Taking work home:
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Malin Nilsson

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ABSTRACT

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The papers in this dissertation explore women's labour market decisions in the context of an industrializing economy by focusing on female industrial homeworkers in Sweden during the second industrial revolution. Three different datasets were compiled for these studies: one cross-sectional, individual-level dataset based on survey data from interviews conducted with a large number of individual industrial homeworkers in 1911; one longitudinal, individual-level panel dataset based on poll tax records; and one dataset comprising qualitative data based on contemporary texts. Both quantitative and qualitative methods were used to analyse the data. The dissertation consists of an introduction, four research papers and a description of the compilation of the first two datasets.

Paper 1 investigates how the birth of a first child affected the timing of the transition into industrial homework for the individuals. The main result was that having a first child significantly increased an individual's propensity to start industrial homework, both in the urban and rural contexts.

Paper 2 identifies life-course patterns of paid work for industrial homeworkers and explores how marital status affected the trajectories in and out of industrial homework. The results showed that for most women, industrial homework was part of a continuous occupational trajectory and few experienced any occupational mobility during the transition to or from industrial homework.

The focus of paper 3 is seasonal variations in hours worked and how seasonal variation can be explained. The main finding was instead a general lack of seasonal variation in hours worked, in both the urban and rural samples. Most women worked surprisingly consistent hours year-round, despite often being described as highly flexible and seasonal workers. There was however some seasonal variation found in hours worked and this was mainly related to differences in products made.

Paper 4 explores the theory of "housewifization" and whether industrial homeworkers were marginalized and unprotected in the labour market because they were considered to be housewives working for pin money. Industrial homeworkers were not found to be described as housewives or working for pin money in the public debate in early 20th century Sweden. Nor were they housewives – most of them contributed significantly to the household income and the majority of industrial homeworkers were heads of their own households.

This dissertation provides new individual-level evidence of the labour market decisions made by an important but little studied segment of the labour market: industrial homeworkers. By combining quantitative and qualitative methods with data from unconventional sources, it tells us about the conditions of homeworkers as individuals, as parts of families and households, and as a group in the labour market.

KEYWORDS: Industrial homework, industrialization, gender, social history, child care, occupational mobility, life-course labour supply, hours of work, housewifization

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Table of contents

Introduction

1. Background, aim and research questions

I have chosen to study the history of women's work because I want to know why women as a group, throughout history and in all the places so far studied, have had less access to resources than men. Gendered divisions of labour have given women less freedom of choice in the productive activities available to them. By studying divisions of labour in the past, it is possible to discover if and when these divisions can change and thus get insights into how they can change again.

Previously, the work of men has been studied in much greater detail than that of women. However, in recent decades an increasing number of scholars have focused on the work of women (Tilly, Tilly & Scott, 1987; Alter, 1988; Goldin, 1990; Ogilvie, 2003; Burnette, 2008). These studies have contributed greatly to our understanding of gendered divisions of labour in different times and places, and there is no longer any doubt *whether* women worked. But the work of women is often not encompassed by conventional sources like official statistics or company records (Nyberg, 1987; Vikström, 2010; Humphries & Sarasúa, 2012). There is thus still much to be discovered when it comes to the factors influencing the work of women in historical contexts; questions about *when*, *where, why* and *how* often still remain unanswered.

One of the largest changes in methods of production in history has been the process of industrialization. This process rapidly changed not only the methods of production but also the social dynamics of society. For this reason, women's work in industrializing economies has been of special interest as the rapid transformation of society offered a setting in which new types of labour meant a possibility to negotiate new divisions of labour (Pinchbeck, 1969; Hagemann, 1994; Hareven, 1993). At the centre of these transformations was an emerging separation of home and workplace and the dynamic between paid and unpaid work.

The aim of this thesis is to explore women's labour market decisions in the context of an industrializing economy by focusing on female industrial homeworkers in Sweden during the second industrial revolution. Industrial homework was paid industrial production performed within the home of the worker. This group of workers were situated right at the intersection of paid

and unpaid work, between home and workplace, and between formal and informal employment. Industrial homeworkers also provide a good example of how the paid work of women remained hidden from conventional sources, since they were often not included in industrial statistics or company records. Although overlooked by official records, industrial homeworkers represented a large group in the labour market. If industrial homeworkers had been included as a category of their own in the industrial statistics in Sweden in 1910, they would have made up the second largest category for women in manufacturing.[1] Industrial homework was a common form of employment for women all over Europe in the late 19th and early 20th century, however they have received remarkably little scholarly attention. This thesis therefore focuses on this group of workers and in particular tries to answer questions regarding *who* worked in industrial homework, *why* they worked in industrial homework and *what* the terms of their labour were. Three specific research questions are answered by the papers in the dissertation:

(1) What factors influenced women's decision to enter industrial homework?
(2) What factors influenced how much time women allocated to industrial homework?
(3) How did ideological constructions of gender and work affect homeworkers' ability to negotiate the terms of their labour?

2. Theory

2.1 Theoretical points of departure: feminist economics and social history

The field of feminist economics, while assuming that economics and economic theory can explain a lot about the world, also assumes that even more can be explained if one includes a feminist perspective.[2] A feminist perspective implies

1 According to the survey on Industrial homeworkers, slightly over 20,000 women worked in industrial homework in 1912. The industrial statistics estimate the number of women textile workers (not including homeworkers) to be about 28,000 in 1910. The total number of women employed in the manufacturing industry in 1910 was 58,743 (Karlsson, 1996). I could not find gender-segregated industrial statistics for 1912.

2 Much recent feminist economic research can be found in or around the journal "Feminist Economics" published by the International Association for Feminist Economics (IAFFE). For more general overviews see for example (Barker & Kuiper, 2003; Bettio & Verashchagina, 2008; Ferber & Nelson, 2003; Staveren, 2007), on gender and the labour market for example (Jacobsen, 2007) and on development (Balakrishnan, 2001; Beneria, Berik & Floro, 2003) and care work (Folbre, 1994).

that the way we view the economy and economic behaviour is gendered and reflects societal power relations. Feminist economist perspectives often imply a critical stance on the perceived objectivity of the economist and tend to emphasize that results may be skewed by the fact that economists and economic theorists have almost always been male and that they are influenced by their experiences and perceptions of society, and hence leave out the production and much of the work performed by women (Ferber & Nelson, 2003; Nyberg, 2001). Feminist economists have also directed critique towards the concept of the "rational economic man" and assumptions of self-interest; that a rational economic actor is completely selfish in the market but completely altruistic within a family, a common assumption in mainstream economics (England, 2003). Feminist economics rather tend to emphasize the conflicting interests of individuals or subgroups of individuals within a household. A feminist economic perspective also tends to affect what we study, in general leading to a focus on how "real-world" issues affect various subgroups of the population such as women and children, rather than adopting a narrow theoretical focus on choice under stylized conditions of scarcity (Ferber & Nelson, 2003, p. 8).

Work is often at the centre of feminist economic studies, and the questions studied are often (but not exclusively) related to labour market issues such as occupational segregation and wage differentials; family organization such as labour divisions and allocation of resources in the household; gender in economic development as well as the nature of work itself and what types of work are included in national accounts. Feminist economics also tend to contest dichotomies such as productive/reproductive, formal/informal or home/workplace, and see them as closely related to gendered divisions of labour in society. Scholars within and close to this field inspire the questions I study in the dissertation. However, as an economic historian, the assumption is also that a longitudinal perspective will increase our understanding of the world.

The concept of strategies has been important in shaping the way I think about industrial homeworkers and the choices they made. In social history, the strategy concept is often used to approach the decisions made by individuals and has often been used to analyse and interpret how individuals and families have acted to deal with economic and social change. The strategy concept has been used to identify patterns and behavioural regularities, and to some extent also explain them (Baud, 1997; Tilly, 1987). A basic definition of a strategy is to see it as "a plan of procedure by a decision-making unit" although the term has a range of meanings and connotations (Fredrik Barth cited in Kok 2002, p. 466). In social history the term "family strategies" is often used to emphasize

that historically the family could be considered a decision-making unit. In a slightly more elaborate definition of a strategy, Tamara Hareven described a family strategy as "a set of interrelated family decisions and plans governing the family or household membership, migration, demographic behaviour, labour force participation and consumption patterns" (Tamara K. Haraven, 1990, p. 216).[3]

The strategy concept became increasingly popular from the late 1970s, although it has deep theoretical roots in the late 19th century agricultural economist AV Chayanov and his theory of the peasant economy, propagated by social anthropologists and Pierre Bourdieu's work on matrimonial strategies (Bourdieu, 1976). The introduction of the strategy concept should be seen in the context of opposing previous historiography that had an exclusive emphasis on structural factors and portrayed historical actors, especially poor individuals and families, as having little or no agency over how they lived their lives (Baud & Engelen, 1997). Within the strategy framework, historical subjects are instead seen as active agents who operated and interacted with processes of economic and social change without denying the existence of structures (Tilly, 1979, p. 138). In many ways the strategy concept has been used as a way to find a middle ground between individual choices and overarching structures.

The use of strategies as an analytical concept has not gone uncontested. The lack of a clear definition is one topic of criticism. Viazzo and Lynch (2002) claim that despite years of trying, the term remains "ambiguous and ill-defined" (Viazzo & Lynch, 2002, p. 425). According to these authors, at least in the case of social anthropology, the term is still surrounded by an "alarming degree of looseness and confusion" (Viazzo & Lynch, 2002, p. 425). Unclear definitions of the household, family and the strategy concepts also make for weak foundations in cross-cultural comparisons, according to Baud and Engelen (Baud & Engelen, 1997). Another common critique is that it is not possible to tell if individuals' decisions were conscious simply by studying the outcomes of these decisions, as "there is a strategy in every empirical finding" (Engelen, 2002, p. 462). The question of intent is hence an inherent point of discussion when using the term strategy.

I have used the strategy concept as a way to connect with a research tradition that is primarily interested in the questions I aim to work with: How individuals adjust to and are affected by changing social and economic structures, how

3 A longer theoretical discussion of the definitions of the household and family strategies perspective is available for example in (Emigh, 2001)

families regulate the internal allocation of labour, and the role individuals play in devising these family strategies. But I also use it as a tool, to consider historical actors as rational, strategic decision makers, without denying the limits set by the structures within which they make these decisions. Throughout this dissertation, the dynamics between individuals and households form an interesting dimension as well as a problem, given the difficulty of determining whether strategies were advanced by the individual, or if they were the result of collective decisions in the household, or dictated by the specific historical and economic context. These are difficult dilemmas that researchers must constantly deal with. However, to me this also adds to the relevance and interest of studying the interactions between social and economic change, individuals and families, over historical time.

Structural constraints certainly affected the choices that the homeworkers studied were able to make. These women worked in manufacturing, one of the most occupationally segregated branches of the labour market. Labour market segmentation very likely restricted the choices they were able to make and their low wages may be explained, at least in part, by them being crowded into a small segment of the labour market (Bergmann, 1974). In addition, women workers were most likely statistically discriminated against by employers and institutionally restricted by both a breadwinner ideal and official legislation (Horrell & Humphries, 1997; Wikander, Kessler-Harris & Lewis, 1995). Nevertheless, explanations that focus on structural aspects, however important for explaining differences in outcomes for groups of workers and long-term trends, may not be very helpful in explaining variation in outcomes within a cross-sectional group of individuals such as that primarily studied in the thesis. This is especially true when individuals by and large are similar in terms of age, gender, religious, social and ethnical backgrounds.

As I study individual women and the choices they make in a labour market full of structural constraints, I needed a concept that recognises that workers can make decisions about their own lives, without assuming that they are completely rational actors without any structural restrictions or context. Following Naila Kabeer, I attempted to take an analytical approach that is:

> "acknowledging structure without denying agency, in order to see their interaction in shaping how women's labour market decisions were actually made" (Kabeer, 2002, p. 326).

There are several other concepts that could bring a similar framework to the thesis. Terms like "capabilities", "agency", or "livelihoods" would all potentially bring conceptual context and ways to frame the labour dynamics of the industrial homeworkers. Nevertheless they all have strengths and weaknesses of their own. I believe that using the strategies concept, or more specifically the labour strategies concept, in my dissertation has several clear advantages: it is a more established concept in the social history tradition and connects this dissertation to a field of study that has dealt with similar questions and concepts while still allowing an approach that views industrial homeworkers as agents of change.

I have been interested in the labour market decisions that industrial homeworkers were able to make during the second industrial revolution, and how individual or household level determinants affected these decisions. The individual and the household are hence the primary units of interest in the dissertation. By focusing on the labour market decisions and strategies of these individuals, I assume that they have had some kind of choice and that there is an option that is not chosen, which represents an opportunity cost to the decision made. From a theoretical perspective, I am thus positioning myself fairly closely to applied mainstream microeconomic theory. However, I also acknowledge that these choices were restricted by structural constraints such as cultural norms, opposing group interests and institutional inequalities. Even though these structures were not the focus of this dissertation, I hope that by studying the labour strategies and choices that were possible within these structures, we can get a better understanding of when these structures were more or less rigid.

2.2 Theoretical framework

As this is a compilation thesis, the applied theoretical framework differs from paper to paper, as will be discussed in greater detail within each chapter. There are however some general theoretical considerations that have informed the questions asked throughout this thesis. Economists study individuals' decisions whether to be in paid work at all, and how much they work, by using labour supply models. The aim of the dissertation is not to construct fully parameterized labour supply models for industrial homeworkers, but the questions and relationships I try to answer using historical data in Papers I, II and III have been informed by relationships described by these models and by modern economic approaches to studying home-based work.

2.2.1 Determinants of individuals' decisions to take on industrial homework

Labour supply models can be used to understand whether and how much time individuals spend performing paid work. These models rests on the assumption that individuals must balance a trade-off between consumption and leisure under a budget constraint set by the time available to perform work, market wages, and non-wage incomes. Consumption represents all the goods and services that an individual uses while leisure represents the time spent not performing paid work, including housework and actual leisure. Because every hour of leisure represents an hour without pay, the price an individual must pay for one extra hour of leisure will be equal to the wage rate.

Under these premises, the relationship between market wages and the numbers of hours worked will depend on the relative strength of two factors: the substitution effect and the income effect. Provided that leisure is a normal good (something that people wants more of if they have more money), the substitution effect dominates when wages are low, causing individuals to work more as wages increase due to the increased cost of leisure. When wages are higher, however, the income effect will tend to dominate, causing individuals to buy more leisure and work less as wages increase (Jacobsen, 2007, p. 131). This basic model captures some important aspects of labour supply dynamics, but fails to take into consideration many important aspects of individuals' labour supply.

Household production, for example, often forms a substitute for wage work that needs to be distinguished from other kinds of activities that are included in an individual's leisure time in the basic model. In more elaborate labour supply models that account for the value of household production, individuals are instead faced with a choice between market work, household production and leisure. The allocation of time between market work and household production will then depend on an individuals' relative productivity performing each of these activities.

Individuals also often form part of a family. Labour supply models have been constructed where the family has replaced the individual as the economic unit of interest. When faced with empirical data, however, these collective models often fail to predict important aspects of individuals' labour market decisions. One reason for this is that they do not take into consideration that individuals within a family do not always have equal access to non-wage incomes. Other models have solved this problem by defining separate labour supply functions for each family member, but allowing parts of individuals' wages and non-wage incomes to be distributed among family members via "sharing rules" (Cahuc &

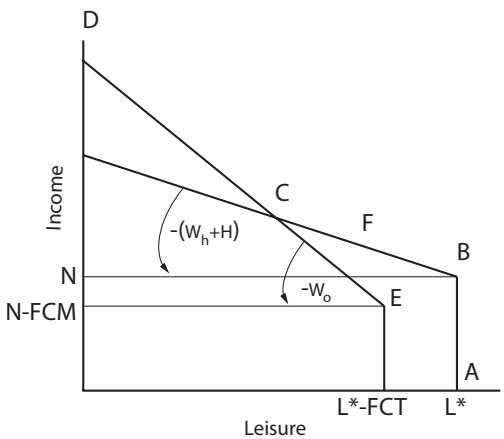
Zylberberg, 2004, p. 5-12). These kind of interfamilial, decision-based models have proven to be highly relevant for understanding the labour supply of diverse groups on the labour market. That the choices of family members are inherently interdependent is thus true for many groups of workers. It is perhaps especially true for women in the early 20th century.

To understand the labour supply of industrial homeworkers, additional choices can be introduced into these labour supply models. In particular the choice between performing paid on-site work or paid home-based work. One present-day study provides such a model, which can help us understand how individuals decide between engaging in home-based or on-site paid work.

2.2.2 Modelling the decision to enter industrial homework

According to the model of Edwards and Field-Hendrey (2002), the choice between work sites will depend on the fixed costs of working, the determinants of wage and household productivity, and the potential for joint home production. Although this model was developed with a late 20th century economy in mind, several of the general relationships between unearned (non-wage income), value of home production and wages are informative with regards to turn-of-the-century homeworkers. This section of the text describes the variables of the model, some empirical examples that show why there is reason to believe that they can also be relevant in a historical context and how the relationship is studied in the thesis. First we see the general model in figure 1.

Figure 1 The Edwards and Fields-Hendrey model of labour supply by work site



Source: Figure 1 "Diagrammatic model of labour supply by work site" in Edwards and Field-Hendrey, page 175.

In the model, N is unearned income, and L* is the total amount of time available. FCM is monetary fixed costs and FCT is fixed costs in time for on-site work (such as commuting). W_h and W_o are the respective wage offers for home based and on-site work; H is the monetary value of household production per hour of home-based work. The model assumes that fixed costs for home-based work are zero and that $W_h < W_o$. Women can choose to be at point B and be completely out of the labour force; to be in segment BC and be a home based-worker, or to be in segment CD and be an on-site worker. The budget constraint is ABFCD (Edwards & Field-Hendrey, 2002, p. 176). The relationships are summarized below in table 1.

Table 1

	Predicted change in probability of being in specific work site			
Increase in	**In figure 1**	**Home-based work**	**On-site work**	**Out of labour force**
Value of home production	H	+	-	-
Wage as home-based worker	W_h	+	-	-
Wage as on-site worker	W_o	-	+	-
Fixed costs in money or time when working on site	FCM/FCT	+	-	+

Table from Edwards & Field-Hendry (2002, p. 177)

2.2.3 The value of home production

The value of home production effects the choice between work-site because of the possibility of joint production in home-based work. Because home-based workers are assumed to be able to divide their time more effectively between care work and producing goods for money, we might expect that an increase in the value of home production like for example the birth of a child to increase the value of home-based production relative to on-site work. This may be especially important in a historic working-class context. Industrial homework has often been seen as a strategy that allows individuals to resolve this conflict between the simultaneous increase in the demands for home-based care work. In a recent study, Paul Atkinson confirms this view of home-based work as an option for the "hard-pressed young mother" (Atkinson, 2012, p. 153). Based on these considerations, we may expect a strong positive correlation between the timing of a first child and labour market transitions to industrial homework. This relationship is explored in Paper II.

The value of joint production can also be expected to increase when women get married (Edwards & Field-Hendrey, 2002, pp. 174–178). Marriage can thus be expected to have an effect on labour market transitions even in the absence of children. Previous studies on industrial homework have strongly emphasized that the transition to industrial homework is highly contingent on marriage. As an example, Tilly and Scott quote from Charles Booth's Life and Labour of the People in London, on women in the London garment industry: "Before marriage they go to the shops, and after marriage, if obliged to earn money, they take the work home" (Tilly et al., 1987, p. 126). This relationship and its consequences for the career of homeworkers are explored in Paper I.

2.2.4 Wages in home-based work and on-site work

Edwards and Field-Hendrey's model further predicts that the wages an individual can potentially earn in an on-site workplace relative to what can be earned at home will be important for whether individuals choose to take on industrial homework. Women with higher potential earnings in home-based work should thus be more likely to be in home-based work while those with higher potential earnings (including deductions of fixed costs and the value of household production) in a formal workplace would be more inclined to stay out. As my data does not allow for this, the relationship between potential wages in on site-work and wages in home-based work is not specifically explored in any of the papers. The direction of it is however used to provide explanations for the results, in several of the papers, especially Paper III.

3. Delimitations: choosing time and place

The setting of this dissertation is Sweden during the second industrial revolution. In Sweden, the second industrial revolution roughly corresponds to the time between 1890 and 1914. I chose to study this period, as it was an era of major societal transformations. During the last decades of the 19th century and first years of the 20th century, Sweden was catching up with many of its European neighbours, experiencing rapid industrial growth along with an urbanization process led by young women (Schön, 2000, p. 222). This period has been described as a "gender crisis" during which the new gendered norms of the urban and industrialized society had not yet become permanent (Hedenborg & Wikander, 2003, p. 148). The labour market was also transforming rapidly. Most of the homeworkers I study entered the labour market as teenagers around

the turn of the 20th century. Half a century later, in the 1950s when they were in their sixties, the labour market for women had changed dramatically. I refer to this period as the second industrial revolution to emphasize that the structural changes occurring in Sweden during this time closely resembled those changes that occurred in many European countries during the latter part of the 19th century and the beginning of the 20th century. Other terms could potentially have been used to refer to this period such as the "industrial capitalist era" or the "family wage economy". However, these terms are laden with assumptions about the institutional context. To facilitate comparisons, I have chosen to use the term "second industrial revolution" because it highlights that these individuals acted within a structural setting resembling that of other countries undergoing a similar process of industrialization, although this did not always occur at the same time or within the same institutional context.

The decision to study Sweden during this period was strongly motivated by the availability of sources. Sweden was not the only country that made surveys of industrial homeworkers, but Sweden at this time conducted one of the largest national surveys of industrial homeworkers ever made. Sweden was not chosen as an extraordinary case. Rather the situation for homeworkers in Sweden is expected to resemble that in many other western European countries around this time. In terms of the types of products made and the organization of labour, industrial homeworkers in Sweden were similar to those in many other European countries.

However, Sweden differed from the larger urban metropolitan areas of Europe in one important respect: the labour force of industrial homeworkers in Sweden was not ethnically diverse. Although some Swedish workers were migrants, they rarely came from other countries but more often came from neighbouring rural areas. Potentially, this may cause the experiences of Swedish industrial homeworkers to differ from those of industrial homeworkers in other countries, as ethnicity is often brought up as an important aspect of labour market dynamics. The individuals I study were actually economically active over a period of time covering nearly a hundred years; the oldest were born in the 1840s and the last observations I have on their economic activities are from 1944. However the majority of their labour market decisions studied here were made around the turn of the 19th century and thus this is the period discussed here and the setting for previous research.

4. Previous research

Women industrial homeworkers during the second industrial revolution have been studied both by contemporary observers and by modern scholars. The contemporary texts were often produced within the context of introducing protective legislation for women workers and public debates on social reform. Many countries performed surveys of various sizes on the situation of industrial homeworkers during this time, often in response to a strong public discourse on their social situation. Many were based on census figures, but there were also smaller surveys that focused on a particular branch, region or social segment (Women's Industrial Council, 1908; Mény, 1910; Direction du travail, France, 1909).

Many of the surveys, texts and exhibitions about industrial homeworkers produced during this time often had an explicit political motivation, and were often conducted with specific objectives in mind. For example the desire to introduce a minimum wage or to ban industrial homework (Fiedler, 1908; Meyerson, 1907; Hewes, 1915). In some cases they aimed to investigate how women workers depressed the wages of male workers, and specifically for industrial homeworkers, how they depressed the wages of male factory workers (Coons 1993, 65). Although these contemporary materials form an important source of information on industrial homeworkers, to some extent they form a problematic source as many of them were explicitly created to highlight the adverse nature of industrial homework. They may thus be expected to present a rather biased view of industrial homeworkers. They also often only display aggregated numbers, whose presentation can easily have been affected by the motivations of the individuals performing the surveys. Without access to the raw data, and without information on how representative their samples are of the wider population of homeworkers, the results from these surveys cannot be seen as a fully reliable source of information about the situation of industrial homeworkers. The Swedish survey of industrial homeworkers that forms the basis for this thesis is an exception, as it represents a near-exhaustive national survey and makes it possible to re-examine the original, raw data collected on individual homeworkers.

There has been limited scholarly research on industrial homework and gender during the second industrial revolution. Most of the studies dealing with women homeworkers during this period have focused on them in relation to legislation and perceptions of women's labour (Boris, 1994; Boxer, 1986; Coons, 1993; Rose, 1987). One study by Boxer (1982) is particularly important, however, as

it provides an overview of the process of organization of Parisian flower makers between 1896 and 1911. Another relevant study is an unpublished working paper by Jessica Beans (2011), in which she has studied the labour supply of female homeworkers in London between 1897 and 1907. In more general texts on gender and labour covering this time period, industrial homeworkers are often presented in the context of making paid labour fit in with women's primary role as a caregiver, a wife and a mother in a family wage economy (Simonton, 1998; Tilly et al., 1987).

Gender and work has been an active academic field in Sweden since the 1970s, with a large number of studies dealing with continuity and change in gender and labour during the second industrial revolution. A number of studies have used a specific company as a point of departure for studying long-term changes (Wikander, 1988; Norlander, 2000; Hesselgren, 1992). Others have focused on specific occupational groups such as bank tellers, primary school teachers or the masculinization of the dairy industry (Florin, 1987; Sommestad, 1992; Holmberg, 2013). There have also been studies that have dealt with women in specific industries, such as the tobacco industry (Stanfors & Karlsson, 2011, Burnette & Stanfors, 2012).

No modern scholarly works have dealt with women industrial homeworkers in Sweden during the second industrial revolution. In a relatively recent study, Malin Jonsson focused on women weavers in Dalarna 1938–1955 and their contribution to household incomes (Jonsson, 2006). However, this spans a later time period than that studied here and the women worked in a much more craft-based context. When industrial homework in Sweden during the early 20th century has been examined in general texts on gender and labour, or texts which focus on gender and labour from a different perspective, it has almost exclusively been described as work done as a consequence of a strong breadwinner ideal, and a bourgeois public-private family norm (Carlsson Wetterberg, 1986, p. 44; Karlsson, 1995, p. 27; Frangeur, 1998, p. 49; Hedenborg & Wikander, 2003, p. 98). There are, however, contemporary texts dealing with Swedish homeworkers. One of the most important is a text written by Gerda Meyerson in 1907 based on a number of interviews conducted with industrial homeworkers as background material for an exhibition on the situation of industrial homeworkers arranged by the National Association of Social Welfare (*Centralförbundet för Socialt Arbete*), an interest group working with questions of social reform (Meyerson, 1907).

Since the mid-1800s there has been a tradition of talking about industrial homeworkers as invisible, describing them as invisible threads, invisible hands

or invisible no more (Boris & Prügl, 1996; Chen, Sebstad & O'Connell, 1999; Johansson, 2002; Singh & Kelles-Viitanen, 1987). However, describing home-based workers as invisible implies that it is not possible to find, organize or include them in labour market regulations or studies. Describing women who worked for money in their own homes or in the homes of others as invisible thus appears instead to have become a performative action. Although these workers do appear to have been structurally excluded from industrial statistics, they were not essentially invisible but can, as evidenced by this thesis, be studied quantitatively if researchers adopt the methods necessary to find them.

5. Data

This section presents the empirical data on which the dissertation is based. Three different datasets were compiled for this thesis: one cross-sectional, individual-level dataset based on survey data from interviews; one longitudinal, individual-level panel dataset based on poll-tax records; and one dataset with qualitative data based on contemporary texts. These will be presented in detail in the following sections. The collection, quality and linking of these two datasets is further described in the data description section in the appendix of the dissertation.

5.1 Survey data

The cross-sectional dataset was compiled based on survey data from individual interviews collected by the National Board of Health and Welfare (Socialstyrelsen) in 1912. The whole survey comprised over 5000 face-to-face interviews with individual homeworkers (men and women) and was intended to form a representative sample of the whole population of about 28,000 industrial homeworkers in Sweden in 1912. The results of the survey were presented in two volumes published in 1917. The data was extracted from the original score cards on which the interviews were recorded. The interviews hold information on individual, household and occupational features of individual homeworkers. They also hold retrospective information on previous labour market experience and vocational training. From the interviews, two subsamples were drawn based on gender and geographic location: one urban sample with women industrial homeworkers in Gothenburg (N = 276) and one rural sample with women homeworkers from rural areas of Älvsborg county (N = 312).

The survey material offers a unique opportunity to gain information about individual industrial homeworkers. The ultimate way of getting to know the labour market strategies of women industrial homeworkers would probably have been to ask them; performing a large survey asking hundreds of homeworkers what they thought about their work, how they planned their lives and labour market participation. For historical actors this is not an alternative. But sometimes you get lucky and find that someone else has done the work for you, 100 years ago. A large number of social surveys were performed during the early 20th century. Some of these, like the Swedish survey, provide great material for quantitative studies, but these have only rarely been used for this purpose. These surveys form a valuable but underemployed resource, especially when it is possible to access the raw material as here. In historical studies, pre-collected survey data offers a rare opportunity to get survey-type data from the period and population of interest. As the respondents in general are no longer alive, the option of performing your own survey simply does not exist.

Using material from an existing historical survey nevertheless has some drawbacks compared to being able to plan and perform the interviews yourself. For example, the research questions one can pursue are often limited because the original material was collected with other questions in mind. The material also often lacks detailed descriptions of collection methods and sampling strategies. Verifiability and replicability are additional issues, as studies based on such data are not replicable except in the sense of re-analysing the same material (or validating using subsets of the data). Being able to work with the original material helps in many respects, as it often contain clues as to how the material was collected. Compared to the situation where researchers are forced to rely on summary data and data compiled by other individuals, working with the original material is a major improvement. However, one must always keep in mind the challenges and limitations inherent in "not having been there" to collect the data yourself.

There are however very few alternatives to these types of data when attempting to study the labour market decisions of industrial homeworkers during this period. Even if homeworkers had been included in factory records, industrial statistics or company records, these generally do not provide similarly detailed information about previous labour market experience, household context or hours worked. Several other surveys of European homeworkers could potentially be used for this purpose, but the Swedish survey represents one of the largest, most exhaustive and carefully planned in terms of achieving a representative sample. This interview material is thus the best or one of the best available

sources to study the labour market decisions of industrial homeworkers during this time period.

Archival work for this dataset was done in stages from October 2009 to June 2011.[4] All the interviews are recorded in the archive of the National Board of Health and Welfare (*Socialstyrelsen*), housed at the National Archive depot in Arninge. They are located in large boxes, roughly sorted by geographic region. In order to locate interviews from Gothenburg and Sjuhärad I went through all 5000+ interviews and photographed the ones with addresses in these areas. The information on the interview score cards was extracted into Microsoft Excel. Further transformations of the dataset, for example into the person-period format used in Paper I, were carried out in the statistical environment R.

5.2 Poll tax data

The longitudinal dataset tracked the same individuals as the urban sample described above at four-year intervals between 1912 and 1944. It was compiled based on poll tax records for all parishes in Gothenburg. The poll tax records are census material, targeting the whole population and forming a register of all inhabitants. The information in the poll tax records formed the basis for taxation, social control, rights related to citizenship, and population statistics aggregated at parish level. The information on taxes and the occupational information in the poll tax records are based on self-reported information, sent in by the head of the household to the Poll Tax Office (*Mantalskontoret*).

In order to find individuals in the poll tax records, I first linked them to the central address register, which the Gothenburg city kept for all its inhabitants between 1917 and 1967. The register recorded changes in individuals' residential addresses from year to year, which greatly facilitated locating the individuals in the poll tax records in different years. To avoid missing true linkages and getting false linkages, I cross-referenced the personal information in the interviews with other sources before attempting to link them to the central address register. I first used personal information in the poll tax records for 1912 to

4 During my first visit in October 2009, I made an inventory of the holdings in the archive. During the second visit in March 2010, I took photos of a sample of employers, middlemen and workers. For the third trip, in June 2011, the scope of the dissertation had been narrowed down to interviews with industrial homeworkers from Gothenburg and Sjuhärad; these were photographed during this visit. I would like to thank Viktor Nilsson-Örtman who assisted me in taking photos of the interviews during the last days of the archival work: thank you for your help and for saving me from spending more time on the inadequate communications with the National Archive depot in Arninge.

access their middle names and full names if they used an abbreviated version in the interview.[5] To access birth date and maiden names or married names I used the "Swedish death index 1901–2009", a publication from the Swedish genealogical society, containing the names of all individuals who died in each year from 1947 onwards and about 70 per cent of individuals who died between 1901 and 1946.

A total of 137 individuals, 49 per cent of those in the urban sample, were successfully linked between the interviews and the central register. The main causes of attrition in the stage between the interviews and the central register were missing or scarce information in the interviews, incomplete addresses, incomplete names, or in some cases illegible handwriting. The second stage was to try to find the 137 individuals in the poll tax records at four-year intervals between 1912 and 1944. I attempted to find every individual at each point in time unless I knew that they had died, moved out of Gothenburg or, as in a few cases, were institutionalized, which rendered them impossible to find. The average number of individuals found per year was 82, about 60 per cent, corresponding to an average attrition rate of 40 percent in the second stage.

I found the poll tax records to be an imperfect but useful way to study the occupational trajectories of industrial homeworkers. Poll tax records have been used in previous studies on longitudinal occupational patterns for both men and women, and the central address register provided a way to follow the 276 individuals over 32 years in a realistic amount of time. However, there are some large and gender-specific problems with using the poll tax records as a source of information on women's paid work. Married women seldom registered an occupational title and women working irregular hours were probably less likely to have stated an occupation in the poll tax records. Several previous studies have discussed the effectiveness of using sources such as poll tax records or census material to study women's work due to the underreporting of women's work in general, and that of married women in particular. However, no previous studies have actually assessed the extent to which industrial homeworkers were underreported in these sources. Thanks to the fact that the studied individuals were known to be engaged in industrial homework in 1912, Paper II represents a rare opportunity to directly quantify this underreporting.

Another problem was the large attrition. In addition to standard sources of panel attrition such as individuals moving out of the area or dying, considerable

5 I was able to find them in the poll tax 1912 because I had their addresses in 1912 from the interviews.

attrition arose because the names and addresses on the interviews were often imprecise to start with. The double linking approach I employed, using the central address register as an aid to link individuals to the poll tax records, reduced this attrition somewhat, but attrition due to this reason was still substantial. Some attrition may also have been due to women changing their names when they marry. This was mitigated to some extent by using the "Swedish death index" to get both their maiden names and married names, and by searching for individuals under both names in the address register. The large attrition in combination with the extremely time-consuming process of the archival work and linking the data made this a very challenging study from a time-per-data point perspective.

Again, there are few alternative sources available that can be used to reconstruct occupational trajectories of women homeworkers. Possible alternative sources mainly include company records. But these often contain other types of gender biases in that women were more often employed by smaller employers and company records of small employers survive less often than those of large employers. Women working in their homes were also unlikely to be encompassed by company records, as they were not physically in the workplace and often worked irregularly over the year. Studying the occupational mobility of a group of women based on company records would thus also be fraught with difficulties. At present, poll tax records appear to be the best possible source for finding patterns in the occupational trajectories of industrial homeworkers.

The archival work for this data was done during September 2011 to early January 2012 in the regional archive in Gothenburg.

5.3 Qualitative data

The qualitative dataset consisted of a compilation of official records, political pamphlets and newspaper articles from 1906 to 1910. These texts were selected on the basis of being part of the public debate preceding the industrial homework survey used. The texts found were:

- "*The conditions of Swedish industrial homework*" ("Svenska hemarbetsförhållanden") from 1907 by Gerda Meyerson. This book deals with the "homework question" and aims to give an insight into the work and living conditions of industrial homeworkers. It was written at the request of the National Association of Social Work (Centralförbundet för Socialt Arbete, SCA), a social liberal group formed on the model of the Fabian society and the German Verein für Socialpolitik.

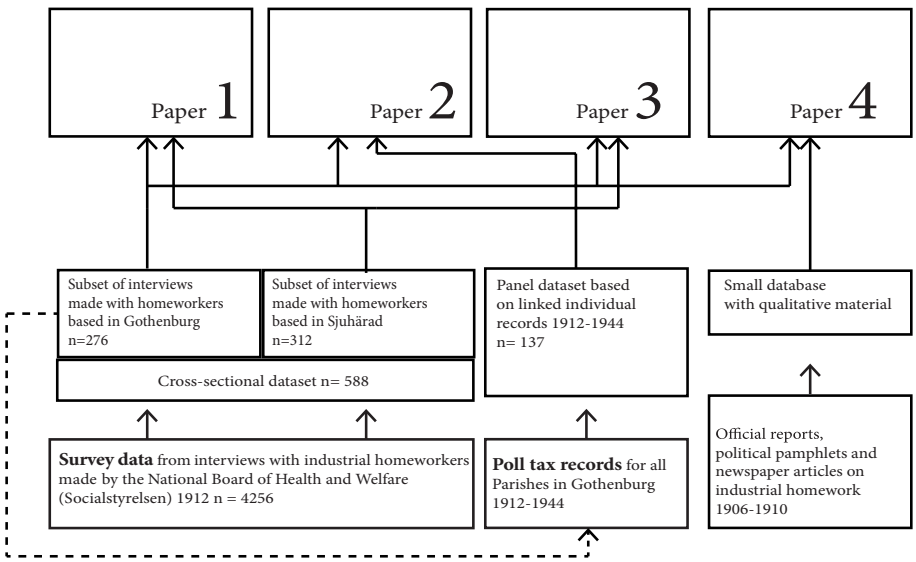
- "*Notes on the question of regulating homework and home industries*" ("Anteckningar till frågan om hemarbetets eller hemindustriens reglering genom lag") written by Moritz Marcus at the request of the Government Committee on Occupational Hazards (yrkesfarekommittén).
- Proposed legislation on the regulation of labour in industrial homework from 1909 (Förslag till lag angående hemindustriellt arbete i Betänkande afgifvet den 9 december 1909 af den af Kungl. Maj:t den 20 januari 1905 tillsatta Kommittén för revision af lagarna angående skydd mot yrkesfara och angående minderårigas och kvinnors användande till arbete i industriellt yrke m.m.).
- "Reasons for the bill for the regulation of labour in industrial homework from 1909*" (Motivering af förslaget till lag angående hemindustriellt arbete).*
- Newspaper articles.

For the qualitative material I have focused on the discourse on industrial homeworkers in the debate preceding the National Board of Health and Welfare survey. This debate arose in connection with an exhibition on industrial homework arranged in Stockholm in 1907 and resulting in several types of texts including official political sources, political pamphlets and newspaper articles. These texts often overlap when it comes to the people involved in writing them. Moritz Marcus, who wrote one of the pamphlets on the need for regulation, later became involved in official proposals for regulating industrial homework. Gerda Meyerson was deeply engaged in the homeworkers' cause, wrote several of the studied texts, and was one of the organisers of the industrial homework exhibition in 1907. These individuals kept returning to these subjects over long periods of time and seem to have formed a close group of social debaters that were engaged in the "homework question".

