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**Autor\*innen/Author(s):** Wiebke Schulz

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Zusätzliche Informationen/Additional information:

The author can be contacted at: [wschulz@uni-bremen.de](mailto:wschulz@uni-bremen.de)

# **Occupational Career Attainment of Single Women During Modernization: The Logic of Industrialism Thesis Revisited**

Wiebke Schulz

Bielefeld University/DIW-Berlin, Mohrenstraße 59, Berlin, Germany

## **Abstract**

Modernization processes are said to have caused major changes in individual social mobility outcomes. Whether the predictions of the logic of industrialism thesis hold for the careers of women is unclear however. This study provides the first systematic account of how regional modernization processes during the nineteenth and twentieth centuries influenced the careers of the female working population. Unlike research focusing on specific occupational groups and localities, this study models and makes predictions relating to the careers of a random sample of the single female labour force nationwide. We use an excellent source for studying women's careers in different regions and over time. The Historical Sample of The Netherlands provides information about the occupational careers of 1148 single women active on the labour market between 1865 and 1928. To include regional modernization processes, we have collected a set of theoretical indicators, such as communication, transport, and social values, which are measured at the level of municipalities and which may vary yearly. Over historical time, as well as over the course of their careers, the status of women increased. Apart from the emergence of bureaucratic organizations and the expansion of the teaching sector, contextual modernization processes had hardly any influence on women's status. We conclude that the logic of industrialism thesis only partly captures the effect of societal changes on the career success of women. Further research might focus on the role of the emergence of bureaucratic organizations and restrictive practices for the career success of women during modernization.

**Keywords:** Career Mobility, Modernization, Status Attainment, Single Women, Growth-curve Analysis.

## Introduction

One of the core topics of social inequality research is how individuals maintain or enhance their position in society in periods of social change. The great socio-economic changes of the nineteenth and twentieth centuries (← 467) are said to have caused major changes in individual social mobility outcomes. Industrialization and its concomitant processes are often understood to have brought many individuals economic and social success, and to have increased mobility rates within and across generations (Kerr *et al.* 1960; Kaelble 1985). Studies on men's career attainment in the light of modernization processes partly support these predictions by showing that in municipalities with more advanced modernization, men enjoy higher social status at the beginning of their career, but that their status grows more slowly over the course of their career (Schulz *et al.* 2015). Yet the processes of career attainment of women during the great socio-economic changes of the nineteenth and twentieth centuries have seldom been addressed (Van Leeuwen 2009). Whether the predictions of the logic of industrialism thesis hold for the careers of women is unclear.

This study provides the first systematic account of how regional modernization processes during the nineteenth and twentieth centuries influenced the careers of a random sample of the single female labour force nationwide. We study the careers of 1148 single women born between 1850 and 1913 who were active on the labour market between 1865 and 1928 in The Netherlands. Our sample of single women is presumed not to have been biased by factors determining the likelihood of single women having a successful career, i.e. a career on a higher level of occupational status. Fourteen per cent of the population that remained unmarried between 1890 and 1909 did so because of a number of socio-economic and demographic factors, indicating that remaining single was not simply a consequence of postponing marriage due to, for example, a lack of resources (Engelen and Kok 2003). Therewith the careers of single women provide an interesting case study because this group is very similar to men in the sense that they acted as breadwinners and were active on the labour market throughout their lives. By studying single women we circumvent the problem of selective dropping out of women from the labour market for which historical sources often lack information on the occupations of women.

We use the Historical Sample of The Netherlands (HSN), which is an excellent data set for studying the careers of women because the sources upon which the HSN data are based are registers in which, usually, women had to state their occupation themselves – thus resumably largely eliminating the problem of female occupations being underreported.

There is the vast body of literature written by historians, economic historians, and demographers on the working lives of single women (also referred to as ‘spinsters’) in modern and early modern Europe (Sewell 1985; Lynch 1998; Bennett and Froide 1999; Lundh 1999; Bras 2004; Froide 2005) and also Asia (Watkins 1984). These authors study the careers of single women in the light of the general economic changes and (← 468) technological advancement in specific sectors of the industry. However, their focus on periods before industrialization or on specific occupational groups and localities makes a generalization of the findings to the general population difficult.

