-collar workers is reported from 1913 but not divided between men and women for all categories of workers prior to 1915.

tools. Durable goods like bicycles and farming equipment could also be ordered on demand. The households running the shops often combined it with farming.

A major feature of modern retailing is the large-scale managerially operated firms that generally performed several tasks compared to the family-run small shops. In Sweden, the transformation to large-scale retailing started in the 1930s when the first department chain-stores modelled after American examples opened. Such companies were founded on the principles of unit pricing, mass produced goods, large storages and low costs to consumers. These chain-stores only opened in urban areas where demand was concentrated. As late as 1934, only ten Swedish towns had a unitary price store, and it was only in the 1940s that they started expanding to towns with less than 20 000 inhabitants.<sup>90</sup> This small-scale character of Swedish retail and trade is confirmed by the 1930 Survey of enterprises (*Företagsräkningen*) which provide data on the size-distribution of firms in retailing. As much as 85 percent of all firms had less than 3 employees; Less than 2 percent had more than 10 workers.

To assess the existence of undercounting of the number of female business owners and workers in the census, I make use of the official trade statistics. Traders had to register their business and report the number of employees. Just like the industrial statistics, the trade statistics report employment regardless of marital status. These statistics are available from 1897 to 1915.

The data suggest a small undercounting in the census. For 1900, the ratio of female to male proprietors is 0.27 in the statistics, while it was 0.22 in the census. For wage-earners, the statistics suggest a ratio of 0.46, while the census gives a ratio of 0.44. For 1900 and 1910, I apply these ratios to adjust the census figures. Given the small difference, the additional number of employed is small. There is no corresponding data for 1870 to 1890, however. The subsector was very small at this time in terms of employment, however, and given the small discrepancies between the census and the trade statistics for 1900 and 1910, I make no adjustment for these years. For 1920 to 1940, I use the ratio of males to females in the 1935 special census, and I make no adjustment for 1950 and 1960.

The trade statistics were collected for tax purposes so in cases where the wife was an unpaid assistant in the family business, they would not be reported in the statistics. The historical records suggest that these small country-stores were in most cases run jointly by the husband and the wife. The wife would often take care of the milk shop, bake bread, and stand behind the counter. If the shop had hired shop assistants, the wife would also cook the food for

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<sup>90</sup> Kylebäck (2004), p. 120.



the employees.<sup>91</sup> A large share of the male proprietors were married: about 70 percent throughout the period. It is therefore reasonable to make the assumption that among those firms run by a married male proprietor, about 85 percent was the type of small family-business where both spouses were working in the company and the wife should be considered as an unpaid assistant. This is likely a conservative estimate for the early period, as there was probably some growth of larger retail firms over time.

The results are shown in Table 3 for the 1880 to 1920 period. With this assumption, about 35 percent of all business proprietors in retail trade would have been a married woman running a family business together with her husband.

**Table 3:** Calculation of proprietors' wives employed as family assistants in retail trade

Year	Proprietors				Proprietor's wives	Proprietors incl. employed wives	
	Male	Female	Total	Female share		Total	Wives' share
1880	14,406	2,435	16,841	14 %	9,979	25,323	33 %
1890	17,790	3,729	21,519	17 %	12,584	32,215	33 %
1900	26,871	5,828	32,699	18 %	22,672	51,970	37 %
1910	33,389	11,245	44,634	25 %	24,716	65,643	36 %
1920	33,302	13,557	46,859	29 %	23,149	66,546	30 %

*Note:* Assuming that 85 percent of wives to married male proprietors were employed in their husband's business.

*Source:* Swedish population census.

In 1870, it is not possible to calculate the number of wives to retail traders. I therefore assume the share was the same as in 1880. For 1930 and 1940 I apply to female-to-male ratio from the 1935 special census, while for 1950 and 1960 I use the census numbers as given.

The remaining group that could still be undercounted are female white-collar workers in the sector. Their numbers are likely to be very small prior to the expansion of larger chain-stores starting in the 1930s, however. For this reason, I make no adjustment for the period prior to 1930, while I apply the ratio from the 1935 special census for 1930 and 1940.

<sup>91</sup> Carlsson (1966), p. 270.

### *Transport and communication*

While there were few women in blue-collar occupations in the subsector, there was a strong increase in female white-collar workers both in transport services, in particular the railways, as well as in the telegraph and telephone service. The female shares of all employed rose from nothing in the late nineteenth century to more than 20 percent by 1960 according to the census. The share among white-collar workers was even larger: growing from 16 percent in 1900 to 36 percent in 1960.