The newspaper articles I study were all published in Swedish newspapers around the time of the exhibition on industrial homework in Stockholm in October 1907. These newspaper articles were collected by the National Association of Social Work (Centralförbundet för Socialt Arbete, CSA) that organized the exhibition. The articles were found in the CSA archive in the National Archive in Stockholm and were labelled "newspaper clippings on the industrial homework exhibition". It is important to note that I was not personally involved in the selection of these articles. However, the organisers of the exhibition appear to have scanned all major Swedish newspapers for entries relating to industrial homework or to the exhibition itself, without apparent

selection biases (positive as well as strongly negative views are represented). In total, 29 newspaper articles were collected from April 1906 to October 1907. Alternatively, I could have scanned all relevant newspapers myself instead of relying on the compilation made by the CSA. However, it is my impression that this would not have resulted in a significantly different collection of newspaper articles. I thus believe that the combined collection of books, texts and newspaper articles forms an illustrative sample of the public discourse on the subject at the time, without strong selective biases. Figure 2 displays a brief overview of the data used in the separate papers.

Figure 2 Sources and data for the individual papers



6. Methods of data analysis

I use five primary methods for analysing the information that I have compiled: event history analysis, principal component analysis, multiple regression, comparative descriptive and qualitative content analysis. Next I present the main features of these methods and how and why these types of analyses were chosen. I use both qualitative and quantitative approaches in the dissertation, although not explicitly a mixed methods approach, the studies in the dissertation are good examples of how often quantitative and qualitative approaches overlap

rather than having a dichotomous relationship. The quantitative analyses are often based on qualitative information contained in the interviews. For example individuals were asked in the interviews about the types of products they made and their previous work experience. Such information has been converted into quantitative variables and analysed using quantitative methods. Table 2 provides an overview of the method of analysis and data used in the papers.

Table 2

Paper	Research question	Operational question	Method of analysis
1	What factors influenced women's decision to enter industrial homework?	• What was the relationship between the timing of transition into industrial homework and the birth of a first child? • Was this relationship different in urban and rural contexts? • Was this relationship different depending on the individual's previous labour market experience? • Was this relationship different depending on the individual's social background?	Event history analysis
2	What factors influenced women's decision to enter industrial homework?	• Was industrial homework part of a continuous occupational trajectory? • What was the association between marital status and the occupational trajectories of industrial homeworkers? • To what extent is it possible to use register-type sources to study the occupational trajectories of industrial homeworkers?	Comparative descriptive analysis
3	What factors influence how much time women allocated to industrial homework?	• What patterns of seasonal variation could be found in hours worked by industrial homeworkers? • Were there urban-rural differences in patterns of seasonal variation in hours worked? • Were seasonal patterns in hours worked related to seasonality in the work of the household head? • Were seasonal patterns in hours worked related to seasonality in demand for products made?	Principal Component Analysis (PCA) Multiple regression analysis
4	How did ideological constructions of gender and work affect ability to negotiate the terms of industrial homework?	• Were the industrial homeworkers ideologically constructed as housewives? • Was this an accurate picture, i.e. were they workers with supplementary incomes that were not important for the subsistence of the family?	Content analysis Comparative descriptive analysis

6.1 Event history analysis

I used event history analysis to explore the relationship between having a first child and starting in industrial homework (Paper I). Event history analysis is a fairly standard method in historical demography and is used to explore the timing of transitions (Suanet & Bras, 2010). I used a discrete-time event history model, which requires the data to be transformed into a person-time format, after which it can be analysed using a standard logistic regression model.

Alternatively, Cox proportional hazard models can be used to study the timing of events occurring over the course of an individual's life. However, these could not be used here as I was also interested in the effects of time-varying covariates (Guo, 2009, p. 2). Another way to explore the relationship between the timing of having a first child and starting industrial homework is to rely on qualitative descriptions of this transition. However, few of the interviews contain any records of individual homeworkers talking about their own experiences in industrial homework. In addition, contemporary sources usually consist of other people describing the experiences of industrial homeworkers. Event history analysis thus provides a way to complement previous narratives by quantitatively testing the relationship between having a child and making labour force transitions, which has not been done previously.

6.2 Principal Component Analysis

To identify seasonal patterns in hours worked by industrial homeworkers, I employed Principal Component Analysis (PCA) (Paper III). PCA is a form of factor analysis which describes and identifies the major underlying patterns of variation in the data (Field, Miles & Field, 2012). In my case, the data was hours worked per day in industrial homework during each month in 1911. PCA is a common technique in several other academic disciplines, but has not been commonly used in economic history, except for a few recent studies (Henning, Enflo & Andersson, 2011). One of the strengths of this type of analysis is that it identifies patterns without making any *a priori* assumptions about how these patterns look, and provides a way to identify several different types of patterns within the same data and the amount of variation explained by each pattern.

An alternative way to reveal seasonal patterns is to explore seasonal changes in hours worked for different groups of workers graphically. But this requires one to make assumptions about the groups that may display different seasonal patterns and cannot be used to quantify the amount of variation explained by the different patterns.

6.3 Regression analysis

I used standard Ordinary Least Square models to determine the relationship between specific seasonal patterns in hours worked and the occupation of the household head and the types of products made (Paper III). The response variable in these models consisted of individuals' factor scores derived from the PCA analyses. These scores describe how well the hours worked by an individual were described by a specific seasonal pattern. These scores were found to have a normal distribution, and could therefore be analysed using the standard OLS model.

Logistic regression analysis was used where the response variable was a binary outcome, more specifically whether individuals stated that their work was "irregular" or specified the number of hours worked in each month (Paper III). This type of regression analysis very much remains the core of the social science quantitative analysis toolbox, as it can be used whenever one is interested in the relationship between two or more variables.

6.4 Comparative descriptive analysis

In several of the papers, I use descriptive statistics to identify and compare different subgroups or samples. Most often, the summary statistics are displayed in contingency tables and plots. This method is especially used in Paper II, where I am primarily interested in mapping occupational trajectories and comparing patterns for different groups of workers. One alternative to this descriptive and comparative approach would have been to try to model determinants of the different trajectories. However, as the sample sizes were quite limited the added utility of using quantitative models was not apparent. As there are no previous studies on the occupational trajectories of industrial homeworkers, the methods used in paper II were aimed at describing the trajectories as thoroughly as possible to illustrate the complexities and dynamics present in the material.

Descriptive statistics were also used to investigate whether the industrial homeworkers really could be described as "housewives", in the sense that they were married workers with incomes that were not critical for the sustenance of the household income (Paper IV). In this paper, details of their marital status and average incomes are provided along with an in-depth description of the socio-economic household situation of individual workers from different subgroups.

6.5 Qualitative content analysis

Content analysis was used to explore the ideological constructions of industrial homeworkers (Paper IV). Content analysis is a set of procedures used to analyse text by identifying items or conceptual categories in the text (Julien, 2008). I set up a coding scheme for the analysed texts that included the following questions:

(1) Are the homeworkers described as married women in the text?
(2) Are their incomes described as secondary or complementary in the text?
(3) Are the homeworkers described using the term "worker" (arbetare/arbeterska) throughout the text?

The aim of the study was to test Maria Mies' theory on housewifization. The questions were formulated and the analysis was chosen with this theoretical framework in mind. Since all texts had negative answers to all of the questions above, I made no further attempts to code or categorize the texts according to how the industrial homeworkers were described in the texts. It can be argued that the questions were too blunt to uncover certain dimensions in the discourses on industrial homeworkers that were present in the text but not captured by those questions. A more data-driven analysis might have discovered more complexities in the material.

7. Presentation of the four papers

Paper 1

Paper one deals with the relationship between women's paid labour and unpaid care work, a central issue in understanding gender inequality in labour market outcomes. For women in a western context, it has been well documented that the relationship between having children and making labour force transitions changed over the course of the 20th century. In the mid-20th century, having a child often meant leaving the labour force completely for several years, or for good, while in the late 20th century, having a child more often meant transitioning to part-time or more flexible work arrangements (Goldin, 1990, 2014; M. A. Stanfors, 2006). However, comparatively little is known about how having children affected women's labour force decisions during the late 19th and early 20th centuries. In Paper I, my aim was to improve our understanding of women's labour market transitions during this period by investigating how the timing of having a first child affected the timing of transitions into industrial homework among women in early 20th century Sweden.

To investigate the relationship between having children and transitioning to industrial homework I used the full cross-sectional dataset containing retrospective information on individual industrial homeworkers from urban (Gothenburg) and rural (Sjuhärad) areas. The data was analysed using discrete-time event history models.

The main results from this study were that, controlling for social background and previous labour market experience, having a first child was a significant determinant of transitioning to industrial homework in both urban and rural areas. The effect was however stronger in rural areas. There was no effect of having a second or third child in any area. Having a child was however not the only determinant of the timing of transition to industrial homework, and it is important to note that the majority of homeworkers did not have children before they started industrial homework.

These results show that in the early 20th and late 19th centuries, having a first child was often also associated with a transition to more flexible work arrangements. And although the birth of a first child often resulted in women leaving formal employment, this did not always mean that they stopped working for money.

Paper 2

This paper focuses on patterns of paid work during the life course of working-class women in the early 20th century. Life-course patterns of paid work are central to theories of gendered labour market inequalities. The shorter time that women spend in the labour market over the course of their lives compared to men is often represented one of the main cause of gendered labour market inequalities. However, the longitudinal patterns in the career paths – or the series of jobs – taken by women during this time period have received relatively little attention. This paper contributes to our understanding of the life-course patterns of women's paid work in the early 20th century labour market by studying the work-life histories of a cohort of women employed in industrial homework in Sweden in 1912.

In this study, I reconstruct the work-life histories of these women by linking information from a subset of from the interview material to poll tax records and thus constructing a panel dataset. Together, these data provide information about the work-life trajectories of these women prior to, and after, transitioning to industrial homework.

The results from this study revealed that for the majority of women homeworkers in early 20th century Sweden, industrial homework formed part of

a continuous occupational trajectory. Most women industrial homeworkers experienced no occupational mobility transitioning into, or out of, industrial homework. Married and unmarried women differed considerably in their experiences during their transitions to industrial homework and over their subsequent career trajectories. For married women, the transition to home-based work more often appeared to have been a step down in their careers, transitioning to making simpler products and working as own-account workers alone in their own homes. For unmarried women, the transition to home-based work instead appeared more often to have been a step up to a managerial position, more often employing other women and in some cases running their own small shop outside of their home.

Paper 3

If, when and how much time one spends doing paid work is a central question in the life of most individuals, today as well as in the early 20th century. From an empirical perspective, the labour supply of an individual can be seen as a two-step process. The first step consists of assessing what determines an individual's probability of working for money at all, while the second step consists of assessing what determines the number of hours worked by those individuals that make up the labour force.

In this paper, I focus on the second step by exploring seasonal variation in hours worked by women industrial homeworkers in Sweden in 1911. For this I rely on information in the full cross-sectional dataset, analysing the data on hours worked per day during each month of the year.

Major seasonal patterns in hours worked by women in an urban and a rural setting were identified by applying Principal Component Analysis (PCA) to these data. Further, I ran ordinary least square regression (OLS) analyses on individuals' PCA scores to test for the relative importance of supply- and demand-based factors (represented here by the occupation of the household head and the type of products made by the homeworker, respectively) on the patterns of seasonal variation in hours worked.

The results showed that in both the urban and rural setting, most of the variation in hours worked was explained by a non-seasonal pattern: most individuals either worked long hours during every month of the year or worked short hours during every month. The major seasonal pattern in both the urban and the rural sample was a U-shaped pattern, corresponding to a negative correlation between hours worked in summer and hours worked in winter. The effect of

supply-side and demand-side factors on hours worked differed between urban and rural areas. In urban areas, non-seasonal variation in hours worked was strongly affected by both the occupation of the household head and the type of products made. In rural areas, the occupation of the household head had no effect on non-seasonal variation in hours worked. In both samples, the type of products made was related to the seasonal variation in hours worked.

Paper 4

In the fourth paper, I explore the question of how normative perceptions of work and gender can affect the terms of women's labour force participation. Specifically, I examine the theoretical claim of Maria Mies that industrial homeworkers have been exploited more than other workers because they have been ideologically constructed as primarily being housewives and not workers. In other words, homeworkers are constructed as married women who depend on a primary breadwinner and do not contribute to the sustenance of the family through their wages. This paper uses the third dataset, the qualitative material consisting of legal documents, newspaper articles and social pamphlets from 1906 to 1910, to investigate if Swedish homeworkers were described as housewives in contemporary texts. It also uses the first dataset, the cross-sectional interview material, to explore the extent to which these women were, in fact, housewives. The results showed that Swedish homeworkers were not described as housewives in the contemporary debate, nor could they be considered to be housewives based on the interview material. Rather, they formed a diverse labour force among which the majority were unmarried. Many homeworkers were married, but even then, their incomes often formed a significant part of the household income. At the time, there was an intense public debate on industrial homeworkers. But instead of describing homeworkers as housewives, they were largely described in terms of being the "poorest of poor" workers and the exploited victims of the emerging garment industry.

8. Discussion

This dissertation provides important new insights and much-needed empirical data on the labour dynamics of women industrial homeworkers in Sweden during the second industrial revolution; a large and important, but little studied, group of workers. I set out to answer three questions about these workers: 1) What influenced their decisions to enter industrial homework? 2) What influ-

enced how much time they allocated to homework? 3) How were they affected by ideological constructions of gender and work? Answering these questions required me to collect information from several different types of sources including poll tax records, historical survey data and qualitative material. I used both quantitative and qualitative methods to analyse this material. Together, the four papers that make up this thesis present a diversified picture of industrial homeworkers, both as individuals making labour market decisions, as parts of families and as a group in the labour market. Importantly, they demonstrate that it is possible to study the work of these women, often described as invisible, if we just adopt the necessary methods.

(1) What factors influenced women's decision to enter industrial homework?

The results of this thesis both challenge and confirm commonly held views about industrial homeworkers. Previous studies have often presented industrial homeworkers as being mothers with young children who needed to bridge increased demands for household production and consumption. One might thus expect that the transition to industrial homework would mainly occur when women marry or have children, and that married women would be overrepresented among industrial homeworkers.

The timing of having a first child was found to have a significant effect on the decision to start industrial homework. This relationship was observed in both the urban sample from Gothenburg and the rural sample from Sjuhärad. To my knowledge, this correlation between having children and starting industrial homework represents the first quantitative data in support of the common view, based on anecdotal evidence, that women industrial homeworkers in the early 20th century were often married young mothers who took on home-based work when they had children. However, this group of women only represented a minority of all homeworkers: 38 per cent of the studied women workers were married and 36 per cent had children. Clearly other factors were also of importance in the decision to start industrial homework.

The types of products made were related to marital status. 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. These findings match predictions from Edwards and Field-Hendrey's (2002) labour supply model. For married women as secondary earners, the utility of working at home was thus likely higher than the cost of earning lower wages. Unmarried women, on the other hand, had fewer incentives to choose

home-based work for lower wages over better-paid on-site work.

In the third paper, I mapped the occupational trajectories of these women to see how industrial homework formed a part of longitudinal labour patterns. Industrial homework often formed part of a continuous trajectory; many women who started industrial homework had previous experience in similar occupations. Previous occupation and skills appeared to influence the decision to start industrial homework and the terms under which this took place. This picture contrasts with the view of industrial homework as a short-term labour strategy. Industrial homework was not an occupation chosen at random merely to buffer a short-term increase in demand for consumption and home production. In many cases it formed a part of a long-term labour strategy, where skills and previous experiences could be used continuously during different life-cycle phases and employment relationships.

(2) What factors influenced how much time women allocated to industrial homework?

The question of how much time women allocated to industrial homework was dealt with from the perspective of seasonal patterns in hours worked. Previous studies have indicated that industrial homeworkers were a highly flexible labour force. Both supply and demand reasons have been cited as the source for this flexibility, arising either because they were secondary earners in their households or because homeworkers formed a secondary workforce in the labour market (the reserve army hypothesis).

I identified several seasonal patterns in the way that individuals allocated their time to industrial homework. These seasonal patterns were most strongly related to the types of products made. This may suggest that seasonal variation in hours worked by industrial homeworkers was driven, at least in part, by seasonal variation in the demand for the products made. However, a closer examination revealed that the two groups of women that showed the strongest seasonal variation in hours worked, the embroiderers and weavers, also stood out as they often had alternative incomes during parts of the year. Thus many of the embroiderers worked as schoolteachers from September to May and many weavers worked on the harvest during late summer and early fall.

The strongest pattern, however, was non-seasonal: most individuals either worked equally long or equally short hours during each month of the year. From an empirical perspective this finding is encouraging, as it means that information one is able to gain about hours worked by an industrial homeworker

during one month of the year will in most cases represent a fairly good estimate of the hours worked at other times.

The occupation of the household head was not a strong determinant of seasonal fluctuations in hours worked. However, in the urban area, women from better-off households worked less overall than women from families headed by manual workers. This supports the prediction of a negative relationship between the income of a male breadwinner and the secondary worker. However, the same relationship was not found in the rural areas.

(3) How did ideological constructions of gender and work affect homeworkers' ability to negotiate the terms of their labour?

There was a strong discourse around women industrial homeworkers in the public debate in the early 20th century. However, in the texts studied, industrial homeworkers were not described as housewives, as the housewifization theory would suggest. Instead, their role as precarious workers was played up and often used as motivation for regulating or banning their work completely. The industrial homeworkers were at the centre of the debate, however they were seldom subjects. The suggested reasons for their precarity was also placed elsewhere, on the desire for cheap ready-made clothing by female costomers or the middleman who fooled both employers and homeworkers. More than being described as housewives, industrial homeworkers appear to be victimized in the debate. They were not described as, or it seems, perceived to be to be agents in their own right. To some extent this appears to have limited their possibilities to negotiate the terms of their labour. In this discourse, they were a group that needed to be saved instead of organized and included in standard labour market legislation.

9. Conclusion

This dissertation has provided new individual-level evidence on the labour market decisions made by women during the second industrial revolution in Sweden. By combining quantitative methods with data from unconventional sources, it tells us about the conditions of homeworkers as individuals, as parts of families and households, and as a group in the labour market. These industrial homeworkers formed a segment that operated right at the intersection between many of novel features of the labour market that emerged during the late 19th

and early 20th century: paid and unpaid work, home and workplace, formal and informal work. I show that the work of these women was characterized by both continuity and change; their labour patterns were often stable in terms of their occupation, the type of work and, in many cases, for whom they worked. But they were also flexible in terms of workplace, employment relationship and often the hours worked. This flexibility often made it possible for them to use the skills they acquired for a longer time during different parts of their life courses. But this flexibility also came at a price, as these workers often earned low wages, were left outside of labour market regulations and were rarely organized.

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Paper 1

Timing of the transition to industrial homework: the effect of becoming a first-time mother in early 20th century Sweden

1. Introduction

The relationship between women's paid labour and unpaid care work represents a central issue in understanding gender inequality in labour market outcomes. Within a western context, it has been well documented that the relationship between having children and women's labour force transitions changed over the course of the 20th century: in the mid-20th century, having a child often meant leaving the labour force completely for several years, or for good, while in the late 20th century, having a child more often meant transitioning to part-time or more flexible job arrangements (Goldin, 1990, 2014; M. A. Stanfors, 2006).

In contrast, comparatively little is known about how having children affected women's labour force decisions during the late 19th and early 20th century. In part, this stems from the fact that married women and women in informal employment tended to be especially poorly represented in official sources on labour market participation during this period (Nyberg, 1994; Humphries & Sarasúa, 2012; Schulz, Maas & van Leeuwen, 2014). There are however many studies indicating that among working-class households during the turn of the century few could live off just one wage and many mothers had to earn an additional income before their children were old enough to go out and earn (Knotter, 2004; Humphries, 2010; DeVault, 2013). Many of these women would probably have transitioned to other types of employment, as they had limited opportunities to stay on as maids or in manufacturing industry as married mothers, and were likely to have switched to more flexible forms of paid work when they had children during this period, rather than leaving the labour force entirely (Fraundorf, 1979; Tilly, Tilly & Scott, 1987; Goldin, 1983). Yet it has been difficult to assess these patterns in any detail, and determine how they compare to women's labour force decisions later in the 20th century, due to the lack of reliable data on individual women's work-life trajectories during the late 19th and early 20th century.

This paper aims to improve our understanding of women's labour market transitions during this period by investigating how the birth of a first child affected the timing of transition into industrial homework among women in early 20th century Sweden. Industrial homework represents an outsourced form of industrial production performed within the household of the worker, or at another place where the employer cannot supervise the work. Industrial homework represents a suitable case study of women's labour market transitions partly as it was a common form of production in most western European countries and the US during industrialization and because women formed the overwhelming majority of industrial homeworkers, but also because, compared to other types of industrial production, industrial homework stands out as both married and unmarried women were involved in industrial homework to an almost equal extent, which makes it a suitable medium for studying how having children affected individual labour force transitions.

To investigate the relationship between having a child and transitioning to industrial homework this paper employs a cross-sectional dataset based on interviews with retrospective questions conducted with individual industrial homeworkers in 1912. Information about the timing of having children and transitioning to industrial homework was analysed using discrete-time event history models. The main results are that having a first child was a significant determinant of transitioning to industrial homework in both urban and rural areas, but the effect was stronger in rural areas. There was, however, no effect from having a second or third child in any area. These results show that labour market transitions in connection with having your first child in the labour market at the turn of the 20th century also included transitions to more flexible work arrangements, and that even though marriage and childbirth often meant leaving a formal employment and an official occupation in historical records, it did not always mean that you stopped working for money.

Labour force transitions in connection with having a child

From theoretical explanations emphasizing relative productivity we can expect the birth of a child to increase one's probability of starting industrial homework as it changes the relative value of joint home production relative to paid work in the market and to unpaid home production (i.e. cooking, cleaning, care work). In classic labour models the decision to work is generally seen as a choice between consumption and leisure (Cahuc & Zylberberg, 2004, p. 5). Labour supply models for married women have further added that the allocation of married

women's time represents a choice between paid work, producing goods and services in the household, and leisure (Mincer, 1962). In the case of industrial homeworkers, they also made an additional choice between on-site paid work and home-based paid work. To the author's knowledge there are no studies that deal specifically with the determinants of the choice between on-site work and home-based work in the turn-of-the-century labour market. However, one present-day study provides a theoretical framework for understanding when individuals decide to engage in home-based paid work. According to the model of Edwards and Field-Hendrey (2002) the choice made between work sites depends on the fixed costs of working (costs associated with doing your work, such as paying for getting to and from work), wage levels (wage for on-site work and wage for home-based work), household productivity (the relative value of your unpaid care work), and the potential for joint home production. According to the model presented by Edwards and Field-Hendrey, women would choose home-based work when the value of joint production (paid and unpaid labour, such as sewing and looking after a child at the same time) together with their wages from home-based work are higher than fixed costs and wages for on-site based work.

In general, wages for women were low at this time, and care responsibilities were often the sole responsibility of women. As opportunities for childcare were very limited, few women could earn enough money to pay another woman for the same hours they were working in an on-site workplace, even if wages were higher in the factories than in industrial homework. Thus, as a child raises the value of joint production relative to on-site production, and staying out of paid work was not an option for many households, we expect that the birth of a first child would increase the likelihood of taking industrial homework rather than allocating one's time solely to unpaid household production, or paid work outside the home. This explanation favours the "pull" mechanism of the opportunity for joint production. In contrast, the more structurally oriented explanation tends to emphasise that women were "pushed" out of the labour market by a breadwinner model norm that stigmatizes married women in the labour market (Boris, 1994; Custers, 1997; Mies, 2012).

There are no empirical studies on the timing of the transition to industrial homework in a historical setting, however previous studies on industrial homework often emphasized that the transition to industrial homework is highly contingent on marriage, even though they did not study timing specifically. As an example, Clara E. Collette describes the trajectory into home-based work

for women in the garment industry in the classic social study on the life and labour of the people in London (Argyle & Booth, 1892, p. 258) saying:

> "Before marriage they go to the shops, and after marriage, if obliged to earn money they take the work home"

Eileen Boris has studied industrial homeworkers in industrializing United States, Great Britain, France and Germany, claiming that: "Married women with small children whose husbands failed to earn adequate incomes (through unemployment, disability, or low wages) composed the majority of homeworkers in these countries" (Boris & Prügl, 1996, p 20). In a recent study, Paul Atkinson confirms this view of home-based work as an option for the "hard-pressed young mother" (Atkinson, 2012, p. 153).

In Sweden, studies mentioning women's industrial homework have almost always treated it as a consequence of a strong (but fragile) breadwinner ideal: industrial homeworkers are portrayed as married women working in their homes for small sums of money, complementing a male breadwinner (Carlsson Wetterberg, 1986, p 44; Frangeur, 1998, p 49; Hedenborg & Wikander, 2003, p 98; Karlsson, 1995, p 27; Åmark, 2005, p 73–74). Nevertheless, none of these studies has empirically shown that the timing of transition is connected to marriage or the birth of a child

Historical studies on the timing of events however often emphasize that the timing is connected not only to a change in the relative productivity of different kinds of work in the household, but that the timing of transitions is also contingent on the decisions of other family members, household context, and local historical patterns (Hareven, 2000, p 130). The local labour market and occupational opportunities are often seen as being among the main determinants for women's labour force participation (Mason, Vinovskis & Hareven, 1978, p. 189). If the connection between the birth of a child was closely tied to the both local labour market opportunities and the urban-industrial context, it potentially would not have effect the same in a rural context of a quickly industrializing economy. For these reasons an urban-rural dimension in terms of the effect of a child will also be explored in this paper.

In a study on women in the US born between 1880 and 1910, Claudia Goldin found that labour market attachment had a large effect on the labour market choices made by married women (Goldin, 1983). Social background is another factor that is likely to be a determinant in what kind of labour market course taken, as the father's occupation tended to influence the occupational paths

of their children at this time (Schulz et al., 2014; Vikström & Ericsson, 2012). These variables are also included in the analysis.

This paper aims to explore the relationship between having a first child and starting industrial homework by answering the following primary research question and three sub-questions:

1) What was the relationship between the timing of transition into industrial homework and the birth of a first child?

(a) Was this relationship different in urban and rural contexts?

(b) Was this relationship different depending on the individual's previous labour market experience?

(c) Was this relationship different depending on the individual's social background?

2. Source and setting

The empirical basis of this study is a cross-sectional dataset based on retrospective information from interviews conducted with individual industrial homeworkers in 1912. The interviews were carried out in connection with a large national survey on industrial homework in Sweden conducted by the Swedish National Board of Health and Welfare (*Socialstyrelsen*). Representatives from the board collected information on the social and occupational features of 5,064 industrial homeworkers, of which 4,257 were women. The dataset used in this paper is based on a stratified sample from these 4,257 women, one urban sample (n=276) and one rural sample (n=312). This paper uses information from the interviews on the timing of the transition into industrial homework, the timing of the first child, and background variables on the interviewees' social backgrounds and previous labour market experience.

The interviews provide a unique opportunity to piece together information on the timing of labour market transitions for a group of workers who are seldom encompassed by official sources. As it is a cross-sectional dataset used for longitudinal analysis, one potential drawback is that the dataset may be subject to self-selection bias. Women who remained homeworkers for longer may have been more likely to be included in the dataset than those that took on homework for shorter periods of time. These groups of workers may have differed in their experiences with respect to the timing of transitions. One

alternative approach that can reduce self-selection biases is to link company records to register-type records. But female home-based workers represent a group of workers whose occupational transitions are rarely reliably recorded in official records such as tax records, as they worked more irregularly than men, seldom registered an occupation if they were married, and if they did, often reported general occupational titles that are of limited value for assessing the type of work they actually performed and whether they worked in factories or in their homes (Nilsson, *in prep*). The interviews studied here thus represent one of very few sources available to study the timing of the transition among this group of workers.

The rural sample consists of workers from the Sjuhärad area in Älvsborg county. Sjuhärad was the main area for proto-industrial production in Sweden during the 19th century and remained a major national textile centre into the 20th century (Magnusson, 1996, p. 329). In the early 19th century, homeworkers in the Sjuhärad area were primarily weavers. A century later, the weaving industry had largely been replaced by garment production and tricot knitting.

Yet, home workers still constituted a third of the workforce. One-third of the women of working age (15–70) in the Sjuhärad area were engaged in industrial homework (*Svensk hemindustri. D. 2, Monografier*, 1917, p. 41). In total, the 1912 survey identified 6,994 individual industrial homeworkers from rural Älvsborg, making up about 60 per cent of all rural industrial homeworkers in Sweden at the time. Based on the survey summary, 1,232 interviews were conducted with industrial homeworkers from this area in 1912. I was able to locate 1,008 of the original scorecards in the archive. One third of these were randomly selected, yielding a total of 336 interviews. Four of these interviews were conducted with men and 20 with women living in the two urban centres of Älvsborg county at the time (Alingsås, Borås). All the men and the 20 women from urban centres in Älvsborg were excluded from the sample, leaving 312 interviews conducted with women in rural areas of Älvsborg. These interviews form the rural sample in this study.

The urban sample consisted of homeworkers from Gothenburg, Sweden's second largest city. Gothenburg in the 1910s was an industrial city with a large and diverse labour market and supported several garment and textile industries. Gothenburg is situated on the west coast of Sweden, about 50–100 kilometres north-west of the Sjuhärad area (the rural sample) and offered industrial homeworkers a very different economic context than the rural countryside. The 1912 survey identified 3,285 homeworkers in Gothenburg, of whom 2,708 were women (*Svensk hemindustri. D. 1, Utredningens huvudresultat*, 1917, p. 143).

These homeworkers were mainly found in the garment industries. A total of 366 interviews were conducted with industrial homeworkers in Gothenburg. Of these, we were able to locate 290 in the archive, 276 of which were with women workers. These make up the urban sample of interviews used in this study. Demographic, household and background information are summarized and presented for the urban and rural samples, respectively, based on the information given in the interviews.

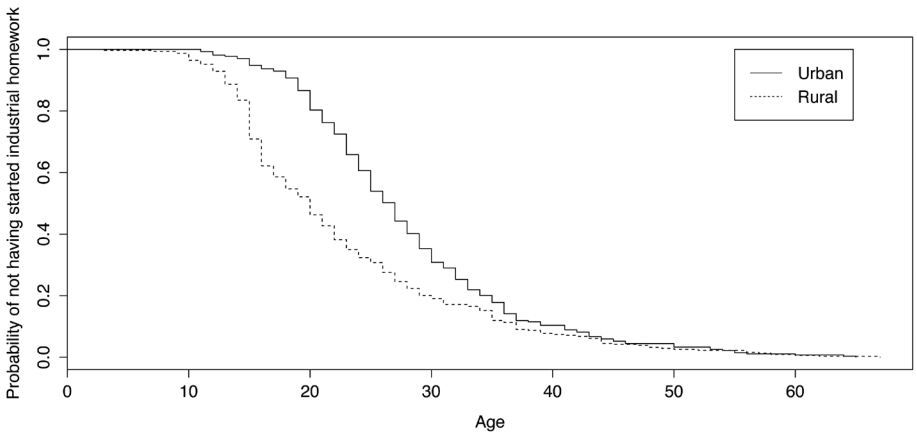
3. Method and measurements

To explore the relationship between having a first child and starting industrial homework, I conducted a discrete-time event history analysis based on the information given in the interviews. Specifically, I used logistic regression models to estimate the odds of starting industrial homework during a given time spell for individuals who had not already made the transition, where a time spell represents a discrete unit of time specified in person-years. The reason for choosing a discrete-time method instead of a continuous-time method, as in the more commonly used Cox proportional hazards model, was that the discrete-time model allows for more flexible modelling of time-varying covariates, in this case the timing of having children (Guo, 2009, p. 2). To fit the discrete time model I transformed the data into person-time format, where each line of the dataset represents a unique combination of individual worker and age (time spell).

Age

The variable of interest in this study is the timing of the transition to industrial homework. Individuals can make this transition over a long period of time over their life courses. Kaplan-Meier survival curves shown in Figure 1 reveal that the probability of starting homeworking is not linear with age but rather increases rapidly around 15 years of age and decreases after the age of 35. Age (time spell) was thus included as an independent, categorical variable in all models in order to model the non-normal relationship between age and the odds of starting industrial homework.

Figure 1 Kaplan-Meier curves



As some individuals started working as late in life as their late sixties, defining a time spell as one person-year would require fitting a model with more than 60 time-dependent variables. Instead, one time spell was defined as two person-years, which made the analysis somewhat more coarse-grained but considerably increased the interpretability of model coefficients (the one person-year analysis yielded qualitatively identical results). The baseline category, the origin of the time scale in the analysis, represents the probability of having started industrial homeworking between the ages of 10 and 11. In theory, the probability of starting in industrial homework accumulates continuously from the time when individuals are born. However, only two women claimed to have started before they were 10 years old.

In addition, these individuals appeared to be heaping ("I have worked 50 years"), which further justified including them in the baseline category. As all individuals are included in the sample because they at some point in their lives have started in industrial homework, all individuals by definition have a recorded event. However, information on the year born or years worked in industrial homework was missing from the interviews in 10 out of 588 cases. These individuals were excluded from the analysis. For the rural sample this resulted in a dataset containing 2,517 time spells for 309 individuals, while for the urban sample it resulted in a dataset containing 2,902 time spells for 269 individuals.

The dependent variable:

Timing of transition to industrial homework

In all models, the timing of the transition to industrial homework was the dependent variable. This was a binary (event) variable describing whether an individual had started in industrial homework during that time spell or not.

Time-varying covariates

First child

The "first child" variable represents a binary variable describing whether individuals had had their first child within a given time spell (two-year period). To establish when individuals had their first child, the age of the oldest child in the household was deducted from the year 1912 when the interviews were carried out.[1] In the rural sample there were 218 time spells with a first child present for 50 individuals. In the urban sample there were 288 time spells in which women had had their first child. In total, 70 individuals had their first child before they started industrial homework.

Second child

The "second child" variable represents a binary variable describing whether individuals had had their second within a given time spell (two-year period). To establish when individuals had their second child, the age of the second oldest child in the household was deducted from 1912. In the rural sample there were 134 time spells with a second child present for 32 individuals. In the urban sample, there were 146 time spells in which women had had their second child before starting industrial homework. In total, we recorded 38 individuals who had had their second child before they started industrial homework.

1 Among the older women, there is a chance that they had children who had already moved out. In order to address this, an attempt was made to link the interviews to the censuses for 1900 and 1890. This was possible for some of the urban women who were found in the poll tax records and for whom more information was therefore available (middle names and maiden names). For the rural sample we could only access information available in the interviews and in this case the names of the workers were too commonplace to link them to the census data. There is thus a possibility that some women in the rural area had children who had already moved out. We could in such cases risk estimating the age at which they had a second or subsequent child instead. However, in this group their children seemed to stay at home for quite a long time.

Third child

The "third child" variable represents a binary variable describing whether individuals had had their third child within a given time spell (two-year period). To establish when individuals had their third child, the age of the third oldest child in the household was deducted from 1912. In the rural sample, there were a total of 72 time spells in which women had had their second child before starting industrial homework, and a total of 21 individuals in the rural sample had their second child before they started industrial homework. In the urban sample there were 70 time spells with a third child present for 22 individuals.

Time-constant covariates

Previous labour market experience

The first of two time-constant covariates was a categorical variable representing the type of occupation the women had practised prior to starting industrial homework. This information was gathered from the retrospective questions answered in the interviews. The stated occupations were condensed into four categories broadly following the HISCO classification system at a one-digit level. Textile-related production workers such as seamstresses, weavers, embroiderers and pressers belong to HISCO group 7. These were included in the "Manufacturing" category in the analysis. Servants, both rural (tjänstepiga/tjänarinna/tjänsteflicka) and urban (jungfru/tjänarinna/uppasserska/hushållerska), as well as maids, charworkers and shop assistants belong to HISCO group 5. These were included in the "Service" category in the analysis. For more information on the HISCO classification system see (Leeuwen, Maas, & Miles, 2002). In 10 cases, individuals stated occupations that fell outside of HISCO groups 5 and 7. These included teachers, nurses, two women who had owned their own farms, two bakers, a cook and a gilder. These were included in the "Other" category in the analysis. The fourth category, "No previous occupation", was created for those that had no previous labour market experience before starting industrial homework. In the rural area, almost 75 per cent of homeworkers were included in the latter category. Some individuals explicitly stated that they had no previous labour market experience, while others stated that they were "at home" ("*I hemmet*") before becoming homeworkers, or that they had helped out on the farm. All such answers were included in the "No previous occupation" category, as in most cases it was not possible to tell whether a given answer indicated that an individual had worked in industrial homework

their whole lives or that they had lived with and helped their parents before they started industrial homework. In the urban sample, just over half of the women stated that they had held previous occupations. The most common previous experience was to have worked in garment or textile-related occupations or as a servant. In those cases where they had been employed in the garment or textile industry, most had been seamstresses working for another seamstress, at a shop or in a factory. A few stated that they had been weavers. However, it was not clear if they had worked as weavers at factories with power looms or if they had worked in someone else's home on a handloom.

Father's occupation/Social background

The second time-constant variable included in the model was the occupation of an individual's father as a proxy for their social background. Occupational titles were grouped into broad categories broadly based on a derivative of the HISCLASS system used in (Suanet & Bras, 2010). As the sample was quite small, these five categories were then further condensed into four categories: "Crofters and labourers", "Farmers and fishermen", "Higher/Middle" (including fathers who had non-manual jobs) and "No stated occupation".

Statistical analyses

Hypothesis testing was performed based on a likelihood ratio test of logistic regression models chosen to represent the different hypotheses. To test the hypothesis that the birth of a first child affected the timing of the transition into industrial homeworking, a model that included an individual's age, previous occupation and father's occupation as fixed effects was compared to a model that also included the timing of having a first child. To test the hypothesis that the effect of having a child differed between urban and a rural environments, a model that included an individual's age, previous occupation, father's occupation and timing of the first child and living in an urban environment was compared to a model that also included an interaction between the timing of the first child and living in an urban area. Since these tests revealed significant differences between urban and rural environments, model results are presented for models fitted separately for the urban and rural samples. To test for the effect of the timing of having subsequent children, the second model (including age, previous occupation, father's occupation and timing of the first child as fixed effects) was compared to models that also included the timing of the second and third child, respectively. A final set of models was constructed to

see if the effect of a child on the likelihood of starting industrial homework differed depending on one's occupational or social background by including interaction terms between the timing of the first child and previous occupation and between the timing of the first child and father's occupation, respectively.