While sociological studies address the careers of the general population and the role of macro-societal changes, they have almost always focused on the careers of women after World War II. They have addressed questions concerning the emergence of sex-specific structures over the life course (Härkönen and Bihagen 2011; Manzoni et al. 2014). However, there has been no systematic study of how regional modernization processes influenced the careers of the female working population.

Because little is known about the careers of single women, the first aim is to describe in what kind of occupations women worked and how this distribution changed over time.

Further, we test a number of general hypotheses on the effects of modernization processes in the nineteenth and twentieth centuries drawn from classic studies by a number of stratification sociologists (Kerr *et al.* 1960; Treiman 1970). Whereas there has been some research on temporal differences in careers (e.g. Manzoni *et al.* 2014), regional differences have been almost completely ignored. We employ a multilevel research design that has only recently become feasible and in which individual data are complemented with a set of theoretical indicators, such as communication, transport, and social values, which are measured for every municipality in each year. By measuring the different processes we improve on earlier research by relating several theory-based modernization processes to the career attainment of women. Previous research has often been limited by the number of indicators it has used to characterize modernization processes, and sometimes only time is used to indicate the development of industrialization and other societal processes.

The explanatory question reads as follows:

*Were women in modernized areas more likely to have successful careers?*

## Theory

### *Modernization processes and career success*

*Industrialization and the emergence of industrial companies.* Industrialization, taken to mean the use of mechanical equipment and mechanized energy (Davis 1955), caused a number of developments in the occupational structure. The production of goods became more mechanized. Changes in the production of goods, in addition to a growing demand for administrative and clerical workers in state bureaucracies, created jobs that called for (← 469) better-trained employees (Kaelble 1985). Advocates of the industrialism thesis state that these shifts in the occupational structure have greatly increased individual social mobility (Hauser *et al.* 1975).

In the nineteenth and early twentieth centuries the majority of women worked in agriculture, in domestic and public service and trading. These sectors were not massively influenced by industrialization and the concomitant processes discussed above. Although there was a rather strongly pronounced sex segregation in the labour market, women worked in several industrial sectors (de Groot 2001). Census data under-report the participation of women in the agricultural sector, the commercial sector and in industrial work and therewith only provides an indication of the minimum participation rates of women. Based on census data Pott-Buter (1993) shows that until 1920 the percentage of women working in industry increased, as did the number employed in productive industry. The strongest increase took place in the administrative sectors, in which in 1900 0.1% of employees were women. By 1920 this figure had increased to 2.6%. Furthermore, women worked in the textile industry in the south and east of The Netherlands (Schmidt and van Nederveen Meerkerk 2012), and in shoe, leather-stitching, and paper factories.

Thus, although it is difficult to trace the precise participation of women in industrializing sectors, there is reason to believe that the changes in the occupational structure would have increasingly affected women's careers. Whereas before the onset of the mechanization of work and the emergence of industrial facilities women worked to a large extent in domestic service and agriculture, it subsequently became easier for them to work in occupations in the production sector which were of higher status. Moreover, the emergence of larger industrial companies also created new job opportunities for women in administrative occupations. The creation of personnel departments caused an increase in the number of secretarial and administrative positions, and those were often filled by women (de Haan 1992).

Despite the increased likelihood of women having jobs in higher-status occupations, for two reasons we expect industrialization and the emergence of industrial companies to have had only a restricted impact on the careers of women. More specifically, we expect that although women were able to start their careers in higher-status occupations they will subsequently have been blocked in their further advancement. There were two reasons for this.

First, owing to the organization of work and the hiring decisions of employers, women had hardly any access to occupations that provided opportunities to increase their status over the course of their career. Women employed in industrial sectors were assigned to preparatory work, low-skilled, and dead-end positions (de Groot 2001: 24). Their access to more senior administrative positions was likewise restricted; only the lowest ranks were open to women. The better administrative (← 470) positions, such as that of an accountant, were filled only by men (de Haan 1992; Stovel *et al.* 1996).

Second, women faced legal restrictions regarding their work which made it less attractive for employers to hire them for industrial jobs. In The Netherlands, night work and work involving materials containing lead were restricted to men (Plantenga 1993).