For the railways, I make use of the matriculation registers and remuneration records (*arvodestat*) as well as official yearly reports from the state railway company (*Statens Järnvägar*). This source suggest that less than 200 women were employed prior to the 1920s, but that the number increased rapidly thereafter. For the telegraph and telephone service and the postal service, I make use of employment numbers from official statistical reports. These likewise suggest that the mismeasurement in the census is small before the 1920s given the small number of women employed. For 1920, 1930, and 1940, I use the ratio in the 1935 special census. For 1950 and 1960 I make no adjustments.

### *Insurance and banking*

Over this period, the insurance and banking subsector experienced organizational and technological changes that affected the employment structure. Growing competition and increased size of firms, in combination with technological shifts such as the introduction of the calculator, the typewriter, and accounting machines led to a standardization and mechanisation of work. In particular the late 1920s and the 1930s was a period of rationalization and consolidation in the sector.<sup>92</sup>

Banking and insurance became increasingly feminized over time. According to the census, in 1870 there were barely any women employed, while the share rose to more than 30 percent by 1920, and further to more than half by 1960. Especially the 1910s was a period of expansion of female employment.<sup>93</sup> The insurance and banking industry remained small in Sweden, however. There was an increase in the share of lower-level positions and women were concentrated to the lower part of the occupational hierarchy, in jobs such as clerk, cash controller, and bank teller.<sup>94</sup>

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<sup>92</sup> Holmberg (2013), p. 72, 91.

<sup>93</sup> Holmberg (2013), p. 70 and 89; Lindgren 1988.

<sup>94</sup> Holmberg (2013), p. 80.

In her study of the Swedish commercial bank and insurance sector, Holmberg (2013) use the Swedish bank matriculation registers covering all permanent staff over the period from 1885 to 1937. She reports that the number of married women who appear at any point in the register was only 62. While previous research has claimed that a strict marriage bar was in place throughout the period, Holmberg shows that married women were not completely absent. However, the number was small enough to not make a significant impact on overall employment numbers. For this reason, the undercounting in the census is likely to be small.

Table 4 details the breakdown of employment for men and women from the matriculation register as presented by Holmberg. In 1900, the census suggests that there were 0.13 women for every male employee, while Holmberg's numbers suggest a higher ratio of 0.21. Holmberg's numbers only refer to banking, however, and after 1900 it is not possible to distinguish between banking and insurance in the census tabulations. In adjusting the census, I take Holmberg's ratio between male and female employment in 1900. This adds 211 employed women in that year. For 1920, 1930, and 1940, I use the ratio in the 1935 special census. For 1950 and 1960 I make no adjustments.

**Table 4: Employment according to the Swedish bank matriculation register**

	Total	Male	Female	Female share	Female-to-male ratio
1900	1,764	1,454	310	0.18	0.21
1910	3,489	2,711	778	0.22	0.29
1919	7,285	5,308	1,977	0.27	0.37
1931	6,738	4,999	1,739	0.26	0.35
1937	6,566	4,808	1,758	0.27	0.37

*Source:* Holmberg (2013).

### *Personal and social services*

This subsector cover activities such as laundry, various hospitality services such as innkeepers, keepers of boarding-houses and restaurant owners, café and confectionary owners. It also encompasses health services such as bathing, nurses and midwives. This sector was female dominated, and became increasingly so over time. According to the census minimum figures, the female share of employment in the subsector rose from just above 40 percent in 1870, to 60 percent by 1900 and then further to almost 80 percent by the 1920s. This happened while the sector was growing rapidly, increasing from employing less than 5 percent of the female official

labour force in the late nineteenth century to more than 25 percent by 1960. For men this share never rose above 5 percent.

The Cost-of-living survey (*Levnadskostandsundersökningen*) of 1914 surveyed urban working-class and lower middle-class households. The survey makes it possible to assess how common it was for households to earn extra income from room and board by renting out to tenants.<sup>95</sup> This was an activity that brought the households extra income, and which depended completely on the labour of the wife. A great advantage of the survey for my purposes is that it makes it possible to tell the prevalence of room-letting by the husband's occupation. Focusing on those cases where room and board brought in at least 100 crowns for the family in a year, the survey suggest that about in 15 percent of the households the wife was involved in this type of activity. The share was very similar among household's where the husband was an artisan/small-business owner, a wage-earner or a salary-earner. It was slightly lower among artisans, 12 percent, and slightly higher in the other two groups.

