

The Social Care-Taking of the City-Kids. Determinants for Day-Care Attendance in Early Twentieth Century Southern Sweden

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The social care-taking of the city-kids. Determinants for day-care attendance in early twentieth century southern Sweden

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Abstract

In this paper, we analyze one of the early welfare interventions in the Swedish welfare state targeted towards mothers and young children: the introduction of a child day-care system. Because quantitative research on day-cares in historical settings is generally scarce, in this study, we focus on the determinants of day-care enrollment in southern Sweden during the early twentieth century. We use unique longitudinal micro-level data for the city of Landskrona obtained from the Scanian Economic Demographic Database, which has been linked to individual-level records of day-care attendance for children born between 1900 and 1935. Event-history techniques are employed to analyze the importance of factors such as household composition, parental socio-economic background, marital status of the mother, and mother's occupation. Of the studied children, 8 percent were ever enrolled in daycares, most of them around the ages 3 to 6. The results show that the mother's marital status, household SES, the presence of other adult females in the household and mother's occupation are all significant determinants of day-care attendance for children. In this study, we show that day-care attendance followed a negative SES gradient and was most common among children of single mothers, in the early twentieth century in southern Sweden.

1 Introduction

Sweden today is known for its all-encompassing childcare system that allows parents to work while having their children taken care of. Historically, this puzzle was much harder to solve, not least in industrializing cities. Working parents during the early twentieth century were often an economic necessity to ensure the family's survival, and even single mothers could not count on public support either in terms of allowances or otherwise in terms of the provision of child-care services. The puzzle remained impossible to solve for many families, which not seldomly led to voluntary or forceful removal of children from the families of the poor (Holmlund, 2013).

The emergence of institutional childcare was in that light an important welfare provision. The first day-care centres in Sweden were founded in the nineteenth century as charity institutions for the children of the poor (Lindgren & Söderlind, 2019). While the coverage remained small until the late twentieth century, these day-care centres served an important role for parents and children in the industrial centres. The history of the establishment of day-cares is well documented (among others, Ekstrand, 2000; Hatje 1999; Holmlund, 1996; Lindberg & Söderlind 2019; Westberg, 2008) but quantitative accounts of day-care attendance are scarce, in Sweden as elsewhere. Our study is the first quantitative study to address the determinants of institutional childcare attendance in a historical setting. This paper makes use of unique population-level data for children born 1900-1935 who lived in the city of Landskrona, located in southern Sweden, a city that can be regarded to represent the general development of many medium-sized cities in Sweden.

By linking longitudinal demographic data to records of day-care enrolment for the city of Landskrona, we study the determinants of day-care attendance. The focus of our study is on institutional childcare, that is, childcare in established day-care centres. We focus on family background, household characteristics, and sociodemographic factors. Besides providing knowledge about life in an industrial urban setting, this work can contribute to gaining a better understanding of what led to the present-day patterns of day-care participation.

Our study shows that some determinants of day-care attendance resemble patterns found today, while others contradict them. Single mothers are a group with high demands for day-care utilization both historically and today. Similarly, the presence of relatives or availability of other type of care reduces day-care attendance both historically and today. With regards to socio-economic factors, however, our historical example is in stark contrast to contemporary day-care utilization. While today, high SES families are overrepresented among children enrolled in institutional day-care, historically, they were underrepresented. Instead, the most impoverished families were the most likely to send their children to day-care. This work is an important contribution to understanding the patterns of day-care utilization in the past and highlights the need of

further research for understanding the full picture of day-care utilization and its effects, historically as well as today.

The remaining sections of the paper are structured as follows: Section 2 gives a review of the literature on determinants for childcare utilization. Section 3 gives a historical account of the development of day-cares in Sweden, and section 4 introduces the city of Landskrona. Section 5 contains a description of the data and methods and section 6 a description of the results. The paper ends with a discussion of the results and a conclusion in section 7.

2 Previous Research on the determinants of childcare utilization

Studies on the determinants of childcare utilization that go beyond the historical accounts of the development of day-care institutions are scarce. To our knowledge, no prior quantitative studies exist that focus on the determinants of childcare utilization in a historical setting. Much of the previous research on the utilization of institutional childcare covers highly developed contexts such as the U.S. and Western Europe, and many studies have been published in recent years. The empirical studies reviewed by us assess data that falls into the period 1980s to 2010s. For that given reason, in our brief account of previous research, we refer to contemporary studies on the topic and identify factors that may be related to childcare utilization even in a historical context.