In sum, whereas shifts in the occupational structure provided women with better access to higher-status jobs at the beginning of their career, those shifts did not facilitate growth in status over the life course of those women.

H1a: In contexts with large industrial facilities, women had a higher status at the start of their career.

### ***Socio-technological changes***

Advocates of the logic of industrialism expect a number of other modernization processes – educational expansion, mass communication, and mass transport – which also occurred during the period under study, to have facilitated the career success of women. These processes are thought to have also enhanced the status of women during their careers, and so contrasted with industrialization, which we expect merely to have offered women a better starting position but no prospect of an increase in status over the course of their career.

Educational expansion offered more individuals a chance to gain educational qualifications by encouraging children from various social strata to attend school. Consequently, a larger number of adolescents were able to begin their careers in higher-status jobs. In labour markets

with rapidly changing modes of production, educational expansion also gives individuals easier access to additional training throughout their life.

In The Netherlands, from 1860 onwards, specialized artisan schools, commercial schools, domestic service schooling, general secondary schools, cooking and household schools, and many other types of educational and vocational schools emerged (Boekholt and de Booy 1987: 182). In addition, in the second half of the nineteenth century, girls' schools emerged. The school-leaving diploma awarded by such schools did not qualify women to go on to study at the university, but only to study as a teacher, or at art academies and colleges offering courses in social welfare. Women could also train to become a secretary. The expansion of the educational system itself created new job opportunities for women. After 1860 female teachers became eligible to teach at mixed secondary schools. In international comparison, the feminization of the (← 471) Dutch teaching sector remained rather low, women mainly taught in vocational training schools and primary education. Nevertheless, due to the overall expansion of the education system, the teaching sector created increasingly opportunities for women (Van Essen 1999).

Moreover, according to the logic of industrialism, educational expansion is expected to have contributed to the development of a shared culture (Treiman 1970). Schooling will render cultural differences between employees less important for occupational attainment, since a larger proportion of male and female students will spend more time together in schooling and will follow the same curricular (Bakker and van Essen 1999), leading to an assimilation of basic knowledge, skills, and behaviour. As for the dilution of cultural differences, we expect gender-specific attitudes and gender-specific behaviour to have converged somewhat. For employers, differences between men and women became less important criteria in the selection process. In The Netherlands, coeducation of girls and boys was introduced from the 1860s onwards (Bakker and van Essen 1999) and from 1876 onwards, in the highest form of secondary education, the *gymnasium* (Boekholt and de Booy 1987).

According to theoretical and empirical accounts, mass communication and mass transport positively influence an individual's career by enabling access to new, and more, information, and to enable individuals to act upon that information in order to achieve their occupational aspirations. Prior to the inception of mass communication, information spread mostly within social networks. Information on job opportunities thus depended on the contacts women had, and higher-status women are more likely to have had easier access to information on jobs in higher-status occupations. The rise of mass communication enabled women to access

information on new job opportunities with employers outside their social networks, and information was spread at a lower cost across the country (Knippenberg and de Pater 2002). For example, post offices began to distribute newspapers carrying job advertisements across a wider geographical area. Job advertisements for domestic services and jobs in education were advertised in newspapers (Schulz *et al.* 2014).

Before the onset of mass transport individuals mainly used costly or time-consuming methods of travelling, such as walking, carriages, and canal boats. Large distances took much effort to cover (Wintle 2000). The onset of mass transport reduced the cost of travel, allowing residents to leave their homes and return with new information to share. The opportunities for mass transport presented by the ever-expanding railway network made it possible for people to seek employment across a wider geographical area. Bras (2004) describes how women migrated from rural areas to the cities to work in the service sector, which opened up possibilities for social mobility in higher-status service occupations (see also Lundh 1999). Both processes (← p. 472) thus provided women with better opportunities to gain information on job opportunities and with the infrastructure to act on those new opportunities (Knippenberg and de Pater 2002). In sum, we expect educational expansion, mass communication, and mass transport to have provided women with better opportunities to secure higher-status first jobs, and also for women to have benefited from these infrastructural developments later on in their careers.