Following from this, I make the assumption that the corresponding percent of wives outside the agricultural sector were gainfully employed with the provision of room and board for tenants. In the absence of any source that can speak to the situation prior to 1914, I apply the same ratios for the whole 1870 to 1910 period. It should be kept in mind, however, that the agricultural sector was much larger in the early part of the period, resulting in a smaller number of employed wives added as a result of this adjustment.

For 1920, 1930 and 1940 I take the ratio of male to female employment in the 1935 special census, while for 1950 and 1960 I use the census numbers without adjustments.

### *Education and professions*

The subsector consists primarily of teachers, but also covers some professions such as authors and lawyers. It expanded as a share of employment for both sexes over the period, but more so for women. According to the census, the sectors' share of the female labour force rose from less than one percent in the 1870s, to 5 percent in 1940, and further to 10 percent in 1960. For men it started out with a similar share, but never grew above 5 percent of employment. Correspondingly, the official female share of employees in the sector rose from 25 percent in 1870 to 60 percent in 1900 and remained stable thereafter. Women dominated in the lower teacher positions, such as junior and primary school teachers. In 1900 there were two female

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<sup>95</sup> Kristina Lilja and Dan Bäcklund has kindly shared their compilation of the survey's primary material.

teachers to every male teacher at these lower levels, while at the secondary level there almost 50 percent more male teachers. Women also dominated private teaching.

Even though there is plenty of data on the number of public-school teachers divided between male and female in the official statistics, they are not very easy to compare to the census figures. The census only reports primary school teachers separate from secondary school teachers starting in 1900, while the official statistics for secondary school teachers only report data for the boys' schools. The boys' schools only employed a small number of female teachers, while the majority of female secondary school teachers were employed in the girls' schools, which are not included in the statistics since they were private at the time. The data for primary schools in 1900 and 1910, when they can be separated out in both the census and the statistics, suggest that undercounting of female teachers was small. In both sources, there were roughly 2 female primary school teachers to one male in 1900, and roughly 2.5 in 1910. It is not very surprising that the undercounting is not very large in this case. Teacher was one of the few occupations that married women could be enumerated for in the early censuses. There were, for example, 443 married school teachers in the 1900 census, out of a total of 1,718 female teachers. This can also be compared to the grand total of 4,322 married women with a reported occupation in the same year.

#### *Administration and military*

This subsector includes the military, the state church as well as the local and state administration. It remained a small source of employment throughout the period, according to the census about five percent for men and even less for women. The sector became increasingly feminized, however, with almost 40 percent of the workforce being women in 1960, which followed from the general feminization of clerical work.

Given the small size of the sector and the lack of sources that can speak to the employment situation in the early period, I make no adjustment to the census figure for the 1870 to 1910. For 1920 to 1940 I apply the female-to-male ratio in the sector according to the 1935 special census, while for 1950 and 1960 I make no adjustment.

#### *Domestic services*

The final subsector in the tertiary sector is domestic services. The way this sector is defined in the classification scheme, which derives from the way it is presented in the census, it includes all live-in servants in households who work with household tasks. This entails two things. First,

it does not include live-in servants in agricultural households, which are instead proportioned to the primary sector. Second, it does not include the household-related services performed by workers not living in the household. Those services are instead included in the personal and social services subsector. Employment in domestic services remained very stable in the period prior to WW2, when it amounted to about 15 percent of female employment and less than one percent for males. From that point it declined precipitously and by 1960 it was down to 5 percent of female employment.

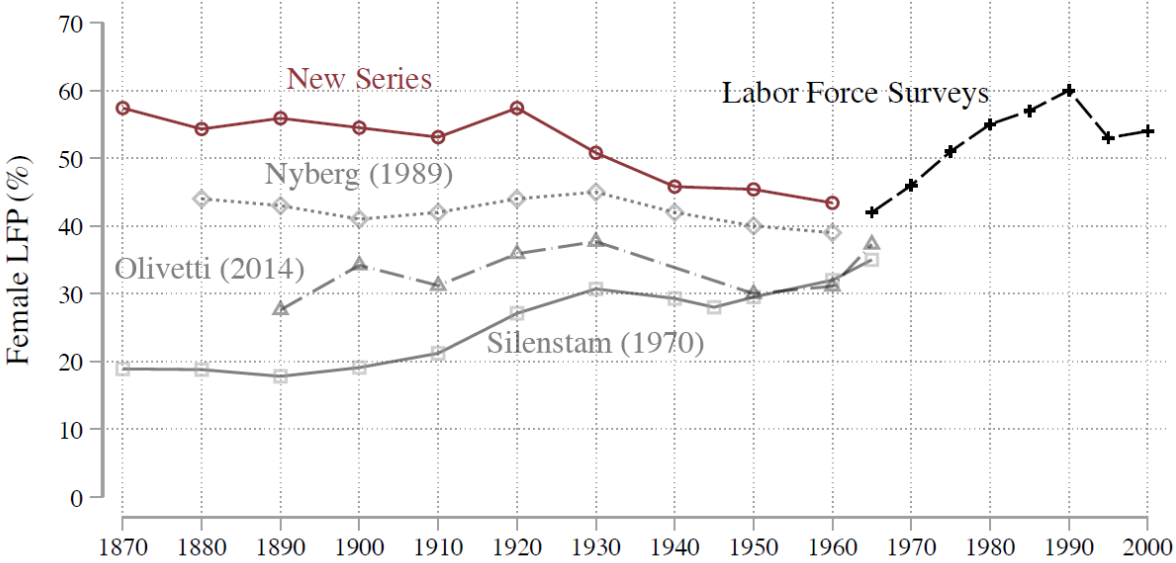
Because of the restriction in this subsector to live-in servants, the vast majority of women workers in this subsector were single and the undercounting is therefore likely to be very small. For this reason, I make no adjustment for this subsector.