4. Results

Occupational and demographic features of the samples

The urban and rural homeworker samples were found to be very similar with respect to age structure and social factors (see Table 1). The average age in 1912 when the interviews were carried out was 37 years in both samples, although the rural sample displayed greater variability in age. The age range was similar in both samples: from 14 to 82 years old in the rural sample and from 14 to 75 years old in the urban sample. Rural and urban workers were also similar in terms of marital status and presence of children: almost 40 per cent were married in both samples (39 vs. 38%), 56 per cent were unmarried in both samples, and 5 and 6 per cent respectively were widowed. About 36 per cent of all the women in both samples had children, and about 70 per cent of these women had children under the age of 10. In the sample as a whole, 26 per cent of all women had children under the age of 10. The rural women were on average slightly older when they had their first child compared to the urban women (28 vs. 25 years). They also had on average four other members in their household, compared to, on average two other family members in the urban sample.

In contrast, individuals in the two samples differed considerably with respect to their previous occupational history. Women in the rural sample more often stated that they had not had any previous occupation before starting industrial homework compared to women in the urban sample (73 vs. 51%). Correspondingly, more women in the urban sample had held previous occupations. The samples also differed with respect to their father's occupation. As expected, there were more women who had fathers who were farmers or farm labourers in the countryside, and women who did not state their father's occupation were more common in the urban sample.

Table 1 Demographic and background features of the samples

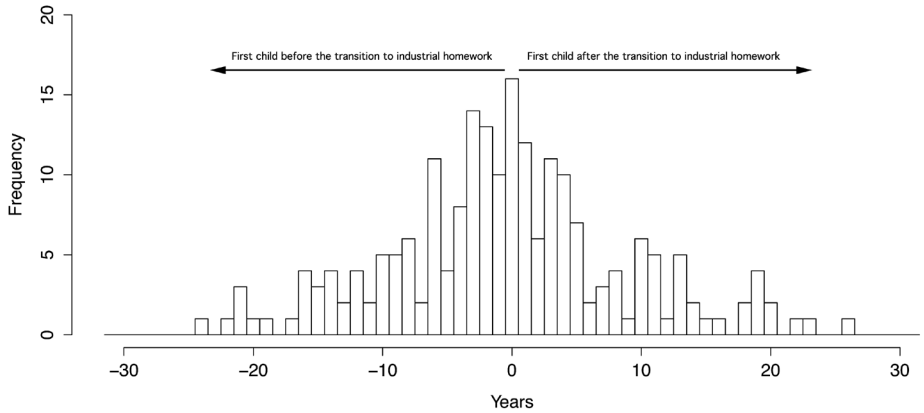
	Rural sample n=312		Urban sample n=276		Total n=588	
	Number of cases	Part of sample	Number of cases	Part of sample	Number of cases	Part of sample
Marital status						
Married	121	0.39	104	0.38	225	0.38
Unmarried	174	0.56	155	0.56	329	0.56
Widow	17	0.05	17	0.06	34	0.06
Has any children in household						
Yes	113	0.36	97	0.35	210	0.36
No	199	0.64	179	0.65	378	0.64
Has children under age ten in household						
Yes	80	0.26	72	0.26	152	0.26
No	232	0.74	204	0.74	436	0.74
Previous labour market experience						
No previous occupation	227	0.73	141	0.51	368	0.63
Manufacturing	44	0.14	93	0.34	137	0.23
Service	41	0.13	31	0.11	72	0.12
Other*	0	0.00	11	0.04	11	0.02
Occupation of father						
Crofter or labourer	127	0.41	81	0.29	208	0.35
Farmer or fisherman	136	0.44	43	0.16	179	0.30
Higher/middle	13	0.04	37	0.13	50	0.09
No occupation stated	36	0.12	115	0.42	151	0.26

Continuous variables	**Minimum**	**Maximum**	**Mean**	**Median**	**Std. dev.**	**NA**
Age in 1912						
Rural	14	82	37	32	15	0
Urban	14	75	37	35	11	1
Age when first child was born						
Rural	13	43	28	27	6	199
Urban	18	37	25	25	4	178
Number of household members						
Rural	0	13	4	3	2	0
Urban	0	9	2	2	2	1

Data source: The interviews
*Other = Washing and ironing, pressing, making various ladies apparel, making patterns for upholsterer, labelling, stitching shoes, painting tin soldiers, making flags.

If we look at a descriptive picture of when all the women had their first child, in Figure 2, we can see that the frequency of women having their first child reaches a peak in the same year that they started industrial homework.

Figure 2 Time between transition to homework and first child



The frequency of women who have their first child a few years before or a few years after they start industrial homework is also high.

The two samples also differed with respect to the features of their current and previous occupations (see Table 2). When it comes to the type of industrial production they were engaged in, the samples seldom overlapped. In the rural sample, most women were found in three large groups: garment seamstresses, knitters and weavers. The urban sample, in contrast, was more diverse, but contained two large groups of workers; one comprising coat seamstresses and the other comprising underwear seamstresses. The urban sample also included a rather large group of women who sewed by hand, most often as embroideresses.

Table 2 Descriptive statistics: Occupational features

	Rural sample n=312		Urban sample n=276		Total n=588	
	Number of cases	Part of sample	Number of cases	Part of sample	Number of cases	Part of sample
Type of industrial production						
Weaving	115	0.37	0	0.00	115	0.20
Various sewing by hand and embroidery	7	0.02	43	0.16	50	0.09
Sewing underwear	0	0.00	78	0.28	78	0.13
Sewing garments	87	0.28	19	0.07	106	0.18
Sewing coats	0	0.00	88	0.32	88	0.15
Other types of production*	0	0.00	26	0.09	26	0.04
NA	1	0.00	0	0.00	1	0.00
Knitter (machine)	102	0.33	22	0.08	124	0.21
Had vocational training in their occupation						
Yes	12	0.04	68	0.25	80	0.14
No	300	0.96	208	0.75	508	0.86
Owns their own equipment						
Yes	282	0.90	230	0.83	512	0.87
No	28	0.09	46	0.17	74	0.13
NA	2	0.01	0	0.00	2	0.00
Employed any other workers						
Yes	189	0.61	100	0.36	289	0.49
No	123	0.39	176	0.64	299	0.51
Employed other workers who are family members						
Yes	169	0.54	37	0.13	206	0.35
No	143	0.46	239	0.87	382	0.65

Continuous variables	**Minimum**	**Maximum**	**Mean**	**Median**	**Std. dev.**	**NA**
Years worked in industrial homework						
Rural	0.5	70	14	10	13	3
Urban	0.5	55	8	5	9	6
Age when started industrial homework						
Rural	3	67	23	20	11	3
Urban	11	65	27	25	9	7
Hours worked per day on average						
Rural	0.5	14	8	8	3	13
Urban	0.5	17	8	8	3	46

The women in the urban sample more often had formal training in their occupation (25 vs. 4%). However, they owned their own equipment to a lesser extent (83 vs. 90%). More women in the rural sample had co-workers and employed others, but most of the employees were family members and probably did not always work for them, as much as with them. In the urban area, however, most of the co-workers were actual employees, almost always other women who they employed and paid on a weekly basis. The rural women had started working as industrial homeworkers earlier than the urban women and had consequently spent more years in industrial homework. The average industrial homeworker in the rural sample was in her early twenties when she began, while the urban women were in their late twenties. Although differing in many aspects of their occupation, urban and rural women worked the same number of hours per day on average: 8 hours, six days a week, excluding breaks. In summary, the two samples were very similar in overall demographic features such as age structure and marital status, but differed considerably with respect to occupational history and types of products made.

Results from the event history analysis

The discrete-time logistic regression models revealed that having a first child significantly increased the odds of starting industrial homework within the next two years (df=1, chisq=24.26, p<0.000). The effect of having a first child on the timing of the transition differed between urban and rural environments (df=1, chisq=6.25, p=0.012). Having a first child increased the odds of starting industrial homework in both environments, but the magnitude of this effect differed, being considerably greater in the rural environment (Table 3). As the effect of having a child was significantly different between the two samples, and we have reason to believe that there are also differences in the effects of social background and previous occupation based on the demographic summaries, we further explored the effect of having children for the two samples separately.

The effect of having a child in the rural area

In the rural sample, having a first child doubled the odds of starting industrial homework within the next two-year period (Table 3). All things being equal, if a woman had her first child in the specific two- year period, the odds of her starting industrial homework during the following two-year period was 2.03 times that of an individual who did not have a child in the previous period (p<0.001, model 1, Table 3), thus increasing the odds of starting industrial homework by 103%.

Table 3 Results of discrete-time model logit rural sample

Rural sample	Model 1 First child		Model 2 Second child		Model 3 Third child	
	Estimate	OR	Estimate	OR	Estimate	OR
(Intercept)	-4.10***	0.02	-4.10***	0.18	-2.92***	0.05
Children						
First child	0.71***	2.03	0.58 '	1.78	0.70*	2.02
Second child			0.23	1.26	-0.17	0.84
Third child					0.68	1.98
Previous labour market experience						
Manufacturing	-0.60**	0.55	-0.60**	0.55	-0.60**	0.55
Service	-0.79***	0.45	-0.78***	0.46	-0.74***	0.48
Father's occupation						
Farmer/fisherman	-0.05	0.95	-0.05	0.95	-0.05	0.95
Higher/middle	-0.39	0.68	-0.40	0.67	-0.38	0.68
No stated occupation	-0.75***	0.47	-0.76***	0.47	-0.77***	0.46
Age categories included but not displayed. Full model in appendix						
Model chi-square (df)	214(35)***		217(37)***		Chi-square	197(36) ***
AIC	1,732		1,734		AIC	1,752
Number of study objects	309		309		Study objects:	309
Number of time spells	2,516		2,516		Study	2,516

Having a second or a third child did not significantly change one's odds of starting industrial homeworking within the next two-year period in rural areas (Table 3: model 2, second child p=0.519; model 3, third child p= 0.13). The effect of having a first child also remained positive and significant when the (non-significant) effects of subsequent children were added to the model (Table 3).

The age categories were included in all models presented in Table 3, but for practical reasons they are not displayed in the table. The full model, including all age categories, is presented in the Appendix, Table 5. The 25–26 age category was used as the reference category, as the mean age of start averaged over the urban and rural samples was 25 years. As expected from the Kaplan-Meier curves (Figure 1), the effect of age on the odds of starting homeworking is not linear but was smaller at the beginning and larger at the end of the period compared to ages 25–26 (Appendix, Table 5).

There was no significant difference in the effect of having a first child depending on previous occupation or father's occupation in rural areas (Appendix, Table 5). However, having previous occupational experience in service or manufacturing did decrease the odds of starting industrial homework within the next two-year period, compared to those who stated that they had no previous occupation before starting industrial homework. All other things being equal, having worked in manufacturing or service decreased the odds of starting homeworking in a given two-year period by 55% and 45%, respectively, compared to workers with no previous labour market experience (model 1, Table 3). This is not very surprising, as it suggests that you would start homeworking earlier in life if industrial homework was your first occupation, or if you had been working on your family farm, compared to someone who had worked as a housemaid or in a factory before starting industrial homework.

Having a father who was a farmer or a non-manual worker did not affect the timing of the transition to industrial homework in rural areas. The only significant effect with respect to father's occupation was found among those in the "no entry" category: women who did not state their fathers' occupation had lower odds of starting industrial homework compared to women whose fathers were crofters or labourers.

In the rural sample, the timing of transitions to industrial homework was thus best explained by a combination of age, timing of the first child, previous work experience and potentially father's occupation.

The effect of having a child in the urban area

In the urban sample, having a first child increased the odds of making the transition into industrial homework within the next two years by almost 60 per cent. All other things being equal, the odds of starting industrial homework were 1.59 times higher in women in the urban sample who had had their first child compared to those who had not (Table 4, model 1 first child $p<0.001$). Having a first child thus increased the odds of starting industrial homework within the next time spell by 59 per cent.

Table 4 Results of discrete-time model logit, urban sample

Urban sample	Model 1 First child		Model 2 Second child		Model 3 Third child	
	Estimate	OR	Estimate	OR	Estimate	OR
(Intercept)	-1.47***	0.23	-1.47***	0.23	-2.50***	0.08
Children						
First child	0.47**	1.59	0.44*	1.55	0.61**	1.84
Second child			0.05	1.05	-0.23	0.8
Third child					0.49	1.62
Previous occupation						
No previous occupation	Ref.cat	1	Ref.cat	1	Ref.cat	1
Manufacturing	0.10	1.10	0.10	1.1	0.10	1.11
Service	-0.15	0.86	-0.15	0.86	-0.14	0.87
Other	-0.55	0.58	-0.55	0.58	-0.53	0.59
Father's occupation						
Crofter/labourer	Ref.cat	1	Ref.cat	1	Ref.cat	1
Farmer/fisherman	-0.27	0.76	-0.27	0.76	-0.23	0.8
Higher/middle	0.11	1.12	0.11	1.12	0.14	1.15
No stated occupation	-0.27	0.76	-0.27	0.76	-0.25	0.78
Age categories included but not displayed. Full model in appendix						
Model chi-square (df)	299(35)***		299(36)***		242(36)***	
AIC	1,565		1,567		1,624	
Number of study objects	276		276		276	
Number of time spells	2,901		2,901		291	

As in the rural sample, there were no significant effects of having a second (p=0.87) or third child (p=0.22) in the urban context.

The age categories showed that the odds of starting industrial homework was much lower in the age range 10 to 20 compared to the reference category, 25–26. The negative effect of ages 13–20 was stronger than in the rural sample, which we can also see from the Kaplan-Meier curves in Figure 1.

This relationship between first child and the timing of the transition to industrial homework does not change depending on previous occupation or social background in the urban area. Models that included interactions between having a first child and previous occupations, and between having a first child and father's occupation did not improve model fit over models without inter-

actions (see Appendix, Table 6). Furthermore, contrary to the rural sample, we did not detect an effect of having previous occupational experience in service or manufacturing compared to having no other occupation before starting industrial homework. The coefficients are nevertheless consistently negative in this sample too. We do not see any significant effects due to the occupation of a father in the urban sample.

In the urban sample, the timing of the transition to industrial homework was thus only explained by age and the timing of having the first child.

5. Discussion

This study provides empirical evidence in support of the idea that an individual's propensity to take on industrial homework is closely linked to having a first child. It also raises important questions about how social and economic factors alters the costs and benefits of taking on industrial homework. Specifically, the effect of having a child was positive in both urban and rural settings, but the effect was considerably stronger in the rural areas. Controlling for age, the timing of the transition to industrial homework was primarily determined by the timing of having a first child in urban areas, while also affected by age, children, occupational history and, possibly, social background in rural areas. These findings thus both support the notion of industrial homework as a strategy to cope with the rising need for home production (note home production = unpaid care work, cooking, cleaning and watching kids, not industrial homework, which is paid work for an employer) when one has children, but also emphasizes that the decision to enter industrial homework is shaped by local labour market context. It is also important to remember that industrial homeworkers were a very diverse group and a majority of the whole population of industrial homeworkers did not have children and hence did not start this type of work when they had a child. The birth of a child was thus not the only determinant in the timing of the transition to industrial homework in general.

In the following section, I will interpret and discuss the results and suggest possible explanations as to why these determinants differed in their effects on the timing of the transition to industrial homework in urban and rural environments. In addition, I will discuss the issue of whether it was marriage or one's first child that influenced the timing of the transition, and how the Swedish case can be interpreted in an international context.

The effect of having a child

Having a first child affected the odds of starting industrial homework; all else being equal, if you gave birth to your first child, your odds of entering industrial homework in the next two-year period was significantly higher than if you did not. It is not possible to tell from this data whether the transition to industrial homework in connection with giving birth to a child was an effect of increased expenses or a relative increase in the value of home production, or, as is most likely, a combination of both. It might have been the relative increase in the value of home production relative to market work that made women choose not to work in their old job in the formal labour market, while the increased expenses of a child made them enter industrial homework, or other types of flexible jobs. There was however, no effect of a second or third child, indicating that there is not a linear relationship, whereby more children and more expenses would further increase the propensity of starting homeworking, rather it was the first child which made women take up industrial homework in the first place, as the arrival of the first child greatly reduced one's chances of taking another occupation in service or in a factory.

Since the timings of marriage and having a first child were often strongly correlated it is hard to separate their individual effects. A model was run that incorporated a time lag of 2 years (1 time spell) from the timing of the first child, however it showed the same results in terms of direction, with a slight reduction in the magnitude of the coefficients. The model fit was no better than with the timing of first child (although not significantly worse either). Having a child would be a larger influence on the need to actually stay at home to do care work, although taking care of another adult would also be connected to an increase in the need for unpaid care work. As mentioned before, the institutional constraints on women working after marriage were also substantial. Several institutional reforms in Sweden had limited the possibility for married women to participate in the labour market on the same grounds as men around the time these women started industrial homework. One example was that from 1900 women were no longer allowed to work in industrial labour four weeks after childbirth in Sweden. Marriage and childbirth were also legitimate reasons for firing women workers.

Looking at the small number (12) of women who had a child while not married, they however followed roughly the same pattern as the married mothers, starting industrial homework around the same year they had a child.

The result of the event history analysis thus supports previous descriptive findings that industrial homework was in some cases a labour strategy during a certain point in the life course of women and a way to reconcile the conflict between increased needs for household production and an increased need to earn money when one had young children. Both ideas have frequently been proposed in relation to female homeworkers, but a direct link between the timing of the transition into industrial homework and childbirth has never before been demonstrated empirically.

Urban-rural differences

There were significant differences between rural and urban areas, in terms of the effect of a first child, and in the occupational features of their work. The effect of a child on the odds of starting industrial homework differed. In a rural area, having a child doubled the odds of transitioning to industrial homework in the following spell, while in the urban area it only increased the odds by 50 percent. The differences in the effect of having a child were likely caused by differences in entrance patterns in general between the two samples. A large proportion of the women started industrial homework right about the time when others went out to serve or work in the factories, at the age of around 14–16 (se Kaplan-Meier curve Figure 1). However, as the hazard ratios are an estimate relating to the population still at risk, the women who had gone out to work in service or in factories and then started industrial homework, had stayed out longer and formed a larger part of the population still at risk in their twenties and thirties. When they have their children, the effect of a child in the rural areas, controlling for age is therefore very strong, as the ones who were still at risk were more likely to start in connection to a child. For the women in the urban sample however, the situation was slightly different. Few of them had started before the age of 20 and the majority started between 25 and 35, even among the women who did not have children. Many of them had worked at factories or with another seamstress and transferred to industrial homework as part of some kind of career trajectory that included formal training and employing other women, not because they had children (see chapter XX). The timing of their life courses did however coincide, which could be why we see a smaller effect of a child in the urban sample. This is an interesting aspect of the urban rural difference, because it indicates that in the urban-industrial context, opportunities for a "formal career" emerged in the early 20th century, and opportunities for formal training at large factories with internal labour

markets appears to have led to significant differences in work patterns between urban and rural contexts.

The other large difference between the samples was that women who did not state their father's occupation were overrepresented in the urban sample. This may possibly reflect the fact that unmarried women were more likely to live with their parents in the countryside, or that it was more important in the countryside to distinguish between whether you were a farmer's or a crofter's daughter, for example. There were also differences in the general features of their industrial homework. The largest difference was in the type of products made. In rural areas, occupations were divided into three main categories: weavers, knitters and clothing seamstresses. In the urban area they were primarily coat or underwear seamstresses, and to some extent embroideresses. These differences were most likely linked to the local industrial structure. The urban sample is noticeably influenced by the presence of one of Scandinavia's largest coat-making factories in the area, and the relatively large number of embroideresses was likely related to the larger proportion of middle-class women in the cities.

The weavers form an interesting group, as they seem to represent the differences between urban-industrial pre-industrial patterns in industrial homework most clearly. Virtually no one worked as a weaver in the urban-industrial area. Weaving in an urban area was most likely ruled out for two reasons. First: there was little space. Rapid urbanization had caused a widespread housing shortage in Gothenburg; space was expensive and a handloom requires a lot more space than both a sewing machine and knitting machine. Most urban women lived in one-room apartments with more than two family members. Second: if you are to weave effectively you also need someone else to help with the carding, spinning and winding, so you can focus on the actual weaving. This is not work that is needed constantly but rather work that someone could come in and do from time to time during the day. Weaving, even this late in industrialization, required a type of proto-industrial family to be profitable. This is also clear from the interviews, in contrast to urban families, in the countryside the households were larger and many people lived with older parents or other kin who are recorded as helping with the weaving. In urban households the most common family type in the sample was a family with only two adults.

These results thus confirm the findings from previous studies that the local labour market structure and the presence of large industries are important factors in women's labour market decisions. Also that historical patterns in ways of production and family organization had long-term effects.

Social background and previous labour market experience

Although it did not affect the relationship between having a first child and the timing of the transition to industrial homework, previous labour market experience did explain a substantial amount of variation in the timing of the transition to industrial homework in the rural sample. Having a background in service or manufacturing here meant starting later than if you had no previous labour market experience (see Table 3). This intuitively makes sense: if you do some other type of work before you start, you start later than if you do industrial homework as your first labour market experience. However, the same pattern was not a major determinant in the urban sample (see Table 4), The question is stated as "previously practised occupations?" ("*Tidigare ufövade yrken?*"). It seems that in most cases the women state whether they had been seamstresses, even if they still worked as seamstresses in industrial homework. However, it is not clear if this is actually consistently the case; some might have interpreted the question as if it was asking for previous occupations other than being a seamstress, so if they had been seamstresses their whole lives, even if not always in their own homes, they would answer that they had no previously practised occupation and show the same kind of pattern as women who stated that they had previous occupations in manufacturing, service or other area. The timing of the transition was affected by previous labour market experience in the rural case, however in the case of the urban sample the lack of effect is rather tentative.

Social background, in this paper measured by father's occupation, did not change the relationship between having a first child and starting industrial homework. Further, the only case where the odds of transition in any way appeared to be affected by social background was among individuals from rural areas who did not report a father's occupation. However, the "no entry" category represents a relatively small group and the negative effect could be due to an overrepresentation of married women within this group, as married women started a little later on average and also tended to report their father's occupation to a lesser extent than women who were unmarried in 1912. The interpretation of these findings is thus that they provide at best very weak but more likely no evidence for an influence of social background on the odds of transitioning to industrial homework. It could possibly be that there was not enough variation in the material. Whether a woman was the daughter of a smallholder, a crofter, a labourer or a fisherman, they were all working-class daughters and probably started working in their mid-teens in one way or another. The 7 per cent who came from higher/middle-class backgrounds were also mostly from the lower end of their strata, so compared to farmers daughters they were not so different.

The Swedish case in an international perspective

The experiences of industrial homeworkers in this Swedish case were most likely similar to those in many other European contexts at the time. The urban-industrial pattern of women working in home-based production in an industrializing economy was seen in most large cities at the time. And in many rural areas in Europe there were similar types of home-based production, which had, as in this rural case, long proto-industrial roots, and had transformed into textile centres. The local labour market structure was a key factor in this type of work, and regional differences in industrial structure are likely to be a more important determinant in the representativeness of a case than the national context. There is however one important thing to note: during this time several countries had begun to impose legislation against industrial homework. Sweden had not, so this was not illegal work in Sweden, although it was informal in the sense of not being encompassed by other types of labour market legislation.

In conclusion we can see that the connection between gender and the need for and cost of workplace flexibility, part-time work, shorter hours and flexibility during the working day seem to have been equally important concerns for women homeworkers then as they are for many women in today's labour market. This paper has provided empirical data that confirms that the timing of the transition to industrial homework is affected by the birth of a first child. The study further supports studies that claim that for working-class women around the turn of the 20th century, the birth of a first child did not mean that women left the labour market and stopped working for money but rather that they, just as today, moved into more flexible jobs.

Appendix

Table 5 Rural models with displayed age categories and interactions

RURAL	M1		M2		M3		M4		M5	
	Estimate	OR	Estimate	OR	Estimate	OR	Estimate	OR	Estimate	OR
(Intercept)	-4.10 ***	0.02	-4.10 ***	0.18	-2.92 ***	0.05	-2.91 ***	0.05	-2.92***	0.05
First child	0.71 ***	2.03	0.58 .	1.78	0.70 *	2.02	0.54 *	1.72	0.79 *	2.21
Second child			0.23	1.26	-0.17	0.84				
Third child					0.68	1.98				
No previous occupation	Ref.cat	1	Ref.cat	1	Ref.cat	1	Ref.cat	1	Ref.cat	1
Manufacturing	-0.60 **	0.55	-0.60 **	0.55	-0.60 **	0.55	-0.68 **	0.51	-0.58**	0.56
Service	-0.79 ***	0.45	-0.78 ***	0.46	-0.74 ***	0.48	-0.87 ***	0.42	-0.75***	0.47
Crofter/labourer	Ref.cat	1	Ref.cat	1	Ref.cat	1	Ref.cat	1	Ref.cat	1
Farmer/fishermen	-0.05	0.95	-0.05	0.95	-0.05	0.95	-0.04	0.96	-0.05	0.95
Higher/middle	-0.39	0.68	-0.40	0.67	-0.38	0.68	-0.35	0.71	-0.36	0.7
father cat no entry	-0.75 ***	0.47	-0.76 ***	0.47	-0.77 ***	0.46	-0.71 **	0.49	-0.77**	0.46
9-10	-2.38 ***	0.09	-2.39 ***	0.09	NA	NA	NA	NA	NA	NA
11-12	-1.33 **	0.27	-1.33 **	0.26	-0.12	0.89	-0.12	0.88	-0.12	0.89
13-14	-0.65 .	0.52	-0.66 .	0.52	0.55	1.74	0.55	1.74	0.56	1.74
15-16	0.61 .	1.85	0.60 .	1.83	1.82 ***	6.15	1.82 ***	6.16	1.82***	6.15
17-18	0.48	1.62	0.47	1.6	1.68 ***	5.38	1.69 ***	5.41	1.68***	5.38
19-20	-0.04	0.96	-0.05	0.95	1.15 ***	3.17	1.16 ***	3.19	1.16***	3.18
21-22	0.54	1.72	0.53	1.71	1.74 ***	5.71	1.74 ***	5.7	1.73***	5.66
23-24	0.53	1.7	0.53	1.69	1.73 ***	5.61	1.72 ***	5.57	1.72***	5.57
25-26	Ref.cat	1	Ref.cat	1	Ref.cat	1	Ref.cat	1	Ref.cat	1
27-28	0.60	1.82	0.59	1.81	1.78 ***	5.94	1.79 ***	6	1.77***	5.86
29-30	0.48	1.62	0.48	1.61	1.67 ***	5.32	1.66 ***	5.25	1.65***	5.19
31-32	0.14	1.16	0.13	1.14	1.30 **	3.65	1.33 **	3.79	1.31**	3.69
33-34	-1.41 .	0.24	-1.41 .	0.24	-0.27	0.76	-0.19	0.82	-0.26	0.77
35-36	0.94 *	2.55	0.90 *	2.47	2.10 ***	8.16	2.12 ***	8.35	2.09***	8.09
37-38	0.82 .	2.27	0.79	2.21	1.92 ***	6.84	2.00 ***	7.39	1.97***	7.18

39-40	0.15	1.16	0.10	1.1	1.22 .	3.39	1.34 *	3.82	1.30 *	3.66
41-42	-0.47	0.62	-0.52	0.59	0.50	1.66	0.70	2.02	0.68	1.98
43-44	0.03	1.03	0.00	1	1.01	2.75	1.16 .	3.17	1.18 .	3.24
45-46	1.20 *	3.32	1.19 *	3.28	2.24 ***	9.39	2.35 ***	10.49	2.35***	10.53
47-48	-0.38	0.69	-0.39	0.67	0.68	1.98	0.82	2.26	0.80	2.22
49-50	1.00	2.73	0.99	2.69	2.09 **	8.05	2.20 **	9.02	2.18**	8.82
51-52	0.17	1.18	0.18	1.2	1.36	3.89	1.31	3.72	1.35	3.85
53-54	0.38	1.47	0.40	1.49	1.57	4.81	1.52	4.59	1.56	4.75
55-56	-12.12	0	-12.13	0	-10.93	0	-10.89	0	-10.93	0
57-58	2.27 **	9.64	2.26 **	9.58	3.45 ***	31.61	3.50 ***	33.24	3.46***	31.82
59-60	1.45	4.26	1.44	4.23	2.64 *	14.07	2.68 *	14.6	2.65 *	14.11
61-62	1.69	5.4	1.68	5.36	2.88 *	17.89	2.92 *	18.5	2.88 *	17.89
63-64	2.51	12.3	2.50	12.22	3.70 *	40.47	3.72 *	41.31	3.71 *	40.87
65-66	-12.80	0	-12.81	0	-11.60	0	-11.61	0	-11.59	0
67-68	16.33	12378755.4	20.17	12248381.5	17.54	41314381.65	17.52	40554274.43	17.54	41474957.24
First child*No previous occupation							Ref.cat	1		
First child*Manufacturing							0.61	1.84		
First child*Service							0.64	1.9		
First child*Crofter/labourer									Ref.cat	1
First child *Farmer/fishermen									-0.01	0.99
First child*Higher/middle									-0.08	0.92
First child*No stated occupation									0.08	1.08

Model chi-square (df)	214(35)***	217(37)***	AIC	1752	AIC 197(36)***	Model chi-square (df) 194(37)***
AIC	1732	1734	Chisquare	197(36) ***	Chisquare 1752	AIC 1756
Number of study objects	309	309	Study objects:	309	Study objects: 309	Number of study objects 309
Number of time spells	2516	2516	Study	2516	Study 2516	Number of time spells2516

Table 6 Urban models with displayed age categories and interactions

URBAN	M1		M2		M3		M4		M5	
	Estimate	OR	Estimate	OR	Estimate	OR	Estimate	OR	Estimate	OR
(Intercept)	-1.47 ***	0.23	-1.47 ***	0.23	-2.50 ***	0.08	-2.45 ***	0.09	-2.42 ***	0.09
First child	0.47 **	1.59	0.44 *	1.55	0.61 **	1.84	0.41 .	1.5	0.22	1.25
Second child			0.05	1.05	-0.23	0.8				
Third child					0.49	1.62				
No previous occupation	Ref.cat	1	Ref.cat	1	Ref.cat	1	Ref.cat	1	Ref.cat	1
Manufacturing	0.10	1.10	0.10	1.1	0.10	1.11	0.04	1.04	0.08	1.09
Other	-0.55	0.58	-0.55	0.58	-0.53	0.59	-0.74 .	0.48	-0.60 .	0.55
Service	-0.15	0.86	-0.15	0.86	-0.14	0.87	-0.28	0.76	-0.15	0.86
Crofter/labourer	Ref.cat	1	Ref.cat	1	Ref.cat	1	Ref.cat	1	Ref.cat	1
Farmer/fishermen	-0.27	0.76	-0.27	0.76	-0.23	0.8	-0.26	0.77	-0.37	0.69
Higher/middle	0.11	1.12	0.11	1.12	0.14	1.15	0.14	1.15	0.12	1.13
father cat no entry	-0.27	0.76	-0.27	0.76	-0.25	0.78	-0.26	0.77	-0.40 *	0.67
9-10	-16.96	0.00	-16.96	0	NA	NA	NA	NA	NA	NA
11-12	-3.30 ***	0.04	-3.30 ***	0.04	-2.28 **	0.1	-2.28 **	0.1	-2.27 **	0.1
13-14	-2.59 ***	0.08	-2.59 ***	0.08	-1.58 **	0.21	-1.57 **	0.21	-1.57 **	0.21
15-16	-1.86 ***	0.16	-1.86 ***	0.16	-0.85 *	0.43	-0.85 *	0.43	-0.84 *	0.43
17-18	-2.31 ***	0.10	-2.31 ***	0.1	-1.30 **	0.27	-1.30 **	0.27	-1.29 **	0.28
19-20	-1.03 **	0.36	-1.03 **	0.36	-0.02	0.98	-0.01	0.99	0.00	1
21-22	-0.41	0.66	-0.41	0.66	0.59 *	1.8	0.59 *	1.81	0.60 *	1.83
23-24	-0.29	0.75	-0.29	0.75	0.70 *	2.01	0.70 *	2.01	0.70 *	2
25-26	Ref.cat	1	Ref.cat	1	Ref.cat	1	Ref.cat	1	Ref.cat	1
27-28	-0.03	0.97	-0.03	0.97	0.93 **	2.54	0.94 **	2.55	0.94 **	2.56
29-30	0.10	1.10	0.10	1.1	1.04 ***	2.84	1.07 ***	2.92	1.07 ***	2.92
31-32	-0.03	0.97	-0.03	0.97	0.91 **	2.49	0.95 **	2.58	0.96 **	2.6
33-34	0.35	1.42	0.35	1.42	1.28 ***	3.6	1.33 ***	3.79	1.34 ***	3.8
35-36	-0.01	0.99	-0.02	0.98	0.91 *	2.48	0.94 *	2.57	0.99 *	2.68

37-38	0.76 *	2.13	0.75 *	2.12	1.68 ***	5.36	1.70 ***	5.5	1.76 ***	5.78
39-40	-0.47	0.63	-0.47	0.62	0.44	1.55	0.50	1.65	0.55	1.73
41-42	-0.26	0.77	-0.27	0.77	0.67	1.96	0.71	2.04	0.75	2.12
43-44	0.45	1.56	0.45	1.56	1.42 **	4.15	1.43 **	4.2	1.47 **	4.37
45-46	0.31	1.36	0.31	1.36	1.31 *	3.7	1.30 *	3.68	1.38 *	3.97
47-48	-0.16	0.86	-0.15	0.86	0.82	2.28	0.81	2.25	0.88	2.41
49-50	-16.93	0.00	-16.93	0	-12.96	0	-12.98	0	-12.91	0
51-52	0.54	1.72	0.55	1.73	1.52 *	4.57	1.51 *	4.51	1.57 *	4.82
53-54	0.40	1.49	0.40	1.49	1.38 .	3.99	1.33	3.8	1.47 .	4.34
55-56	1.35 .	3.85	1.35 .	3.87	2.33 **	10.32	2.30 **	9.93	2.41 **	11.16
57-58	0.41	1.51	0.42	1.52	1.38	3.98	1.28	3.59	1.49	4.43
59-60	-16.92	0.00	-16.92	0	-12.91	0	-12.95	0	-12.90	0
61-62	0.95	2.59	0.95	2.59	1.96	7.13	1.93	6.88	1.98	7.26
63-64	-16.97	0.00	-16.97	0	-12.95	0	-12.99	0	-12.96	0
65-66	20.17	577071449.86	20.17	577176894.3	18.20	79916162.48	18.15	76525198.92	18.21	80622569.16
67-68	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
First Child*No previous occupation							Ref.cat	1		
First child*Manufacturing							0.30	1.35		
First child*Other							0.96	2.62		
First child*Service							0.55	1.73		
First child*Crofter/labourer									Ref.cat	1
First child*Farmer/fishermen									0.63	1.87
First child*Higher/middle									-0.20	0.82
First child*No occupation stated									0.66 .	1.93
Model chi-square (df)	299(35)***		299(36)***		1624		242(37)***		244(37)***	
AIC	1565		1567		242		1627		1623	
Number of study objects	269		269		269		269		269	
Number of time spells	2901		2901		2901		2901		2901	

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Paper 2

Long-term labour strategy or short-term secondary workers? The occupational trajectories of women industrial homeworkers in early 20th century Sweden

1. Introduction

This paper focuses on patterns of paid work during the life course of working-class women in the early 20th century. Life-course patterns of paid work are central to theories of gendered labour market differences. For example, according to the human capital theory, the shorter time that women spend in the labour market over the course of their lives compared to men represents the main cause of gendered labour market inequalities (Goldin, 1990; Mincer & Polachek, 1974; Polachek, 1981). The effect of gendered differences in life-course patterns of paid work is believed to have increased following the transformation of the labour market and emergence of modern "careers" during the late 19th and early 20th century. During this time, new opportunities to obtain the skills and experiences that were required for higher positions made the consequences of temporarily leaving the labour force much greater compared to earlier centuries (Sundstrom, 1988, Stanfors & Burnette, 2012).

An increasing number of studies during the last decade have focused on the occupational trajectories of women at this time (Alter, 1988; Schulz, Maas, & van Leeuwen, 2014; Stanfors & Burnette, 2012, Holmberg, 2013), however, we still have a limited understanding of the longitudinal patterns in women's work compared to those of their male counterparts. One reason for the lack of studies concerning women's occupational trajectories is that part or all of their work-life histories took place outside of a formal setting, making it hard to study the longitudinal patterns of individual women using the same sources as those used to study the work of men (Kay, 2004; Schulz et al., 2014; Vikström, 2003).

This paper attempts to contribute to our understanding of the life-course patterns of women's paid work in the early 20th century labour market by studying the work-life histories of a cohort of women employed in industrial

homework in Sweden in 1912. Industrial homework is outsourced industrial production performed by an individual, in a place where the employer cannot supervise the labour performed, such as in the home of the worker or at other premises of his or her choice. Industrial homework was a common occupation for women all over Europe and in the US around the turn of the twentieth century. Most industrial homeworkers were found in the garment or textile industry, especially in the new ready-made clothing factories (Bean, 2009; Boris & Daniels, 1989; Boxer, 1982; Green, 1997). Industrial homeworkers represent a good case for studying longitudinal patterns in women's paid work as they encompass two large groups of women who formed a large part of the labour force but are seldom encompassed by formal sources: married women and women in informal or semi-formal paid work. Previous studies tend to tie industrial homework closely to a specific period in women's lives; a short-term strategy consisting of a short period of unskilled work to keep earning money while they have young children, nevertheless there are no longitudinal studies of the trajectory that led women into industrial homework, or what happened after.

This study tries to reconstruct the work-life histories of industrial homeworkers using information from multiple, independent sources, both official and unofficial. First, I use prospective material from poll tax records from 1912 to 1944, and second, I use retrospective information given in interviews about their occupational history before 1912. As there are no previous longitudinal studies about women industrial homeworkers at this time, the aim of this paper is to describe and discuss patterns and determinants of occupational trajectories of individual homeworkers. In addition, as it is currently unclear how well official records encompass industrial homeworkers, this study will investigate if and how well industrial homeworkers can be studied using the same register-type sources as used to study the careers of men at this time. Specifically, this article seeks to answer the following questions:

a) Was industrial homework part of a continuous occupational trajectory?
b) What was the association between marital status and the occupational trajectories of industrial homeworkers?
c) To what extent is it possible to use register-type sources to study the occupational trajectories of industrial homeworkers?