Family Income: Several studies show a positive association between family income and childcare utilization in the U.S. (Davis & Connelly, 2005; Early & Burchinal, 2001; Hirshberg, Huang, & Fuller, 2005; Hofferth & Wissoker, 1992). Childcare utilization is closely linked to mothers' employment, which is one of the reasons for explaining the association between family income and childcare utilization. Other reasons can be childcare costs (low-income families rely more often on care from relatives; Davis & Connelly, 2005) and educational preferences of families with higher socio-economic status. A similar social stratification in childcare utilization exists in almost all European countries except for several countries in which childcare rates are non-universal (Czech Republic, Slovak Republic, Austria, Lithuania, Malta, and Estonia). Most equal participation is given in Sweden and Denmark but even here, the association with family income is not negligible (van Lancker, 2013). The social stratification in childcare utilization appears to be a rather universal characteristic, since it has been found in different European countries with different degrees of public funding of childcare (Abrassart & Bonloli, 2015 for Switzerland; Mamolo, Coppola, & Di Cesare, 2011 for the UK; Zachrisson, Janson, & Nærde, 2013 for Norway).

Parents' education: Beyond income, education is another stratifying factor for childcare utilization leading to lower attendance rates of children of lowly educated parents (Claessens & Garrett, 2014; Fuller,

Holloway, & Liang, 1996; Hirshberg et al., 2005; Varmuza, Perlman & White, 2019). An educational gradient exists even among low-income families (Crosnoe, Purtell, Davis-Kean, Ansari, & Benner, 2016).

Availability of centre-based childcare: Somewhat surprisingly, no positive association between availability of centre-based childcare and its utilization has been found by several studies (Abrassart & Bonloli, 2015; Davis & Connelly, 2005; Hirshberg et al., 2005), which may be explained by the availability of relative care, and the decision of childcare utilization and maternal employment being made jointly.

Maternal employment: To study the association between maternal employment and childcare utilization is challenging using cross-sectional data if the decisions of working and childcare utilization are made jointly (endogeneity problem). Several studies have generally found a positive association between maternal employment and childcare utilization (Abrassart & Bonloli, 2015; Crosnoe et al., 2016), yet evidence from Europe shows that maternal employment (and education) matter more in settings in which mothers are seen as the primary caregivers, such is the case in France, Italy, and Spain (Mamolo et al., 2011). The association between childcare utilization and maternal employment is stronger at younger ages, while maternal employment is less predicative for pre-school children (Coley, Votruba-Drzal, Collins & Miller, 2014; Singer, Fuller, Keiley, & Wolf, 1998). Non-standard work schedules for mothers reduce the odds of using centre-based care (Han, 2004), while longer working hours increase the odds (Hirshberg et al., 2005). The endogeneity of the decision to work has been addressed empirically by only few studies. Davis and Connelly (2005), for example, find that the association between (predicted) maternal employment and home childcare (both including licensed and non-licensed providers) is even stronger than the one with centre-based care, which is also used by non-employed mothers, and is likely more related to the perceived benefits for their children. Eckhoff Andresen and Havnes (2019) exploit the local variation in child-care provision for two-year olds which was the result of a political reform. They conclude that the provision of large-scale universal childcare has substantial effects on mothers' labour supply.

Single parenthood: For single mothers, the necessity to work is higher and employment and childcare decisions may be less flexible than for married mothers. Most studies find a higher probability for childcare utilization of single mothers (Coley et al., 2014; Hirshberg et al., 2005; Zachrisson et al., 2013) but one study on Australia finds a lower probability for being in formal childcare for one-parent families (Claessens & Garrett, 2014).

Relatives: The availability of relatives has a significant impact on childcare utilization (Fuller et al., 1996). Especially the availability of grandparents reduces the utilization of centre-based care in all different economic and ethnic subgroups that were under study.

Context in which the childcare institution is placed: The contexts in question matter largely for the childcare attendance as the cost of childcare and the public organization of childcare differ greatly. Mamolo et al. (2011), for example, show for the context of France, Italy, Spain and the U.K. that determinants for part- and full-time option differ. The utilization of full-time childcare is more frequently related to necessity (usually female labour force participation), while the utilization of part-time childcare is also related to pedagogical preferences. The lack of research on less developed contexts may be primarily related to data availability and potentially as well to the fact that the awareness of the positive returns to day-care attendance (e.g., Bakken, Brown, & Downing, 2017; Campbell, Ramey, Pungello, Sparling, & Miller-Johnson, 2002; Havnes & Mogstad, 2011; O'Brien Caughy, Di Pietro, & Strobino, 1994) have received more focus in more highly developed countries and only in recent years.

Other aspects of the family structure that matters for childcare utilization is the *child's age* (Davis & Connelly, 2005; Fuller et al., 1996; Han, 2004; Mamolo et al., 2011) and the *number of other children* in the household. Findings are, however, inconclusive regarding the question whether more children in the household increase or decrease the utilization of non-parental and centre-based care (Coley et al., 2014; Crosnoe et al., 2016; Mamolo et al., 2011; Varmuza et al., 2011).

3 Development of Day-care Institutions in Sweden

The all-encompassing Swedish day-care system as it is known today bears little resemblance to its predecessors that developed nearly two centuries ago. The development of public day-care institutions was a long and gradual process and the outcome of two main developments. First, industrialization that resulted in the separation of production and reproduction, and second, a gradual shift of public childcare provision away from poor relief institutions. This section mainly focuses on the description of the early development of day-care institutions in Sweden until the end of the period under study (1940s). For a complete description of the development, see for example Lindgren & Söderlind, 2019.