## 4 A new view of female labour force participation, 1870–1960

Figure 4 displays the new revised series for female labour force participation in Sweden over the period from 1870 to 1960 along with excising series and the post-1965 labour force surveys. According to the new series, female labour force participation was much higher in the late nineteenth century than previously depicted. In the 1870s labour force participation is estimated to have been just above 55 percent for women aged 15 or older. Over the fifty-year period from 1870 to 1920, the rate was stable, decreasing slightly in the late nineteenth century before rising somewhat in the early twentieth. This was followed by a decreasing participation rate in the interwar period, bottoming out at just above 40 percent in 1940s and 1950s. Starting in the 1960s, an increase ensued. Interestingly, the new series reveal that female labour force participation was about as high in the 1870s as during the post-WW2 peak in 1990.

The new series gives a very different view of the trajectory of female participation over time compared to previous estimates. While the existing series indicate stability or an increasing trend from a lower level, the new estimate suggest that participation was, in fact, much higher from the onset but was trending downwards starting in the 1920s.

**Figure 4:** New and existing series of the female labour force participation rate



Note: The figure shows estimates of the labour force participation rate for women ages 15 and above.

Source: The present study; Silenstam (1970); Olivetti (2014); Nyberg (1989); Labour Force Survey (*Arbetskraftsundersökningen: AKU*).

Consequently, the higher participation of women depicted by the new series also gives a different perspective on the feminization of the Swedish labour force historically. The new revised series suggests that 42 percent of the labour force were female in 1870, fell to a low of 34 percent in 1950, and then increased with the return of women to the labour market from the 1960s. This is in contrast to the Silenstam series, which depicts a female share of the gainfully employed of just 21 percent in 1870, and an increase to 26 percent by 1940.<sup>96</sup>

How does the historical female participation rate in Sweden compare to other contemporary societies? The collection of studies presented in Humphries and Sarasua (2012) provides an opportunity to contrast the Swedish level to that for other places in Europe where the census records have been scrutinized to make sure that they give an accurate picture of female gainful employment. These estimates together with the new Swedish series is shown in the left-hand panel of Figure 5. The female participation rate in Sweden of about 55 percent in the 1870s was close to the level of several contemporary societies with high participation such as Torino, Coruna, and Northern Rural France, but lower than in Bueu, a coastal industrial town in Galicia specialized in fish processing which demonstrated a level of participation for women above 90 percent. The Swedish rate was similar to that in Northern Rural France, which like

<sup>96</sup> Silenstam (1970), p. 99.

Sweden was dominated by family farms, and were the high employment rates of wives to farmers pushed up participation.<sup>97</sup> The Swedish participation rate was also higher than in Nigrán, Barcelona, Leeds, and Middlesbrough.

The estimates for the Netherlands also make it possible to put the Swedish numbers in the context of another country for which data is available at several points in time. In the Netherlands, female participation was slightly less than 35 percent in 1850, and fell to a low of 20 percent in 1950. The comparison in this case thus demonstrates that female participation rate was higher overall in Sweden, even though it was falling over time in both countries.