Industrial homework and life-course patterns of women's paid work

Previous studies on women industrial homeworkers in the early 20th century have emphasised how industrial homework represents a type of short-term strat-

egy women employ during a specific phase of their life course. In these studies, industrial homeworkers are often portrayed as married women employed as secondary workers, earning small sums of money in unskilled work to complement the male breadwinner (Boris and Daniels 1989, 2; Karlsson 1995, 27; Boris and Prügl 1996, 20). According to this view, homeworkers typically quit working for pay when their children enter the labour force or, in some cases, resume remunerative work in a more formal workplace (DeVault 2013). This view also fits with several studies of married working class women's life-cycle labour market participation during the 20th century, finding that women who stayed in the labour market after marriage often left when their children were old enough to go out to work and earn more than their mothers (Humphries, 2010; Knotter, 2004). Provided that their husbands' incomes increase over time, the labour supply of married women should thus be expected to decrease with their husbands' income, and women homeworkers should be expected to leave the workforce as the household reaches a target income, instead allocating their time to household production (Bean, 2009). From this perspective, industrial homework might be seen as a short-term labour strategy, an occupation that women enter when they have young children, make few investments in, and leave when their children are old enough to earn money or their husbands' wages become high enough to support the family.

In contrast, studies of workers in home-based production in a 19th century context (although not industrial homeworkers) contradict this view of industrial homeworkers as short-term secondary workers. Within this earlier context, small-scale home-based production such as dressmaking, millinery and needlework instead appears to have been a way for women to stay in the labour market over a considerably longer period of time (Kay, 2004, 2009). In particular being a seamstress appears to have been one of the types of home-based occupations that were seen as "respectable" and "proper" work for women (Alter, 1988, p. 91). The extent to which these patterns persisted into the 20th century remains unknown. In many ways, the context in which seamstresses worked shifted considerably over this period of time. Although seamstresses formed a large proportion of industrial homeworkers during both the 19th and 20th centuries, it was largely a craft-based occupation in the 19th century whereas seamstresses in industrial homework by definition operated in a heavily industrialized setting in the 20th century. One significant difference between a seamstress in industrial homework and a seamstress in a pre-industrial urban setting could be that the industrial homeworker sometimes only made part of the garment and was not part of the whole production process. However, one

previous study of industrial homeworkers indicates that industrial homeworkers may have had a lot in common with earlier seamstresses. In a study of women making artificial flowers in Paris around the turn of the 19th century, Marilyn Boxer suggested that women were engaged in this kind of home-based piecework as a "*metiér de vie*" (way of life), since it provided a flexible but long-term occupation that "allow[ed] them to control the rhythm of their work and their lives, and it enhanced their status in the family" (Boxer, 1982). Thus, at least some forms of home-based production may also have represented a long-term labour strategy during the 20th century that enabled women to stay in the labour market over longer periods of time.

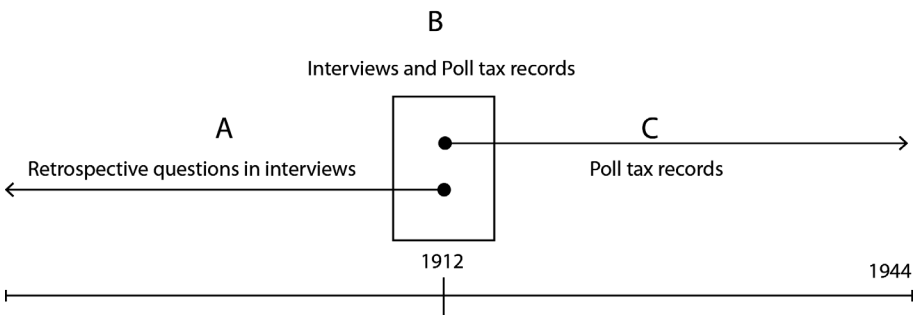
In part, the discrepancy between long-term and short-term descriptions of industrial homeworkers' careers could be due to differences in focus on the individual's marital status. The tendency to focus on married women in studies of early 20th century industrial homework leaves out the fact that there were also large numbers of unmarried women in industrial homework. About half of the women engaged in industrial homework in Sweden in 1912 were unmarried (*Svensk hemindustri. D. 1, Utredningens huvudresultat*, 1917). As unmarried women without children they would have experienced a very different situation in the labour market, as they could not expect any future contribution from children and spouses. As such, they cannot be expected to have entered and left the labour market at different stages of their life course in the same way as married women. Instead, never-married women may be expected to have displayed continuous labour market trajectories more similar to those of men, and may even have followed an upward trajectory in occupational status due to skill acquisition and on-the-job training (Goldin, 1980).

The long-term, short-term discrepancy could also be an effect of limited data on the situation of the homeworkers. Being a form of outsourced production, industrial homeworkers would be less likely to be encompassed by company records; they were also more often employed in industries with smaller firms, where company records are less likely to survive (Mitch, Brown, & Leeuwen, 2004, p. 19).

2. Data and methods

I reconstructed the individual trajectories of women industrial homeworkers by linking two types of sources: interviews conducted with individual homeworkers in 1912 containing information about their current (B in Figure 1) and retrospective occupational status (A in Figure 1), and Swedish poll tax records containing occupational information for these individuals for the years 1912–1944 (C in Figure 1).

Figure 1 Data used for recreation of occupational trajectories



Data

The interview material was originally collected in connection with a national survey on the economic and social situation of industrial homeworkers performed by the National Board of Health and Welfare (*Socialstyrelsen*) in 1912. A total of 4,257 face-to-face semi-structured interviews were conducted with a representative sample of women industrial homeworkers from all parts of Sweden. The results of these interviews were gathered on individual scorecards holding information on individual, household and occupational features of the homeworkers as well as retrospective information such as their previous occupational experience and vocational training. Because the majority of the interviews contain names and addresses of individual homeworkers, it was possible to link them to official register types of sources, in this case poll tax rolls. The poll tax rolls contain information collected at the end of each year on individuals' occupation, employer, annual taxed income, civil status, household members, place of birth, date of birth, rent, and number of employees over the age of 15. I used the poll tax rolls to collect information about individuals' official occupational status in 1912 (when the interviews were carried out), and their occupational trajectories after 1912. For the year 1912, the interviews and the

poll tax records thus contain independent information about the occupational status of individual homeworkers.

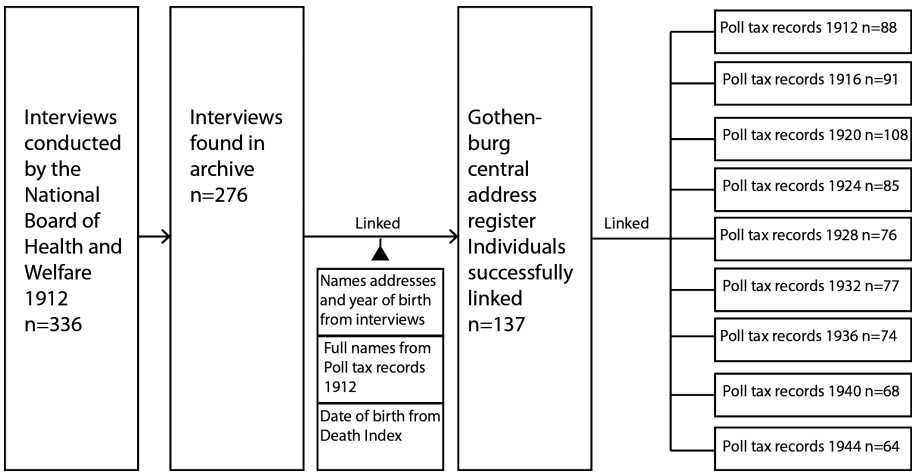
The sample

In order to keep the sample size manageable, the national interview material was restricted to interviews conducted with women homeworkers based in the city of Gothenburg. Gothenburg was an industrial hub on the Swedish west coast and the country's second largest city. Gothenburg was chosen for several reasons, first it was one of three urban areas where the number of interviews was >300 (the others were Stockholm and Malmö). Second, it was chosen because it would allow access to the Gothenburg Central register, an index kept of all inhabitants in Gothenburg containing information on their addresses at any given point from 1920 to 1944, with less complete information available prior to 1920. Since the poll tax records were organized based on a person's address in a given year, information about a person's address in a given year was necessary in order to link the individuals in the interviews to their poll tax records for that year.

A total of 336 industrial homeworkers were interviewed in Gothenburg in 1912, of which 276 could be located in the archive of the National Board of Health and Welfare (*Socialstyrelsen*). In order to have a chance of following them through the poll tax rolls, I needed to find each individual in the address register. I tried to locate all 276 individuals, but before looking for them in the central register I took a number of measures to make sure I found the right individuals. The central register is organized (phonetically) by name and also contains information on each individual's date and place of birth. From the interviews, I had access to the individuals' first and last names, year and place of birth. To access their full names (first, second, last) I used their addresses in 1912 to locate them in the poll tax record for 1912.

From the interviews I had access to each individual's year of birth, but not the date. To access their date of birth I located the respondents in the "Swedish death index 1901–2009", a publication from the Swedish genealogical society, containing the names of all individuals who died from 1947 onwards and about 70 per cent of individuals who died between 1901 and 1946. To maximize my chances of finding them in the central register, and to avoid false linkages, I cross-referenced the information from the interviews with the information in the poll tax records of 1912 and the death index. Figure 2 provides an overview of this data collection process.

Figure 2 Data collection process



It was possible to link 137 of the 276 women in the interviews, 49 per cent, to the central register. The main causes for attrition in the stage between the interviews and the central register were missing or scarce information in the interviews, incomplete addresses, incomplete names, or in some cases illegible handwriting. Another source of attrition was that women might have moved out of Gothenburg between 1912 and 1920, when the register became regularly maintained. In order to appreciate how this affected the representativeness of the group, a logistic regression was carried out[1], with the dependent variable being the success vs. failure in being included in the group that was found in the central register, and the independent variables being age, annual earnings, marital status, and whether they had migrated to Gothenburg. The only significant variable was that women earning over 1000 SEK were less likely to be found in the central register. This was probably because women earning this much almost always had their own shop and were therefore less likely to state their home address in the interview (and thus could not be found in the poll tax record for 1912).

After locating their address cards, the second stage was to try to find the 137 individuals in the poll tax records at four-year intervals between 1912 and 1944. I attempted to find every individual at each point in time unless I knew that they had died, moved out of Gothenburg or, as in a few cases, were

1 The full results of the regression can be found in the data description in the appendix.

institutionalized, which rendered them impossible to find. The total number of individuals found in the tax rolls for a given year can be seen in Figure 2. The average number of individuals found per year was 82, about 60 per cent, corresponding to an average attrition rate of 40 per cent.

Methods

From the interviews, I assembled an individual-level dataset containing personal information (name, address, year born, place of birth); current occupational features (type of products made, type, cost and owner of equipment, presence or number of employees); retrospective occupational features (previous work experience, vocational training); and household characteristics (number of household members, their age, and their relation to the interviewed homeworker). From the poll tax rolls, I collected information on the type of occupation, name of employer, taxable income and marital status for each individual and year.

I used this data to address the questions outlined in the introduction in the following manner: Question one – "Was industrial homework part of a continuous trajectory in a similar type of occupation?" – was answered by reconstructing their occupational histories on the basis of the retrospective information in the interviews on previous training and occupation in combination with information on what kind of industrial homework they were doing in 1912. A continuous occupational trajectory in this case implies that they did not experience occupational mobility when entering industrial homework, or move on to another occupation later in life. Occupational mobility was defined as occupational change at the unit group (3-digit) level in the HISCO system.

Consequently, a move from seamstress (HISCO 79510) to hat maker (HISCO 79310) counts as occupational mobility, but not a move from seamstress to embroiderer (HISCO 79560), as the latter are occupational titles within the same unit group (795). The material did not allow for finer coding, since certain occupational titles, for example "seamstress", seem to be used rather arbitrarily in the poll tax records and could encompass a wide range of different activities, including some type of garment or textile production in homes, and variations in the titles from one year to another did not always seem to mirror a real change but rather the preciseness of the person recording the information.

The second question – "What was the association between marital status and the occupational trajectories of industrial homeworkers?" – was answered by combining the information in the interviews on marital status with the

combined information on previous and current home-based occupation in the interviews and information on occupation in the poll tax records. The final question – "To what extent is it possible to use register-type sources to study the occupational trajectories of home-based workers?" – was investigated by comparing the information in the interviews with the information in poll tax records in 1912, and by using the information gathered from the poll tax records in general.

3. Results

In this section, I first present a descriptive overview of the demographic and occupational features of the sample in 1912, after which I describe the results from the reconstruction of the individuals' work histories, describing previous labour market experience and training based on the retrospective data in the interviews, followed by a description of their occupational trajectories after 1912 based on the poll tax records (cf. Figure 1). I then describe the differences between the trajectories found for individuals differing in marital status, and finally present the results from the comparison between the information on individuals' occupational status in the interviews performed in 1912 to that recorded in the poll tax rolls in 1912.

Demographic and occupational features of the sample 1912

The unmarried women were more heterogeneous than the married women, both in terms of household type and age structure. When the interviews were conducted in 1912, most of the women were around 30 years old; they had started their occupational trajectories in the late 19th century and many had entered industrial homework in the early 1900s. The majority of the women were not born in Gothenburg but had moved into the city from nearby rural areas. Just over half, 52 per cent, were unmarried, 43 per cent were married and 5 per cent were widowed in 1912 (see table 1). Among the married women, most (73 per cent) lived with their husbands and children, 59 per cent lived with children under the age of 10, and the majority (75 per cent) were between 20 and 39 years of age. Among the unmarried women, it was about equally common to share a household with other family members, most often their parents and/or unmarried adult siblings (38 per cent) or to live alone (35 per cent), and the age structure was much more evenly distributed compared to married women.

Table 1 Demographic and household features of the cohort followed in 1912

	Married (n=59)		Unmarried (n=71)		Widowed (n=7)
	n	%	n	%	n
Age range					
<20 years	0	0	2	3	0
20-29 years	20	34	18	25	1
30-39 years	24	41	23	32	0
40-49 years	7	12	16	23	5
>49 years	8	14	12	17	1
Type of household					
Living alone	1	2	25	35	1
Single mother with children	1	2	4	6	5
Extended family*	3	5	2	3	1
Married couple with children	43	73	0	0	0
With one or both parents and unmarried siblings	2	3	27	38	0
Married couple without children	8	14	0	0	0
With unmarried siblings	1	2	13	18	0
				0	
Households including children 10 years or younger	35	59	5	7	1
Moves					
Migrated to Gothenburg	42	71	38	54	6

*ext family= > two generations in household and/or other kin who are not their parents, siblings, children or spouse.

Source: Interviews conducted with industrial homeworkers based in Gothenburg 1912

The unmarried women were also more diverse in their occupations. The vast majority (78 per cent) of married women were engaged in some type of seamstress work, with the majority making underwear (51 per cent) and a minority making coats (19 per cent) (see Table 2). In contrast, fewer unmarried women were engaged in some type of seamstress work (62 per cent), but a larger proportion of these produced coats (37 per cent) than underwear (21 per cent). 10 per cent of married women did embroidery, whereas 23 per cent of unmarried women did so. A similarly small number of both married and unmarried women knitted (8 and 7 per cent, respectively).

Table 2 Occupational features of the cohort followed in 1912 (based on the interviews)

Occupational features	Married		Unmarried		Widow
	n	%	n	%	n
Type of products made					
Embroideress	6	10	16	23	1
Knitter	5	8	5	7	0
Other*	2	3	6	8	1
Seamstress/clothes	5	8	3	4	2
Seamstress/coats	11	19	26	37	1
Seamstress/underwear	30	51	15	21	2
Employees					
0	47	80	45	63	5
1 to 3	8	14	9	13	1
4 to 6	3	5	13	18	1
7 or more	1	2	4	6	0
Workshop					
Yes	3	5	13	18	1
No	55	93	56	79	6
Continuous variables	**Min**	**Median**	**Mean**	**Max**	**SD**
Hours worked per day					
Married	1	7	7	13	3
Unmarried	1	9	9	15	3
Widows	7	8	10	16	4
Income per week in kronor					
Married	1	5	6	15	3
Unmarried	4	8	10	25	5
Widows	3	5	7	14	6

*Other = Washing and ironing, pressing, making various ladies apparel, making patterns for upholsterer, labelling, stitching shoes, painting tin soldiers, making flags.

Source: Interviews conducted with industrial homeworkers based in Gothenburg 1912

Compared to the unmarried, relatively few married women had employees (21 per cent vs. 37 per cent). Among the unmarried women however, in some cases the employees seemed to be more like own-account workers in their own right, often sisters working together who were not in a direct employer-employee relationship but rather, both of them were employed. Just 5 per cent of married women ran their own workshop (i.e. they rented a space outside of their home where they and their employees worked), whereas 18 per cent of unmarried

women did so. Note, however, that many women who did not have a workshop still had employees working in their own home (not in the home of the employee). Unmarried women tended to work about 2 hours more per day than married women, and earned between 3 and 4 kronor more per week. Women with employees were excluded from the calculation of weekly incomes, as it was not possible to estimate their incomes after paying salaries to their employees. Including them would most likely have made the difference larger. Based on the median hours worked and mean weekly income, unmarried women thus worked 28 per cent longer days, but earned 60 per cent more than married women, suggesting a considerably higher productivity for unmarried homeworkers.

Results from reconstructing the occupational trajectories of the industrial homeworkers

All in all, most industrial homeworkers followed a continuous trajectory; the occupation followed in homework was in most cases the same as they had held prior to home-based work, or was the only occupation they had held. Few moved on to other types of occupations after industrial homework.

Almost 50 per cent of all women had no prior labour market experience prior to starting industrial homework: 31 per cent transferred from occupations that were similar or identical to the type of production they were now doing in their homes, and the remaining 19 per cent had worked in occupations that were not related to the type of work they were currently doing (see Table 3). Among the 19 per cent who had worked in a different occupation previously, a wide range of occupations were represented (Table 3). Most often they had worked in the service sector as a charworker, clerk, housemaid, maid, nursemaid, servant or shop assistant (62 per cent combined). In five cases (the teachers, the music teacher, and one of the maids), the women were still active in these occupations, and were currently doing industrial homework on the side.

Table 3 Occupations held before industrial homework

Occupation held before Home-based work	Married		Unmarried		Widowed		Total	
	n	%	n	%	n	%	n	%
No previous occupation	27	46	37	52	3	43	67	49
Occupations continued at home								
Seamstress	16	27	20	28	2	29	38	28
Painter			1	1			1	1
Embroiderer	1	2	2	3			3	2
Total (Occupations continued)	17	29	23	32	2	29	42	31
Occupations not continued at home								
Baker	2	3					2	1
Cardboard maker	1	2					1	1
Charworker	1	2					1	1
Clerk			1	1			1	1
Dealer			1	1			1	1
Factory worker	1	2					1	1
Gilder	1	2					1	1
Housemaid			1	1			1	1
Maid					1	14	1	1
Music teacher			1	1			1	1
Nursemaid			1	1			1	1
Presser	1	2					1	1
Servant	5	8			1	14	6	4
Shop assistant	3	5	2	3			5	4
Teacher			3	4			3	2
NA			1	1			1	1
Total (Occupations not continued)	15	22	11	15	2	29	26	19
Total (All)	59	100	71	100	7	100	137	100

Source: Retrospective questions in the interviews conducted with industrial homeworkers based in Gothenburg 1912

Overall in this sample, the occupational mobility when transferring into industrial homework was very low, with the vast majority of women, 80 per cent, either continuing the same type of occupation at home or reporting homework as their only labour market experience. The two most common trajectories went from having no previous occupation to working as some type of home-based seamstress (44 individuals or 24 per cent of all women, see table 4); or

from working as a seamstress to being some type of home-based seamstress (35 individuals or 22 per cent of all women). In a few cases, individuals had previously worked in a related but slightly different occupation as that currently performed in their homes. In one case, a current home-based seamstress had previously worked as an embroiderer, and two individuals currently working in their home on embroidery had previously worked as seamstress apprentices. These individuals have been included in Table 3 as having had the same occupation as they were currently doing in their homes.

A closer inspection of the 19 per cent that had experienced occupational mobility in connection to starting homework revealed a considerable variation in the types of occupational trajectories and transitions. A total of 25 unique transitions in occupation occurred between previous work and industrial homework, with the majority (20 occupational transitions) being represented by a single case. The only occupational changes involving more than two individuals were the four servants that became underwear seamstresses and the three shop assistants and three teachers that became embroiderers (Table 4). When examining the occupational background of different kinds of homeworkers, it was found that the 23 embroiderers came from 9 different occupations, the 10 knitters came from 3 different occupations, the 10 clothes seamstresses came from 2 different occupations, the 38 coat seamstresses came from 2 different occupations, and the 47 underwear seamstresses came from 10 different occupations.

Among the women who had continued in a similar occupation, the way in which these individuals had been employed, and the exact types of products produced before and after taking on home-based work often differed. Thus, although the majority of the now home-based seamstresses had previously worked as some type of seamstress, some had done so in factories, some in workshops, some in stores, and some had worked for other seamstresses or private families. In many cases, however, sufficiently detailed information was not available in the interviews, preventing a more detailed investigation on the transition patterns for the seamstresses in particular.

Table 4. Previous occupations and occupations held in industrial homework

Previous occupation	Occupation in home-based work											
	Seamstress: coats		Seamstress: clothes		Seamstress: underwear		Embroideress		Knitter		Other	
	n	%	n	%	n	%	n	%	n	%	n	%
No previous occupation	19*	50	5*	50	20*	43	10*	43	7*	70	6*	67
Baker					2	4						
Cardboard maker					1	2						
Charworker					1	2						
Clerk							1	4				
Dealer					1	2						
Embroiderer					1	2	1*	4			1	11
Factory worker					1	2						
Gilder									1	10		
Housemaid	1	3										
Maid							1	4				
Music teacher							1	4				
Nursemaid									1	10		
Painter							1	4				
Presser					1	2						
Seamstress	18*	47	4*	40	13*	28	2	9			1	11
Servant			1	10	4	9			1	10		
Shop assistant					1	2	3	13			1	11
Teacher							3	13				
NA					1	2						
Total	38	100	10	100	47	100	23	100	10	100	9	100

*= Not transition
NA= Illegible handwriting

Source: The interviews conducted with industrial homeworkers based in Gothenburg 1912

In total, 20 per cent of the women stated that they had some kind of vocational training in their occupation (see table 8). Most of the workers had received training at the large clothing factory they were still working for, others had trained in workshops, with another seamstress, and one had trained as a crafts teacher. Few stated how long they had trained but among those who did, the length of the training varied from weeks up to ten years. Several stated that they had been working as part of a vocational training programme.

Most individuals, 74 per cent, also continued to follow a continuous occupational trajectory (never registering an occupation or registering the same occupation throughout the period) after 1912 (see table 5).

Table 5 Type of trajectories 1912–1944 by marital status

In poll tax records 1912–1944	Married		Unmarried		Widow	
	n	%	n	%	n	%
1. Never registers occupation	37	63	11	15	5	71
2. Register the same occupation during the whole period	1	2	35	49	1	14
3. Changes to or from "wife"	7	12	5	7	0	0
4. Changes to other occupation	6	10	13	18	1	14
Found less than 3 times	8	14	7	10	0	0
Total	59	100	71	100	7	100

Source: Poll tax records for every parish in Gothenburg 1912 to 1944

A minority, 26 per cent, experienced some mobility between 1912 and 1944, either between occupations, or between reporting an occupational title to reporting "wife". Among those who were seamstresses during the 1912 interviews, most continued to report seamstress as their occupation in the poll tax records throughout their lives and few moved on to other occupations (see table 6). However, embroiderers rarely reported embroiderer as their occupation in the poll tax rolls; most of those that reported an occupation instead had transitioned to other occupations.

Table 6 Occupations registered 1912 to 1944 per type of work in industrial homework

	Occupation registered in the 1912 interviews:						
Occupations registered in poll tax records 1912–1944:	**Seamstress: coats**	**Seamstress: clothes**	**Seamstress: underwear**	**Embroideress**	**Knitter**	**Other**	**Total**
Seamstress	26*	3*	12*			2	43
Seamstress: coats	2*						2
Seamstress: underwear			3*				3
Embroideress				3*			3
Knitter					1*		2
Tricot knitter					3*		4
Tricot worker					1*		2
Accountant				1			1
Ackvisitris (financial clerk)				1			1
Cashier				1			1
Char worker							0
Clerk	2						2
Factory worker							0
Hotel clerk					1		1
Kindergarten teacher				1			1
Maid	1			1	1		3
Supervisor					1		1
Music teacher				1			1
Nurse maid				1			1
Pattern maker						1	1
Presser		1					1
Shop assistant	1			1			2
Worker			1				1

Source: Poll tax records for every parish in Gothenburg 1912 to 1944 and the interviews conducted with industrial homeworkers based in Gothenburg 1912
*Asterisks indicate instances that are not considered to be occupational transitions.

In total, I observed 42 transitions between occupations or transitions in and out of the labour market in the poll tax records (see Table 7). Nearly three out of four (74 per cent) of these changes were transitions in and out of the labour market, most of them from wife to seamstress or from seamstress to wife. Four transitions from seamstress to other occupations occurred: two seamstresses changed to domestic work, one transitioned to shop assistant and one took up work as a baker. Two transitions occurred from maid to seamstresses, and five other transitions occurred only once.

Table 7 Types of transitions in 1912 to 1944

	Occupation transferred to:														
Occupations transferred from:	**Accountant**	**Ackvisitris (financial clerk)**	**Baker**	**Cashier**	**Charworker**	**Shop assistant**	**Factory worker**	**Maid**	**Supervisor**	**Seamstress**	**Teacher**	**Tricot knitter**	**Wife**	**Worker**	**Total**
Cashier	1			NA											1
Charworker					NA								3		3
Embroideress		1													1
Factory worker							NA						1		1
Kindergarten teacher											1				1
Knitter													1		1
Maid								NA		2					2
Nursemaid				1											1
Seamstress			1			1		2		NA			11		15
Tricot knitter									1			NA			1
Wife					3	1	1			7		1	NA	1	14
Worker													1	NA	1
Total	1	1	1	1	3	2	1	2	1	9	1	1	17	1	42

Source: Poll tax records for every parish in Gothenburg 1912 to 1944

Most of the observed transitions seem to have been horizontal moves, between occupations with about the same occupational status. Of the three women who actually seem to have experienced some upward mobility in occupational status, one went from being a kindergarten teacher (*småskollärarinna*) to being a teacher. However it is not entirely clear whether she actually changed to teaching higher grades, or just started to write teacher as a less specific title. The second was an embroideress who became a type of accountant or clerk (ackvisitris) at Electrolux, and the third was a knitter who became a supervisor (*förståndare*) at a laundry. The one individual who seems to have made some type of "career", was an embroideress who was 20 years old in 1912. In 1916, she stated that she had been a nursing assistant (*sjuksköterskebiträde*) and in 1920, four years later, she stated that she worked as a cashier (*kassörska*). In 1924, she was still a cashier but only had temporary employments. However, in 1928, she stated that she was working as an accountant (*kamrer*) for a hospital (Carlanderska sjukhemmet) which she remained working at until the last time found in 1944.

Differences in the occupational trajectories of homeworkers related to marital status

Unmarried homeworkers more often stated that they had no previous work experience than married women (52 per cent vs. 46 per cent) and stated slightly more often that they had worked in a similar occupation previously (32 per cent vs. 29 per cent). Consequently, married women more often stated that they had held different occupations prior to taking on home-based work (22 vs. 15 per cent). These observations together suggest a slightly higher occupational mobility for married than unmarried women. Unmarried workers had also received training more often than married workers (28 per cent vs. 12 per cent; see Table 8).

Table 8 **Years worked and training per marital status**

Years worked in industrial homework	**Min**	**Median**	**Mean**	**Max**	**Sd**
Married	0.5	3	7	40	9
Unmarried	1	7	9	30	8
Widows	0.5	10	10	23	8

Training	Has training		Has no training	
	N	%	N	%
Married	7	12	52	88
Unmarried	20	28	51	72
Widowed	1	14	6	86
All	28	20	109	80

Source: Interviews conducted with industrial homeworkers based in Gothenburg 1912

Unmarried workers on average had also worked as homeworkers for longer than married workers, and widows had worked as homeworkers for longer than unmarried workers, however, note that the latter group tended to be older.

Differences in occupational status in poll tax records and interviews

Of the 137 individuals interviewed in 1912, 88 could be found in the poll tax rolls from the same year. This allowed me to compare the self-reported occupation in the interviews with that reported to the tax office. In table 9 we can see that, among the coat seamstresses, 16 out of 25 individuals found in the poll tax rolls were registered as seamstresses (64 per cent), while only 1 out of

5 clothes seamstresses (20 per cent) and 6 out of 31 (19 per cent) underwear seamstresses reported their occupation in the poll tax rolls (Table 9).

Table 9 Occupation stated in interview and occupation stated in poll tax record

	Home-based occupation stated in the interview 1912						
Occupation stated in poll tax records 1912	Seamstress coats	Seamstress: clothes	Seamstres: underwear	Embroi-deress	Knitter	Other*	All
Occupational title							
Coat seamstress	2						2
Embroideress						1	1
Housemaid				1			1
Kindergarten teacher (temp.)				1			1
Knitter					1		1
Presser						1	1
Seamstress	14	1	6	1			22
Tricot knitter					2		2
Total (Occupational titles)	16	1	6	3	3	2	31
Other title							
Daughter	2			5		1	8
Miss				1			1
Relative		1	7	1		1	10
Unmarried				1			1
Widowed		1	1	1			3
Wife	5	2	7	3	1	2	20
No entry/blank	2		10		1	1	14
Total (Other titles)	9	4	25	12	2	5	57
Not found at address	13	5	16	8	5	2	49
Total (All)	38	10	47	23	10	9	137

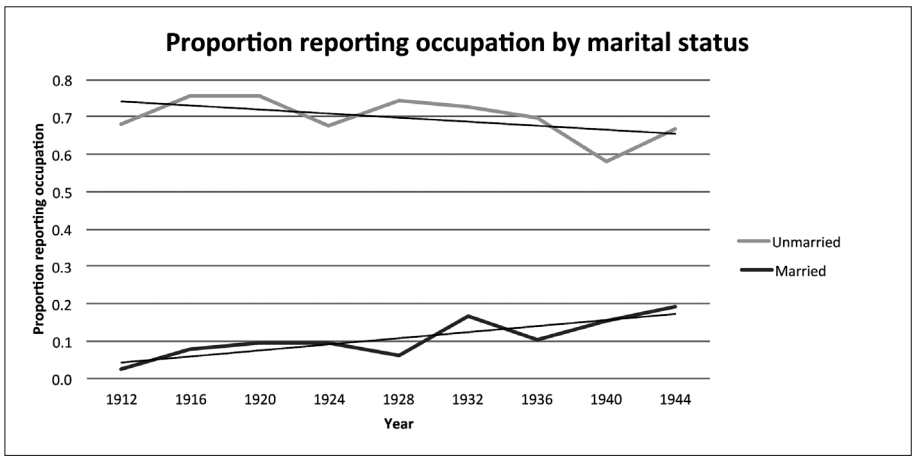
*Other = Washing and ironing, pressing, making various ladies apparel, making patterns for upholsterer, labelling, stitching shoes, painting tin soldiers, making flags.

Source: Poll tax records for every parish in Gothenburg 1912 to 1944 and the interviews conducted with industrial homeworkers based in Gothenburg 1912

Among embroideresses, 1 out of 23 (4 per cent) was registered as a seamstress, 1 was registered as a housemaid and 1 as a kindergarten teacher, while 3 out of 5 knitters (60 per cent) were registered as knitters. Thus, only 31 out of 88 individuals (35 per cent) reported an occupation in the tax poll rolls, although all were known to be homeworkers in 1912 based on the information in the interviews. There was a considerable difference in the proportion of married

and unmarried women reporting an occupation: 3 per cent of married women found in the poll tax records reported an occupation in 1912, whereas 68 per cent of unmarried women reported an occupation.

Figure 3 Proportion of women workers who registered an occupation in the poll tax records per marital status



Source: Poll tax records for every parish in Gothenburg 1912 to 1944

Based on the poll tax records, the proportion reporting an occupation each year followed a relatively steady upward trend in married women, increasing from 3 per cent in 1912 to 19 per cent in 1944 (Figure 3). The proportion reporting an occupation followed a very slight negative trend in unmarried women, changing from 68 per cent in 1912 to 67 per cent in 1944 (Figure 3).

4. Discussion and conclusion

By combining data from interviews and poll tax records, this study shows that for the majority of women homeworkers in early 20th century Sweden, industrial homework was part of a continuous occupational trajectory and most women in industrial homework experienced no occupational mobility transitioning into or out of industrial homework. Married and unmarried women were found to differ considerably in their occupational trajectories. Although both married and unmarried women tended to remain in the same occupation after making the transition to industrial homework, the transition to home-based work more often appeared to have been a step down in their careers for married

women, transitioning to making simpler products and working as own-account workers alone in their own homes. For unmarried women, the transition to home-based work instead appeared more often to have been a step up in their careers, with unmarried workers often employing other women and in some cases running their own small shop outside of their home. In the following sections, I will discuss and interpret these results, and to some extent try to explain these patterns.

Occupational trajectories of women industrial homeworkers in early 20th century Sweden

The large majority of the women in this sample did not change their occupation when they started industrial homework. Instead, most continued to do the same type of work they had previously done at another workplace, and in some cases industrial homework represented the only labour market experience they had. Furthermore, few women switched to another occupation after industrial homework. For most industrial homeworkers, homework was thus part of a continuous occupational trajectory and they experienced no occupational mobility when transitioning into, or from, industrial homework (Tables 3 and 5). Women who continued in the same occupation they had held at another workplace prior to becoming homeworkers did however often experience changes in the type of job they did and their employment relationships during the transition: they often went from being from an employee in a factory or at a shop, to being a subcontracted own-account worker or employer of other workers (table 2).

In their continued occupational trajectories, few women moved on to other occupations after becoming industrial homeworkers. In total, only 20 women, or 16 per cent, of those found more than 3 times in the poll tax rolls between 1912 and 1944 were found to register a different occupation at any point during that time (Tables 5 and 6). The women who did change their occupation when moving into or out of industrial homework were more often those who produced simpler products that required less skill or equipment as homeworkers. Only 19 per cent experienced any occupational mobility when transitioning to home-based work (Table 3) and the majority of these individuals were workers that produced garments requiring less skill, such as underwear or embroideries (Table 4). Similarly, embroideresses were overrepresented among those that transitioned to other occupations after 1912 (Table 6).

Thus, this study provides some support for the idea that industrial homework represents a type of work women perform during a specific phase of

their life-course. This was particularly true for those producing the simplest garments, where skill thresholds were low. However, for a large proportion of these women, homework was not simply a type of work into which they were pushed as a last resort by the need to combine unpaid care work with paid work. Instead, for many women, industrial homework appears to have been part of a long-term occupational trajectory, which in many cases included significant skill attainment and on-the-job training, and even some upward mobility, although the types of employment relationships and types of workplaces they worked in changed.

Variation in occupational trajectories related to marital status

Married and unmarried women appear to have had different occupational trajectories, not so much before entering industrial homework as during and after becoming industrial homeworkers. Compared to unmarried women, women who were married in 1912 did not differ in their previous labour market experience (Table 3) but they differed considerably in many other aspects of the work they performed as industrial homeworkers: married women had received less training and had worked fewer years in industrial homework; they worked shorter hours, earned less in total and per hour worked, and more seldom employed other workers or had their own workshop (Table 2). Marital status also seems to have been associated with the types of products made in industrial homework. Among the seamstresses, married women more often made simpler and less expensive underwear, while unmarried women to a larger extent made expensive coats that required a considerable amount of skill and training.

The coat makers in particular had made large investments in terms of skills and equipment, and formed a distinctive group in the sample. They often had extensive vocational training, and were much more likely to employ other women. In fact, their work histories closely resembled the type of informal, internal labour market careers described by Sundstrom (1988) as existing at the turn of the century in American industries: their employers provided on-the-job training, they had some opportunities for promotion and their employers actively sought to reduce labour turnover. The factory which most of these women worked for, Wettergrens, was one of the largest garment factories in Scandinavia at this time. The women working for Wettergrens seem to have had a strong worker-employer relationship; some of them had what would be considered "lifetime jobs" and stayed for more than 20 years with the same employer. They had trained there, and in some cases still worked part of the

year in the factory. Several also subscribed to health insurance programmes tied to the employer and received premiums for remaining with the company. For these women workers, the transition to industrial homework seems to have been a step up on some type of career ladder. Potentially, their training time and work in the factory worked partly as a screening mechanism to find out which women were suitable to head workshops.

Why do we see such strong differences in work-life trajectories associated with marital status? From a human capital perspective, we might expect that the total time spent in an occupation would differ between unmarried and married women, and that subsequent differences in skill attainment would cause them to differ in their occupational trajectories. Because married women may have foreseen themselves as staying in their occupation for a shorter amount of time (being ready to leave the labour market if their household income rose when their husbands or children got better-paying jobs), they may have invested less in their skill development than unmarried women. However, this interpretation is contradicted by the fact that many highly skilled homeworkers in this sample must have started to invest in their occupational training when they were relatively young – long before they got married. Did the coat makers know when they were young that they were going to stay unmarried and thus invested more in their vocational training? Or were they perhaps able to stay unmarried because they invested in their training? There seems to be a correlation between marital status and vocational training among these women, but the causality remains unclear. That married women tended to make simpler products on their own, while unmarried women more often made complex products and ran their own shops, may in part be related to practical constraints on the types of work married women could take on as a form of secondary income that could be performed in combination with unpaid care work. Making coats, for example, involved many stages, such as hand sewing, machine sewing and pressing. Married women faced several obstacles if they were to produce coats: they would have had to invest in the necessary skills and machines, and these investments may not have paid off unless they could stay in the profession for long enough. Even if they had the necessary skills and equipment, finishing even a single coat when they were unable to work full hours or rely on co-workers for assistance would have taken a very long time. Married women thus needed to find flexible work where they lost relatively little in terms of productivity compared to if they had been working full time. Sewing cheaper chemises did not bring in as much money as making coats, but this was compensated for by the possibility to produce them continuously, as

it only took about an hour to make one chemise. It was thus possible to make them in between other duties and finish several items in a week and receive money on a steady basis. Married women also had the possibility to produce simpler garments because their income was often not the only income in the household. For unmarried women, on the other hand, it was likely very hard to survive by making the simplest undergarments, and if they did, they had to compensate for the low piece rates by working very long hours.

Almost 50 per cent of the unmarried women remained in the occupations they reported in 1912 throughout their careers. The majority of women who were married in 1912 on the other hand officially stayed out of the labour force and never registered an occupation in the poll tax records between 1912 and 1944. Did this mean that all married women left industrial homework? Most likely not, as we can see from cross-referencing the information in the interviews and the poll tax records that the occupations of married women were vastly more often underreported than those of unmarried women.