Sweden was relatively late to industrialize, with industrialization starting around the 1850s (Schön, 2010). Urbanization and the organization of work in the industrial society led to a division of production and the home, causing new challenges for the birth and upbringing of children. The division of labour between fathers and mothers, with mothers focusing on the upbringing of children, makes children a costly enterprise, which many working-class families could not afford. Wages were generally so low that more than one income was required, and in many cases a male bread-winner was not present (Antman, 1996). Female labour force participation increased by almost 50 percent during the first two decades of the twentieth century, particularly among urban women (Stanfors, 2014). There was a high demand for female labour since women's wages were only about half of those of men (Antman, 1996). While middle-class women became homemakers, single mothers and mothers among the poor had to make a living outside the home,

leaving children without appropriate supervision, left with older siblings or simply roaming the streets (Dahlström, 1997).

The Swedish poor relief system was regulated by the state and well-established in the nineteenth century at the beginning industrialization but was ill-equipped for the developing urban poverty. In the growing towns and cities, urbanization and early industrialization led to difficulties of making up for a living for larger numbers. Therefore, the demand on poor relief increased. Consequently, stricter poor relief regulations were established that excluded a larger share of the population from access to poor relief. The necessity of taking care of small children was not viewed as a reason for not being able to work and support the own family. The solution offered by poor relief institutions in the period before any public or private day-care initiatives were established was not seldomly to remove children from their families and place them in institutional care. In many cases, these were children born outside marriage (Antman, 1996) or children of mothers who were regarded as not being able to provide them the necessary care supervision (Myrdal, 1935). Children were placed in alms houses, orphanages, or in foster care. Removing children from poor families was viewed as a better solution for the children since poverty was often interpreted in terms of lack of moral standards (Holmlund, 2013; Tallberg Broman, 1995), but the system was even a cheap solution for municipalities (Nyberg, 1995). Even the introduction of compulsory schooling during the second half of the nineteenth century worsened the childcare problem since older siblings were no longer available to take care of the younger ones (Holmlund, 2013). In such setting, the demand for childcare that allowed parents to work and keep their children was high.

The practice of removing children from their parents was gradually replaced by private and public initiatives to improve the situation for poor families so that children could remain within the family (Antman, 1996). The introduction of the first forms of day cares in the first half of the nineteenth century in Sweden can be understood to be within this line of thought: day-care institutions aimed at giving children of the poor access to a better upbringing and giving parents the possibility to work. The first infant schools (*småbarnsskolor*) opened in Sweden in the 1830s and the first cribs (*barnkrubbor*) opened in the 1850s. Both types of institutions opened particularly for children of economically disadvantaged parents and single mothers and were driven by voluntary organizations (Nyberg, 1995). The different kinds of day-care institutions followed different European ideals, with focus on education (infant schools) and pure caretaking with a focus on physical needs to allow parents to work (cribs). At the end of the nineteenth century, more pedagogically oriented day-care arrangements after the German ideal, kindergartens or *barntädgårdar*, were initiated. Like other forms of day-care, these were placed in industrialized areas to allow mothers to

work and support their families¹. Over time, Swedish day-care institutions became more detached from being poor relief institutions (Hatje, 2013) and became universalistic institutions that offered care to children of all families, not only to the poor or the working class (Rauhala, 2009). One development that led to a more universal demand for childcare institutions particularly was the increased labour force participation of mothers throughout the 20th century. Employment among married women started to increase already around the 1920s (Stanfors & Goldscheider, 2017). Even though working mothers remained a minority until the second half of the 1960s, there were continued developments in the provision of day-care services throughout the twentieth century.

Single mothers

Single mothers are one group among who the demand for the establishment of day-care institutions was particularly high. In the late nineteenth century, single mothers were not uncommon and the public poor relief institutions did not assist them in claiming any responsibility from the fathers' side. Independent of their marital status and family situation, the poor relief system claimed mothers to make their own and their children's living. At the end of the nineteenth century, only 36 percent of children born out of wedlock were living with their biological mothers (Nyberg, 1995). For mothers who did not want to give up their children to foster care and who could not engage relatives, neighbours, or older siblings in childcare, the newly founded day-care institutions were the only possibility to have childcare secured and to maintain custody for their children (Holmlund, 2013). Parallel to the improving economic conditions for single mothers and the slowly growing availability of day-care institutions, the share of children to single mothers among foster children decreased during the twentieth century (Nyberg, 1995). The demand for places in day-care institutions among single mothers was very high and many places were given to children in this group. The share of children to single-mothers attending day-care institutions was high until the 1980s, when day-cares became more universal pre-school institutions. In 1944, 39 percent of children in day-cares were children to single mothers. In 1966, the number was 46 percent (Antman, 1996). However, the supply of day-care places was still small. Only about 10 percent of children to working single mothers in the early 1940s had a day-care placement, while 13 percent followed their mother to work, 42 percent were taken care of by relatives, and 36 percent were separated from their mothers (Nyberg, 1995).