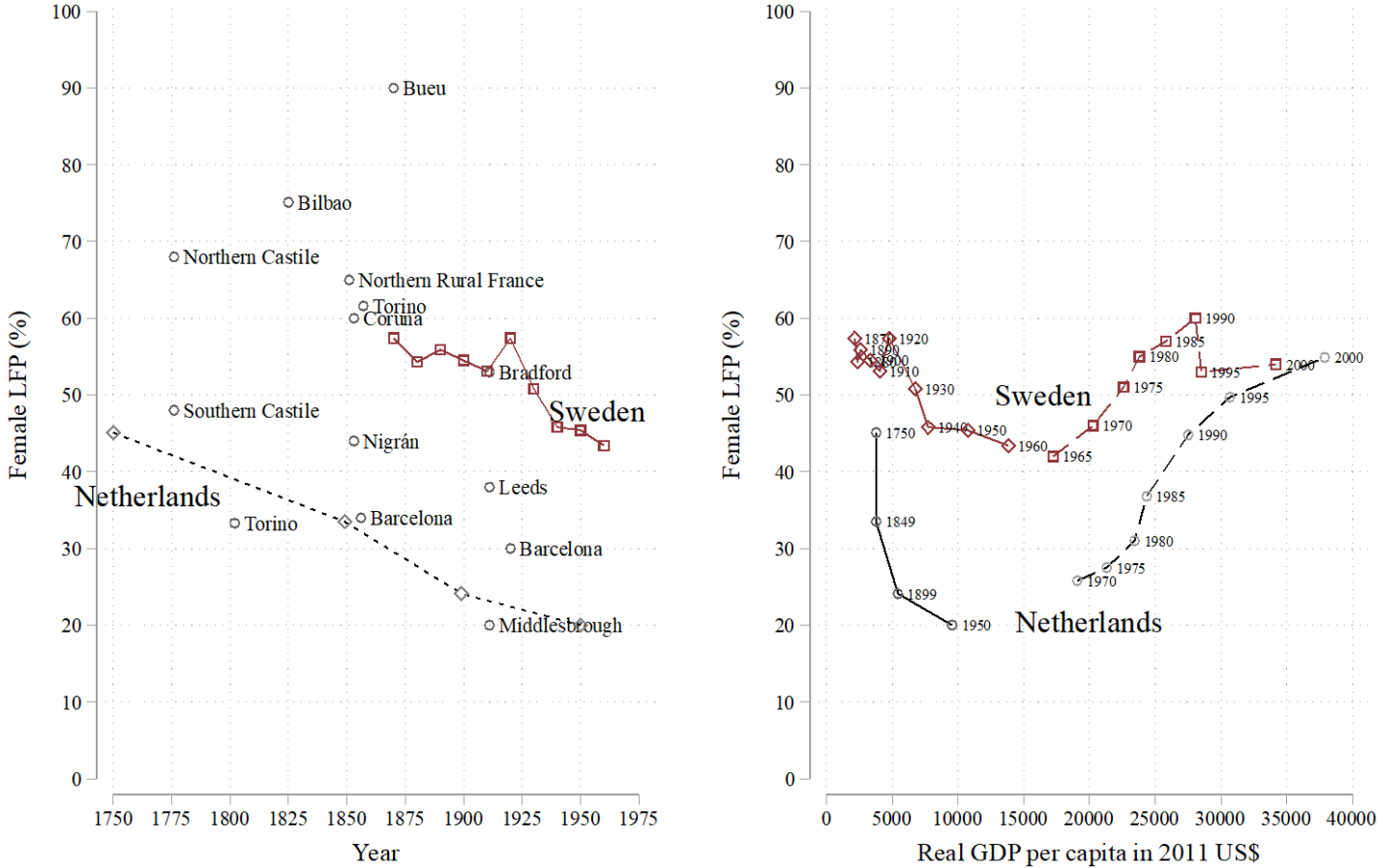
The Netherlands and Sweden were at different levels of economic development for parts of the period, however. The right-hand panel therefore puts the female participation rate in the two countries in the context of economic development measured as GDP per capita, while adding the post-1960 series based on labour force surveys for both countries. The first thing that can be noted is that both nations display the downward portion of the U-curve as hypothesized by Goldin. At the same time, it is clear that the participation rate was higher in Sweden for each level of economic development. This fact is underscored in particular by the observation for 1950, a point at which the two countries had reached very similar levels of GDP per capita. At that time, the participation rate in the Netherlands was 20 percent while the number in Sweden was more than 45.

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<sup>97</sup> Grantham (2012).



**Figure 5:** Female labour force participation in Sweden compared to other places



*Note:* Estimates of female labour force participation presented in Humphries and Sarasua (2012). Netherlands: Schmidt and van Nederveen Meerkerk (2012) and van Nederveen Meerkerk (2012); Northern and Southern Castile: Hernández (2013); Torino: Zucca Micheletto (2013); Nigrán, Bueu, and Coruña: Muñoz Abeledo (2012); Bilbao: Pérez-Fuentes (2013); Northern Rural France: Grantham (2012); Bradford, Leeds, Middlesbrough: Atkinson (2012); Barcelona: Borderías (2013).