H1b: In more advanced socio-technological contexts single women had a higher occupational status and their status increased at a faster rate.

### ***Changes in values***

According to Treiman (1970), industrialization, educational expansion, and other modernization processes were accompanied by the wider dissemination of universalistic values. Such values stress that all individuals are equally worthy and should be judged in terms of their efforts, skills, and talents, rather than in terms of ascriptive characteristics such as gender. In non-industrial societies, ascribed characteristics are the primary determinants of attainment (Kerr *et al.* 1960). In industrial societies, employers and employees are believed to embrace universalistic values and eagerly seize new opportunities. The dissemination of universalistic values is therefore expected to have decreased the importance of gender in selection by employers. We expect employers to have aimed to recruit the best-qualified worker, with the sex of that worker becoming less relevant. Employers were increasingly

willing to give to female applicants jobs offering long-term prospects that might also include training.

The feminist movement interprets the historical development towards more gender equality in The Netherlands in the second half of the nineteenth century and the early twentieth century as one made possible only due to the process of secularization (Jansz 2008). During the period under study, religion was highly important to many people in The Netherlands. But as early as the second half of the nineteenth century, a process of secularization started which continued after 1928, the end of the period being studied here (Knippenberg 1998). Religious – in this case Christian – values are not universalistic in at least two ways: they distinguish people of their own religion from others and they place great emphasis on traditional family life (Wilson and Sandomirsky 1991). Especially the latter might have affected societal expectations regarding the occupational success of women. The feminist movement provided many examples of women who managed to achieve their occupational aspirations. One important figure was Aletta Jacobs, (← 473) the first female medical doctor in The Netherlands, who graduated in 1878.

We expect that in contexts in which universalistic values become more pronounced women will have been more inclined to choose occupations that were previously the preserve of men, and those occupations were often of a higher status. These women strived for career success because they regarded themselves as equally worthy and equally eligible for higher-status jobs.

H2: In contexts in which universalistic values are more widely adopted, single women had a higher occupational status and their status increased at a faster rate.

## **Data, methods, and measures**

### ***Data***

The Historical Sample of The Netherlands (HSN) provides information about the occupational careers of a representative sample of the Dutch population in the nineteenth and twentieth centuries. As such, it is an excellent source for studying women's careers in different regions and over time.

The HSN includes a sample of birth registers for the period 1812–1922 and will eventually

include the life courses of 78,000 individuals. Because data collection is still underway, we will use a subset (Data Set Life Courses Release 2010.01), which consists of information on individuals born between 1850 and 1913. The data include respondents' date of birth, respondents' and fathers' occupations, and residence. The main individual-level data sources are certificates of birth, marriage, and death. In addition, information from population registers is included. These were introduced in 1851 to continuously document household composition and place of residence of each individual living in The Netherlands and thus provide also information on women who did not move and did not have a child. There were no legal restrictions on moving throughout the country, and individuals did relocate. With the occurrence of any vital life event (an individual relocating to a different municipality or the birth of a child, for instance), information on the individual concerned, and, if applicable, their family, was recorded. As a result, the amount of occupational information available for any given individual depended on the number of vital events the individual experienced and not on that person's occupational career (the number of different occupations in which the individual was engaged during the course of their life, for example). Women were observed up to the age of 53, on average for 6 years. The mean age at which the first occupation is noted is 20 and 26 (← 474) at the last. The occupational careers of single women in the HSN data are very similar to those of never married men. The observation periods for married men are slightly longer, and a higher number of occupations were recorded for them because an additional occupation is noted at the time they married (see Schulz 2013). We aim to study occupational careers, and we therefore restricted our sample by age to include individuals most likely to belong to the working population (i.e. those aged at least 15; we did not set a maximum age). The sample includes occupational data for the period 1865–1928. From all women for whom at least one occupation was recorded, we selected all those who never married. Of the 4611 women in the total sample (HSN 1865–1928), 1148 never married.<sup>1</sup>

### ***Data structure and model***

We estimate multilevel growth models in which we predict that differential career success is affected by several individual and contextual determinants (Schulz and Maas 2012). We

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<sup>1</sup> Our selection is based on a sample of women for which there is information on at least one occupation, whereas the study by Engelen and Kok (2003) refers to a sample of women irrespective of whether they had ever been active in the labour market. For this reason, the share of single women is lower in their sample. The percentage of single women without an occupational record in the HSN database is distributed across birth cohorts as follows: 1850–1874 = 54%, 1875–1891 = 49.5%, 1892–1913 = 41%.

expect career success to increase with experience until a certain point towards the end of a given career. The level of occupational status at the start of a career and, the second aspect of successful careers, the rate at which occupational status grew over the course of the career are affected by time-varying regional characteristics. Regional characteristics include levels of educational expansion and the presence of mass transport.