The different type of day-care institutions in the period under study

The three types of daycare institutions that can be found in Sweden under the period of study (infant schools, cribs, and kindergarten institutions) had many similarities but differed vastly in other aspects. All three

¹ Sometimes kindergartens are presented as institutions exclusively for the middle- and upper-classes (Holmlund, 1999; Myrdal, 1935), which according to Hatje (2013) is not a correct description as already in the 1930s, many kindergartens specifically for working class children (so called *folkbarntädgårdar*) were in place.

institutions were mainly directed at the working-class population (for kindergartens, this holds only for the so-called *volkskindergarten*, *folkbarntädgårdar*). They were often established as charity projects and had as purpose, beyond offering supervision under parents' working hours, to educate working-class children in terms of values and cleanliness. Beyond that, differences in pedagogy and staff training were large.

Infant schools were established in Sweden from the 1830s onward, in a period before compulsory schooling was introduced, and had a clear vision for teaching working-class children in the ages 3-7. Primary school teachers were often employed who alternated teaching with other kinds of activities. Teaching involved bible studies but also natural sciences and reading. Especially during the nineteenth century and early twentieth century, a very large number of children were supervised and taught by only one teacher (80-100 children were common). For that purpose, classrooms were organized like amphitheatres. The large number of children and long opening hours (7 am to 7 pm during summers and 8 am to 6 pm during winters) express according to Ekstrand (2000) the high demand for supervision among the poor rather than the infant schools' pedagogical orientation. With the turn of the century (and the establishment of all-encompassing primary schools) the focus on teaching was replaced by a kindergarten-like pedagogy, group sizes were reduced, and trained kindergarten staff became employed.

The first cribs were established in Sweden during the second half of the nineteenth century. The establishing of cribs was closely related to poor-relief and the working-classes need for supervision of their children. Here, there was only little focus on teaching and pedagogy and most focus was on regular meals and cleanliness. There were no requirements for the staff's education and beyond untrained staff, nurses and sometimes kindergarten teachers were employed. Even here opening hours were very long. Group sizes were considerably smaller than in infant schools (about 25 children; Holmlund, 1996; Lindgren & Söderlind, 2019). As figure 1 shows, in 1911 as in 1932, cribs were the most common day-care institution for children in pre-school ages. While their number as well as the number of kindergartens increased in the period, the number of infant-schools decreased slightly.

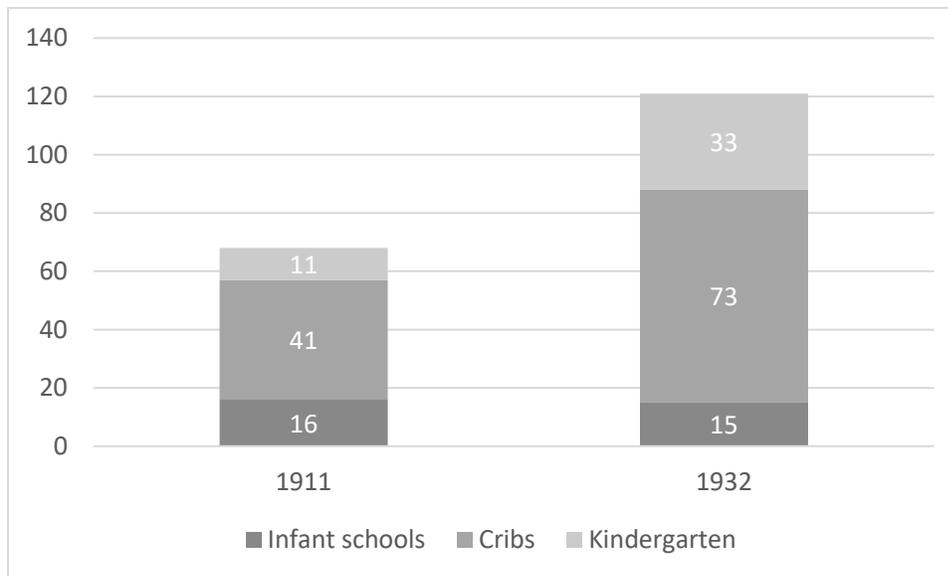


Fig. 1 Number of day-care institutions in Sweden, 1911 and 1932.

Source: Westberg, 2008.

Kindergarten institutions established in Sweden around the turn of the century. They were not founded with the same focus on poverty and charity as the two other institutions but the emerging *volkskindergarten* (*folkbarntädgårdar*) were in the same tradition and were founded in industrial societies (while the regular kindergartens were aimed at middle-class children). The kindergarten movement had a clear focus on child pedagogy and development but saw institutions only as a complement to the family. For that reason, kindergartens were often half-day institutions, to not take over the main care responsibilities from families. There were distinct trainings in kindergarten pedagogy (Fröbel pedagogy) for the staff (Hatje, 2013; Holmlund, 1996). The number of children in kindergarten groups was often around 20-25 (Lindgren & Söderlind, 2019).