Theory predicts that women should experience lower occupational status after marrying, whereas unmarried women should experience upward career trajectories more similar to those of men. The results presented here support these predictions. For many unmarried women, homework seems to have represented a step up in their careers, allowing them to produce more sophisticated products and take responsibility for the whole production sequence as they gained more skills, and eventually take on a managerial position and start a shop of their own. For married women, on the other hand, homework seems to have represented a period in their career trajectories where they accepted low wages in order to have a flexible way to stay in paid work.

Industrial homework in official records

By cross-referencing the same individuals in both interviews and poll tax records, I was able to get an estimate of the level of underreporting of women's industrial homework in official sources. Even though by definition, 100 per cent of the women in the interview sample were doing paid work as industrial homeworkers in 1912, only 3 per cent of married homeworkers reported an occupation to the tax office, whereas 68 per cent of unmarried women did so (Figure 3). The only group more likely to report an occupational title than a kin title in the poll tax records was the group of unmarried coat seamstresses (Table 6). This supports the idea that women workers are often absent from official records, not because they are economically inactive, but because of considerable

underreporting. The level of underreporting was however, as expected, much larger for married women, and the occupational information in official records for unmarried workers was much more reliable (Figure 3). The underreporting of married women's work is likely in part related to the breadwinner norm prevalent at the time, but it should also be noted that these women had few incentives for reporting their occupation: they were not expected to have an occupation and almost never earned over the taxation limit.

In official records at this time, the term seamstress was the second most commonly used occupational title for women (after maid). In this study, the term seamstress was found to hide a large occupational diversity as it encompassed a wide range of workers from lone individuals sewing simple garments by hand for small sums of money to highly trained seamstresses employing up to a dozen workers in dedicated workshops. Together, these findings highlight the limitations of using official records to understand the social and occupational mobility of women, and stresses the need for incorporating alternative and complementary sources when studying longitudinal patterns in women's paid work in the early 20th century.

Conclusion

This paper has contributed to knowledge regarding the life-course patterns of paid work by women in the early 20th century labour market by describing the occupational trajectories of 137 women employed in industrial homework in 1912. The most important finding is that industrial homework was often part of a continuous trajectory in similar occupations where industrial homework was often, but not always, the last segment of women's work history. Marital status was associated with different occupational trajectories: for married women industrial homework was often a step down into a flexible job, seemingly on their way out of the labour market, while for many unmarried women home-based work was a step up to a supervisory position, having employees and a small workshop. Another important finding is that a substantial group of industrial homeworkers had experienced extensive formal and on-the job training and that many women had long-term employment relationships with their firms and seemed to experience some type of career within that firm.

Thus for many workers, industrial homework represented a way to remain in the labour market and to use the skills they had acquired for a longer period of time. One important implication of this study is thus that it challenges the widely held belief that women's choices in the early 20th century labour market

always followed a strategy based on the notion that they would spend a short amount of time in their occupation. Women in this study were able to use the skills they had acquired not only for paid work in a formal workplace but in a number of different types of work and employment relationships over the course of their lives. The seamstresses form an especially elucidating example in this respect. As young women they would work in factories or a workshop, and as older and in some cases married women they would work as own-account workers in their own homes, either alone or employing other women. They could also continuously use their acquired skills to sew for themselves and their family. So although the time spent performing paid work in a formal workplace may have been relatively short for many women, in some cases the total amount of time during which they could use their acquired skills over the course of their lives was longer.

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Paper 3

Seasonal variation in hours worked in industrial homework: Evidence from Sweden 1911

1. Introduction

If, when and how much time one spends performing paid work is central for individuals, today as well as in the early 20th century. Twentieth-century labour markets were characterized by a secular increase in female labour force participation rates, especially among married women. To understand what caused the trends in female labour force participation rates, scholars have studied the factors that affect individuals' decisions to enter paid work. Lately, there has been a surge in interest in female labour force participation rates in historical European economies (Bean, 2014; Humphries & Sarasúa, 2012; Pérez-Fuentes, 2013). From an empirical perspective, the labour supply of an individual can be seen as a two-step process. The first step consists of assessing what determines an individual's probability of working for money at all, while the second step consists of assessing what determines the number of hours worked by those individuals that make up the labour force (Jacobsen, 2007, p. 122).

Historical studies on the labour supply of women in the early 20th century have typically focused on the first step and been based on census data or other official aggregates (Fraundorf, 1979; Grantham, 2012; Rotella, 1980; Sundstrom, 2001). As sufficiently detailed individual-level sources are scarce for women of this time, considerably fewer studies have dealt with the variation in the number of hours worked by women who are actually in the labour market and the determinants of this variation (Burnette & Stanfors, 2012; Bean, 2014). This is a problem, since simply looking at whether or not women are in the labour force can only provide a crude picture of their overall economic activity. For example, aggregate data rarely take into account temporal irregularities in patterns of employment. This paper contributes to our understanding of temporal variations in paid labour by women in an industrialising society by studying seasonal patterns in hours worked by women industrial homeworkers in Sweden in 1911.

Industrial homework – industrial production that is outsourced to homes and workshops – was an important source of employment for a large number of women in the early 20th century. In Sweden, 50 per cent of workers in the garment industry and 40 percent of workers in the textile industry were home-based in 1911 (*Svensk hemindustri. D. 1, Utredningens huvudresultat*, 1917, p. 60). Industrial homework was not limited to Sweden but was a common feature in all western-European countries during the first decades of the twentieth century. In London, Paris and Berlin, several hundred thousand women were employed in industrial homework (Koch 1905; Allexandre 1906; WIC 1908).

Several contemporary studies from the early 20th century have described industrial homeworkers as a highly flexible workforce strongly affected by seasonal variation in demand (Argyle & Booth, 1892; Edith Abbott, 1909; *Svensk hemindustri. D. 1, Utredningens huvudresultat*, 1917). Even today, this type of subcontracting is still common in markets characterized by cyclical or seasonal demands for the products made (Chen, 2014). A large proportion of the industrial homeworkers in this study were employed in some type of garment production, a sector characterized by quick, fashion-related changes in demand and cyclical seasonal fluctuations (Green, 1997, pp. 155–160). From this perspective, industrial homeworkers can be viewed as a secondary workforce that buffers peaks of demand for certain products (Reich, Gordon & Edwards, 1973, p. 363)

However, seasonal variation in hours worked by industrial homeworkers can also be expected from a supply-side perspective. Since homeworkers were often secondary earners in their households, their labour supply would be negatively correlated with the household income, for example if their incomes from homework served to buffer variations in the income of a primary male breadwinner (Goldin, 1979; Edwards & Field-Hendrey, 2002; DeVault, 2013).

This study aims to contribute to our understanding of female labour force participation and its determinants by quantifying seasonal variation in hours worked by women industrial homeworkers and analysing seasonal patterns with respect to both demand-side and supply-side factors. The text is structured around four questions, the first and second being primarily descriptive and the third and fourth being inferential:

(1) What patterns of seasonal variation can be found in hours worked by industrial homeworkers?
(2) Were there urban-rural differences in patterns of seasonal variation in hours worked?

(3) Were seasonal patterns in hours worked related to seasonality in the work of the household head?
(4) Were seasonal patterns in hours worked related to seasonality in demand for the products made?

To answer these questions this study employs a recently compiled microeconomic dataset based on a large number of interviews conducted with industrial homeworkers in 1912. Swedish industrial homeworkers offer a unique possibility to study these questions because of the availability of these interviews, which total over 5,000 and were carried out with individual workers in Sweden in 1912 as part of a large survey on industrial homework by the National Board of Health and Welfare (*Socialstyrelsen*). Sweden was not the only country that conducted a survey of industrial homeworkers in the early 20th century, however, it appears to be the only one where a large national representative sample of interviews was used. A subset of these interviews have been used in this paper to extract information about the hours worked by each individual per day and per month, as well as information on products made and household features, including the occupation of the household head.

By applying Principal Component Analysis (PCA) to data on hours worked during each month of the year, the major seasonal patterns in hours worked in both an urban and a rural setting have been identified. Further ordinary least square regression (OLS) on PCA scores was used to test for the relative importance of supply- and demand-based factors (represented here by the occupation of the household head and the type of products made by the homeworker, respectively) on the seasonality of hours worked. This study thus provides a unique insight into the social and economic determinants of seasonal variation in hours worked by a large group of female workers in an industrialising economy. In addition, it provides a rare glimpse into the work output of a group of workers that have traditionally been viewed as working too irregularly and informally to be quantifiable, as well as introducing a new way of using PCA in economic history.

2. Background

Explanations for seasonality in hours worked by industrial homeworkers can broadly be divided into two contrasting perspectives. The first emphasizes supply-side factors. According to this view, seasonality in hours worked would

reflect seasonal fluctuations in the income of the household head. Several studies of working-class households have emphasized that women's decision to enter paid work is related to insufficient household income, and that women allocate less time to paid work as the household income increases (Fraundorf 1979, 401; Horrell and Humphries 1995, 111). Previous studies on women industrial homeworkers during this period also tend to emphasize women's industrial homework as a function of the household income, and especially their role as secondary earners to a husband breadwinner (Boris, 1994; DeVault, 2013)"event-place":"Cambridge","ISBN":"0-521-44370-9 (cased. To my knowledge, no studies in a historical context have investigated seasonal patterns in hours spent in industrial homework in relation to the income of the household head. We would however, from theory and these previous studies, expect that if we see seasonal fluctuations in hours worked, this would be related to the income of the primary earner.

Recent studies have also emphasized the local labour market as a determinant for the labour force decisions of women (Borderías, 2013; Grantham, 2012; Humphries & Sarasúa, 2012; Zucca Micheletto, 2013). In a recent study of female labour supply in interwar London by Bean (Bean, 2014), she also suggests that there are different determinants for the decision to be in paid work at all and the hours-of-work decision: while the labour force decision was related to household income, the hours-of-work decision was more related to own wage levels. This leads us to believe that seasonal patterns would differ depending on local labour market context.

The second perspective focuses on demand-side factors. This view is reflected in the "reserve army" hypothesis, originally formulated by Karl Marx. Here, industrial homeworkers represent a surplus group of highly flexible workers that are highly sensitive to variation in labour demand (Marx & Bohman, 1974, p. 564). This idea of a dual labour market is also reflected in segmentation theory where women, migrants and youths are forced into secondary segments of the labour market characterized by unstable, irregular, unskilled and low-paid jobs without the possibility to work your way up job ladders (Piore, 1979; Reich et al., 1973). If such sectorial demand-side factors were important determinants of seasonal patterns of hours worked by women in industrial homework, we would expect to find a relationship between the seasonality in demand for certain products and the seasonality in hours worked by the workers producing them.

3. Material and methods

The data used in this paper comes from interviews conducted with industrial homeworkers in 1912. These interviews include information on hours worked during each month of the previous year, 1911, by individual homeworkers, together with information about household and occupational features. I used principal component analysis (PCA) on monthly data of hours worked per day to quantify the major seasonality patterns. I then used ordinary least squares regression (OLS) on the resulting PCA scores that describe the seasonality of each individual worker to determine if seasonal patterns in hours worked were best explained by the occupation of the household head (a supply-side factor) or the products made (a demand-side factor). In the following section, I present a detailed description of the material used, the samples drawn from it, the statistical analyses used to quantify seasonality in hours worked and its social and economic determinants, and a detailed description of the variables used in these analyses.

Source material

The interviews that form the source material for this study come from a survey of industrial homeworkers performed in Sweden in 1912 by the National Board of Health and Social Welfare (*Socialstyrelsen*). About 30,000 industrial homeworkers were estimated to have been active in Sweden at this time and about half of these were based in the countryside. During the survey, interviews were conducted with a total of 5,064 individual homeworkers, of which 4,257 were women. The survey aimed for national coverage and was carried out by local community representatives all over Sweden. Each worker was interviewed in detail about his or her occupational and household situation, including the occupation of the household head and the type of products made. The survey thus provides detailed information about industrial homeworkers at the national, regional, household and individual level.

The individual information was recorded on individual score cards, currently housed at the National Archive (*Riksarkivet*) in Arninge, Sweden. Most importantly for this study, respondents were asked about the number of hours they worked per day in 1911 during three-month intervals (January–March, April–June, July–September and October–December). As they were also asked about which months they worked, in most cases, however, the scorecards contain information on a monthly basis rather than quarterly information. By careful

consideration of all the self-reported information given on the score cards, it was in most cases possible to extract information about the average hours worked per day during each month of the year for each individual worker. The fact that respondents were asked about their hours worked at three-month intervals may however obscure some aspects of within-interval variation. Further information on this is given under the *Variables* heading, below.

Women who stated that they worked too irregularly to state their hours worked formed about 10 per cent of the full sample. These were excluded from the analyses of seasonality patterns, but were analysed separately in order to see if they were randomly distributed. The analysis showed that these women did not form a random group but were predominantly married, made simple products such as underwear or embroideries, and lived in urban areas (Table 5: Logit estimate of having worked irregular hours in Appendix). These results follow in line with the general results of the study, thus their exclusion from the data would likely not skew the results significantly.

Since industrial homeworkers tend to be completely excluded from sources traditionally used to quantify temporal variation in hours worked, such as official industrial statistics and company records, the information contained on the score cards from the survey provides one of very few ways in which we can reconstruct the temporal patterns in hours worked by women homeworkers at this time.

For each individual worker, I extracted information about the occupation of the household head from the score cards. This was done to test for the influence of supply-side factors in the form of seasonal fluctuation in household income, on hours worked. To test if individuals use industrial homework to buffer short-term variation in the household income, one would ideally have information on the income of the household head for each month of the year. Unfortunately, such information was not available on the score cards and is difficult to estimate for these individuals based on external sources, especially for those in an agricultural context. Instead, the occupation of the household head was used as a proxy for seasonality in household income. The assumption is that different occupations display different levels of income seasonality, and if seasonality in the income of a household head were a determinant, women who headed their own household would have a different seasonal pattern compared to women living in households headed by husbands (or in some cases fathers) with other occupations.

Finally, I extracted information about the types of products made from the score cards. This was done in order to test for the influence of demand-side

factors in the form of seasonal fluctuations in demand for the products made, on the seasonality of hours worked. The assumption here is that if there were variations in demand for certain products, patterns of seasonality would differ between different products. This information should be especially reliable since this was one of the major interests of the survey.

Urban and rural samples

Two stratified subsamples were drawn from the 4,257 interviews, one from a rural area and one from an urban area. The urban sample was constructed by selecting all interviews conducted with homeworkers from Gothenburg, Sweden's second largest city, located on the west coast. Gothenburg in the 1910s was a major industrial city with a large and diverse labour market that included several garment and textile industries. The 1912 survey located 3,285 homeworkers in Gothenburg of whom 2,708 were women (*Svensk hemindustri. D. 1, Utredningens huvudresultat*, 1917, p. 143). These homeworkers were mainly found in the garment industries. A total of 366 interviews were conducted with industrial homeworkers in Gothenburg. Of these, I found 290 in the archive, 276 of which were with women workers. These make up the urban sample of interviews used in this study.

The rural sample was constructed by selecting interviews with women workers in the rural Sjuhärad area in Älvsborg County, situated about 50–100 km southeast of Gothenburg. Sjuhärad was the main area for proto-industrial production in Sweden during the 19th century and remained a major national textile centre into the 20th century (Magnusson, 1996, p. 329). In the early 19th century, homeworkers were primarily weavers. A century later when the interviews were conducted, garment production and tricot knitting had largely replaced the weaving industry. Industrial homeworkers however still employed one-third of the women of working age (15–70) in Sjuhärad (*Svensk hemindustri. D. 2, Monografier*, 1917, p. 41).

In total, the 1912 survey identified 6,994 individual industrial homeworkers from the rural parts of Älvsborg County, making up about 60 per cent of all rural industrial homeworkers in Sweden at the time. Based on the survey summary, 1,232 interviews were performed with industrial homeworkers from Älvsborg County in 1912. I was able to locate 1,008 of the original scorecards in the archive. One-third of these were randomly selected, yielding a total of 336 interviews. Of these, four were conducted with men and 20 with women who lived in the two urban centres of Älvsborg County (Alingsås and Borås).

The latter two groups were excluded, leaving a sample consisting of 312 interviews conducted with women in rural parts of Älvsborg (in practice only the Sjuhärad area). These interviews form the rural sample.

The representativeness of these two samples in relation to their target population is expected to be good since the survey was near exhaustive in terms of locating individual homeworkers and great efforts were made to produce a balanced sample of homeworkers. Its representativeness in a broader Swedish and international context, however, is harder to judge, as the situation for industrial homeworkers varied greatly both in Sweden and Europe at the time. The organization of work and the types of products made by industrial homeworkers were most likely very contextual, depending on industrial structure and institutional restrictions. For example, industrial homework had been banned from many countries during the early 20th century, but this was not the case in Sweden.

Statistical approach

To answer the first question, about seasonal patterns in hours worked by industrial homeworkers, I performed a principal component analysis (PCA) on a matrix of average hours worked per day in each month for individuals who had sufficient information recorded on the score cards in the two subsamples. PCA is a technique that can be used to identify major patterns of co-movement, or correlation, among variables (in this study the variables in the PCA consist of all months in 1911) in complex datasets without making any a priori assumptions about what these patterns might be. PCA works by constructing linear combinations of the original variables (here twelve variables are used, one for each month) that describe the underlying patterns of variation. The first combination of variables, or component, is the linear combination of the original variables that explains the maximal amount of the variance in the data. The second component is the linear combination of variables that explains the maximal amount of the remaining variance, with subsequent components following in the same manner (Everitt, Landau, Leese & Stahl, 2011, p. 29). Running a PCA produces the same number of components as there are variables in the original dataset, but the first few will typically explain the majority of the total variation. Components are ranked on the basis of their eigenvalues; these describe how much of the total variation a given component explains. The outcome of a PCA is presented in the form of loadings and scores. Loadings are representations of the relationship between the original variables (months) and

the principal components. Scores, on the other hand, contain information about how an individual case (each individual) relates to a given principal component (Field, Miles & Field, 2012, pp. 755–770).

Loadings can sometimes be rotated in order to more clearly see the relationship between a specific variable and the corresponding principal components. In this paper, however, I use unrotated loadings as the interpretation of the loadings was straightforward in most cases and since the primary interest here lies not in the effect of individual months but rather in the combined seasonal pattern of variation. Furthermore, the use of unrotated loadings facilitates using the scores in subsequent regression analyses.

After performing a PCA, it is possible to test for the determinants of the observed variation by using individuals' scores for a given component as the dependent variable in a OLS models. One can thus test whether different subgroups differ significantly from each other with respect to a specific pattern described by a given component. For example, the second component for the urban sample was found to describe a pattern of working a lot during the summer but little during the winter, or vice versa. Individuals whose hours worked were well described by this winter-summer pattern would consequently have scores that differ from zero for this component, either high scores above zero (if they worked predominantly in summer) or low scores below zero (if they displayed the reversed pattern), whereas individuals who worked constant hours year-round would have scores close to zero. I used factor scores to compare how well individuals from different groups were described by a given principal component (seasonality pattern). By comparing whether, for example, weavers as a group displayed significantly different scores on a given principal component than, for example, sock makers, I could test if these groups differed significantly in their seasonality patterns of hours worked.

PCA has been used in numerous studies covering a wide range of subjects, from patterns in global climate based on meteorological data to patterns of life-time treatment strategies for psychiatric illness (Nivoli et al., 2013; Reusch, Alley & Hewitson, 2005). However, PCA has so far been used sparingly in economic history despite the prevalence of complex, high-dimensional datasets in this field. Two recent studies, however, have applied this technique to economic history data, using it to identify regional growth patterns and patterns of integration in European grain markets, respectively (Chilosi, Murphy, Studer & Tunçer, 2013; Henning, Enflo & Andersson, 2011). But to my knowledge, this study represents the first use of PCA to characterize individuals' work patterns in a historical context.

To answer the second question, about urban and rural differences in seasonal patterns, I ran separate PCAs on the urban and rural datasets. In order to answer the third and fourth questions, about whether the occupation of the household head or the products made best explained the seasonal variation in hours worked, I fitted a series of OLS models in which the dependent variable was individuals' factor scores for the principal components that accounted for the greatest amount of the total variation. In the urban sample, three components were found to have eigenvalues greater than 1 and were thus retained following Kaiser's criterion for selecting which components to retain in subsequent analyses (Field et al., 2012, p. 762). I thus ran three OLS models on the urban sample, using individuals' factor scores for the first three principal components as a dependent variable. In the rural sample, two factors had eigenvalues greater than 1 and thus two OLS models were run on the rural sample.

All statistical analyses were performed using the statistical program R version 2.15.2 (R Core Team, 2013). The *principal* function in the R package *psych* was used to perform the PCA (Revelle, 2014).

Variables

Variables used in Principal Component Analysis (PCA)

When performing the PCAs, I was interested in the latent, underlying patterns in hours worked over the year. The data consisted of average hours worked, excluding breaks, per day in each month of 1911. In the interviews, individuals are asked about what months they work, and how many hours they work per day during each three-month interval. As they state each month they worked and, in most cases, state if their hours worked varied within a quarter, the data was transformed into hours worked during every month of the year. This was the format used in the PCA analysis. The PCAs were thus run on two N (observations) by 12 (months) matrices, the first using the urban sample (N=232), and the third using the rural sample (N=298).

Dependent variables in OLS models

The dependent variables in the OLS models were the factor scores of each individual for those principal components that accounted for the greatest amount of variation in each sample. Following Kaiser's criterion, components with eigenvalues greater than 1 were included (Field et al., 2012, p. 762). For each principal component, factor scores represent a continuous variable centred at

zero. The dependent variables in the first set of models were individuals' factor scores for principal components 1, 2 and 3 from the PCA on the urban sample. The dependent variables in the second set of models were individuals' factor scores for principal components 1 and 2 from the PCA on the rural sample.

Independent variables in OLS models

Two independent variables were used in the OLS models: the occupation of the household head and the type of products made.

The "occupation of the household head" variable was coded as a categorical variable either holding information on the occupation of the homeworker's father (if they lived with their fathers) or husband (if they were married and lived with their spouses). Homeworkers who lived alone or with their mothers or siblings were considered as their own household heads, which was coded as its own category in the occupation of the household head variable. The occupations of household heads were distilled into larger categories. These categories differ between the urban and rural samples due to differences in the economic structure of the two areas (c.f. Table 1 and 2). In both samples however, households headed by the homeworker were used as the reference category, as the main interest lay in differences between households that were headed by homeworkers and households where the household head held other types of occupations.

The "products made" variable was also coded and distilled into larger categories. Again, the categories differed between the urban and rural samples as the same products made were not always found in both samples. As there was no theoretical reason to choose any particular product group as the reference category, the largest category in each sample was used as the reference category. In the urban sample this was the coat makers and in the rural sample it was individuals making drapes and towels.

Table 1 Descriptives independent variables urban sample

URBAN DESCRIPTIVES	N	Part of sample
Occupation head of household		
Homeworker is head of household	128	0.55
Artisan	12	0.05
Higher/middle (non-manual work)	15	0.06
Labourer	47	0.20
Not stated	17	0.07
Seaman/carpenter	13	0.06
Total	232	1.00
Type of products made		
Coats	100	0.43
Embroideries	26	0.11
Shirts	12	0.05
Other	18	0.08
Socks	19	0.08
Underwear	57	0.25
Total	232	1.00

Table 2 Descriptives independent variables rural sample

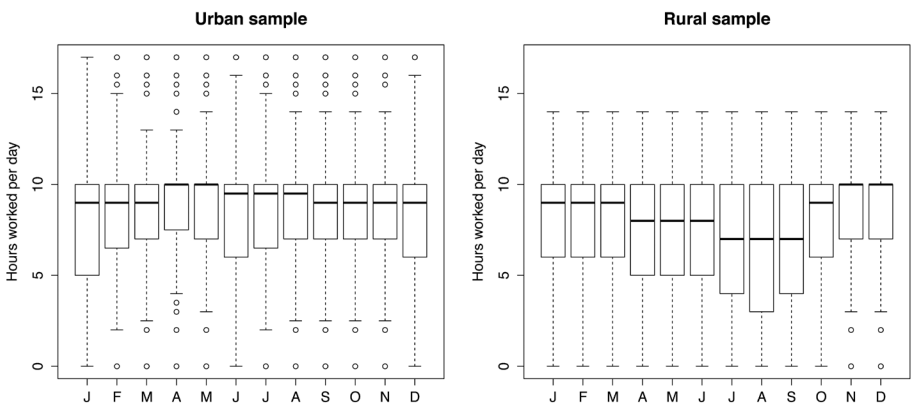
RURAL DESCRIPTIVES	N	Part of sample
Occupation head of household		
Homeworker is head of household	78	0.26
Artisan/carpenter	30	0.10
Crofter/labourer	65	0.22
Farmer/owner	105	0.35
No entry	20	0.07
Total	298	1.00
Type of products made		
Drapes and towels	51	0.17
Jerseys and cardigans	44	0.15
Cloth	47	0.16
Coats, jackets and vests	37	0.12
Other	20	0.07
Pants	33	0.11
Shirts	39	0.13
Socks	27	0.09
Total	298	1.00

4. Results

The results are presented in the same order as the questions were outlined in the introduction. The first part is descriptive, presenting variation in median hours worked per month. Thereafter the results from the principal component analysis (PCA) are presented separately for the two samples. Further, the results from the OLS models testing for the relationship between seasonal patterns in hours worked and the occupation of the household head and products made are presented.

The overall seasonal trends in median hours worked appeared to describe the urban sample less well than the rural sample, as evidenced by a greater number of outliers in the urban sample, especially during the spring and summer months (see Figure 1). Both samples displayed a spread in hours worked during all months of the year, but the magnitude of this variability differed between months and between urban and rural areas. Based on the median hours worked, the urban sample appeared to be more stable over the year compared to the rural sample. The urban sample displayed a very slight increase in hours worked during spring, whereas the rural sample displayed a more marked decrease in hours worked during spring and summer, especially in and around August. The median hours worked throughout 1911 in the urban sample was 10 hours (excluding breaks) with a standard deviation of 2.50. The median hours worked throughout 1911 in the rural sample was eight hours with a standard deviation of 2.53.

Figure 1 Hours worked per day each month 1911 urban and rural samples



Note: Black line in middle of the boxes is the median.

This is indicative of two things. First, that there existed a considerable amount of individual variability in hours worked that was not captured by the overall seasonal trend, and secondly, that some of this variability may reflect differences between groups within each area, as well as among urban and rural areas. The PCA provides us with a powerful way to break down this variation and assess its determinants.

Results from the principle component analysis

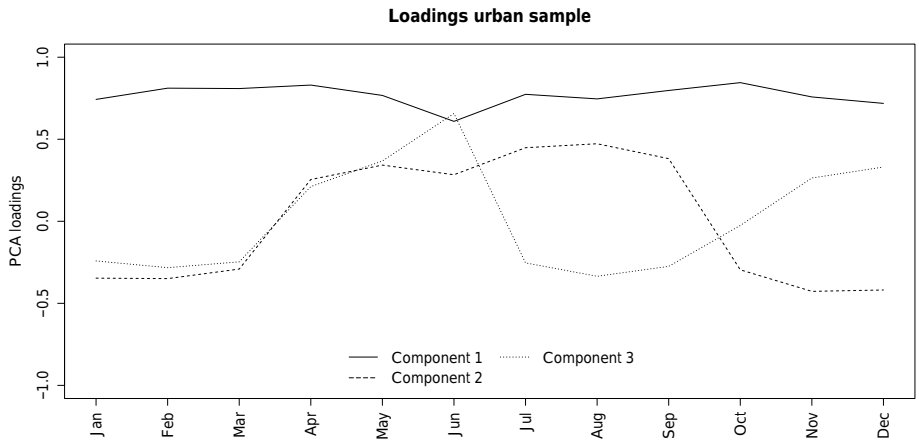
Patterns of seasonal variation in the urban sample

In the urban sample, three principal components had eigenvalues greater than Kaiser's criterion of 1 (see Table 6 in appendix). These three components thus captured three major patterns in hours worked present in the sample and together explained 83 per cent of the total variance in hours worked (Table 6 in appendix, Cumulative proportion).

The first component, which accounted for 59 per cent of the total variance, had positive loadings for all months (see Figure 2 for graphic description and Table 8 in appendix for exact values). The main pattern in hours worked in urban areas was thus no seasonal variation in hours worked. High scores for this component distinguished individuals who worked similar hours all year round. Individuals who had high scores for this component worked long hours every month of the year, and individuals who had very low scores below zero worked stable but short hours every month of the year.

The second component accounted for 13 per cent of the total variance and showed low loadings in the months between October and March, and high loadings between April and September. This component thus identified a pattern where individuals have a negative relationship between hours worked during the summer and winter months. Individuals with high scores for this component worked long hours during the summer months but short hours in the winter, whereas individuals with low scores below zero displayed the reverse pattern.

Figure 2 Plotted loadings for components with eigenvalues > 1 urban sample



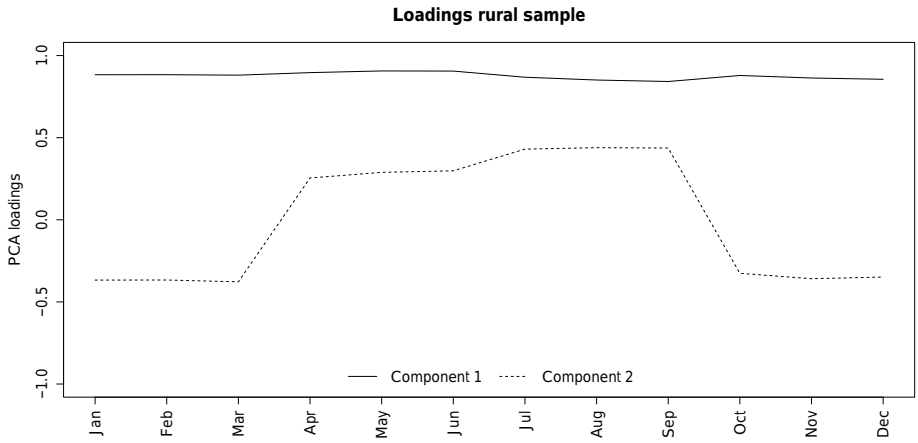
The third and last component, which accounted for 10 per cent of the total variance, had low loadings between January and March, showed a gradual increase between April and June, a sharp drop with low loadings in July and August, followed by another gradual increase in loadings between September and December. This component thus identifies a pattern where individuals exhibit two seasonal peaks, one in June and one in December, with a gradual build-up during which they worked increasingly long hours in the months preceding each peak.

Patterns of seasonal variation in the rural sample

In the rural sample, two principal components had eigenvalues greater than Kaiser's criterion of 1 (Table 7 in appendix). Together, these two components explained 90 per cent of the total variance in hours worked (Table 7 in appendix, Cumulative proportion).

The first component, accounted for 77 per cent of the total variance, and had positive loadings for all months (see Figure 3). Like the urban sample, the main pattern in hours worked in the rural sample was no seasonality in hours worked. So again, the first and largest component identifies "stable" individuals working long hours year-round, or individuals working short hours year-round.

Figure 3 Plotted loadings for components with eigenvalues > 1 rural sample



The second component, accounted for 13 per cent of the total variance, and had low loadings in the months between October and March, but high loadings between April and September (Figure 3), again corresponding with a winter-summer pattern.

It is however important to note that the loadings are non-directional, so the relationship between the hours worked each month are the same in the two samples (negative relationship between summer-winter months) however, the actual hours worked along these pattern differed: in the urban sample, the seasonal pattern in hours worked was to work shorter days in summer, but longer days in winter, while in the urban sample the pattern was to work longer days in the summer (c.f. Figure 1).

Determinants of seasonal patterns in hours worked: results from OLS models

The PCA thus revealed three main patterns in the urban sample and two main patterns in the rural sample. Individuals' factor scores for these components were subsequently used as dependent variables in five OLS regression models to determine if seasonal variation in hours worked was related to seasonal variation in household income or seasonal demand for the products made. A graphical representation of hours worked for each variable/subgroup is available in Figures 4 to 7 in the appendix.

Determinants of patterns of seasonal variation in the urban sample

In Model 1 for the urban sample, the dependent variable was individuals' scores for Component 1, the pattern describing variation along a pattern with no seasonal variation, so the variation describes whether individuals worked uniformly long hours year-round (high scores) or uniformly short hours year-round (low scores) (c.f. Figure 2). In the urban sample, this pattern of variation was significantly affected by both the occupation of the household head and products made (Table 3, Model 1). Examination of parameter estimates revealed that women living in households where their father or spouse was the household head worked significantly fewer hours year-round (lower scores for Component 1) regardless of what occupation the household head had (Table 3; negative effects for all occupations). But the strength of this negative effect differed among occupations, being most strongly negative (women working fewest hours) in households headed by an artisan, with women working successively longer hours (smaller negative effect on Component 1 scores) in households headed by non-manual workers, seamen and manual labourers, respectively (Table 3, Model 1; Occupation of household head). Thus in urban areas, women in households headed by non-manual workers worked fewer hours year-round, and women in households headed by manual labourers worked somewhat longer hours year-round, while women heading their own households worked the longest hours year-round.

The pattern of variation described by Component 1 was also affected by the type of product made. Compared to women making coats, women who did embroidery and made underwear worked fewer hours year-round, while women making shirts worked longer hours year-round (Table 3, Model 1; Products made).

In Model 2 for the urban sample, the dependent variable was individuals' scores for Component 2, which identified a pattern where individuals worked long hours in summer but short hours in winter (high scores) or the reverse (low scores) (c.f. Figure 2). This seasonal pattern was not affected by the occupation of the household head (Table 3, Model 2; Occupation of household head). Instead, this pattern was significantly affected by the types of product made: women in urban areas who did embroidery or made shorts displayed a stronger summer-winter seasonality (higher scores for Component 2) than women making coats (Table 3, Model 2; Products made).

Table 3 OLS estimates of scores for components 1–3 urban sample

Urban sample	Model 1 Dependent variable: Scores for component 1		Model 2 Dependent variable: Scores for component 2		Model 3 Dependent variable: Scores for component 3	
	Estimate (b)	se(b)	Estimate (b)	se(b)	Estimate (b)	se(b)
(Intercept)	0.45 ***	0.10	0.04	0.11	-0.21 .	0.11
Occupation of household head						
Homeworker is head of household	Ref		Ref		Ref	
Artisan	-1.26 ***	0.27	-0.31	0.29	0.16	0.30
Higher/middle (non-manual work)	-1.04 ***	0.25	-0.17	0.28	-0.21	0.29
Labourer	-0.42 **	0.15	-0.23	0.17	0.57 **	0.17
No occupation stated	-0.37	0.23	-0.26	0.25	0.23	0.26
Seaman/carpenter	-0.64 *	0.26	-0.18	0.28	-0.26	0.29
Products made						
Coats	Ref		Ref		Ref	
Embroideries	-0.75 ***	0.21	0.79 ***	0.13	-0.42	0.23
Shirts	0.61 *	0.27	0.87 **	0.44	-1.61	0.30
Other	-0.12	0.23	-0.22	0.29	-1.47	0.26
Socks	-0.14	0.22	0.01	0.19	-0.85	0.25
Underwear	-0.39 **	0.15	-0.21	0.09	-0.41	0.17
Adj R^2	0.25		0.10		0.04	
Fstat	8.54 on 10 and 221 DF		3.703 on 10 and 221 DF		1.894 on 10 and 221 DF	
p fstat	0.00		0.00		0.05	

In Model 3 for the urban sample, the dependent variable was individuals' scores for Component 3, which identified a double-peaked seasonal pattern with one peak in June and one peak in December (c.f. Figure 2). This seasonal pattern was only affected by the occupation of the household head. Households headed by labourers had significantly higher scores (showing a more pronounced two-peak dynamic) than other households (Table 5, Model 3; Occupation of household head). Note, however, that effect sizes were small. The intercept in this model is negative, so although labourer households differed significantly from the reference category, their average factor scores are small (0.36), suggesting that workers from households headed by labourers may not necessarily be very well described by this pattern. The main source of the variation captured by Component 3 thus largely remained unidentified.

Determinants of patterns of seasonal variation in the rural sample

In Model 1 for the rural sample, the dependent variable was individuals' scores for Component 1, which, as in the urban sample, captured variation in whether individuals worked long or short hours year-round with no seasonal variation (cf. Figure 3). Unlike the urban sample, scores for this component were not significantly affected by the occupation of the household head in the rural sample (see Table 4, Model 1; Occupation of household head). Instead, the only factor with a significant effect on Component 1 scores was related to the types of product made, as sock-knitters worked significantly shorter hours (lower scores) than those who made any other product (see Table 4, Model 1; Type of products made).

Table 4 OLS estimates of scores for components 1–2 rural sample

Rural models	Model 1 Dependent variable: Scores for component 1		Model 2 Dependent variable: Scores for component 2	
	(b)	se(b)	(b)	se(b)
(Intercept)	-0.06	0.18	-0.39 *	0.18
Occupation of household head				
Homeworker is head of household	Ref		Ref	
Artisan/carpenter	0.03	0.22	0.02	0.22
Crofter/labourer	-0.13	0.17	0.05	0.17
Farmer/owner	0.08	0.15	-0.20	0.15
No entry	0.24	0.25	0.11	0.25
Type of products made				
Drapes and towels	Ref		Ref	
Jerseys and cardigans	-0.01	0.20	0.69 ***	0.21
Cloth	0.15	0.20	0.28	0.20
Coats, jackets and vests	0.24	0.21	0.61 **	0.21
Other	-0.38	0.26	0.76 **	0.26
Pants	0.35	0.22	0.37 .	0.22
Shirts	0.19	0.21	0.63 **	0.21
Socks	-0.57 *	0.24	0.47 .	0.24
Adj R^2	0.04		0.03	
Fstat	2.001 on 11 and 286 DF		1.919 on 11 and 286 DF	
p-valuefstat	0.03		0.04	
obs	286.00		286.00	

In Model 2 for the rural sample, the dependent variable was individual's scores for Component 2, which identified a summer-winter pattern. Large positive scores reflected individuals who worked long hours in summer but short hours in winter, while individuals working short hours in summer but long hours in winter had large negative scores (c.f. Figure 3). Variation in these scores was not affected by the occupation of the household head, but differed significantly depending on the types of products made. Specifically, homeworkers producing jerseys and cardigans, coats, jackets and vests, shirts or those classified as "other" had significantly higher scores than those who made drapes and towels, which was the reference category. Again, note that the intercept of the model was negative, so individuals in the reference category who made drapes and towels worked shorter hours during the summer and longer hours during the winter, whereas the women they are compared with had significantly higher scores and thus did not show as sharp a decrease in hours worked during the summer compared to the women who made drapes, towels and cloth.