As described above, the data include varying numbers of occupational measurements across women. On average 2.2 occupations are noted over the course of women's' careers and for some women only one occupational information is known. When testing our hypotheses this data structure needs to be taken into account. Multilevel models do not require complete information, and have been developed especially for analysing different numbers of observations within groups [e.g. pupils in schools of different size or differential numbers of measurements within individuals (compare Snijders and Bosker 1999)]. The models assume that women who are not observed for some time behave in the same way as those individuals, with similar characteristics, who are observed. (← 475)

We use cross-classified models because our measurements of occupational status are nested in individuals (across occupational careers) and in varying 'contexts', a municipality in a certain year (Utrecht in 1888 or The Hague in 1865). All analyses have been conducted in MLwiN, Version 2.02 (Rasbash *et al.* 2005).

### ***Measures***

*Occupational status:* All the occupational data we analyse have been classified using Historical International Standard Classification of Occupations (HISCO) (Van Leeuwen *et al.* 2002). The HISCO is based on the 1968 International Standard Classification of Occupations created by the International Labour Office (ISCO68 1969).

In order to analyse occupational status, we used the recently developed historical status scale, HISCAM (Lambert *et al.* 2013). Our dependent variable is occupational status measured at the individual level. The HISCAM scale we use to measure occupational status ranges from 1 to 99, with higher values indicating higher occupational status. Servants, for example, are assigned a HISCAM score of 10.6. Teachers in primary education score 70.4 and midwives are assigned a middle position, with a score of 51.3.<sup>2</sup>

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<sup>2</sup> The HISCAM scale assumes that the relative status positions of occupational groups do not change over time. A test of this assumption showed that changes in status were relatively small and unsystematic. See Lambert *et*

*Experience:* We approximate occupational experience using the age of the respondent. We know for each point at which information was updated in the original sources (for example, on registration in the municipality, or through death certificates) in what year it was updated. We assume that individuals begin their occupational careers at or after the age of 15. We therefore subtracted 15 from the age of the respondent, and divided the result by 10 to allow easier interpretation. We added a quadratic term for career experience to the analyses to operationalize the fact that the effect of work experience on social status declines over an individual's occupational career.

*Father's occupational status:* As with the respondents' occupations, the occupations of respondents' fathers were coded into HISCO and then assigned a HISCAM score. If a respondent's father is known to have held more than one occupation, the data on the father's employment taken closest to the respondent's birth were used. We selected only women for whose father we have occupational information.

*Child:* For an indication of whether a single woman had to take care of own children, a value of 1 was given to the variable 'child' from the birth of the first surviving child onwards. (← 476)

*Post office:* We included the spread of mass communication in our analysis by means of a variable reflecting the existence or otherwise of a post office in a given municipality in a given year (see Zijdemans 2009). We derived data on post office locations from the annual reports issued by the Staatsbedrijf der Posterijen Telegrafie en Telefonie (PTT) [State Post Office, Telegraph and Telephone Company] (Posterijen 1880–1918).<sup>3</sup>

*Train station:* For the period 1865 to 1928, we retrieved data on the years that each train station in The Netherlands opened and closed from the website <http://www.stationsweb.nl/>. Using this information, we created a variable that indicates the presence (1) or otherwise (0) of a train station in any given year in any given municipality.

*Educational expansion:* To capture educational expansion, we created two yearly municipal-level measures of the number of students enrolled in secondary education per 100 inhabitants. We consulted the annual reviews on higher, secondary and primary schools of Dutch education for the period from 1865 to 1928 to obtain information on educational expansion (Scholten

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al. (2013).