Towards the 1930s, a gradual integration of infant schools, cribs, and kindergartens took place (Ekstrand, 2000; Holmlund, 1996) and several infant schools closed (Westberg, 2008). Often, the integration took place within the institution but not within groups, and more and more institutions had kindergarten and crib groups (Holmlund, 1996). After the 1930s, two distinct streams were in place, all-day institutions (*daghem*) and half-day institutions (*barntädgårdar/förskolor*; Tallberg Broman, 1995), which replaced the large variations in day-care pedagogy, age of children, and opening hours.

All types of day-care institutions were not free of charge except for the neediest children (Hatje, 1999), but fees were generally low and rather served as symbolic costs for parents. While donations are likely to be the most important source of income prior to the 1920s, municipal funding had the largest impact thereafter,

and was eventually followed by communalisation of daycares (Westberg, 2008). Poor-relief institutions supported privately found day-care institutions with food donations (Holmlund, 2013). State funding had been debated throughout the 1930s (SOU, 1938) but the first state funds became available only in 1944 (Hatje, 2013). The number of places increased in this time, and public (state) funding increased substantially in the 1960s (Tallberg Broman, 1995), the period in which female labour force participation took off and the underprovision of day-care places came into focus as a labour market issue (Persson, 1962).

4 The city of Landskrona

Landskrona was founded in 1413 and during its history it changed from being a port and military town in the preindustrial period to become a medium-sized industrial city, though later it experienced serious deindustrialization after the recession in the 1970s (Dribe & Svensson, 2019). Throughout the 20th century, it saw considerable immigration and bears evidence of many present societal challenges from both economic stagnation/transformation and immigrant integration. Concerning population growth, industrialization and deindustrialization, Landskrona can be regarded to represent the general development of many medium-sized cities in Sweden. At the micro-level, there should not be any differences between the determinants of demographic behaviour and individual wellbeing in Landskrona with respect to similar areas within or outside the country. The results of this study are therefore not only representative of Landskrona, but can also be generalized to other areas.

The first infant school opened in 1862 (Landskrona fruntimmersförening, 1942), which is similar to the development in other cities (for reference: The first infant school in Stockholm opened in 1833, the first in Malmö in 1842). As in other places, it was founded with the purpose of reducing poverty and improving living conditions for poor children (Ekstrand, 2000; Landskrona fruntimmersförening, 1942). During the nineteenth century and well into the twentieth century it hosted around 100 children. This is rather unique compared to infant schools in other cities, which originally had similar group sizes but reduced them after the turn of the century. The high number of children enrolled in one day-care was certainly related to a high demand in Landskrona. The infant school changed its pedagogical orientation in the 1930s (towards kindergarten pedagogy) and opened a half-day kindergarten section in 1937, despite otherwise remaining an all-day institution (Landskrona fruntimmersförening, 1942). Day-care in Landskrona was affordable for all social groups, as the example of the infant school shows. Fees were introduced only in 1936 and accounted for approximately only 10 percent of the entire funds thereafter (own calculations, based on information in Ekstrand, 2000). Funding was otherwise secured by the municipality, the Savings Bank (*Sparbanken*), and donations (Ekstrand, 2000). In 1918, a child crib opened in Landskrona as part of a school for homemakers (*Husmoderskola*), which was later expanded by a kindergarten group (Jönsson, 1995).

Archival sources document the high labour force participation even of married women in Landskrona, which were referred to in official investigations on the need for day-care expansion in Landskrona. In 1911, 28% of workers in Landskrona were women (Dribe & Svensson, 2019). Moreover, about 20 percent of children were born outside wedlock in the 1920s which also contributed to high demand for day-care (own calculations from the data; see description of data below).

5 Data and methods

In this paper, we use longitudinal data for the city of Landskrona for the period 1905-1937. The data was obtained from the Scanian Economic Demographic Database (SEDD), which is based on family reconstitutions and local population registers and includes information on demographic events and migration for all household members and families in households (Bengtsson, Dribe, Quaranta & Svensson, 2018; Dribe & Quaranta, 2020). The material is of high quality and considered to be complete with regard to vital events (Bengtsson and Lindström, 2000). The SEDD also contains detailed information on occupations, obtained from birth, marriage, catechetical examination, poll-tax and income registers². Occupations were coded into HISCO (van Leeuwen, Maas & Miles, 2002) and later categorized into HISCLASS (van Leeuwen & Maas, 2011). HISCLASS is a 12-category occupational classification scheme based on skill level, degree of supervision, whether manual or non-manual, and whether urban or rural. Historical studies often use a six-class reclassification of the scheme which reflects a status hierarchy: higher white-collar workers (HISCLASS 1-2), lower white-collar workers (HISCLASS 3-5), medium-skilled workers (HISCLASS 6-7), lower-skilled workers (HISCLASS 11-12), farmers (HISCLASS 8). In this study we also follow this reclassification, although we exclude farmers due to small numbers, and also due to small numbers we combine higher and lower white-collar workers into one single group.