5. Discussion

This study has been the first to quantify patterns of seasonal variation in hours worked by industrial homeworkers in a historic setting. It relied on a unique microeconomic dataset of self-reported information about hours worked during each month of the year 1911. By applying principal component analysis (PCA) to historical data on hours worked it was possible to show that both non-seasonal and two distinct seasonal patterns of variation in hours worked were present among Swedish homeworkers at this time. By using PCA it was possible to not only demonstrate the existence of seasonal variation, but also to quantify the strength and form of this seasonality in hours worked. The results revealed that although there were seasonal patterns, most industrial homeworkers worked rather stable hours across the year.

Subsequent OLS regressions on individuals' factor scores revealed that while variation in the average number of hours worked during the year was related to variations in both the occupation of the household head and products made, seasonal variation was primarily related to differences in products made.

Patterns of seasonal variation

In both urban and rural areas, the majority of the total variation in hours worked was non-seasonal; most individuals either worked long hours during

all months of the year or worked short hours during all months. These results speak against the view of industrial homeworkers as a very flexible and irregular group of workers.

The major seasonal pattern in both the urban and the rural sample displayed a negative correlation between hours worked in summer with hours worked in winter, but the actual pattern described by this correlation was different in the two samples: in urban areas, individuals worked longer hours in summer but fewer in winter, while rural workers tended to work less in summer but more in winter (Figure 1). The third seasonal pattern, present only in urban homeworkers, represented a two-peak dynamic where individuals worked the longest hours in June and December, respectively, with a gradual build-up during the months leading up to these peaks (Figure 2). Among the urban homeworkers, 59 per cent of the variation in hours worked was non-seasonal while 23 per cent of the variation was explained by the two significant seasonality patterns (Figure 2). In the rural homeworkers, 79 per cent of the variation in hours worked was non-seasonal, while 13 per cent of the variation was explained by a single significant seasonality pattern (Figure 3).

Urban-rural differences in seasonal variation in hours worked

Both the urban and the rural sample displayed a negative correlation between hours worked in summer and hours worked in winter as their strongest seasonal pattern (Component 2 in Figure 2 and Figure 3). However, the actual direction of the seasonal trend in hours worked was reversed: in the urban sample, there was an increase in hours worked during the summer months, while the rural sample showed a decrease in hours worked during the summer (Figure 1). Another difference was that the urban sample displayed a greater diversity in seasonality patterns than the rural sample. In the rural sample, two principal components were significant and together accounted for 90 per cent of the variation in the sample, one describing a non-seasonal pattern and one describing a summer-winter pattern. In the urban sample, three components were significant but together only accounted for 83 per cent of the total variation.

From previous studies we had expected to find differences between local labour markets, here represented by urban and rural areas, in the seasonality of hours worked. Specifically, we expected workers in the countryside to display stronger seasonal variation in hours worked as they could be expected to have more seasonal fluctuations in the local labour market and turn to paid production in their homes during periods of the year when there was less need

for their labour in agriculture. The direction of the summer-winter pattern (rural workers working less in summer, urban workers working more in summer) partly confirmed these predictions (Figure 1). However, the prediction that urban-industrial workers would display less seasonal variation was not supported. On the contrary, urban workers appeared to have experienced more diverse seasonal variation in hours worked than their rural counterparts (Figure 2, Figure 3).

Determinants of seasonal variation in hours worked

The effect of the supply-side and demand-side factors on hours worked appeared to differ between urban and rural areas. In urban areas, variation in hours worked on average was strongly affected by both the occupation of the household head as well as the type of products made. In rural areas, on the other hand, the occupation of the household head had no effect on variation in hours worked on average. In both samples however, the type of products made explained much of the seasonal variation in hours worked. In the next sections, the implications of these findings will be discussed

Occupation of household head

The occupation of the household head did not appear to have a strong effect on seasonal patterns in hours worked, neither in the urban sample (Table 3, Model 2 and Model 3) nor in the rural sample (Table 4, Model 2). Women living in households with a father or a spouse in another occupation did not display significantly different seasonal patterns than those acting as their own household head. One exception to this was that women living in urban households where the household head was some type of labourer appeared to have worked slightly longer hours during the spring months compared to households headed by the homeworker, but this effect was very slight (Table 3, Model 3). As there is usually no information in the interviews relating to what kind of work the household head performed – it most often only says "labourer" (*arbetare*) – it is still unclear if this could be related to seasonality in their income or to something else.

In the rural sample, when looking at a graphic picture of the occupations of the household head displayed in figure 5 in the appendix, there do appear to be some differences in seasonal variation between women heading their own households and women living in households where the occupation of the household head differed. In particular, women who lived in households where

the head was in the "Farmer/Owner" category had really strong negative estimates, indicating a strong negative pattern in hours worked during summer. One might suspect that there is autocorrelation between the variables if this pattern is not reflected in the OLS model; that the type of product produced would be correlated to the occupation of the household head. However, the occupation of household head does not come up as a significant determinant even in a model run without the products made. This could be because the general seasonal summer-winter pattern is present to some extent in the whole sample, so the difference between households headed by homeworkers and those headed by others does not show up as significant.

What was apparent, however, was that in the urban sample, the occupation of the household head acted as a large determinant of "vertical" variation around the non-seasonal pattern described by Component 1. The OLS that uses scores for the first component as the dependent variable in practice represents an OLS on the determinants of hours worked per day. This revealed that women worked the shortest hours in households headed by non-manual workers, worked longer hours in households headed by manual workers and the longest hours when they headed their own households in the urban sample (Table 3, Model 1). In rural areas the occupation of the household head had no effect on average hours worked (Table 4, Model 1).

The pattern observed in the urban sample follows a relationship found in several other studies where married women's labour supply is negatively correlated with household income. This finding is thus not surprising, as women heading their own household could be expected to work more than women whose income could at least potentially be seen as complementary to another person's income. What is interesting however was that this pattern was not found in the rural sample: the occupation of the household head was not a major determinant of variation in the mean hours worked in the rural sample, compared to women who headed their own households (Table 4, Model 1). Potentially this is related to the composition of the groups; in the rural area more women lived with their fathers, compared to the urban sample. These daughters might have had the same labour patterns as women heading their own households, which in practice often meant living with an elderly mother or siblings.

With respect to variation in hours worked along this pattern, the prediction that the labour supply of women should be related to the household income was thus supported for the urban sample. However, it was not a determinant of seasonal variation. This suggests that industrial homework rather functioned

as a labour strategy to buffer long-term deficits in household income rather than buffering short-term, seasonal fluctuations.

Type of products made

Differences in the type of products made was found to be significantly related to seasonal patterns in hours worked in both the urban and rural samples. In the urban sample, women who did embroidery and made shirts displayed a significantly greater increase in hours worked in summer compared to hours worked in winter than women making coats (Table 3, Model 2). In the rural sample, weavers who made cloth, towels and curtains displayed a different seasonal pattern compared to both knitters and seamstresses who made jerseys, cardigans, coats and shirts (Table 4, Model 2). Specifically, the weavers worked less in summer and more in winter, whereas knitters and seamstresses tended to work longer hours in the summer compared to the weavers.

Theory suggests that seasonality in labour supply may arise due to seasonal fluctuations in the demand for different products. The observed patterns could thus be interpreted as an indication that the demand for embroideries and shirts was strongest in summer in urban areas, that the demand for woven goods was strongest in winter in rural areas. Although some of these patterns may indeed reflect actual seasonal fluctuations in demand for these products, the notes included in the interviews provide a somewhat different picture. The notes in the interviews suggest that women did not respond to a sharp increase in demand, rather, the comments made by the workers themselves suggest that they responded to alternative labour market opportunities, or at least an alternative need for their labour. In the urban case, the largest group with substantial seasonal variation in hours worked was the embroideresses. These women sewed alone by hand, earning very little money, and it appears as if they often had alternative sources of income during the year, often as teachers. In addition, some were younger and still in school, so for these girls and the teachers some of the seasonal variation should be related to the school year. The embroideresses were also overrepresented among women who worked too irregularly to state their hours worked. These embroideresses also lived off money from lodgers, small pensions or their own modest capital more often than other homeworkers, enhancing the picture that they had taken on embroidery as a side-line occupation, as opposed to the knitters and seamstresses who tended to work long hours all year.

The same pattern was found among the weavers in the rural sample, who were also more likely to state that they worked too irregular hours to be able to state their hours worked compared to women who made other products. The weavers also showed the most seasonal pattern in hours worked. In the comments in the interviews, some women explicitly state that they have a problem with "irregular orders", indicating that they were subject to a demand-driven irregularity outside of their own control. However, more of them state that they work less during harvest time. In many cases, it is not clear if they work as day labourers for money during the harvest, but it rather appears as if they allocate more time to work on their own small farms. The weavers as a group comes closest to displaying a "proto-industrial" pattern, working in their homes primarily when their labour was not needed in agriculture, whereas knitters and seamstresses often continued working during the entire year.

Thus, this does not provide coherent support for large seasonal fluctuations being determined by demand for certain goods, rather that the women who experienced the most seasonal fluctuation were those who had alternative incomes or work during other parts of the year.

6. Conclusion

In conclusion, the results of this study show that industrial homeworkers did display seasonal variation in their hours worked, in both rural and urban contexts, however, the pattern which described the largest amount of variation, both in urban and rural samples, was a stable pattern of hours worked all year. This means that most of the industrial homeworkers worked uniform hours over the year and that the hours worked in one month were a good indicator of the hours worked during all other months of the year.

The occupation of the household head did not appear to be strongly related to seasonal variations in hours worked in either area. In the urban sample, however, women who were the head of their own households worked longer hours compared to women who lived in households headed by a husband or a father. This pattern was not found in the rural sample.

The types of product made by the industrial homeworker were related to seasonal patterns in hours worked, but this seasonality did not seem to be exclusively driven by seasonal variation in the demand for these products; the seasonal variation in hours rather appeared to be related to individuals responding to seasonal variation in alternative labour market possibilities such as working on the harvest or as a teacher during parts of the year.

Although women homeworkers are often said to be the most irregular and flexible of workers, nine out of ten were able to account in detail for their hours worked during each month of the year in 1911. Most women worked 8 to 10 hours per day during every month of the year. Another surprising result was that the industrial homeworkers in the rural area showed more regular patterns of hours worked compared to the workers in the urban area. The stable same-hours-all-year pattern explained more variation in the rural sample than in the urban sample, and only two clear and distinctive patterns were needed to describe almost all variation in hours worked in the rural areas. In the urban case, three major patterns were found necessary to encompass the total variation in hours worked. So, while flexible to some extent, these results indicate that paid work performed by women outside of a formal workplace was not essentially irregular or short-term work.

Table 5 Logit estimates of having worked irregular hours

Dependent variable: 1= stating that you worked too irregularly to state hours worked

	Model 1: Marital status				Model 2: Products made				Model 3: Urban/Rural differences			
	Coeff. (b)	Std. error of (b)	Pr(>|z|)	Odds Ratio [exp(b)]	Coeff. (b)	Std. error of (b)	Pr(>|z|)	Odd Ratio [exp(b)]	Coeff. (b)	Std. error of (b)	Pr(>|z|)	Odds Ratio [exp(b)]
Intercept	-2.69	0.23	0.00***	0.07	-2.35	0.33	0.00***	0.10	-4.82	0.87	0.00***	0.01
Marital status												
Unmarried	ref.cat		ref.cat	1.00	ref.cat			1.00	ref.cat			1.00
Married	0.85	0.30	0.00 **	2.34	0.89	0.33	0.01**	2.43	0.80	0.33	0.02*	2.22
Widow	1.15	0.50	0.02*	3.14	1.11	0.53	0.04*	3.04	0.98	0.54	0.07 .	2.67
Type of industrial homework												
Underwear					ref.cat			1.00	ref.cat			1.00
Clothes					-1.68	0.52	0.00**	0.19	-0.22	0.60	0.71	0.80
Coats					-0.59	0.47	0.21	0.55	-0.86	0.48	0.07	0.42
Embroideries					1.13	0.42	0.01**	3.09	0.93	0.43	0.03*	2.53
Weaving					-0.54	0.41	0.19	0.58	2.00	0.91	0.03*	7.41
Lives in urban area												
No												1.00
Yes									2.80	0.83	0.00***	16.45
Number of cases	588				582				582			
Pseudo R squared	0.04				0.15				0.21			
Likelihood ratio chi-square	10.55**				41.68***				59.55***			

Table 6 Summary of results PCA on average hours worked per day each month in 1911 urban sample

Urban sample	Principal component											
	1	2	3	4	5	6	7	8	9	10	11	12
Eigenvalues (sum of squared loadings)	7.11	1.6	1.24	0.81	0.37	0.3	0.15	0.11	0.1	0.08	0.06	0.06
Proportion explained	0.59	0.13	0.10	0.07	0.03	0.02	0.01	0.01	0.01	0.01	0.01	0
Cumulative proportion	0.59	0.73	0.83	0.9	0.93	0.95	0.97	0.97	0.98	0.99	1	1

Table 7 Summary of results PCA on average hours worked per day each month in 1911 rural sample

Rural sample	Principal component											
	1	2	3	4	5	6	7	8	9	10	11	12
Eigenvalues (sum of squared loadings)	9.22	1.57	0.65	0.33	0.09	0.05	0.03	0.02	0.01	0.01	0.01	0
Proportion explained	0.77	0.13	0.05	0.03	0.01	0	0	0	0	0	0	0
Cumulative proportion	0.77	0.90	0.95	0.98	0.99	0.99	1	1	1	1	1	1

Table 8 Loadings from PCA on mean hours worked per month urban sample

Loadings urban sample	Principal component											
	1	2	3	4	5	6	7	8	9	10	11	12
Jan	0.74	-0.35	-0.24	-0.26	0.31	-0.3	-0.09	-0.03	0.03	0.06	-0.04	0.03
Feb	0.81	-0.35	-0.28	-0.28	0.01	0.12	0.08	0.07	0.08	-0.02	0.13	-0.1
Mar	0.81	-0.29	-0.25	-0.28	-0.03	0.29	0.02	-0.05	-0.13	-0.03	-0.09	0.07
Apr	0.83	0.25	0.21	-0.28	-0.25	-0.08	-0.07	-0.14	0.12	-0.1	0.03	0.05
May	0.77	0.34	0.37	-0.3	-0.11	-0.09	0.01	0.18	-0.03	0.02	-0.1	-0.08
Jun	0.61	0.28	0.66	-0.08	0.26	0.13	0.03	-0.05	-0.05	0.08	0.09	0.04
Jul	0.77	0.45	-0.25	0.18	0.11	-0.15	0.18	-0.1	-0.1	-0.11	0	-0.05
Aug	0.75	0.47	-0.34	0.22	0.06	0.06	0.04	0.15	0.11	0.01	0	0.12
Sep	0.8	0.38	-0.27	0.23	-0.02	0.14	-0.22	-0.07	0	0.09	-0.01	-0.1
Oct	0.84	-0.3	-0.03	0.2	-0.3	-0.17	-0.01	0.04	-0.14	0.09	0.09	0.05
Nov	0.76	-0.43	0.26	0.32	-0.06	0.04	0.16	-0.08	0.13	0.08	-0.09	-0.03
Dec	0.72	-0.42	0.33	0.36	0.13	0.02	-0.14	0.08	-0.02	-0.17	0	0

Table 9 Loadings from PCA on mean hours worked per month rural sample

Loadings rural sample	Principal component											
	1	2	3	4	5	6	7	8	9	10	11	12
Jan	0.88	-0.37	-0.24	0.16	0.01	0	0.01	0	-0.05	0	0	0.01
Feb	0.88	-0.37	-0.24	0.16	0.01	0	0.01	0	-0.05	0	0	-0.01
Mar	0.88	-0.38	-0.22	0.15	0	0	0	0	0.1	0.01	0	0
Apr	0.9	0.25	-0.23	-0.21	0.13	0.09	-0.09	-0.02	0	-0.02	-0.01	0
May	0.91	0.29	-0.21	-0.2	-0.07	-0.04	0.03	0.01	0	0	0.06	0
Jun	0.91	0.3	-0.2	-0.19	-0.07	-0.05	0.06	0.02	0	0.02	-0.05	0
Jul	0.87	0.43	0.15	0.14	0	-0.04	0.02	-0.13	0	0	0	0
Aug	0.85	0.44	0.15	0.19	0.01	-0.1	-0.1	0.07	0	0	0	0
Sep	0.84	0.44	0.21	0.17	0.02	0.13	0.08	0.05	0	0	0	0
Oct	0.88	-0.33	0.25	-0.07	-0.21	0.07	-0.06	-0.01	-0.01	0	0	0
Nov	0.86	-0.36	0.31	-0.13	0.05	-0.05	0.04	0.01	0.01	-0.08	-0.01	0
Dec	0.86	-0.35	0.32	-0.15	0.12	-0.02	0	0	-0.01	0.08	0.01	0

Figure 4 Hours worked per day each month by occupation of household head, urban sample

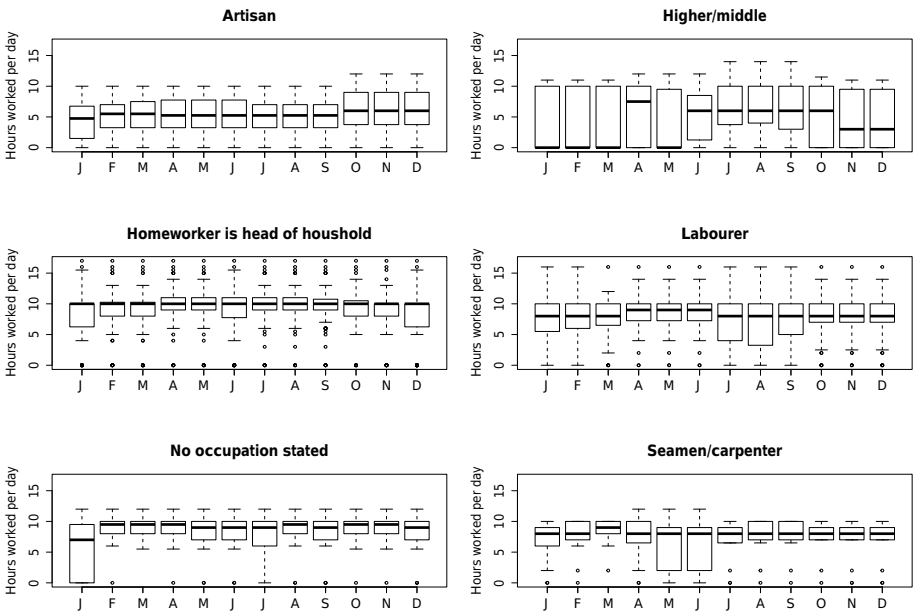


Figure 5 Hours worked per day each month by occupation of household head, rural sample

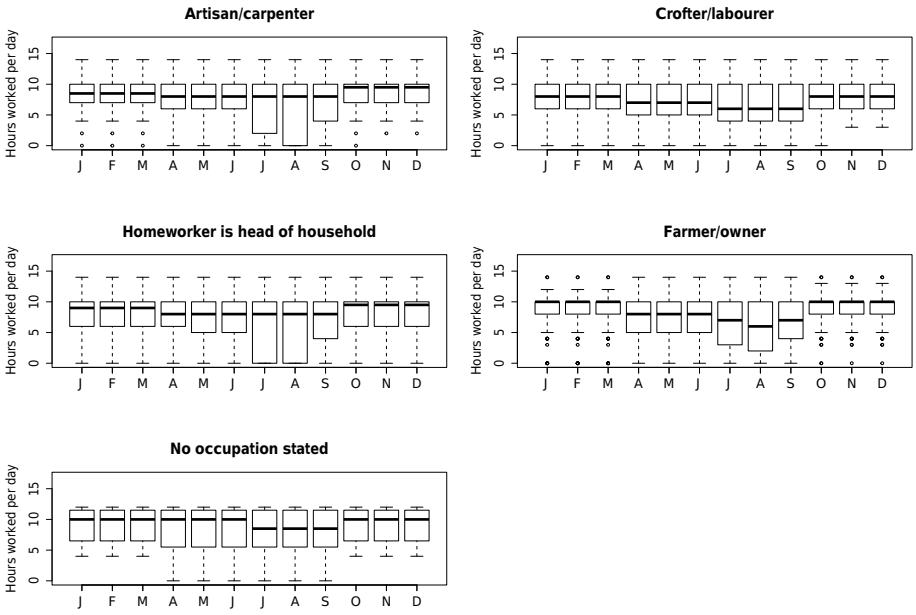


Figure 6 Hours worked per day each month by products made, urban sample

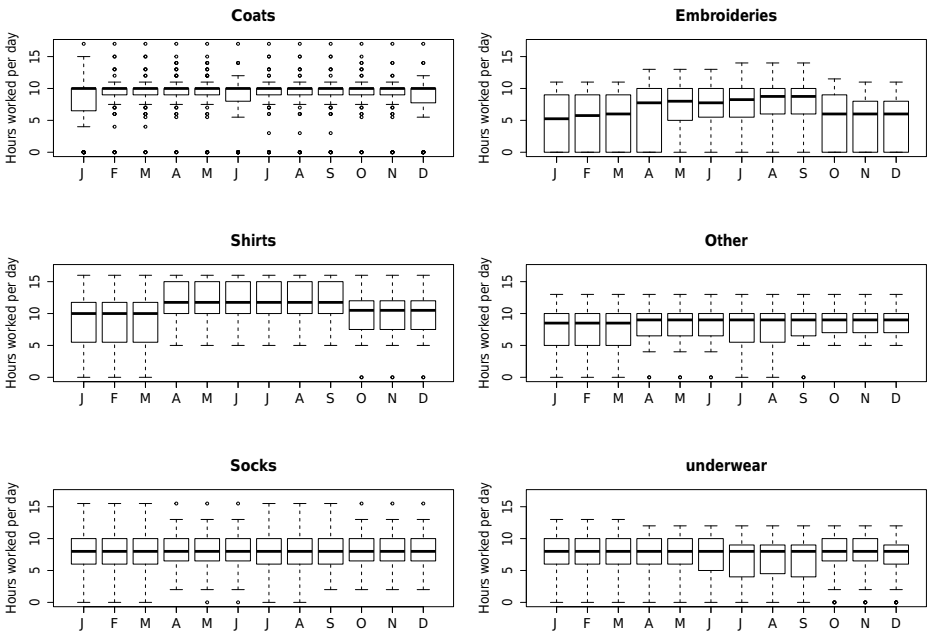
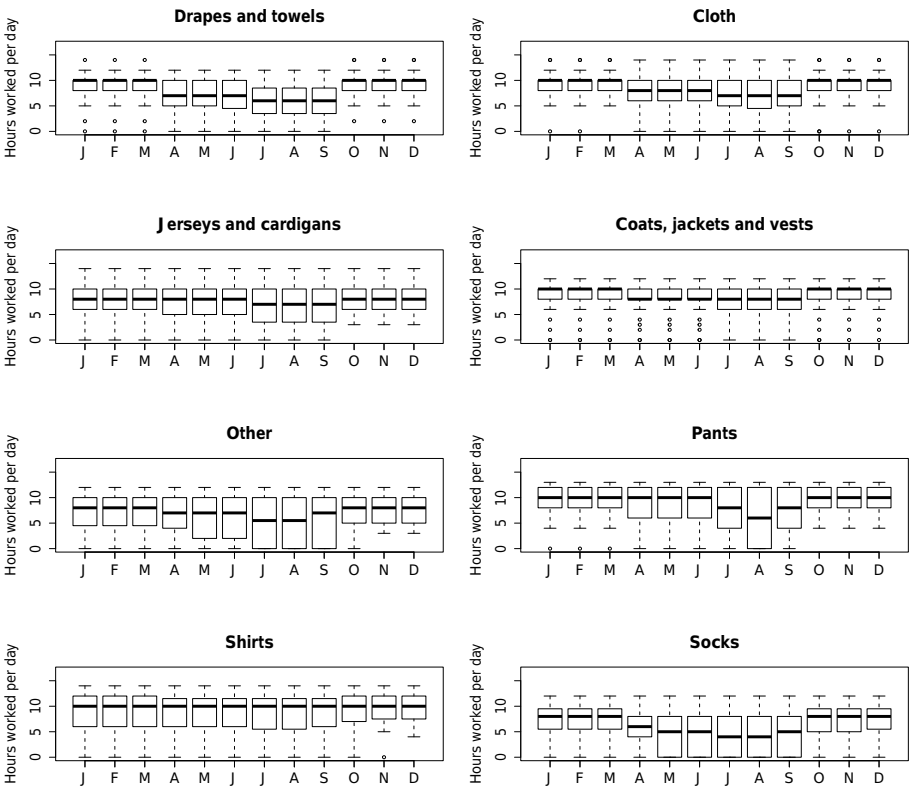


Figure 7 Hours worked per day each month by products made, rural sample



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Paper 4

Diverse, rather than desperate Housewifization and industrial homework in Sweden 1906–1912*

1. Introduction

After nearly a century of struggle the International Labour Organisation (ILO) adopted the convention on Home Work on 20 June 1996. The convention provided definitions, guidelines and explicit aims for homeworkers to be treated equally to other wage earners in national policy ("ILO Convention 177 on Home Work," n.d.). The main suppliers of home-based remunerative work, today as well as over the twentieth century, are women. Their employment is often informal, unregulated and unprotected (Carr, Chen, & Tate, 2000). This chapter is about women homeworkers in early twentieth-century Sweden, their recognition as workers and their strategies in the labour market. While there are different types of homework, the focus in this study is on *industrial* homework – referring to production executed in the home (or at another place chosen by the worker) for money and for an employer.

Traditional accounts have tended to view industrial production in the home as a transition stage in the industrialising process, quickly outdated when industrialisation is achieved (Easterlin, 1998). However, seen from the perspective of women's work, industrial homework is rather defined by its continuity. Industrial homework provided an important employment possibility for women in Europe not only at the start of the industrial era but also during and after industrialisation. It also forms a permanent and growing feature of the global economy today (Chen, Sebstad, & O'Connell, 1999). As the focus in previous research has been on industrial home work as proto-industrial activity or as informal work in a flexible globalised economy there is a research gap: most women's industrial home work during the twentieth century remains unexplored. The study described in this chapter aims to help fill that gap and at the same time give a new perspective on Nordic labour history.

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As in many other fields of social science and historical research, the last three or four decades of labour history have been about finding a way to understand social and economic change beyond large universal structures. During the 1960s and 1970s the focus of many studies on structure meant that there was a tendency to regard workers, and especially poor workers, as an undifferentiated grey mass of victims, passively moved by large economic structures. From the late 1970s, however, the focus shifted towards a closer examination of historical actors as rational, strategic decision makers, without denying the limits set by the structures within which they make these decisions. Poststructuralist labour history has made space for the aspect of gender in labour history, as well as re-introducing the household and family as an important aspect for understanding labour (Folbre, 1987; Goldin, 1979; Tamara K. Haraven, 1990; Tilly, Tilly, & Scott, 1987). This chapter follows in the path of this development by focusing on social and economic change reflected in the interrelations between gender, family and labour. The chapter provides new empirical data and discusses two aspects that still need further exploration, both in Nordic labour history and internationally: the home-based remunerated work of women and the work of married and older women in the labour market.

Industrial homework and 'housewifization'

Over more than a century and across the globe industrial homeworkers share some common features: their gender and their unregulated and informal status in the labour market. The feminist theorist Maria Mies suggests that 'housewifization' could explain their precarious situation. The process of housewifization is defined by Mies as 'a process by which women are socially defined as housewives, dependent for their sustenance on the income of a husband, irrespective of whether they are de facto housewives or not.'(Mies, 2012, p. 200). In this process of housewifization, the work of women is increasingly described as an *activity* rather than an *occupation* and the income derived from it as supplemental rather than crucial to one's subsistence. As a consequence, women workers become separate from 'normal' workers, and thus marginalised and unprotected in the labour market (Mies, 1998, p. 118). According to Mies the ideological construct of homeworkers as 'housewives' rather than 'workers' is what makes them different and disadvantaged. An entire chapter could be devoted to exploring the meaning of the term housewife in the Swedish setting, both in a literal and contextual sense. I have used an applied definition of 'housewife' in this chapter, fully based on Mies' definition. Mies defines a

housewife according to two characteristics: a) being married; b) one's income is supplementary to that of a male breadwinner and not important for the subsistence of the family (Mies, 2012, p. 124).

Mies' theory of housewifization proposes a universal process where the interactions of gendered divisions of labour and industrial capitalism intersect and make industrial homeworkers an exceptionally vulnerable group. The theoretical concept of 'housewifization' was developed during Mies' work on industrial homeworkers at the time of expanding industrialisation in India, in the 1980s (Mies, 2012, p. Preface to the 2012 edition). Mies' study is not entirely clear as to the origin of the *'propagandation of the housewife ideology'* (Mies, 1982, p. 119). According to Mies, in Narsapur the ideology was introduced during colonial times via the Christian and Victorian values of the nineteenth century and later spread by exporters and traders who wanted access to cheap and flexible labour (Mies, 1982, p. 38). The lived effects of the ideology are well documented in her study, but it is not always clear where and how these effects are evidenced or characterised. According to Mies, housewifization originated in industrialising Western Europe and is present in all industrialising countries. However, the above statement raises questions. Can we really expect to find this process in all countries? In the following chapter I will take a closer look at the case of industrial home work in Sweden during the first two decades of the twentieth century. I approach Mies' theoretical claims by exploring two questions derived from her housewifization theory:

(1) Were the industrial homeworkers ideologically constructed as housewives?

(2) Was this an accurate picture, i.e. were they secondary workers with supplementary incomes that were not important for the subsistence of the family?

Previous research about industrial homeworkers and housewifization

To my knowledge there has only been one empirical study on housewifization and industrial homeworkers besides Mies' own study. This is a study undertaken by Elisabeth Prügl in 1996 (Prügl, 1996). Prügl studied the housewifization of industrial homeworkers in five countries after 1970: Brazil, Pakistan, Turkey, Thailand and Britain. She shows that housewifization – as in the construction of homeworkers as nonworking, dependent housewives – was present in all five countries, at least on the surface. She also found that they were defined

as housewives although the homeworkers had regular incomes and paid for basic household items (Prügl, 1996, p. 129). Both Mies' and Prügl's studies use contemporary cases but, as previously noted, Mies claims this process to be present in every country going through industrialisation. This study will explore this claim further from a historical perspective.

Previous studies on women industrial homeworkers in general tend to emphasise their role as wives or mothers. From a neo-classical point of view, the rationale behind industrial home work is that home-based industrial production lowers or eliminates the fixed costs of working outside of the home for the individual. These include the costs of travelling as well as providing care for dependants. It allows one to earn income at the same time as meeting household needs, in other words, workers could produce things for money and cook for their children at the same time, providing flexibility for mothers to combine their family and work roles (Edwards & Field-Hendrey, 2002). According to this view, women enter industrial home work in order to make paid labour fit around their primary care-giving role.

From a more structuralist viewpoint, industrial homework is a sign of exploitation in a capitalist and patriarchal mode of production. Employers in need of a cheap and flexible workforce exploit the sexual division of labour that assigns care work to women, making women industrial homeworkers 'super-exploited' workers who are caught in the crossfire of an exploitative gendered division of labour and the capitalist mode of production (Custers, 1997; Singh & Kelles-Viitanen, 1987). Industrial homework is seen as work that enables women to combine their patriarchally assigned roles as wives and mothers with demand for labour from factories. Industrial homework can thus be conducted within patriarchal and capitalist institutions and in the end render limited empowerment for women (Peterson, 2003, p. 101).

Historical studies of gender and industrial homework have been in line with this structuralist standpoint. Eileen Boris studied industrial homeworkers in the industrialising United States, Britain, France and Germany, and claims that it is the gendered construction of women as being 'naturally' subordinate in the family and the labour market which enables industrial home work to exist *(Boris, 1994, p. 2).* Boris claims that, '[m]arried women with small children whose husbands failed to earn adequate incomes (through unemployment, disability, or low wages) composed the majority of homeworkers in these countries.'(Boris & Prügl, 1996, p. 20). Cynthia Daniels in her study of New York City immigrants in the early twentieth century claims that, '[m]ost homeworkers were married women with children whose husbands brought in inadequate wages

and whose cultural traditions or family responsibilities kept them home.'(Boris & Daniels, 1989, p. 3). In a similar fashion, women's industrial home work in Sweden has been almost exclusively dealt with as work done as a consequence of a single breadwinner model. Previous accounts of industrial homeworkers in Sweden portray industrial homeworkers as married women working in their homes for small sums of money, complementing a male breadwinner.(Åmark, 2005, pp. 73–74; Carlsson Wetterberg, 1986, p. 44; Frangeur, 1998, p. 49; Hedenborg & Wikander, 2003, p. 98; Karlsson, 1995, p. 27).

Industrial homework by women is thus very much seen as a function of a husband's income (or rather lack of income) and/or a need to perform unpaid care work, securely rooted in a single breadwinner ideal. One historical study deals with homework as a choice. Marilyn Boxers, studying the artificial flower makers of Paris, draws the conclusion that in their case the home industry provides a 'métier for life', an occupation that can be held for their whole lives and allows women to control the rhythm of their lives. She also claims that access to industrial home work and paid labour enhances their status in the family (Boxer, 1982, p. 416).

2. Method and material used in this study

In order to investigate the existence of ideological constructions of industrial homeworkers as housewives and how well they reflected the actual household features of the homeworkers I have used two types of sources: contemporary published texts to investigate the ideological dimension, and interviews to explore the individual household dimension.

To explore the ideological constructions I have used official records, political pamphlets and newspaper articles from 1906 to 1910. Around this time, female labour in industrial homework was subject to much public debate in Europe, and these texts are all part of the Swedish debate on industrial homework which preceded the large national survey on industrial homeworkers discussed below. In total 33 texts were analysed. These included two books: Gerda Meyerson's, *Svenska hemarbetsförhållanden* (The conditions of Swedish industrial home work) from 1907 and *Anteckningar till frågan om hemarbetets eller hemindustriens reglering genom lag* (Notes on the issue of legislation on home work and home industries) written by Moritz Marcus on behalf of the governmental committee on occupational hazards (Yrkesfarekommittén) 1909. The study also included two official records: the governmental bill for the regulation of

labour in industrial home work, dated 1909, and the arguments for the bill to regulate labour in industrial home work, dated 1909; and 29 newspaper articles from the period April 1906 to October 1907. Three operational questions were used in analysing these texts:

(1) Are the homeworkers described as married women in the text?

(2) Are their income described as secondary or complementary in the text?

(3) Are the homeworkers described using the term 'worker' (*arbetare/arbeterska*) throughout the text?

To investigate whether the industrial homeworkers at this time really were married women with supplementary incomes I used the original interviews conducted in connection to a survey on the social and economic conditions of industrial homeworkers in Sweden 1912. In the wake of the debate on the social situation of industrial homeworkers a number of surveys were conducted. In Sweden, the largest (and only national) survey was carried out by *Socialstyrelsen* (the National Board of Health and Welfare) in 1912. Sweden was not the only country that made surveys of industrial homeworkers at this time, but it seems to have been one of the few countries to complete a large nationally representative survey with a large number of interviews conducted with individual homeworkers. Surveys and interviews performed in other European countries were often done by voluntary organisations, trade unions or other interest groups who had a stake in the debate and who sometimes also explicitly stated that their goal was to ban or regulate industrial home work.

The published results of the survey only offer aggregated numbers while the original interviews offer detailed individual data for every homeworker, such as marital status, products made and household situation. As detailed individual-level data require considerable time to compile, the study has been limited to the Gothenburg area. In the 1910s Gothenburg was an industrial city with a large and diverse labour market and several garment and textile industries. A total of 366 interviews were conducted with industrial homeworkers in Gothenburg. Of these, 290 were found in the archive, 276 of which were with women workers. These make up the sample of interviews used in this study.

3. Results

Ideological constructions of women industrial homeworkers in Sweden

The simple answer to the question of whether women industrial homeworkers in Sweden were constructed as housewives in public debate at this time in Sweden is that they were not. In fact, in none of the legal documents, books and newspaper articles on industrial home work from 1906 to 1920 were they described as married women or secondary earners. If anything, they were described as unprotected and exposed workers who fell victim to a harsh economic system. Descriptions of married industrial homeworkers as secondary earners were present a few times in the material; however in those cases this was mostly to emphasise that their income, even if complementary, was important to the family. The social activist, Gerda Meyerson, wrote in her book on the working conditions of homeworkers in 1907 that,

> "In several cases the work hours are so long, for the married women as well, that we must assume that their earnings must constitute a crucial income, for the earning of which the household work must be set aside".[1]

Rather than ideologically constructing homeworkers as housewives, many authors focused on other factors to explain their low pay and precarious situation. Lack of knowledge about the situation of homeworkers, both among the workers themselves and in society more generally, was the main target of several of the analysed texts. Most notably, the proposals for legislation focused on the registration of homeworkers with the explicit aim of giving homeworkers more information on the situations of other homeworkers. However, demands for the registration of homeworkers were likely also to be for tax reasons.

Another problem that was targeted was the 'middle man' and the lack of information about how much money he [*sic*] took. In the legislative proposals as well as newspaper articles there was a concern that employers did not know how much money the homeworkers made after the 'middleman' had taken his share. The underlying assumption was that if only the employer knew how little the homeworkers actually earned, their wages would go up. In the 1909 proposal to revise the laws regarding women and children's work in industry, we

1 *"(…) I flera fall är äfven för de gifta kvinnorna arbetstiden så lång, att förtjänsten torde utgöra en synnerligen nödvändig inkomst, för hvars ernående det husmoderliga arbetet måste åsidosättas."* (Meyerson, 1907, p. 47)

can read that if the employers had to keep detailed registers of all homeworkers, the middle man and hence the 'sweating system' would disappear:

> "In ensuring that these obligations are met, the employer would gain an understanding of the workers with whom he does not come into personal contact, which in itself could lead to an interest in these workers' wage conditions, and the employer may then consider avoiding the middleman and instead be in direct contact with the worker, as it is the employment of the middleman that is considered to be the main reason for the "sweating system" characteristic of industrial home work." [2]

Consumers formed another targeted group with responsibility for the harsh conditions of homeworkers. In particular, female consumers were accused of constantly demanding cheaper clothing and thereby causing the 'sweating' of homeworkers. In *Aftonbladet*, one of Sweden's biggest newspapers, a contributor called 'Sidsel' wrote after visiting an exhibition on the situation of industrial homeworkers in Stockholm in October 1907 that,

> "The result is an ever lower income for those performing this work, a downward spiral that will not stop until the cause is removed; the public's petty, and in some people – especially women – almost manic desire for haggling. And besides this, their awkward idle lust for ready-made clothing of the poorest quality rather than making their own garments out of good fabric or at least buying clothes for their actual value and – as far as possible – in cash."[3]

There was a consensus in the public debate on industrial homeworkers. The homeworkers were depicted as victims or workers, but not wives. Who might be expected to hold an opposite view, and why were they not represented in

2 *"Genom en dylik vidsträckt registreringsskyldighet skulle nämligen arbetsgifvaren beredas kännedom äfven om sådana arbetare, med hvilka han ej kommer I någon personlig beröring, hvilket möjligen hos arbetsgifvaren kunde väcka intresse för dessa arbetares lönevillkor och tanke på att med mellanmannens förbigående träda I direkt förbindelse med arbetarne. Då anlitandet af mellanman väl just är att anse som en hufvudsklig anledning till det för hemindustrien vanligen utmärkande "svettningssystemet"* (Marcus, 1909, p. 171).