<sup>3</sup> The data on the presence of post offices cover the period up to 1918. By then, almost all municipalities had a post office; it was only after 1930 that some post offices were closed.

1865–1928). For every year, the number of students registered for any type of secondary education was recorded at the municipal level. One measure indicates the number of female and the second the number of male students in secondary education. The variable ‘female students’ indicates the total number of female students in a municipality in a given year participating in some form of schooling.

*Secularization:* We measured the spread of universalistic values, as argued above, by the number of people per 1000 inhabitants who indicated that they had no religious affiliation. We derived our secularization variable from the Historical Ecological Database (HED) for Dutch municipalities for every tenth year. Values for the years in between have been imputed using interpolation. For a description of the data, see Beekink *et al.* (2003).

*Top 100 companies:* To capture the presence of larger industrial enterprises, we use information on the locations of the top 100 Dutch companies, i.e. the most successful companies in The Netherlands in terms of total assets. The study by Bloemen *et al.* (1993) provides us with information on those companies and we added the founding years and locations of the main establishments of the companies involved. Companies included in the 1913 or 1930 list were included for the respective year. Companies included in the 1913 list and established before that date were included as a top 100 company from the year of their foundation.<sup>4</sup> (← . 477) Companies founded after 1913 and included in the 1930 list were included for the years between their foundation and 1930 as well. Where a company was on the list in 1913, it was included for the years of its foundation onwards.

*Year/10:* We controlled for year in all of our models. The variable ‘year’ starts in 1865 and is divided by 10.

*Urbanization:* We measured urbanization by calculating the population of an individual’s home municipality for the years in which his or her occupational careers were recorded. We derived data on urbanization from the Historical Ecological Database and the Historical Database for Dutch Municipalities (HDNG) for the period 1865 to 1928. In all of our models that include indicators of modernization, we control for urbanization.<sup>5</sup>

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<sup>4</sup> Chandler (1990) argues that only after 1880, with the second industrial revolution and its technological innovations, did companies begin to become larger and change their form of organization, or new companies emerge with these new hiring strategies. We therefore tried out alternative specifications of this variable, for instance regarding the years prior to 1880 as having no top 100 companies. Analyses with the different variables resulted in substantially very similar results.

<sup>5</sup> More details on the contextual indicators can be found in the codebook for the HISCI-NL dataset (see also Knigge *et al.* 2014), which can be sent on request.

## Descriptive results

Figure 1 shows the occupational distribution of women in four separate periods to illustrate the trend in the occupational distribution of women over time. The figure presents a selection of those occupational groups of women (HISCO three-digit groups) in which at least 10 women worked in a certain time period. These cover between 83% and 90% of all occupations (see Figure 1). Throughout the research period, the vast majority of women worked as maids or as unspecified workers in the farming and textile industry. The number of women working as maids decreased steadily between 1891 and 1928. In the first period (1865–1890), an average of 330 women gave their occupation as maid; between 1911 and 1928 that figure dropped to around 210. Over time the number of women working in the textile industry increased. Women increasingly worked as sewers and embroiderers; over time more of this work was carried out using machines. Female labour was cheaper, and so employers increasingly hired women to take on male jobs too.

Another sector that opened up opportunities for women was retailing, where women took jobs as sales assistants, shop assistants and saleswomen. According to Figure 1, from the late nineteenth century, single women began working in these occupations.

As discussed earlier, the expansion of the teaching sector opened up opportunities for women to work in higher-status occupations. This (← 478)

**Table 1.** Summary statistics for time-invariant and time-varying individual-level variables.

<i>Time-varying variables (N = 2499)</i>	<i>Min</i>	<i>Max</i>	<i>Mean/%</i>	<i>S.d.</i>
Occupational status respondent (HISCAM)	10.60	98.60	31.53	24.87
Experience/10	0	5.60	0.99	0.99
Experience/10 <sup>2</sup>	0	31.36	1.96	3.72
Having a child (1/0)			4.00	
Year/10	0	6.30	4.23	1.47
<i>Time-constant variables (N = 1148)</i>				
Occupational status father (HISCAM)	10.60	99.00	48.84	13.28
<i>Contextual variables (N = 1655)</i>				
Train station (1/0)			55.00	
Post office (1/0)			56.00	
Number of male students per 100 inhabitants	0	19.82	0.74	1.12

Number of female students per 100 inhabitants	0	5.17	0.15	0.36
Secularization per 1000 inhabitants	0	393.47	31.43	43.02
Top 100 company (1/0)			23.00	
Population in '000s	0.28	743.40	47.50	117.29

Source: HSN (2010) and HISCI-NL.