It would, of course, be interesting to compare the Swedish figures to an even larger set of countries that could be followed over time. However, given the uncertainty surrounding the historical figures for women's labour force participation, this can only be done once the census figures for other countries are scrutinized in a similar manner as those for the Netherlands and Sweden.

One salient case for which some useful data exist, however, is England and Wales. Previous research has shown how a male breadwinner ideology developed with industrialization in the United Kingdom.<sup>98</sup> Hatton and Bailey have studied the figures for women's labour force participation rate in the census and in contemporary surveys during the early twentieth century, and argue that the correspondence is good enough that the census figures can be taken at face value. These figures suggest that the participation rate for women of working age was stable just above 30 percent until the 1950s, when it began to increase reaching a level of just below 50 percent in 1991.<sup>99</sup> Comparing with the figures from my new series, the participation rate in Sweden was much higher than in the United Kingdom historically. The two countries varied in levels of economic development however, The United Kingdom was one of the richest economies in the early twentieth century, while Sweden was catching up; It would take until 1940 before Sweden reached the level of GDP per capita the United Kingdom had attained in 1901. Comparing the participation rate with GDP per capita, however, likewise suggest that the rate was higher in Sweden for every given level of economic development.<sup>100</sup>

Taken together, it appears as if Sweden had a relatively high level of female labour force participation historically. When the Swedish dual-earner model expanded from the 1960s, it did so from a level that was relatively high in an international perspective.<sup>101</sup>

## 5 Accounting for the U-shape

The new revised series for female labour force participation displays a U-shape over the course of economic development, suggesting a process in line with Goldin's theory. But to what extent does the pattern conform with the expectations from the theory? Goldin makes three distinct

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<sup>98</sup> Horell and Humhries (1995)

<sup>99</sup> The definition of working age varies over time, including women from the age of 10 up to 1911, 12 in 1921, 14 in 1931, 15 between 1951 and 1971, and 16 thereafter. Xu makes a similar argument for the nineteenth century figures for England and Wales.

<sup>100</sup> GDP per capita levels refer to the United Kingdom while participation rates are for England and Wales only.

<sup>101</sup> See also the data presented in Costa (2000)

predictions for the factors underlying the trajectory of women's labour force participation. The first is that the fall in the share of employment in agriculture should result in a fall in the participation rate since the expansion of manufacturing will not provide enough jobs for women to balance out the loss. Second, women's participation should stop falling and eventually increase as the white-collar services sector expands, providing increasing employment opportunities. Third, and finally, the expansion of white-collar jobs should coincide with an increase in the share of women with a secondary education, and there should be a catching up *visa-vi* men.