3 *Och så blir följden än ytterligare afknappad dagspenning åt dem som utföra tillverkningen – en fortgående rörelse nedåt, hvilken ej kan upphöra förrän orsaken uteblir: detta allmänhetens lumpna prutbegär, hos somliga – synnerligen bland kvinnorna – nästan mani. Och jämsides härmed deras opraktiska lättjefulla lust att köpa färdiggjorda kläder af de tarfligaste kvalitet hellre än att själfva förfärdiga dem af fullgodt stoff eller betala sådana till fullt värde samt – så vidt möjligt – betala kontant."* (Sidsel, 1907)

these sources? Following Mies' argument we should assume that employers had an interest in keeping down the wages of industrial homeworkers. They, more than anyone, would have something to gain from portraying industrial homeworkers as housewives and not workers. However no such characterisations are to be found in these sources. I found one letter from an employer in one of the boxes of assorted documentation in the archive of the national industrial home work survey. It is addressed to the industrial home work survey administration in 1912 and the content could be an indication that marital status really was used as a means to justify low wages:

> "I have 160 seamstresses working in their homes (…) I have paid them 18.678:02 krona during 1911. However these are all younger married women (wives of tram drivers) and they do not live exclusively on this income." [4]

However this quote is the only one that expresses this attitude. There were 33 texts of various lengths in my sample and in only one of them were the homeworkers described as being married women with children. No employers were present in the material except when the previously mentioned Gerda Meyerson was interviewed by one of the newspapers during the exhibition on industrial home work in Stockholm in October 1907. She then described how several employers attending the exhibition had said that it gave a false account of the homeworkers' situation. They claimed that industrial homeworkers earned good money in fact.

The total domination of the socially aware pro-legislation descriptions of industrial homeworkers may indicate a bias in the sources used in this chapter. However, the homogeneity of stakeholders in the debate seems instead to be a sign of total hegemony in the debate, rather than a source bias. The pro-legislative 'socially aware' stakeholders appeared to dominate the debate to such an extent that there was no public contestation of it. And their view was not that the industrial homeworkers were housewives, the homeworkers were described explicitly as workers and the emphasis was rather on the diversity of ages, marital status and household position of the homeworkers.

4 *" jag har 160 hemsömmerskor och betalt till dessa under 1911 18.678:02 kr. Dock är dessa yngre gifta kvinnor (spårvagnsfruar) som ej uteslutande lefva av denna förtjänst" he also adds that he did not employ any middlemen :"några mellanhänder betjäna jag mig ej av!* (Östberg, 1912)

Were they housewives?

There are two assumptions made in Mies' housewifization theory: 1) that industrial homeworkers are described as housewives (i.e. married with supplementary incomes) and 2) that they are in fact *not* housewives. My material reveals that the average industrial homeworker in Gothenburg was not married. Only 38 per cent of the women in the sample were married. However, we can also see that industrial homeworkers in Gothenburg were less likely to be married compared to the national average. About half of all industrial homeworkers in Sweden were married at the time. The type of products made and the economic environment of the city of Gothenburg can explain this discrepancy. In Gothenburg, textiles and garments were the predominant industries employing homeworkers. Unmarried women were more often found in these types of industries.

The average industrial homeworker in Gothenburg was thus not married, nor did she have a male primary breadwinner in her household. Out of all the industrial homeworkers in the interview sample, about one in four had a husband with an income at home, while out of the married homeworkers, around two thirds had a husband with an income in their household. In several interviews there were comments made by the interviewer regarding the absence of a husband's income. For instance, in some cases they stated that the husband was ill or that he had abandoned his wife, emigrated to America or that he was a 'drunkard'.

The women who did have a husband present were married to salesmen, seamen, carpenters, artisans and barbers, but most commonly to men engaged in some type of manual work. For the husbands that did have a reported income, the average annual earnings were SEK 950, which was slightly below the average earnings of a male factory worker .[5] Of all the industrial homeworkers, about ten per cent lived alone. Amongst those who were unmarried, most lived together with an elderly parent and/or siblings or other relatives. In the cases where they lived with an elderly parent the homeworker was, with few exceptions, the only breadwinner in the family. However, when they lived with siblings there were more other incomes in the household. There are several examples of sisters who formed small informal producer co-operatives and lived and worked together, often, but not always, for the same employer.

5 The average annual earnings for a male factory worker in 1911 were SEK 1,246. (Lundberg, Svennilson, & Bagge, 1933, p. 48). In 1911 the average annual earnings of a female textile factory worker in Sweden was around SEK 600 (Lundberg et al., 1933).

The mean annual income for industrial homeworkers in the interviews was SEK 1,120. However, as there were many homeworkers who earned quite little but only a few who earned a high income, the average is not a very good measure of the incomes of the homeworkers here. The median income of SEK 500 gives us a somewhat better description, although in general the incomes varied a lot and the standard deviation from the mean and median is large. When the information on their incomes and occupational structure is examined more closely, three main groups of industrial homeworkers appear. These women had more than a similar income structure, they also shared other features such as age, marital status and the products made. Let us take a closer look at these women.

Women embroiderers made up the first group. In this group, incomes were low and working hours irregular. More often than others these women stated that incomes and hours worked varied too much for them to be able to state how much they earned or worked in a year. Nevertheless many of them worked throughout the greater part of the year and the ones who did state working hours in the interviews worked on average between 8 and 9 hours a day. The women in this first group were in general younger, unmarried women living at their parents' house or older women who often but not always came from wealthier households. A handful of them stated that they only did needlework to have something to keep them busy. This is the group where we would expect to find the real 'housewives' of this dataset. However, the few women who were married in this group had husbands with working class occupations and low wages. Nevertheless, in this group incomes were rarely sufficient to make a living and their incomes were complementary, if not to a husband's income, then to poor relief, pensions, saved capital, to income from other relatives, or to other income from their own work.

One example from this group was a fifty-four-year-old single woman living with her younger sister. This woman had been making various kinds of embroidered goods for different employers for about thirty years, and she had never held another occupation. She worked irregularly the whole year and most often around six hours a day. Her yearly wage was around SEK 400. She worked in her bedroom, which was brightly lit by two big windows and a kerosene light. In the winter she had a tile stove to warm her and the rent for the whole apartment was SEK 500 per year. The sisters lived in a fairly large two-room apartment in a better area of Gothenburg and shared the tasks of cooking and cleaning between them. The woman's sister lived off a small amount of capital and they both sometimes received help from a brother. Their father had owned a factory in another part of Sweden and they seem to have managed

financially. However, the interviewer emphasised that both sisters seemed to be very nervous and of poor health.

The second group consists of women who made undergarments. On average, the women in this group worked between 8 and 9 hours a day. They made similar products but the piece rate varied according to type and quality, and possibly also as a result of having negotiated different rates. This was the biggest group, but it could also be divided internally into married and unmarried women. The married women in this group often had small children and their husbands had more or less regular incomes. These married women could be found on the lower side of the income spectrum.

A typical example of a married woman in this group would be informant no. 213, who was 36 years old and made undergarments. She lived with her husband and their four small children in their one-room (plus kitchen) apartment for which they paid SEK 198 per year. Their six-square-metres kitchen was the room where two of her children slept but it was also the place where she worked all year round. She had been working as a homeworker for six years and did not state any previous occupation. In summer and autumn, she worked around 8 hours a day but during winter and spring her working hours increased to between 10 and 12 hours a day. She had bought her sewing machine for SEK 85 and hoped to be able to use it for at least ten years. She paid for needles and thread herself which cost about SEK 0.5 per dozen garments. It took her about two days to make a dozen camisoles (daglinnen) and every week she went by tram to drop them off at her employers and receive SEK 2.40 per dozen. In total she earned around SEK 200 a year, while her husband worked at a local brewery and made SEK 1100 a year. The homeworker was stated as being of good health, but her oldest child, a daughter of twelve had a lung disease, most likely tuberculosis.

Unmarried women and married women whose husbands had left them had the highest wages in this group, but they still worked long hours for low pay. However, even though these women were not married they seldom lived alone, but most often with other relatives: such as siblings or elderly parents. A typical example of this category is informant no. 226. She was a 40-year-old woman who made finer undergarments. She and her sister, who was also a seamstress, lived in a one-room and kitchen apartment for which they paid SEK 216 a year. They both worked in their rather large kitchen, which was lit by one big window, and in the evenings by a kerosene light. This woman worked 10 hours a day all year round except during July, August and September when she worked 9 hours a day. Both she and her sister had an annual income of around

600 SEK. The woman had been working as a homeworker for ten years, but before that she had worked as a seamstress in a shop. She also had vocational training in a sewing atelier. The sisters worked for different employers and received about SEK 8.4 per dozen garments, before deducting the SEK 0.80 they spent on needles and thread. Her sister was described as healthy but the homeworker as 'weak'.

The third and last group of workers consists of the women who made coats. These women were in general unmarried; they were themselves employers of other women and they had occupational training. On average they were also slightly younger than the other women. They all lived geographically close to one another. Several rented a small shop or an extra room nearby or attached to the home where they worked. Almost all worked for the same company, Wettergrens, which was located close to where they lived and worked. Many of them had worked in the company's factory before and/or had received professional training there. These women worked on average 11 hours a day all year, a few worked parts of the year in the factory. One example from this group is no. 84, a 29-year-old unmarried woman making coats. She lived with her elderly mother close to the small shop where she worked. The shop had two windows; it was lit by gas and heated by a ceramic stove. In the shop she had sewing machines owned by Wettergrens, but she had to pay for gas, rent, needles and silk thread herself. She also employed four other women between the ages of fifteen and twenty-five. One coat brought in between SEK 4 and SEK 6. It is not really clear how much of that money went to her employees. They, as well as she, worked 10 hours a day all year around. She herself made about SEK 1,400 a year and she was also a member of a *sjukkassa*, or health insurance society.

These coat makers illustrate well the complexity of determining who was really a homeworker. They were employees, but also employers. In addition they did not always work out of their own home. Nevertheless in the survey it was their relationship to the employer that defined them as homeworkers. It was not really significant whether they worked in the rooms that they lived in, or whether work took place in a small shop nearby. It was the position of being subcontracted that made them homeworkers. There was one thing, however, that really differentiated these women from the other homeworkers: their income. Some of these women earned substantially more than the average homeworker. Belonging to the group who made coats and employed other women was highly correlated with earning higher wages. Women could make some money by making simpler garments and coats by themselves at home, but to make a lot of money they needed to make coats and have a shop and employees.

4. Discussion and conclusion

None of the texts analysed described the homeworkers as primarily being married women with secondary incomes. In about two-thirds of the texts the homeworkers were explicitly described as workers. Most importantly they were described in the official records as workers and included within the framework of protection for all women workers. Nevertheless, even if they were not described as housewives, this does not exclude the possibility that the process of housewifization affected industrial homeworkers in a more indirect way. Sweden in this period was a society moving towards a single male breadwinner model. Several studies have shown how the male breadwinner norm set up gender bars for women in the Swedish labour market and that their marital status was used as an argument for not accessing for example the social security benefits that were connected to employment. However, this chapter suggests that in the case of Sweden before the First World War, 'housewifization' is not a sufficient explanation for the precarious situation of the industrial homeworkers. Homeworkers were not described as housewives, and nor were the majority of the industrial homeworkers housewives with supplementary incomes of no importance to the subsistence of the family. Only 38 per cent were married and in the cases where women had incomes that complemented a husband's wage, on average their incomes made up 65 per cent of the household income.

The industrial homeworkers were not all housewives however, and they were not exclusively the superexploited workers Mies describes either. Rather, they were a heterogeneous group that represented many different characteristics and, just as other groups in the labour market, they differed in age group, skills and socio-economic status. For some, and especially married women, industrial home work seems to have been an occupation that made caring for dependants and earning an income possible during a specific stage in life. However for others, industrial home work seems to have been an occupation that made it possible to use the required skills over a longer period in life and even if work was no longer available in a factory or other formal workplace.

The main conclusion of this chapter is that industrial homeworkers did not form a uniform group, not in their own time, not over time nor during different phases of industrialisation. This case revealed a diverse labour force, which does not fit easily in to the previous descriptions of homeworkers; they were not exclusively exploited nor housewives. However, one thing binds the homeworkers together with all the other studies of homeworkers over time and space, the interconnections between their gender, their place of work and

their unprotected and unregulated situation in the labour market. In the early twentieth century, as well as today, we know that one's home can be an important place for economic activity. In order to understand this type of work it is important to recognise the multitude of activities that take place there as well as the diverse of the workers that perform them.

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Appendix

Description of the data used in the dissertation

1. Introduction

The aim of this paper is to describe the collection, content, and quality of the three data sets compiled for and used in the dissertation. The first two data sets hold cross-sectional individual-level data on 276 urban and respectively 312 rural industrial homeworkers. The data were collected during face-to-face interviews performed for a survey on industrial homework by the Board of Health and Welfare (*Socialstyrelsen*) in 1912; in total, over 4000 interviews were conducted with female industrial homeworkers, and the interviews used for the data sets are subsamples taken from these interviews. The third data set holds panel data and follows 137 of the urban-based women in poll tax records, from the interview occasion in 1912 through their working life until 1944. The cross-sectional data sets holds detailed information on the household situation, occupational features, and occupational history of the individual homeworkers; the panel data set provides information on the occupation, income, and household members for individuals over a period of over 30 years.

The paper is structured as follows. First, the collection, content, and quality of the master sample of the cross-sectional datasets are described. Second, I give an account of the motivation behind the subsetting of the sample, the data extraction, and the representativeness of the subsamples used for the two cross-sectional data sets. In the third part of the paper, I discuss the sources, linking, collection, and attrition of the panel sample. Table 1 provides the first overview of the master sample and the different subsamples used in the dissertation.

Table 1 Overview of the samples

	Target population	Sampling frame	Sample collected	Final analytic sample	Study design	Data sources
National master sample	All women ind. homeworkers in Sweden in 1911, n=22214	11956	4257		Cross-sectional survey	Face-to-face interviews performed by the National Board of Health and Welfare 1912
Gothenburg subsample	All women ind. homeworkers in Gothenburg in 1911, n=2706	NA*	336	276	Cross-sectional survey	As above
Sjuhärad subsample	All women ind. homeworkers in rural Älvsborg in 1911, n=3985	NA*	884	312	Cross-sectional survey	As above
Panel sample		276	137	129	Panel, register	Poll tax records

* No available information exists on the total number of homeworkers in the sampling frame in these specific areas.

To some extent, this paper focuses on and elaborates on the problems and limitations of the data; nevertheless, the material at large provides an exceptional source. It not only provides one of the very few sources on patterns of paid work outside the formal workplace in the early twentieth century, but also allows us to study the individual labour strategies of both married and unmarried women with a level of detail that is available in few other sources.

2. Sources for the two cross-sectional data sets

The two cross-sectional data sets consist of detailed data on 588 individual homeworkers. The data sets are based on interviews and contain information on the individual, household, and occupational features of the homeworkers. This part of the paper describes first how the large master sample was created and the content and quality of the interview material and then explains how and why the master sample holding all the interviews was restricted into two subsamples and the representativeness of these subsets.

In 1912, the Swedish Board of Health and Welfare (*Socialstyrelsen*) carried out a survey on the economic and social circumstances of industrial homeworkers in Sweden. The aim of the survey was twofold: first, to appreciate the scope and size of industrial homework in Sweden by identifying all the companies that employed industrial homeworkers in Sweden and asking them to provide information on their business, including the names and addresses of all the industrial homeworkers they employed; and second, to investigate the social and economic situation of the homeworkers by using a sample consisting of about 20 per cent of the industrial homeworkers identified (*Svensk hemindustri. D. 1, Utredningens huvudresultat*, 1917, p. 37).

When the survey was undertaken in 1912, industrial homework had been a largely debated social issue, in Sweden and in other European countries, since the late nineteenth century. A couple of years earlier, in 1907, the Centralförbundet för Socialt Arbete (CSA), a social liberal group formed after the British Fabian society and the German Verein für Socialpolitik, had performed a small survey and arranged an exhibition on industrial homework in Stockholm (Meyerson, 1907). Following the exhibition, a draft for the regulation of industrial homework by law was included in a proposal for revisions of the occupational hazard legislation in 1909. However, this draft was never included in a passing bill; the committee that had written the proposal concluded that the best possible option for regulating industrial homework would be through minimum wage

regulation, which had been implemented in other countries. However, the committee did not believe themselves to have enough information on industrial homework or homeworkers to put forward minimum wage legislation as this had never been attempted before in Sweden (Marcus, 1909, p. 168).

According to the Swedish surveyors, a large, specific survey of industrial homeworkers was needed as national censuses or occupational censuses would not be able to grasp certain dimensions of industrial homework, like the seasonality often associated with it, or to identify industrial homework if it was performed alongside farm work or by married women. They also fretted that people would be unwilling to state that they performed industrial homework in censuses as they would be afraid of being taxed (*Svensk hemindustri. D. 1, Utredningens huvudresultat*, 1917, p. 36).

The first obstacle for the surveyors was the issue of finding a definition of industrial homeworkers. They were well aware of the problems involved in defining industrial homework. In the published volume, there is a lengthy discussion on the various definitions used in legislation and official statistics in different European countries (*Svensk hemindustri. D. 1, Utredningens huvudresultat*, 1917, pp. 1–29). In the present survey, they define industrial homework as:

> a venture whereby a person on behalf of an employer, for this employer's business purpose, is paid for the production or processing of goods in their own dwelling or at another place, which is not provided by the employer. [In Swedish: den rörelse, där personer på uppdrag av arbetsgivare för dennes yrkesmässigt bedrivna näring mot lön syssellsättas med tillverkning eller förarbetning av varor i sina egna bostäder eller i andra arbetslokaler, som icke tillhandalhållas av arbetsgivaren]. (*Svensk hemindustri. D. 1, Utredningens huvudresultat*, 1917, pp. 25–26)

A methodology section was published with the main results of the survey; however, it is not entirely clear from it how the surveyors identified the companies that used home-based workers. In the method description, they state that they faced difficulties in finding information on industrial homework and had to use different sources (*Svensk hemindustri. D. 1, Utredningens huvudresultat*, 1917, p. 36). From the archive material and the notes in the text, it appears that they sent forms to anyone they could think of who might have knowledge of industrial homework: local municipalities, unemployment offices, unions, employer associations, social services, agrarian societies (*hushållningssällskap*), or chambers of commerce (*Svensk hemindustri. D. 1, Utredningens huvudresultat*, 1917, p. 39). In total, 14,038 companies were identified and sent forms

containing questions about whether they employed industrial homeworkers; 13,009 reached their recipients and after 16,266 reminders 11,351 companies answered, giving them a response rate of 87.3 per cent. In total, 3,252 companies answered that they did employ industrial homeworkers; in turn, these were sent forms with questions about the quantity and value of their production as well as the wages and names of the employees they had at any time during 1911 (*Svensk hemindustri. D. 1, Utredningens huvudresultat*, 1917, p. 40). After several reminders, simplifications of the form and pressure from the Board of Health and Welfare, the survey administrators claim to have acquired more or less detailed data from all the companies. They also note that more than 39,000 different letters were sent to companies, including the forms (*Svensk hemindustri. D. 1, Utredningens huvudresultat*, 1917, p. 41). The target population in the second part of the survey consisted of industrial homeworkers in Sweden in 1911; in total, the survey administration identified 28,953 homeworkers in Sweden. They had names and addresses for 11,956 of them; that list of names made up the sample frame for a survey sample of about 5,100 industrial homeworkers who were to be interviewed in the special investigation into industrial homeworkers' social and economic circumstances. How the sample was drawn from the list of names is not particularly clear; in the results, the authors only state that it was of the utmost importance that the sample was representative in terms of occupational trades and geographic diversity (*Svensk hemindustri. D. 1, Utredningens huvudresultat*, 1917, p. 42). It is most likely that they drew some kind of stratified sample from the sample frame.

To pursue the second aim of the survey, to explore the social and economic situation of the homeworkers, 120 representatives from the Board of Health and Welfare, 32 men and 88 women, were dispatched to perform face-to-face interviews with industrial homeworkers in their home. The interviews were conducted in a semi-structured manner, using a standardized questionnaire (appendix X) with around 40 short open-ended questions about their current household situation and work features (*Svensk hemindustri. D. 1, Utredningens huvudresultat*, 1917, pp. 37, 42). The questionnaire also contained retrospective questions about their occupational history, training, and years engaged in industrial homework.

The interviews obtained both qualitative and quantitative information. All the questions were open-ended; however, none of them allowed space for longer answers: the majority were answered in one word. Even though the interviews were standardized, the availability and quality of the information

varies between questions and informants. There is also a problem with typos and unclear handwriting. The section below displays the questions asked in the interviews and information on how they were answered.

Information sought in the interviews

Name, place of residence, occupation of father, year of birth, and marital status

Most women could be identified by their name and address; however, there was some variation in how this information was stated. First and last names were most often given, but sometimes only nicknames or "Mrs XXX". The information on the respondents' place of birth also varied. Most often, it was stated on the parish level, but at times on the farm, city, or county level and in a few cases on the country level. Seemingly, the further a place was from where the respondents now lived, the more imprecise the statement was. For example, if they lived in the parish where they were born, the name of the farm they were born on was most often stated, but if they were born abroad, the only information provided was, for example. "America". As the level of detail varies, the usefulness, for example in linking the interviewees to their household of origin, is poor. However, there are entries for nearly all the individuals and it is possible to determine whether they, for example, migrated to a larger city.

There are fields for both father's and husband's occupation and alternatively for mother's and wife's occupation. There seems to be a correlation between respondents' age and their having an entry on their father's occupation, whereby older women were not asked about, or did not state, their father's occupation. The year of birth is available for almost all of the women; however, in very few cases is there information on the date of birth. Marital status is given as married, unmarried, widowed, and occasionally married with deserted (övergiven) within parentheses.

Members of the household

This section provides information about all the family members in the household, their relation to the homeworker, and their age. Boarders are included and labelled as non-relatives (*främmande*), although they are not very common in the material. More common are non-nuclear but related individuals living in the household.

Years worked in industrial homework

This category is split into the number of years worked in industrial homework, the number of years spent in the current occupational speciality, and the number of years it took before a proficient skill level was reached. Most often, the years worked are stated; however, the response rate for the other questions was lower.

Previous occupations and vocational training

Here the respondents answered two questions on whether they had any previous occupations and whether they had had any vocational training; it is not always specified whether this is occupational training specifically for industrial homework. The missing data here are problematic because I do not know whether blanks are due to the respondents having had no previous occupation or training, whether they represent a non-response, or whether the answers are just missing due to the interviewers having forgotten to ask the question. In the rural sample, several answered "at home" or "daughter at home" (*Hemdotter*) to the previous occupation question. My interpretation is that being at home, working on the farm, these women would often have been engaged in the same labour as those who had been employed as a servant at someone else's home; however, as they did not actually participate in paid work on the labour market, they are not coded as such.

Goods produced

Here the respondents stated what kinds of products they made, along with the names and addresses of the employers whom they worked for regularly and irregularly. They also answered a question concerning whether any of these were middlemen. The coding frames for this question are available in appendix 2.

Hours worked

In this question, the respondents were asked first about which months they worked in 1911 and second about their working time per day, excluding breaks for January to March, April to May, June to August and September to December. However, many stated hours worked per individual months and not every third. The homeworkers were also asked to state the time required to make product X and whether they worked on Sundays or holidays *(helgdagar)*. One out of over 600 interviews that I entered into Excel reported working on Sundays and holidays. Even if individuals worked for over 13 hours per day for the rest of the week and seemed to be in great need of the money, no one admitted to working on Sundays or holidays.

Wages

The wages of the homeworkers were stated per piece, week, and year (1911). They were also asked to state whether they had received any other income (besides from industrial homework) in 1911. In the second part of this question, they were asked to state the yearly income of all the other family members, specified as husband, father, mother, children, or siblings, and other incomes. The yearly wages are suspiciously often in even hundreds. It is most likely that they were rounding the figures as they were not entirely sure. For some, the wages were easily estimated by hour because they clearly stated their piece rate as well as the amount of time required to make the item. However, for many, this information varies: either the piece rate or the time estimation is missing. In the countryside, many have unpaid helpers, which makes it very hard to estimate the wages paid per hour to the homeworker. This is also a problem when they employ helpers because often their wages are stated (and probably paid) by weekly payment.

In the urban area, the respondents seemed to state their husband's income when there was one; however, in the rural areas, few husbands declared a monetary income. I tried to find a proxy variable that could be an indicator of how much they would be able to earn from the farm, first by using the forms of ownership, which could be identified to some extent by the husband's occupation. There was some variation that could be estimated from the occupations; however, most of them were either crofters (*torpare*) or peasant farmers (har egen gård (often *heg* in the material)/*hemmansägare*/*jordbrukare*/*lantbrukare*), so it would be an extremely crude rate as a proxy for income. In some cases, there are notes about the size of the farm in tax units (*mantal*) and in some about the cattle it possessed. Potentially, these could be translated into cattle units;[1] however, the information does not seem to be complete and systematically collected.

Means of production and the cost of raw material

This question asked the informants to state which kinds of machines or tools they used, who owned these, the purchase price, how long the informant estimated that they could be used as well as the cost of maintenance. The answer here is most frequently sewing machine, knitting machine, or loom. Further,

1 U=1C+1.5H+0.25P; U=cattle units, C=cows, H=horses, P=pigs.
Cattle units based on Myrdal and Morell (2001, p. 242).

they were asked about the kind of raw material that they paid for themselves and how much they paid for it, for example silk, yarn, or buttons. The last question concerns the working material, like needles or thread, which they paid for themselves.

Co-workers

The information collected on co-workers is related to kinship, age, type of work performed, working time, and wages. The quality of the information here varies greatly. Especially in the countryside, there is only fragmental information on pay to co-workers; it appears as no family members were formally paid. Often, in the urban areas as well, if they were family, they stated that they split the revenue equally. For paid helpers in the urban areas, pay is stated weekly and time worked is stated per day.

Collecting and dropping off work

Quantitative information was collected on the number of times the respondents dropped off and/or collected work from their employers, how long this took, and how much it cost. Furthermore, information is available on how often and in what form they were paid, the most common answer being "in cash at drop off".

Rent for shop

Quantitative information was obtained about the rent for their shop, if they had one, and with how many other homeworkers this was shared.

Housing if a lodger

The rent and name of the person whom the respondent rented from was requested. This information was seldom supplied, most likely because few of the respondents were actually lodgers; however, in some cases, it says "with father".

Housing and work environment

In this question, information was sought about the number of rooms in the house or apartment, whether the respondents had their own kitchen, and the rent per year. They were also asked how many people lived in the apartment, divided into under 15 and over 15 years old. They also answered how many people, under and over 15 years old, slept in the room in which the informants worked and whether it was used as a kitchen. Further, information was given

about how many homeworkers worked in this room, how many square metres of floor space there was, and the ceiling height. There were also open-ended questions about luminosity (on an ordinal scale, ex. dark, good, dusky), the number of windows, heating (ex. tile stove, kitchen stove), and the kind of lighting they used (ex. kerosene or electrical).

Health of the homeworkers

The informants were supposed to answer themselves but often there are comments from the interviewer, saying, "she says she is fine but she looks pale". The health of the other members of the household and whether they belong to a sick, funeral, support, or temperance society or a union are also stated here.

Notes

The notes section is often used; here it as if the interviewer took the opportunity to vent about the status of the household, whether it was dirty, whether any of the children were sick, or other impressions. In the countryside, information is occationally given about cattle or the taxable size of the farm.

Quality of the material

There are a number of common sources of errors in survey research. The quality of the material can most often be related to non-sampling errors, like sampling-frame deficits, non-responses, or respondents giving inaccurate or incomplete answers; another source of errors could be that the questionnaires or collection procedures are not proficient (Schofield, 2006). In the following sections, these potential sources of errors will be discussed in relation to the material.

To start with, the way in which the target population is defined is of course an integral part of who is included in the final sample and an important source of selection errors. The target population for the industrial homework survey was all the industrial homeworkers in Sweden. Defining what industrial homework consisted of and who was to be defined as a homeworker had already been a dilemma in the proposition for the law in 1909. Recognizing that many different categories of paid production existed in homes, in the present survey, one primary problem had been and still was how to deal with remunerated handicrafts (hemslöjd) (*Svensk hemindustri. D. 1, Utredningens huvudresultat*, 1917, p. 23). The conclusion was that what separated remunerated handicrafts

from industrial homework was the relationship to the employer. The formulation "on behalf of an employer"/"på uppdrag av arbetsgivaren" served largely to separate industrial homework from handicrafts or artisanal work. If you sold your work directly to a customer, you would then be defined as an own account worker (för egen räkning) and not as an industrial homeworker.

The formulation "for business purposes"/"yrkesmässigt bedrivna näringar" was defined to leave out workers who were employed by organizations of which the primary activities were not for business, like charity organizations or prisons. Probably, these would not be a negligible part of the industrial homeworkers if they had been included in the sample. Charity organizations to which women would apply for help, for example by obtaining yarn and knitting gloves that the charity organization sold, seem to have been fairly common.[2]

The survey administration also notes that almost all of the companies that did not answer their calls were small shops that may have employed only a few workers (*Svensk hemindustri. D. 1, Utredningens huvudresultat*, 1917, p. 40). If these small shops were numerous and employed a few homeworkers each, which is likely to be the case, they could have been a large part of all the industrial homeworkers. The potential consequence is that there could be a bias deriving from this if women with small employers had different experiences from those working for larger employers. However, if we knew whether the size of the employer was correlated with the experiences of the workers who are included in the sample, we would not know how it would have affected the results if including the small employers who were not in the master sample.

As in most survey research, there are a number of potential biases connected to non-response as well. Unit non-response biases are biases resulting from failure to collect data successfully from the elements (in this case individuals) that were chosen for inclusion in the study (Daniel, 2012). In the final report, the authors declare that the group they decided to attempt to interview amounted to "around 5100" (*Svensk hemindustri. D. 1, Utredningens huvudresultat*, 1917, p. 42). There are 5064 completed interviews, which seems like an extremely high response rate. As I do not know the actual non-response rate, it is hard to estimate the extent of non-response bias in the material; however, there are some clues indicating potential non-response biases. In the main results, a good amount of space is devoted to discussing the problems connected to the

2 I have not been able to find any statistics on the number of women who were engaged in this type of production or the turnover that the charities received from it. However, looking into the archive of one of these charities, they seem to have employed several hundreds of women over the years. Seemingly it was not alone in this type of work-for-welfare programme.

inability to contact the respondents as several employers had failed to provide the right full name and up-to-date correct addresses of the homeworkers as well as the problems connected to individuals not being in their houses or refusing to respond (*Svensk hemindustri. D. 1, Utredningens huvudresultat* 1917, 44–45).

There is reason to suspect that these data are not missing at random, since in the main results they also state that missing data caused by faulty addresses were more common in urban environments. Assuming that poorer people in the cities moved more, this could lead to a bias in that more stable workers from wealthier homes were over-represented.

In general, face-to-face interviews tend to have higher response rates than other collection methods. Nevertheless, there are quite often item (single questions) non-responses in the interviews. As we can see in table 2, the wage variables and cost of equipment are especially low.

Table 2 Item response rate for the variables used in the dissertation

Questions	Sjuhärad subsample	Gothenburg subsample	Panel sample
Individual and household variables			
Year born (continous, interval)	0.99	0.98	1.00
Place of birth (nominal)	0.99	0.99	1.00
Marital status (nominal)	1.00	1.00	1.00
Children present in household (nominal)	1.00	1.00	1.00
Work variables			
Type of products made (nominal)	1.00	0.95	0.96
Hours worked (interval)	0.96	0.83	0.79
Months worked (nominal)	0.96	0.84	0.85
Cost of equipment (interval)	0.87	0.42	0.86
Wage variables			
Information to construct hour wage (composite variable)	0.96	0.67	0.68
Average wage/week 1911 (interval)	0.82	0.82	0.79
Wage 1911 (interval)	0.47	0.58	0.54
Number of helpers (interval)	1.00	1.00	1.00
Retrospective variables			
Occupational training (binary/nominal)	1.00	0.99	0.99
Father's occupation (nominal)	0.88	0.58	0.58
Years worked in industrial homework (interval)	0.98	0.78	0.71
Total sample N	312	276	136

The item non-responses in this case are most likely not random: women who would not state their income were probably more likely to have irregular incomes. In the case of hours worked, respondents regularly stated that they were not able to respond as they worked too irregularly to state their hours worked. Hence, there is a selection bias regarding respondents who did not state their hours worked; to deal with this issue, I conducted a further analysis and discussed in length the effect of this non-response bias in the paper when I used the material on hours worked.

There are a few notes about refusal to respond in the notes in the last part of the interview. Sometimes women expressed explicitly that they were not willing to state their own wage and in a few cases their husband's wage; however, this was not a frequent occurrence and it does not seem to be a large problem. None of the respondents admitted to working on Sundays and holidays (*helgdagar*). This could be more of a social desirability bias than an actual reflection of no one ever working on Sundays.

As the data were collected in face-to-face interviews with a number of different interviewers, there is a risk of researcher effects in that whoever was conducting the interview could have affected the answers. The men and women who performed the interviews were noted in the main results to be "qualified", and judging from their titles, they came from a middle-class or upper-middle-class background. In Gothenburg, a team of two male and thirteen female interviewers was led by *Doktorinnan* (wife of a doctor) T. Matell. They were also sent out from a governmental organ, which would put them in a position of power in relative to the homeworkers, who most often came from working-class backgrounds. There was most likely also a power dimension to the interaction between the interviewer and the respondent as the questions asked were of a somewhat personal nature: what everyone in the family earned, how they lived, how many children slept in the room where they worked, their medical history, and so on. Rather often, there are also notes commenting on the home being dirty, about husbands drinking or having taken off, or that the woman working did not have time to take care of her children. In the archive of the survey, there are several letters from the interviewers expressing great personal concern for the homeworkers. Potentially this could have caused the homeworkers to understate the hours they worked, as they felt their "right" place would be to allocate more of their time to the household.

Another particular problem with variation between interviewers is not in terms of how the respondent interacted with the interviewer but in terms of how thorough the interviewer was in taking down the answers. This matters

not only for the results but also for the names, which affected the possibility to link the individuals to other sources. Some just wrote down Ms Andersson or Maja Andersson, while some would take down their full names, like "Maria Charlotta Andersson". Furthermore, regarding the place where they were born, the interviewers were instructed to note down the parish and county but some would just write down a city or an area; without their full names and parishes, it was extremely hard, and often impossible, to link the interviews to other sources. This was also the case when it came to the respondents' address, and without a full address, I was not able to find them in the poll tax records.

One last potential bias could have been caused by the issue that the homeworkers seemed to be "heaping" to some extent in several questions. In the retrospective questions, respondents who had worked longer seem to have overestimated how long they worked or made approximations like "I've worked so long, 40 years or so" or "I've worked since I was a kid, it must be over 50 years now". In addition, when they stated how much they earned per year, they seem to have ended up with suspiciously even numbers. The effects of these potential biases are estimated and discussed in the individual papers and even though, as with all materials, there are some problems and biases, these interviews offer what, to my knowledge, is the only Swedish material in which a large and representative sample of industrial homeworkers can be identified.

The interviews also provide one of the few materials in which we can access the work of both married and unmarried women in the manufacturing industry at this time. The level of detail in the interviews also allows the study of how this kind of semi-formal work was affected by household factors. Sweden was not the only country to survey its industrial homeworkers – it was actually one of the last countries in Europe – but the advantage was that it could benefit from the experiences of other countries. Another advantage of the Swedish material is that many of the other studies were performed with the more or less outspoken aim of banning industrial homework or explicitly surveying the poor. Compared for example with the classic Clara Collet pieces in Charles Booth's *Life and Labour of the People of London*, the Swedish survey seems to have been dealing with fewer selection problems. Collet investigated home-based workers within a framework of studying poverty. It is hard to draw general conclusions about the economic position of homeworkers from Collet's studies as they were chosen because they were poor. When she describes the homeworkers it is in a context in which homework was considered a large social problem. This also seems to be the case among several other surveys performed on the industrial homeworkers' situation at the time (Hainisch, 1906; Lorenz, 1909; Vos, 1901).

The Swedish survey thus forms a uniquely detailed and representative source for studying industrial homework in Sweden but is also an important source from an international perspective.

Creating subsamples from the interviews

This dissertation study labour strategies of women industrial homeworkers in the early twentieth-century labour market, the aim is not to offer a statistically representative picture of all industrial homeworkers in Sweden. Therefore, two smaller samples were drawn from the interviews conducted by Socialstyrelsen. One urban and one rural sample were drawn; the selection criteria for the first sample were that they were women and had an address in Gothenburg; the selection criteria for the second sample were that they were women and had an address in rural Älvsborg (a group that consisted only of workers from the Sjuhärad area in the survey).

The reason for choosing Gothenburg for the first subsample was that I was interested in female industrial homeworkers in a larger urban setting. The requirement for urban settings with enough interviews (I set the limit to >300) restricted my choices to Stockholm, Gothenburg and Malmö. In Stockholm, 785 interviews were conducted, in Malmö 371 and in Gothenburg 366. Being interested in the connections between home-based work and gender, I was especially interested in sectors that were dominated by women and coded as "women's work". In Gothenburg, 75 per cent of the homeworkers were found to be employed in women's clothing, linen-making, knitting, and sewing by hand. These were branches that were almost completely dominated by women. In both Malmö and Stockholm, a larger proportion of the workers were found in men's clothing, which was slightly more mixed in terms of gender. Gothenburg was also chosen because it enabled the use of the Gothenburg central address register to link the interviews effectively to other poll tax records and create a longitudinal panel. For these reasons, the choice fell on Gothenburg. In the archive, I was able to locate 290 interviews of the 366 interviews undertaken with workers in Gothenburg; 276 out of the 336 interviews were conducted with women.

The second subsample was chosen on the basis of being the main area for industrial homework in rural Sweden. The Sjuhärad area was the main area for proto-industrial production in Sweden during the eighteen and nineteenth centuries (Magnusson, 1996, p. 329). Still in 1911, the area held about half of all the industrial homeworkers in the rural areas of Sweden, almost 7000

industrial homeworkers. A total of 1232 interviews were performed in the whole of Älvsborg, including the more urbanized areas (like Borås and Alingsås), and I was able to locate 1008 of them. I restricted the sample by choosing every third unit (individual) of the 1008. The sample was further restricted to include only women and only women in the countryside (hence excluding women with addresses in Borås or Alingsås, which were the only urban areas represented in the sample); the final analytical sample comprised 321 industrial homeworkers.