In order to define our sample of *treated* children, we collected complete lists of children who were enrolled in all day-cares of Landskrona between 1905 and 1936 and linked them to SEDD. The linking was based on exact linking on date of birth and a probabilistic linking on name(s). Automated linking yielded a linking rate of 72.5% of the day-care records with exact date of birth and 12.6% of records with minor differences in the date of birth. Manual linking was used to link 5.7% of the day-care records, while it was not possible to link the remaining 9.2% of records. With complete records on all day-cares and children, non-linked children in the SEDD data (Landskrona sample) can be identified as non-attending (*untreated*). The children for whom it was not possible to link records but who attended day-care are also included among the non-attending group, which is a limitation to this study.

² During the study period income registers were digitized every five years.

We use Cox proportional hazards models to study the individual determinants for day-care enrolment in Landskrona. These types of models have the advantage of measuring jointly the likelihood of a certain event happening (in this case day-care attendance) as well as the time until the event happens (in this case age at first attendance), aspects which are both important to consider when analysing day-care utilization. The study sample considers children born between 1900 and 1935³. Children enter the study sample when they are born, immigrate to Landskrona or at the start SEDD (January 1st 1905), and they are followed until they either enrol in day-care or otherwise, the day before their seventh birthday, or death/outmigration, if they occur before such date. Age is considered as the time variable in the Cox models, and the event of interest of the study is the time of the first enrolment to day-care. We test for the proportional hazards assumption using tests based on Schoenfeld residuals.

Based on previous research and historical the accounts of day-care utilization in Sweden, we consider different explanatory variables in the models: marital status of the mother (married, not married⁴), number of females aged 15-64 present in the household (1, 2 or more) as a proxy for the availability of relative/other care, and household socioeconomic status (SES). Household SES takes into account the occupation of the household head, considered to be the father of the child if he was present in the household, and otherwise the mother. It was categorized into four categories: white-collar workers; medium-skilled workers; lower-skilled workers; unskilled workers or NA⁵. We also consider alternative models taking into account the mother's occupation, categorizing this variable into three categories: unknown or no occupation, occupation other than maid, and maid⁶. In this study we consider occupations of the household head and of the mother as valid for five years after they were declared in the digitized registers, after which they were considered as unknown. All specifications control for the child's sex and year of birth (continuous). Children whose mother was not present in the household, with unknown marital status of the mother or with unknown number of siblings were excluded. The final sample contains information on 14,754 children, of whom 1,150 (7.8%) ever attend day-care. The majority of children attending day-care were between age 3 and 6.

³ We also estimated all models for a more restrictive sample of children born between 1904 and 1930, who were observed for all years in which they could have potentially attended day-care, but the results remained consistent (results available from the authors upon request).

⁴ Not married includes single women, widows and divorced women.

⁵ The NA group consists of individuals without a registered occupation. We included them together with the lowest class (unskilled workers). However, we also estimated all models considering the unskilled and those with unknown occupations as separate categories, but the results remained consistent, and very similar patterns in relation to day-care attendance was displayed between the NA and the unskilled workers.

⁶ For women information on occupation could be available on marriage records, catechetical examination registers and income registers, the latter digitized every five years. However, income registers are not available in Sweden for married women until 1947, since their income was included in the husband's income declaration. The occupational category use is therefore likely to be less accurate for married women. The unknown category comprises both women with no occupations (for example those where the occupational notation in the registers stated no occupation or was left blank) as well as those with no available information on occupation recorded within the preceding five years.

In fact, out of a total of 12,577 children observed under age 3, 244 of them ever attended day-care in such age range (1.9%), while out of a total of 11,894 children observed when they were 3 or older, 1,141 of them attended day-care in such age range (9.6%).

The analysis is conducted through a series of models, each controlling for a different combination of the variables described above. In total, we estimate six different specifications.

Descriptive statistics are shown in Table 1. Values were calculated as a percentage of total time at risk. As can be seen from the table, the sample is almost evenly distributed between boys and girls. Children whose mothers were married represent 88% of the sample. Household socioeconomic status was more or less evenly distributed across the four categories considered, with the white-collar workers being the least represented group. Around 81% of children lived in household with only one adult female (the mother) present in the household and the remainder lived in households with 2 or more females. When considering maternal occupation, 82% of children had mothers who did not work or whose occupation was unknown, 5% had mothers who worked as maids, and 13% had mothers who worked in other occupations.