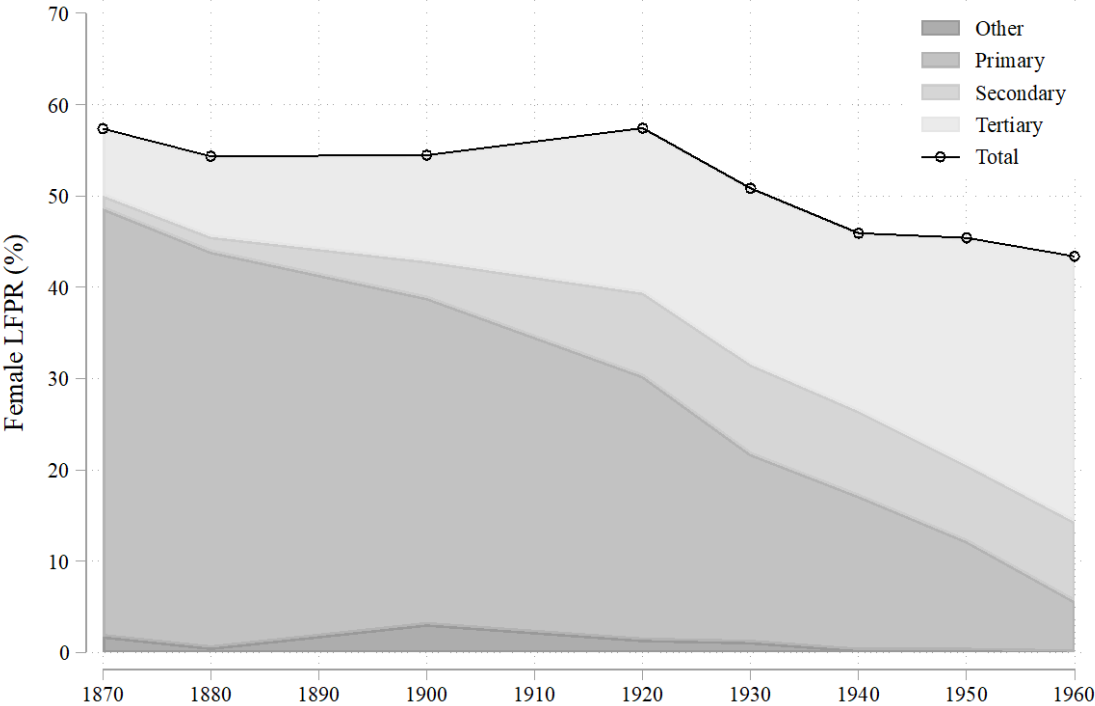
Figure 6 breaks down my new estimate of the female labour force participation rate according by sector. As can be seen in the figure, agriculture fell as a source of employment throughout the period. More than 40 percent of all women above age 15 were engaged in this sector in 1870, and this number would fall to below 10 percent by 1960. At the same time, manufacturing employment did not play a major role for women's employment throughout. The share of the secondary sector increased slightly between 1900 and 1920, from four percent to about nine percent. In this way, it did balance out some of the loss in the primary sector in the early period. But after this early expansion, the share remained stable. Most new jobs were instead to be found in the tertiary sector. Services employed just seven percent of all adult women in 1870; by 1920 this share had risen to just below 30 percent, and by 1960, the tertiary sector employed almost 70 percent of all women in the labour force.

During the early 1900s, the combined expansion of services and manufacturing employment muted the fall in participation that would have resulted from the decline of the primary sector alone. The failure of the tertiary sector to provide enough employment in the 1920s and 1930s, can help explain for why participation fell during this period, while in the 1940s and 1950s, the expansion of services contributed to the stability of the rate, despite the continued fall in primary sector employment.

Overall, the pattern for economic sectors fits quite well with Goldin's theory. The decline of the primary sector appears to have put a downward pressure on women's labour market participation, while the general expansion of manufacturing employment did not provide as many new opportunities for women. In the absence of significant service sector expansion, the participation rate fell during the 1920s and 1930s. The pattern deviates slightly from that hypothesized by Goldin, however, in the sense that service sector expansion began earlier, but was not enough to balance out the loss of primary sector employment before the 1960s. Looking ahead, it is also clear that the continued expansion of the service sector in

combination with the petering out of the fall in employment in agriculture resulted in increased participation from the 1960s and beyond.

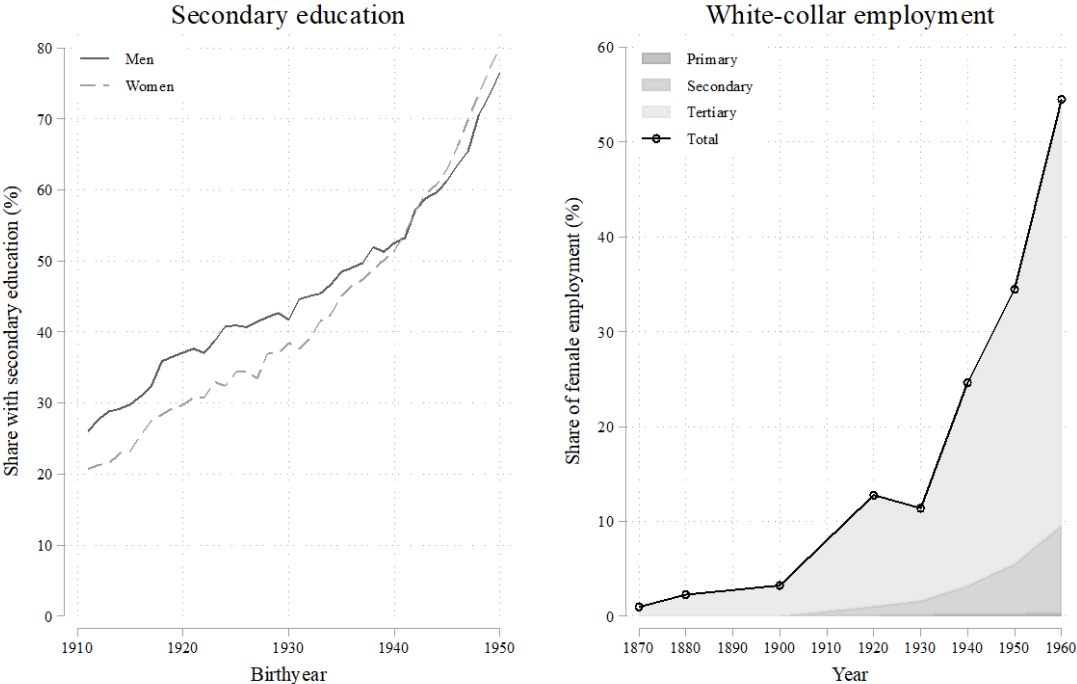
**Figure 6:** Female labour force participation rate, broken down by economic sector, 1870–1960