All the scorecards from the interviews were located in the archive of the Board of Health and Welfare (*Socialstyrelsen*) held by the national archive in Arninge in Stockholm. The interviews were in relatively unsorted boxes, although to some extent they were sorted according to region. I read through all the interviews and took photos of all the interviews in which the informant had an address in Gothenburg (most often they also had GBG typed in red in the right corner) or Älvsborg (ÄBG in red in the right corner).

Transforming the data into variables was fairly time consuming, as the questions were open-ended; even if brief, the data frequently needed to be recoded. Especially the type of products that the workers made needed structured code frames. The interviews were not numbered in any way in the survey; they were identified only by name and address. Upon data entry, I assigned an ID number to all the individuals. In some open-ended questions, there was a quite large variation in the answers and they needed to be coded into more distilled versions to be manageable.

Representativeness of the cross-sectional samples

The target populations for these subsamples are the total population of industrial homeworkers in Gothenburg and rural Älvsborg in 1911. In terms of representativeness, these samples suffer from the same problems and potential errors as the master sample, which was previously discussed. As this is also in principle the only source of this kind of information on industrial homeworkers, it is impossible to find other statistics that allow a comparison of the features of the sample with the target population. In the case of the Gothenburg subsample, I found in the archive and use 276 out of the 336 interviews conducted in Gothenburg. Out of the interviews preformed in Sjuhärad, I use a systematic sample from the interviews collected (every third unit, n=312). In the Gothenburg case, there is no information on the specific features of Gothenburg industrial homeworkers. However, table 3 displays a broad overview of the age, marital status, and sector for the different samples.

Table 3 Sector, marital status, and age structure compared, in percent

Sector	Textiles	Garments	Other	NA
National master sample	0.40	0.50	0.10	0.00
Sjuhärad subsample	0.71	0.29	0.00	0.01
Gothenburg subsample	0.22	0.75	0.01	0.02
Panel sample 1912	0.26	0.70	0.03	0.01

Marital status	Married	Unmarried	Widowed
National master sample	0.46	0.41	0.12
Sjuhärad subsample	0.39	0.56	0.05
Gothenburg subsample	0.38	0.56	0.06
Panel sample 1912	0.43	0.52	0.05

Age structure	<20	20–29	30–39	40–49	50–59	NAs	>60
National sample	0.05	0.20	0.31	0.23	0.12	0.01	0.08
Sjuhärad sample	0.07	0.31	0.24	0.16	0.12	0.01	0.09
Gothenburg sample	0.02	0.27	0.36	0.19	0.09	0.02	0.05
Panel sample 1912	0.01	0.28	0.35	0.21	0.11	0.00	0.04

As the Sjuhärad area was of special interest in the survey, the results from the interviews in Älvsborg were accounted for in more detail than any other geographic area. In table 4, we can see that the subsample largely shares the same characteristics with the larger sample of interviews performed.

Table 4 Comparison between the total interviews conducted and the Sjuhärad subsample used

	Total Sjuhärad interviews on countryside	Sjuhärad subsample
Products made		
Textiles	0.73	0.71
Garments	0.27	0.29
Other	0	0
NA	0	0.01
Marital status		
Married	0.37	0.39
Unmarried	0.57	0.56
Widowed	0.6	0.05
Age		
<20	0.10	0.07
20–29	0.30	0.31
30–39	0.22	0.24
40–49	0.17	0.16
50–59	0.11	0.12
>60	0.09	0.09
NA	0.00	0.01

Source for total interviews' information: Svensk hemindusrti: monografier, hemindustrien i Södra Älvsborg.

One alternative to creating two cluster subsamples like this would have been to use all of the 5064 interviews or to draw a large random sample from them and potentially to use both male and female homeworkers. As we could see in table 3, the two subsamples chosen, as well as the national sample, are dominated by textile and garment makers. The industrial homeworkers in Gothenburg and Sjuhärad also had a slightly different age and marital status composition, which also related to the structure of the products made. The results would have changed in the papers if a different or the whole national sample had been used. It has become apparent during the dissertation process that, more than anything, the industrial homeworkers were a very diverse group on the labour market. Regional clusters of the type of products that they made were common, and the types of products mattered for the composition of the labour force; thus, any geographical-based sample would be biased, as the types of industrial homeworkers were not spread equally across the country. The ben-

efits of using the whole sample obviously would have been the larger number of observations, which would have made a better base for econometric testing and inferential statistics, especially in the two papers dealing with the timing of entry and the hours worked, which would have made sense. It would also have erased some of the potential skewedness based on geographical biases. However, as stated before, the aim of the dissertation was to explore the labour strategies of individual homeworkers, so the geographical bias would mainly be a problem if one claimed to give a representative picture of all industrial homeworkers in Sweden in 1911.

3. Sources for the panel sample

The Gothenburg industrial homeworkers' panel is a longitudinal data set with 731 observations on 137 unique individuals used in the dissertation with the intention to explore the mobility dimension of the homeworkers' labour market participation. The panel is based on register data from poll tax records and holds information on a number of different demographic and labour-market-related variables. This part of the paper describes the setting, construction, and collecting of the data set, presents some basic sample characteristics, and further discusses the issue of panel attrition and the quality of the material.

The industrial homeworker panel is based on information from poll tax records (*mantalslängder*). The poll tax records are census material, targeting the whole population and forming a register of all the inhabitants on the parish level. The information in the poll tax records forms the base for taxation, social control, rights related to citizenship, and population statistics. The information on taxes and the occupational information in poll tax records are based on self-reported information, sent in by the head of the household to the Poll Tax Office (*Mantalskontoret*) (Norrman, 1933, p. 38). In addition, employers provided information on their employees (Norrman, 1933, p. 43). The information in the poll tax records includes, for all the members of the household, the age and relationship to the household head and the place of birth; if applicable, there is also information on the type of occupation held, number of employees, type of business activity, ownership of fixed capital, as well as income from property, capital, employment, or business. Further, there is a field labelled "notes", which most often was used for information on the employer and/or whether they received poor relief or unemployment insurance. It is, however, unclear how systematic these notes were, and there is also information on

individuals being unemployed, working irregularly, working abroad, or being a foreign citizen. For married women who did not live with their husbands, there is quite often an explanation in the notes stating "husband in America" or "husband works in XXX".

I choose to follow the cohort of women based in the urban centre of Gothenburg (the Gothenburg subset sample) rather than using a random sub-sample drawn from the whole industrial homework sample described above for several reasons. Most important was feasibility: to follow all the women in the official records in different parishes to different cities would take too much time, and the risk of heavy panel attrition would be high. Gothenburg city kept a manual central register of all its inhabitants between 1917 and 1967 (Gustafsson & Jansson, 2010, p. 243). The register includes records of the residential address of individuals, which greatly facilitated the ability to find individuals over time in the poll tax records. Another reason for choosing one city was that it increased the comparability over the years studied. Further, choosing to follow the urban Gothenburg cohort made it possibility to compare it with other groups of women, as I would be able to match it to the Gothenburg population panel, a representative panel of the Gothenburg population collected to study various forms of labour mobility. The Gothenburg poll tax records have been used in several studies of occupational mobility within other projects as well, within the previously mentioned Gothenburg Population Panel and also in studies on income mobility (Gustafsson & Johansson, 2003). They have also been used to study the economic life of women during the interwar period (Lane, 2004).

Quality of the material

Previous research on the reliability of the taxation information has shown that there is in general substantial coherence in the taxation data (Olsson, 1972, p. 73). I found poll tax records to be the best way possible to study the occupational trajectories of industrial homeworkers; there are, however, some large and gender-specific problems with the poll tax records as a source of information on women's paid work. Most importantly, married women very seldom registered an occupational title, partly because they were homemakers but also because of a large degree of underreporting. There are several studies dealing with the underreporting of women's and especially married women's work in official sources like poll tax records or census material (Nyberg, 1994; Vikström, 2010). Previous studies have indicated that the lack of information in poll tax records on women's work possibly reflects the underreporting of

women workers and not always a lack of women actually working for money (Göransson, 1988, p. 44). Unfortunately, this also turned out to be the case for the female industrial homeworkers. When comparing the occupational information in the interviews in 1912 and the occupational information from the poll tax records for 1912, it was possible to see that even though we know for a fact that all of the women in the database did work for money in 1912, few women, and virtually no married women, stated an occupation. This made the poll tax records a limited source for studying the industrial married homeworkers' occupational mobility; unfortunately, there are very few, if any, other sources that would allow that. Alternative methods would have been to use company records; however, when it comes to company records in general, there is a gender-related bias in that women were more often employed by smaller employers and the company records of small employers survive less often than those of large employers. Furthermore, women working in their home were less likely to be encompassed by the company records, as they were not physically in the workplace and also at times worked irregularly over the year.

The process of linking the Gothenburg sample interviews to the poll tax records

The sample frame for the panel data consists of the 290 interviews with industrial homeworkers performed in Gothenburg in 1912. Individuals were linked by their name and address and by using the central register. However, before looking for the individuals in the central register, a number of measurements were taken to stabilize the material, increasing the probability of finding them and avoiding making false linkages or missing true linkages.

Initially, I started by looking for the individuals in the poll tax record for 1912, primarily to access their full names. The addresses in the poll tax records, however, are based on property numbers (*fastighetsbeteckning*) and in the interviews there are only street addresses; therefore, there was a need for a translation key, more specifically "Göteborgs fastighetes och industrikalender". As the addresses in the interviews are sometimes imprecise and the translation key is not always fully comprehensive, it was not possible to find all the individuals. In 37 cases, there was not enough information in the interview to find a district (*Rote*) and a property number to look for them. As I only had the year of birth and not the date from the interviews, and since this was not stated in the poll tax records in 1912, I also tried to locate the respondents in the fifth version of the *Swedish Death Index 1901–2009*, a publication from the Swedish

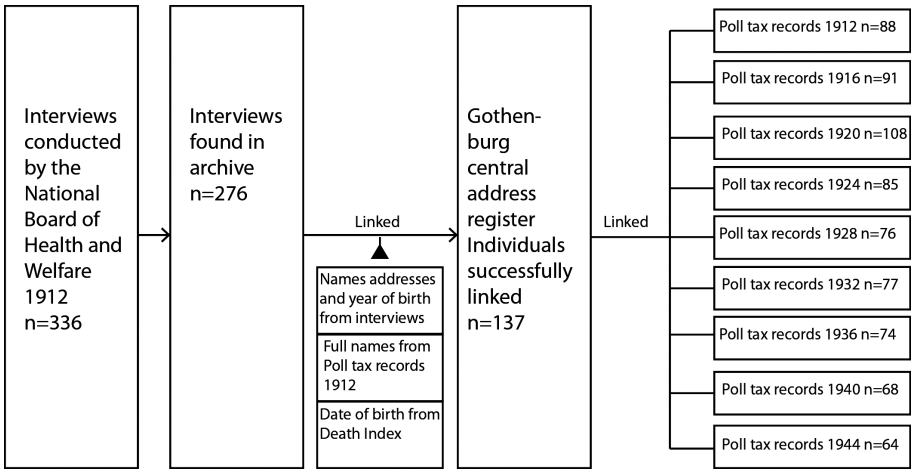
Genealogical Society containing the names of all the individuals who died from 1947 and about 70 per cent of the individuals who died in 1901–1946. In the death index, I found 135 out of 290 individuals and could access their date of birth. I triangulated the information from the interviews, the poll tax records of 1912, and the death index to maximize my chances of finding the individuals in the central register.

With the combined information on their date of birth, all their given names, and/or their last and maiden names, I started looking for the individuals of the Gothenburg subsample in the central register. The register was regularly maintained from 1920 but in several cases it holds retrospective moves before 1920. The register is structured primarily alphabetically but also somewhat phonetically, so for example the surnames "Dalström" and "Dahlström" are next to each other. However, as the spelling and the names the registrars thought were phonetically the same were not always clear, I always looked both where they should be alphabetically and where I thought they could be, either because they were phonetically similar or because I thought that the name might have been spelled incorrectly, either in my sources or in the address register.

The register provided information on individuals' full names, (sometimes) occupation, date of birth, year of birth, and date and year of death, provided they died before the register was digitalized. Most importantly, it also provided information on moves within Gothenburg, which parish, district (*Rote*), block, and number they moved to, and the year and date when they moved. In total, I was able to locate 137 individuals in the address register and hence had 137 individuals whom I had a chance of finding in the poll tax records. As shown in figure 1, I was able to link 137 or 49 per cent of the individuals whom I looked for in the central register. Eleven of them were not attempted at all due to having too poor information in the data (no names or no year of birth).

There are a number of reasons why so many individuals were impossible to link; as mentioned before, even though attempts were made to stabilize the material with alternative sources like the *Swedish Death Index* and the poll tax record of 1912, the quality of the information in the interviews regarding names, year of birth, and place of origin varied. Without having individuals' full names, year of birth, and birth parish, I could not be sure of having the right person, especially since many had common names and without full names (all first names) it was impossible to know whether I had the right Alma Andersson born in 1891 in the parish of Karl Johan, and thus include that individual.

Figure 1 Overview of the outcome of the linking



From this analysis and the descriptive statistics in table 3, however, it seems as if no heavy bias was caused by this attrition. To look for systematic patterns in the outcome of the linking, a logistic regression analysis was performed. The dependent variable here was success vs. failure when it comes to being found in the central register and hence being included in the panel sample. Table 5 displays the results of the analysis: only one variable had a relationship with the dependent variable that was strong enough to be statistically significant (<0.05). Women who earned more than 1000 SEK in 1911 had about one-third of the odds of being found in the central register compared with those who earned between 401 and 601 SEK in 1911. This could be explained by women earning that much being more likely to run their own small workshop and because of this not having their private address on the interview card, which in turn made it harder to find additional information in the 1912 poll tax and therefore harder to find them in the address register. None of the other variables was statistically significant.

Table 5 Logistic regression results for odds ratios of being included in the panel sample

Variable	Share of sample (%)	Log-odds (b)	Odds ratio
Intercept		0.05	1.05
Marital status			
Unmarried	56	Ref	1
Married	38	0.32	1.38
Widow	7	-0.30	0.74
Age 1912			
<20	0.02	-0.22	0.80
20–29	0.27	0.20	1.22
30–39	0.36	Ref	1
40–49	0.19	0.28	1.33
50–59	0.09	0.49	1.63
>60	0.05	-0.21	0.81
NAs	0.02		
Income 1911			
200 SEK or below	0.15	-0.27	0.77
201–400	0.11	-0.74	0.48
401–600	0.09	Ref	1
601–800	0.06	-0.57	0.56
801–1000	0.02	-0.50	0.61
Above 1000	0.15	-1.17*	0.31
No information	0.42	-0.38	0.69
Migration history			
Born in Gothenburg	0.42	Ref	1
Moved to Gothenburg	0.58	0.38	1.46
N=269			
Likelihood ratio test:	Chi square on 14 df=14.8	P=0.39	
N=269			
Pseudo R-square			
(Hosmer and Lemeshow)	0.04		
*p<0.05 **p<0.001 ***p<0.000			

Nevertheless, as the sample size is quite small, we might have inflated standard errors and hence obtain statistically insignificant coefficients; however, the likelihood ratio test for overall model evaluation also shows that none of the parameters actually helps in explaining the variation in the material. If we just look at the size effect of the parameters, we see that unmarried women had lower odds of being found than married women, possibly because they

were more likely to move or marry between 1912 and 1920. If they married and changed their last name, they would be harder to find if I had not been able to identify both their names from the *Swedish Death Index*. Comparably, women aged between 50 and 59 had 63 per cent higher odds of being found than women aged between 30 and 39, possibly because they were more stable, did not marry and did not move out.

In the second stage of the compilation of the panel data, all the women found in the central register were linked to the poll tax records from 1912, every fourth year until 1944. Most panel surveys in one way or another are plagued by attrition (Hsiao, 2003, p. 234). This panel is no exception. On average, the attrition rate (calculated as the number of unit non-responses in every year divided by the full sample, N=137) for the panel was 40 per cent. Table 6 shows that the attrition rate varied over the years.

Table 6 Lost and found in the poll tax records

Year	Found	Moved out of Gothenburg, deceased, or institutionalized B	Not found C	Attrition ((B+C/)full sample)
1912	88	0	49	0.36
1916	91	0	45	0.33
1920	108	2	26	0.20
1924	85	8	43	0.37
1928	76	16	44	0.44
1932	77	21	38	0.43
1936	74	31	29	0.44
1940	68	36	32	0.50
1944	64	43	29	0.53
Total	731			

The least attrition is found in 1920, the year when the central register was established. In this type of historical register data, we do not have a large problem with people not being willing or able to answer subsequent waves of surveys; in many cases, the data do exist, but the problem is finding them. This panel has the usual attrition problems – outmigration, mortality, moving house – but here, the problems are also connected to the linking process and the proficiency of the central register. In historical panels, as in others, we need to

know whether the attrition causes systematic errors in the material. The extent of the errors and their consequences are of course dependent on the questions that the researcher wants to answer with the panel. As a general start, though, we can say that in the panel sample age is definitely a factor as we have some individuals who are already older in 1912; they, of course, have a higher risk of dropping out of the panel as they have a higher risk of dying during the 32 years of the panel. In the central register, women who were institutionalized, most often living in some kind of home for the elderly, did not have an address in the central register, and it said "in care" ("*vården*" or "*sjukhem*"), so they were not encompassed either. People who moved out of Gothenburg also moved out of the panel. It is most likely that the attrition is thus not random but related to age, so these rates might represent serious problems with the representativeness of the panel. The problems caused by attrition bias need to be attended to in relation to the questions asked by the material; in the dissertation, these problems are discussed in the paper second paper.

The archival work for the panel data was performed at the regional archive in Gothenburg from September 2011 to January 2012. The first stage of data extraction was undertaken by filling in printed paper templates, which I took with me to the archive. For comparability, I used a template that had been used in the construction of the Gothenburg Population Panel. All the volumes of the poll tax records were located in the regional archives subdivision in Gothenburg. To locate individuals in the poll tax records, I made an address list for each year, based on the information from the interviews, the central register, and another translation key, a register titled "*Fastighetsregister Göteborg 1923* äldre *och nyare*", which was used to see which addresses or property numbers belonged to which parish and district. Provided that there was no additional information in the central register about the homeworker having moved before that year, I looked for her in the poll tax record at the same address she stated in the interview. For those individuals I had not found in 1912 (before I looked for them in the central register) but had additional information from the central register about where they might have lived in 1912, I went back to try to find them again.

For all the years, to find each individual in the poll tax records, I followed this scheme, which, due to the structure of the data, I found to be most effective: locate the poll tax record for the right parish, go to the right district (*Rote*) and/or part of the city, find the right block, look for people with the same surname, look for someone with the same birth year, look for the person with the same first name, and check that the rest of the information is consistent with what he or she stated in the interview. If I had not found the individual by then, I

checked the address again and looked back in the translation key to see if there was a street with a similar name in any other part of the town. Before 1919, the taxation part of the poll tax records was in a separate volume, which was structured in the same way as the poll tax records.[3] To find this information, I used the same scheme as described above. Due to the archives' limited opening hours, it was crucial to prepare as much as possible before arriving, so for every poll tax year I pre-typed the individuals' ID, name, year of birth, and address and sorted them geographically as closely as possible according to parish, estate number, block, and building. After transferring the information from the poll tax records in the archive to my templates, I photographed the poll tax pages. Eventually, I ended up not using all the data from the poll tax records; however, the raw data from the templates are digitalized.

Representativeness of the panel sample

When it comes to married women, the poll tax records turned out to be yet another insufficient source for studying occupational mobility. However, for unmarried women, they provide a coherent register data source regarding their occupational status and increasingly after the First World War on their income as well. Concerning the question of whether these women were representative of all industrial homeworkers and their occupational trajectories, a number of issues need to be taken into consideration. As mentioned previously, there is a problem with self-selection bias. The women whom we find are most likely more "stable" workers than others; the sample is restricted to people who did not move out of Gothenburg, and as spatial mobility is connected to occupational mobility, a bias might exist here.

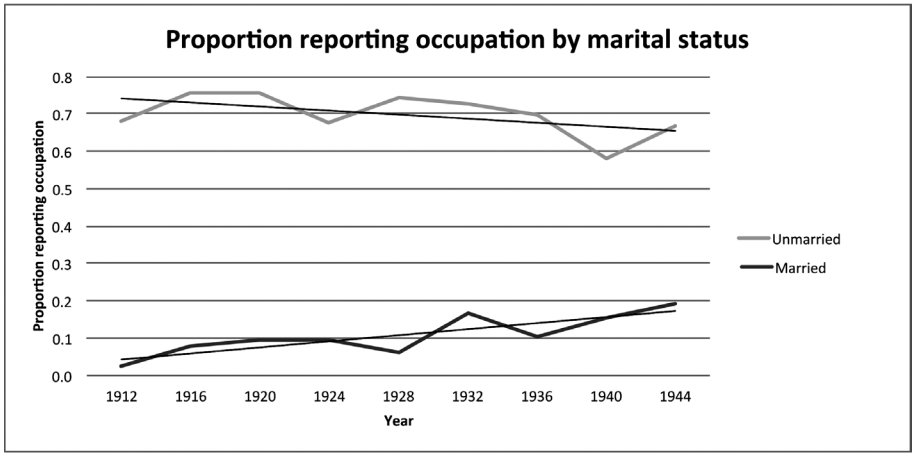
Referring to table 7, we can see that, for the group as a whole, there are relatively few women who state their occupation, income, or employer; however, if we look at the proportion of women who registered an occupation over time in figure 2, we see that there are significant differences when it comes to married and unmarried women. For never-married women, as a way of describing their trajectories, the material deals with many of the usual attrition problems that these kinds of material face.

3 It should be noted that these volumes are physically very large and heavy.

Table 7 Panel descriptives per year

Year	Number of observations	Median age	Percent married	Stated occupation	Stated income	Income if stated occupation	Stated employer	Statad employer income provided
1912	88	33	0.45	0.33	0.06	0.06	0.04	0.17
1916	91	40	0.42	0.45	0.07	0.12	0.15	0.83
1920	108	43	0.39	0.47	0.39	0.75	0.2	0.45
1924	85	46	0.49	0.35	0.31	0.57	0.21	0.54
1928	76	51	0.43	0.41	0.32	0.61	0.21	0.58
1932	77	55	0.39	0.47	0.39	0.64	0.22	0.43
1936	74	57	0.39	0.39	0.26	0.5	0.24	0.7
1940	68	61	0.38	0.37	0.31	0.52	0.18	0.48
1944	64	65.5	0.33	0.41	0.39	0.5	0.19	0.44
Total	731	51	0.41	0.41	0.27	0.48	0.18	0.51

Figure 2 Proportion of women who registered an occupation by marital status



Nevertheless, longitudinal occupational information on a large and important part of the industrial homeworkers is still lacking: married women. The problem is not so much that we cannot find the married women in the poll tax records, but that we cannot know whether their absent occupational title is because they did not work for money or because they did not register that they worked for money. This is a problem as the few studies that exist on married women on the labour market in Sweden before 1950 indicate that married women had the highest mobility of all groups on the labour market, especially at the ages of 40 to 70 (Meidner, 1954, p. 206). Fortunately, the retrospective questions in the interviews used for the cross-sectional material can offer some insights into the mobility patterns of industrial homework; however, where the married women actually went from there remains to be discovered.

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Göteborgs stads centralregister: Kvinnor, aktuella 1967;
Ref.code: SE/GLA/12296/ CIVba, SE/GLA/12296/ CIVbb

Svensk sammanfattning

Den här avhandlingen handlar om kvinnor som arbetade i hemindustrin i Sverige under 1910-talet. Den handlar om hur, när och varför de arbetade i just hemindustriellt arbete. *Hemindustri* innebär att de arbetade med att producera varor i sitt eget hem för ett eller flera företag. Oftast producerade de kläder eller textilier, ibland även andra konsumtionsvaror som leksaker eller paraplyer. Vid den här tiden var de flesta industriarbetare män men inom hemindustrin utgjorde kvinnor en majoritet. Socialstyrelsen gjorde 1912 en utredning om hemindustriarbete och fann att det fanns minst 27 000 hemindustriarbetare i Sverige år 1911. Ungefär 19 000 av dem var kvinnor. Hemindustriarbeterskorna utgjorde totalt cirka en tredjedel av alla kvinnliga industriarbetare år 1910-1911 men var inte inkluderade i officiell industristatistik före 1913. Trots att hemindustriarbeterskorna utgjorde en stor grupp på arbetsmarknaden har de inte uppmärksammats särskilt mycket i historisk arbetsmarknadsforskning, varken i eller utanför Sverige. En del av förklaringen till detta kan ligga i att de är svåra att hitta i historiska källmaterial som traditionellt använts för historiska arbetsmarknadsstudier; de har oftast inte varit inkluderade i industristatistik, företagsarkiv eller varit möjliga att identifiera i folkräkningar eller mantalslängder. För att hitta information om den här gruppen måste man därför använda andra typer av källor.

För att studera hemindustriarbeterskornas arbete har jag framförallt använt mig av information från intervjuer med hemindustriarbetare gjorda 1912. I samband med socialstyrelsens utredning gjordes nästan 5000 intervjuer. Arbetarna besöktes av utsända från socialstyrelsen och fick frågor om både sitt arbete och sin levnadssituation. Jag har i avhandlingen använt information från ett urval av intervjuerna, nämligen de som gjordes med kvinnor i Göteborg och Sjuhärad. Valet föll på Göteborg då jag ville studera en urban miljö, där det gjordes minst 300 intervjuer (för att kunna göra statistiska analyser). Stockholm och Malmö hade också varit alternativ, men i Göteborg fanns en möjlighet att länka intervjuerna till mantalslängder via ett adressregister och på så sätt skapa ett material som spände över längre tid. I Sjuhäradsområdet, då kallat södra Älvsborg, fanns en majoritet av de hemindustriarbetare som arbetade på landsbygden i Sverige. Ingen annanstans gjordes tillnärmelsevis lika många intervjuer som där.

Förutom intervjuer och mantalslängder samlade jag också in ett kvalitativt källmaterial för att få en bild av hur samtiden såg på hemindustriarbeterskorna. För att analysera materialet har jag använt mig av både kvantitativa och kvalitativa analysmetoder. Avhandlingen är en sammanläggningsavhandling. Den består av en introduktion, fyra olika uppsatser och en längre databeskrivning, där jag beskriver i detalj vilken typ av information jag grundar mina resultat på och hur jag har samlat in den.

Första uppsatsen behandlar frågan om är när i livet kvinnorna började arbeta i hemindustrin. Mer specifikt är jag intresserad av om de började i hemindustrin i samband med att de fick sitt första barn. De få tidigare studier som finns brukar ofta lyfta fram att hemindustriarbete framförallt var ett arbete som många valde för att det möjliggjorde att kunna ha ett betalt arbete och samtidigt utföra obetalt omsorgsarbete, som att ta hand om sina barn. För att ta reda på om det finns ett samband mellan att få sitt första barn och att börja arbeta i hemindustrin använder jag information från intervjuerna och en statistisk metod som kallas överlevnadsanalys. Resultaten visar att för personer med samma sociala bakgrund, tidigare arbetslivserfarenhet och ålder, som bodde i Sjuhärad och fick sitt första barn så fördubblades oddsen att börja i hemindustrin inom nästa tvåårsperiod. Att oddsen fördubblades är ungefär som att säga att sannolikheten eller risken att börja i hemindustrin fördubblades (men rent formellt visar resultaten att just oddsen fördubblades). Om personen bodde i Göteborg ökade oddsen att börja i hemindustrin nästa tvåårsperiod med lite drygt 50 procent, allt annat lika. Resultaten visar alltså att det finns ett samband mellan att få sitt första barn och att börja i hemindustrin och bekräftar därmed tidigare kvalitativa studier som hävdat att det varit så men inte kunnat säkerställa sambandet statistiskt. Resultaten visar dock också att över hälften av hemindustriarbeterskorna inte hade barn och att det verkar finnas många andra orsaker till att börja i hemindustrin, förutom att behöva stanna hemma med ett barn.

I den andra uppsatsen försöker jag få ytterligare svar på varför kvinnorna började inom hemindustrin, genom att kartlägga hemindustriarbeterskornas yrkesbanor genom livet. Vad de hade gjort innan de började i hemindustrin och vad hände efter att de hade slutat? Jag var också intresserad av om kvinnor som var gifta när intervjuerna gjordes hade annorlunda banor in i och sedan ut ur hemindustrin jämfört med dem som var ogifta. För att kartlägga deras yrkesbanor användes information i intervjuerna om vad de hade gjort före 1912, vad de hade jobbat med före hemindustrin och om de hade någon yrkesutbildning.

För att följa deras yrkesbanor efter 1912 använde jag mig av yrkesuppgifter för varje individ i mantalslängder från åren 1912 till 1944.

Resultaten visar att för de flesta var hemindustriarbetet ett arbete som var väldigt likt det som de utfört tidigare, oftast i en fabrik eller syateljé. Alternativt så var det den enda typ av betalt arbete de haft. Förvånansvärt många hade också någon form av yrkesutbildning, nästan alltid som sömmerska. Få hade en yrkesbakgrund där arbetsuppgifterna var helt olik de som kvinnorna utförde i hemindustrin. Det var vanligare bland de kvinnor som var ogifta 1912 att steget in i hemindustrin innebar att de startade en egen syverkstad, ibland med några anställda sömmerskor. De ogifta gjorde också oftare dyrare varor, till exempel kappor, jämfört med de som var gifta. Bland de gifta kvinnorna verkar steget till hemindustrin nästan alltid vara förknippat med att börja arbeta ensam och göra enklare produkter. De gifta och ogifta kvinnorna fortsatte också i olika banor efter 1912. De ogifta kvinnorna fortsatte oftast i samma typ av yrke även efter 1912. Få gifta kvinnor registrerade något yrke alls i mantalslängden, vare sig 1912 (där uppgifterna gäller för 1911) eller därefter. För år 1911 finns yrkesuppgifter både från intervjuer och mantalslängder. Det året vet vi att alla kvinnor som finns med i urvalet utförde betalt arbete i hemindustrin. Bara en av de gifta kvinnorna registrerar dock ett yrke i mantalslängden. Underrapporteringen av de gifta kvinnornas yrke gör att det är svårt att veta om det verkligen var så att de befann sig helt utanför arbetsmarknaden under resten av livet, eller om det bara ser ut så för att de inte rapporterade sitt yrke i mantalslängderna.

De här resultaten har flera viktiga implikationer för synen på kvinnors betalda arbete i allmänhet under den här tiden och för kvinnors hemindustriarbete i synnerhet. Istället för att tolka hemindustriarbetet som en kortsiktig lösning av ett ökat omsorgsbehov samtidigt som man behövde fortsätta tjäna pengar, vilket är en vanlig bild av hemindustriarbeterskorna, så framstår det utifrån de här resultaten snarare som att hemindustriarbetet var en långsiktig strategi. En strategi för att kunna ha ett arbete där erfarenhet och yrkeskunnande kunde användas under en längre period i livet, i många olika situationer. Många av sömmerskorna kunde till exempel sy på fabrik som yngre, sedan arbeta för samma fabrik i sitt eget hem senare i livet och/eller sy obetalt till sin egen familj.

Den tredje uppsatsen behandlar frågan om hur många timmar kvinnorna arbetade i hemindustrin och om antalet timmar varierade över året, samt om detta såg annorlunda ut beroende på om man bodde och arbetade i staden eller på landet. Tidigare studier har sett hemindustriarbete som ett mycket flexibelt arbetsmarknadssegment. Två huvudsakliga förklaringar har givits till detta.

Den ena är att flexibiliteten i hemindustriarbeterskorna arbetstid kan förklaras av att de inte var den primära försörjaren i en familj, utan framförallt arbetade för att täcka upp när den primära, manliga försörjaren i hushållet inte arbetade, till exempel under lågsäsong eller när denne var sjuk. Den andra förklaringen är att hemindustriarbetarna utgjorde en typ av sekundär arbetskraft, som framförallt arbetade vid efterfrågetoppar som följde svängningar efter mode eller säsong.

I den här uppsatsen vill jag först ta reda på om det finns säsongsvariationer i antal timmar som hemindustriarbeterskorna arbetade och hur de i så fall ser ut och om dessa var relaterade till variationer i inkomst hos en primär familjeförsörjare och/eller säsongsvariationer i efterfrågan på vissa produkter. Jag är också intresserad av om hemindustriarbeterskorna på landet hade annorlunda säsongsvariationer i sina arbetade timmar än arbeterskorna i staden. För att få svar på frågorna använder jag uppgifter från intervjuerna, där kvinnorna svarat på frågor om hur många timmar de arbetat i medeltal per dag varje månad under 1911. Jag använder principalkomponentanalys för att analysera materialet. Det är en slags faktoranalys där man får ut faktorer eller mönster som beskriver variation, i detta fall variation i antal timmar arbetade varje månad 1911. För att se vad som kan förklara de olika säsongsmönstren gjorde jag sambandsanalyser.

Resultaten visar att det finns vissa säsongsvariationer i antal timmar arbetade över året, men de är inte så stora. De allra flesta arbetade förvånansvärt jämnt antal timmar över året. Något som är överraskande är att det finns större säsongsvariation i timmar arbetade bland hemindustriarbeterskorna i staden än hos de på landet, trots att tidigare studier ofta antagit att det är tvärt om. På landet fanns ett tydligt säsongsvariationsmönster, de som arbetade säsongsbundet arbetade fler timmar under våren, vintern och hösten men färre under sommaren. I staden finns två olika mönster av säsongsvariationer i arbetade timmar. Ett mönster följdes av kvinnor som arbetade fler timmar på sommaren än övriga året, och ett mönster följdes av en grupp av kvinnor som arbetade fler timmar på våren, försommaren och kring jul men färre under höst och vinter.

Sambandsanalyserna visar att säsongsvariationer i hur många timmar hemindustriarbeterskorna arbetade inte var starkt kopplade till en manlig familjeförsörjares arbete. Oavsett om kvinnorna bodde med eller utan en manlig försörjare så hade de ungefär samma säsongsvariationsmönster, både på landet och i staden. För kvinnor som bodde i staden påverkades däremot antalet arbetade timmar i medeltal av att ha en manlig försörjare. De som hade en manlig försörjare i sitt hushåll arbetade i genomsnitt färre timmar hela året än de kvinnor som inte hade det.

Säsongsmönstren var däremot relaterade till vilka produkter hemindustriarbeterskorna tillverkade. På landet jobbade väverskor mer säsongsbundet jämfört med stickerskor och sömmerskor. I staden jobbade brodöser och skjortsömmerskor mer säsongsbundet jämfört med kappsömmerskor. Detta kan bero på att det fanns mer säsongsbunden efterfrågan på dessa varor, vilket vi kan anta från teori och tidigare studier. Dock så verkade det som att de som hade mest säsongsvariation var de som hade andra jobb under delar av året. Det fanns alltså ett ytterligare ett samband mellan att de som gjorde vissa produkter också oftare hade alternativ försörjning under delar av året, och att variationen potentiellt kunde relateras till alternativ efterfrågan på deras arbetskraft och inte av svängningar i efterfrågan på produkterna. Till exempel var arbeterskorna med störst säsongsvariation ofta lärarinnor som broderade mer på sommaren men mindre under terminerna och väverskorna verkade hjälpa till i skörden och arbetade därför mindre under dessa perioder.

I den fjärde och sista uppsatsen utgår jag från en teori om hemindustriarbeterskornas situation som kallas ”the househewifization theory”. Teorin går ut på att hemindustriarbeterskornas dåliga löner och arbetsförhållanden kan förklaras av att de i allmänhetens och lagstiftarnas ögon inte sågs som ”riktiga” arbetare, utan som hemmafruar som jobbar för extra pengar utan betydelse för hushållet. Teorin utgår alltså från två hypoteser: Ett, att hemindustriarbeterskorna sågs som hemmafruar av sin samtid och två, att de i själva verket inte var hemmafruar. Maria Mies som har formulerat den här teorin har forskat om hemindustriarbetare i Indien i slutet av 1900-talet. Hon hävdar dock att sambandet mellan dåliga löner och förhållanden och ideologiska konstruktioner av hemindustriarbeterskorna som hemmafruar återfinns i alla industrialiserade länder. I den här uppsatsen har jag tagit reda på om det var så i Sverige i början av 1900-talet. För att undersöka den första hypotesen, om de sågs som hemmafruar, samlade jag in texter skrivna i samband med den debatt om hemindustriarbetarnas situation som föregick Socialstyrelsens utredning. Texterna består av tidningsartiklar, lagförslag och debattböcker. För att undersöka den andra hypotesen, om de verkligen var hemmafruar (i uppsatsen är en hemmafru definierad som en gift kvinna utan betydande inkomster) använde jag intervjuerna med kvinnor från Göteborg (från Socialstyrelsens utredning) för att få reda på deras civilstånd och hushållets inkomster. Resultaten visar att även om det fanns en stor debatt om hemindustriarbetarnas situation, så beskrevs kvinnorna inte som hemmafruar, de beskrevs ofta explicit som arbetare och det var uttalat att deras inkomster var av stor betydelse för hushållet. Resultaten visar också att en majoritet av kvinnorna var ogifta och för de flesta var deras inkomst

hushållets enda, eller primära inkomst. Det fanns dock många gifta kvinnor som jobbade i hemindustrin, men även för dem utgjorde deras inkomster ofta en betydande del av hushållsinkomsterna. De här hemindustriarbeterskorna var alltså inte primärt hemmafruar, men de beskrevs heller inte som att de var det i den offentliga debatten vid samma tid. I det här fallet kan man därför inte anta att det var just beskrivningar av hemindustriarbeterskorna som hemmafruar som var orsaken till deras utsatta situation på arbetsmarknaden.

Genom att studera kontinuitet och förändring på arbetsmarknaden ur ett långsiktigt perspektiv kan vi få större förståelse för varför relationer och institutioner på arbetsmarknaden ser ut som de gör idag. I avhandlingen har jag studerat kvinnors val och möjligheter på arbetsmarknaden under det tidiga 1900-talet genom att fokusera på hemindustriarbeterskor. Under de här åren utvecklades den moderna svenska arbetsmarknad som hundra år senare skulle bli en av världens mest jämställda. Avhandlingen behandlar dynamik mellan betalt och obetalt arbete, strategier för flexibla arbetsliv och arbetstimmar, samt hur ideologiska föreställningar om kön och arbete påverkade kvinnors arbetsmarknadsdeltagande. De är frågor som, trots den utveckling som skett, fortfarande är aktuella idag.

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