6 Results

The results presented in Table 2 provide evidence that the mother's marital status, household SES, the presence of other adult females in the household and mother's occupation are all significant determinants of day-care attendance for children in ages 0 to 6. Models 1 and 2 consider the two variables that according to the review of the literature should have the highest impact on the likelihood of children attending day-care: mother's marital status and the household's socio-economic status. Model 1 shows that, relative to children with married mothers, those whose mothers are unmarried have a 168% higher hazard of attending day-care. Model 2 displays a clear and strong socioeconomic gradient: children belonging to households of white-collar workers have the lowest hazard of attending day-care, followed by medium-skilled workers (HR 2.70), lower-skilled workers (HR 4.24) and lastly the unskilled/NA (HR 6.34)⁷, who have the highest hazard of attending day-care. In Model 3, we consider both variables in one model. It is not unproblematic to do so as these two variables correlate, and one may be the outcome of the other. However, when considering marital status and SES in the same model, the results remain very consistent and the effect of each of these variables is only very marginally reduced in relation to Model 1 or Model 2. The model clearly shows that each of the variables is independently important as a determinant for day-care attendance. In Model 4, we additionally include a dummy variable for the number of females in the household. Having an additional female in the household captures potential alternatives to institutional childcare in the form of

⁷ Models were also estimating considering the unskilled and those with unknown occupations into separate categories and the results remained very consistent. These two groups in fact had very similar hazards of attending day-care.

relative-care or hired childcare (maid or nanny). Children living in households with two or more females aged 15-65 have a 46% lower likelihood of attending day-care, relative to those with only one female present. We estimate the interaction between this variable and marital status in Model 5. The interaction term is statistically significant and shows that it is only among the married that the hazard of attending day-care is reduced by the presence of other adult females in the household. We do not observe statistically significant reductions in the hazard of attending day-care in relation to presence of other adult females among the unmarried. This finding may indicate other female in the household of married women indeed taking a supportive role in childcare tasks (they could be maids, for example) while this is not the case for unmarried women. A reason for the other women in the household of unmarried females not taking a supportive role for childcare could be that it is the unmarried mothers in those households who are in dependent positions, as lodgers or maids themselves. To further explore how the mothers' occupation and labour force participation is related to day-care attendance, Model 6 considers the occupation of the mother instead of household SES. The coefficients show that children whose mothers had no or unknown occupation had the lowest hazard of attending day-care, followed by those with an occupation other than maid (HR 1.72) and lastly maid (HR 2.54). Having a mother who is working in a dependent role in someone else's households increases the likelihood of day-care attendance substantially.

All models are stratified by number of siblings and the child's birthyear, instead of considering these variables as controls in the models, since both variables violate the proportional hazards assumption. The child's sex is included in all models. Across all models, boys show slightly higher hazards of attending day-care than girls, although such differences are not statistically significant. We also estimated three alternative specifications of Model 3, with additional variables relating to household structure, however none of such variables could be kept in the models since they violated the proportional hazards assumption. Nevertheless, the general pattern indicated in such models can be summarized. The hazard of attending day-care was positively related to household size. It was also positively related to the number of younger siblings and of older siblings, with a stronger effect in relation to the former. Lastly, having other siblings currently attending day-care increased substantially the hazard of day-care attendance.

7 Discussion and Conclusion

Our study is the first quantitative study that addresses the determinants of institutional childcare attendance in a historical setting. While some historical accounts of the history of early day-care establishment and utilization exist, until now, these have not been studied with individual-level longitudinal data on the full population of a specific location. Our study makes use of unique data for children born 1900-1935 who lived in the city of Landskrona. The city of Landskrona is comparable to other medium-sized cities in Sweden in terms of population growth, industrialization and deindustrialization, Landskrona can be

regarded to represent the general development of many medium-sized cities in Sweden. The results of this study are therefore not only representative of Landskrona, but can also be generalized to other areas. The establishment of day-care institutions in Landskrona was in line with other cities of that size but hosted one of the larger day-cares of the country. The timing of day-care establishment and the relatively high number of children enrolled gives us the unique opportunity to study determinants for day-care attendance at an early stage of institutional day-care development.

Compared to the contemporary studies on day-care attendance reviewed, our findings both support and contradict findings from other settings. Like studies on contemporary data, we find *mothers' marital status* and *mothers' employment* to be important determinants for day-care attendance. The variable *unmarried mother* at least doubled the likelihood of day-care attendance for children in all specifications, even when the households' socioeconomic status was included. Mothers' employment, which is captured by information on mothers' occupation, is also positively associated with day-care attendance. Children of mothers who do not have any records on their occupation (and were most likely homemakers) have the lowest likelihood of day-care attendance compared to children of mothers who have an occupation recorded. Children of mothers who are maids have the highest hazard of day-care attendance. This finding shows that it is not the type of the mother's occupation as such (working, for example, at home vs outside the home) that is the main determinant for children to attend day-care but the mother's position in the household (dependent vs independent). While the occupation of being a maid in a household could allow for supervising even one's own children, in contrast to, say, factory work, the dependent position of the mother seemed to not have allowed for doing so. It is, however, impossible for us to say if mothers' employment and occupation are determinants for day-care utilization or if day-care utilization increases the odds of employment. As the review of the literature has shown, the decision for mothers to work and the decision to utilize institutional child-care are often made jointly and hard to disentangle, particularly in studies based on cross-sectional data. By using longitudinal data, where occupational declarations considered precede the eventual event of first-attending day-care, we are partly able to overcome such problem. However, our study is limited by the fact that the data does not allow us to know for how long individuals maintained previously declared occupations, even if by retaining occupational values valid for only five years after declaration in the sources we reduce the size of potential biases.