*Note:* The figure shows the new estimate of labour force participation for women aged 15 and above between 1870 and 1960 broken down to main economic sectors.

Figure 7 gives some evidence in support of the second and third hypotheses relating to white-collar work and secondary education. The left-hand panel shows the share of individuals observed in the 1970 census with at least a secondary level education, by their year of birth and sex. The share with a secondary education rose continuously for both men and women. Of those born in 1910, about 30 percent of men and 20 percent of women had a secondary education or higher, rising to almost 80 percent for the cohort born in 1950. Importantly, for those born after 1940, and who came into the labour market in the 1960s, women had caught up and were even more likely than men to have a secondary degree.

**Figure 7:** Share with secondary education and share of white-collar work in female employment



*Note:* The left panel shows the share of individuals observed in the 1970 census with at least a secondary education by birthyear, divided between men and women. The right panel shows the share of female employment in white-collar work by year, divided between the primary, secondary, and tertiary sector.

The right-hand panel showcases the increased importance of white-collar work for women’s employment. It displays the share of employment in white-collar jobs broken down between the three main sectors. As is evident from the figure, the white-collar share rose continuously from the early 1900s. It increased from less than five percent in the late nineteenth century to more than 10 percent of employment in 1920, then further to 25 percent by 1940, and finally to 55 percent by 1960.

It is clear that the primary sector provided very little in the way of employment opportunities in salaried work for women. Instead, the source of white-collar work came predominantly from the tertiary sector, and to a lesser extent the secondary. As this trend of expanding white-collar work would continue in the 1960s through to the 1980s, it can potentially explain why female labour force participation rose once the primary sector had stopped putting a downward pressure on employment opportunities for women.

## 6 Conclusions

In this article I have presented a new estimate of historical female labour force participation in Sweden over the 1870 to 1960 period, a time when Sweden experienced radical changes to its economy and society. My new series gives a very different view of women's labour force participation compared to previous studies relying on the raw figures from the population census, which are known to underestimate women's gainful employment. I find that the participation rate among adult women was as high as 55 percent in the 1870s, a time when agriculture was the dominant economic activity. As the share of employment in agriculture fell and society became increasingly urbanized, the female participation rate fell as the expanding manufacturing sector did not provide enough job opportunities for women. After a trough in the 1940s and 1950s when the female participation rate was stable at just above 40 percent, it started to increase starting in the 1960s and would peak at about 60 percent in 1990.

The new revised series gives support to Goldin's idea that female participation follows a U-shaped pattern over the course of economic development. Examining the underlying sectoral composition of the participation rate, I find that women's gainful employment was concentrated in agriculture at the onset, and then stabilized once the white-collar services sector began to expand. The trajectory of women's education level also follows the prediction from the theory. The expansion of white-collar work coincided with an increase and a catch-up *visa-vi* men in the share of women with a secondary-level education.

My results also lend support to Sommestad's notion of the historical roots to Sweden's contemporary dual-earner model. Women's labour force participation rate was relatively high historically, and the period when less than half of adult women were gainfully employed was short. Even during the low point in the 1940s and 1950s, the female participation rate never fell below 40 percent. When the participation rate started increasing in the 1960s, it did so from a level that was already high by international standards. As Costa's (2000) comparison shows, the Swedish participation rate in the early 1960s was already in excess of that in all other countries in her comparison, including the United Kingdom, the United States, Germany, the Netherlands, and France. From that point on, it would forge ahead even further.

The Swedish case highlights that despite the existence of a tendency for the female participation rate to follow a U-shaped pattern as a consequence of structural shifts in the economy, there are historical factors that can shape the level of women's gainful employment at every stage of economic development. While this implies that the female participation rate is not solely determined by structural economic forces, it also means that the

scope for public policies to increase women's participation are likely be shaped by historical contingencies and it can be difficult for policymakers to affect.

## 7 References

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