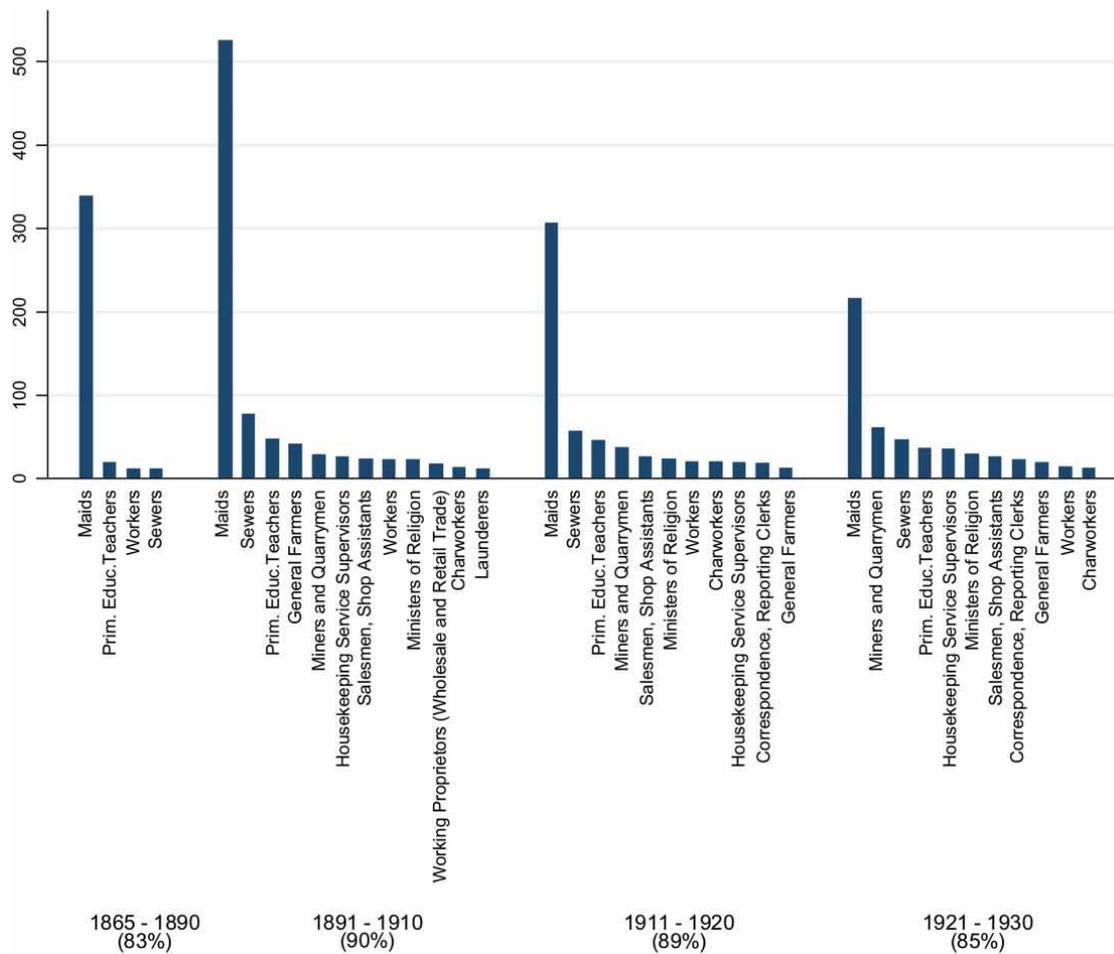
development is shown in Figure 1. Within a few years of secondary education being opened up to girls, women were increasingly being employed in the primary education sector. Up to 1890 there were only four different occupations in which at least 10 women worked. From 1891 onwards this number increased to around 11 or 12 different occupations.