Previous studies on contemporary settings have shown that the availability of other types of childcare, such as *relative care*, reduces the likelihood of children attending institutional childcare. By using the variable *other females in the household*, we attempt to capture the availability of child supervision other than institutional childcare. As expected, children who live in households with two or more females have lower hazards of attending day-cares. Though, when we interact the variable with the mother's marital status, the

lower hazards are only observed for children of married mothers. Like the findings for mothers' occupation, the finding for two or more females in the household might indicate that the mothers' position in the household is important. While an additional female in the household of a married mother is likely to be an additional support, unmarried mothers may *be* the additional female. They could be, for example, lodgers or maids, thus being in dependent positions to the household head and the first female in the household, giving them less opportunity for receiving help with supervising their own children.

The findings discussed are all independent of socio-economic status, which is controlled for in all models (except models 1 and 6, which control for the mother's characteristics). In our models, socio-economic status is strongly associated with the likelihood of day-care attendance. There is a clear socio-economic gradient, ranging from the lowest likelihood of day-care attendance for children in white-collar households to the highest likelihood of day-care attendance for children in low-SES households. This finding clearly contradicts findings from contemporary studies. In contemporary contexts, income and education are positively related to day-care attendance. Our finding is in line with the historical accounts of institutional day-care development in Sweden: they developed as poor-relief institutions for the neediest families, among them impoverished families and single-mothers. In contrast to the qualitative accounts of day-care attendance in early-twentieth century Sweden, our findings nonetheless show that day-care attendance is not limited to the lowest socio-economic strata. Day-care attendance of children of higher socio-economic groups were more than a random encounter, as sometimes suggested in the literature. We find a clear socio-economic gradient across all socio-economic groups. The likelihood of day-care attendance is substantially higher for the lowest strata of society, but it is not limited to it.

Contemporary research has shown that in Sweden as well as in other developed countries, parents of higher SES are more inclined to send their children to institutional day-care centres. Such tendency implies an inefficiency of childcare services, since, as has been previously shown, the academic and economic returns to attending childcare are particularly large for children with disadvantaged backgrounds (e.g., Bakken, Brown, & Downing, 2017; Campbell, Ramey, Pungello, Sparling, & Miller-Johnson, 2002; Havnes & Mogstad, 2011; O'Brien Caughy, Di Pietro, & Strobino, 1994). The finding that the SES gradient in day-care utilization has not always been positive but instead was negative is interesting in that regard. Partly, it opens the question if day-cares under the historical conditions and with the socio-economic composition described were equally beneficial for the attending children. Also, the findings give rise to the question of when the cross-over in childcare utilization by socio-economic groups has emerged in Sweden and other countries. These two questions have not yet been answered and are important areas for future research. Our study on historical determinants of day-care attendance is important for understanding the full picture of day-care utilization and its effects, historically as well as today.

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Table 1: Descriptive statistics, Landskrona children born between 1900 and 1935, aged 0-6

	Percentage of exposure time / average
Sex of child	
Female	49.74
Male	50.26
Mother's marital status	
Married	88.35
Not married	11.65
Household SES	
White-collar workers	20.01
Medium-skilled workers	27.35
Lower-skilled workers	25.83
Unskilled-workers or NA	26.80
Number of females aged 15-64 present in the household	
1	80.86
2+	19.14
Mother's occupation	
Unknown or no occupation	81.80
Occupation other than maid	12.84
Maid	5.36
Birth year (average)	1916.28

Note: Distributions are calculated from the study sample as percentage of total exposure time

Table 2: Cox proportional hazard models measuring the hazards of first attending day-care in Landskrona for children born between 1900 and 1935, children aged 0-6

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Sex of child (ref. Female)						
Male	1.07	1.09	1.08	1.09	1.09	1.07
Mother's marital status (ref. Married)						
Not married	2.68***		2.24***	2.40***	2.19***	2.06***
Household SES (ref. White-collar workers)						
Medium skilled		2.70***	2.64***	2.39***	2.37***	
Lower skilled		4.24***	4.01***	3.64***	3.62***	
Unskilled or NA		6.34***	5.83***	5.37***	5.32***	
Number of females aged 15-64 present in the household (ref. 1)						
2+				0.54***	0.49***	
Marital status # number of females present in the household						
Unmarried # 2+ females					1.53**	
Occupation of the mother (ref. Unknown or no occupation)						
Occupation other than maid						1.72***
Maid						2.54***
Total number of children			14754			
Number of children attending day-care			1104			
Time at risk			62076			

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The models exclude children whose mother is not present, with unknown marital status of the mother or with unknown number of siblings. The models are stratified by year of birth (continuous) and number of siblings (ref. 0, 1-2, 3-4, 5+).

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