These descriptive findings lend support to the idea that women increasingly worked in higher-status occupations. This is in line with hypotheses 1a and b – on the effect of large industrial facilities and socio-technological modernization – and 2 – on the effect of the spread of universalistic values.

## Explanatory results

Table 2 displays the results of cross-classified multilevel models of women's occupational status over the life course.<sup>6</sup> The upper part of the table presents the variables at the individual level (individual characteristics), followed by 'modernization indicators' measured at the contextual level (i.e. Utrecht in (← 479)

<sup>6</sup> The number of occupational observations per woman is due partly to the occurrence of vital events. Women who experience more vital events contribute more observations, e.g. women who had a child. In order to test whether the unequal number of observations across women influences the substantive results, we repeated the baseline models separately for women for whom there were two or fewer observations and women for whom there were more than two observations. The analyses revealed very similar results.



**Figure 1.** Occupational distribution of women, 1865–1928. (All three-digit HISCO groups in which 10 or more women worked.) The percentages these occupations cover of all occupations in a certain period are provided in brackets.

*Source:* HSN (2010).

1892 or Amsterdam in 1910). The lower part of Table 2 (Variance across levels) contains information about the distribution of the variance across contexts (municipality\*year), between women (individuals) and over the course of an individual’s career (occupational measurements). The variance components indicate how much of the variance is attributable to the level in question, and by adding variables measured at the different levels we assess how much of the variance can be explained.

Descriptive analyses indicate that of the observed changes in occupational status over women’s career 83% were lateral moves, i.e. involving no change in occupational status, 10% were upward moves into higher-status occupations, and 7% were downward moves. These descriptive results are supported by multivariate analyses. The ‘null model’ (model 0) shows

that most of the variance in occupational status (77%) is found among women  $[476.28/(33.22 + 476.28 + 108.12)]$ . We found considerably less variance (17.5%) in the occupational status of a given individual over (← 480)

**Table 2.** Results of cross-classified multilevel models on women's status: individual and contextual effects ( $N_{\text{context}} = 1655$   $N_{\text{individuals}} = 1148$   $N_{\text{occupational measurements}} = 2499$ ).

	<i>Model 0</i>		<i>Model 1</i>		<i>Model 2</i>		<i>Model 3</i>					
		<i>S.E.</i>		<i>S.E.</i>		<i>S.E.</i>		<i>S.E.</i>				
Individual characteristics												
Constant	32.09	**	0.70	-11.25	**	2.76	-11.93	**	2.95	-10.28	**	2.96
Experience/10				3.05	**	0.94	6.19	**	1.63	4.36	*	1.80
(Experience/10) <sup>2</sup>				-0.20		0.22	-0.23		0.29	-0.31		0.29
Father's status				0.60	*	0.05	0.55	**	0.05	0.55	**	0.05
Child (1/0)				4.74	*	2.16	4.58	*	2.16	4.69	*	2.11
Year/10				2.65	**	0.43	2.92	**	0.48	2.60	**	0.50
Modernization indicators												
Population in '000s							-0.00		0.00	-0.00		0.00
Post office (1/0)							1.16		1.49	-1.67		1.88
Train station (1/0)							-0.13		1.48	0.90		1.78
Male students per 100 inhabitants							0.98		0.59	1.35		0.95
Female students per 100 inhabitants							1.17		1.60	6.06	*	2.59
Secularization per 1000 inhabitants							0.00		0.01	-0.01		0.01
Top 100 company (1/0)							3.56	*	1.53	3.82	*	1.70
Interactions: experience/10												
Year/10							-0.94	*	0.38	-0.74		0.39
Post office (1/0)										3.08	*	1.20
Train station (1/0)										-1.74		1.18
Male students										-0.18		0.52
Female students										-2.83		1.39
Secularization per 1000 inhabitants										0.00		0.00
Top 100 company (1/0)										-0.42		0.90

**Table 2.** (Continued)

	<i>Model 0</i>	<i>S.E.</i>	<i>Model 1</i>	<i>S.E.</i>	<i>Model 2</i>	<i>S.E.</i>	<i>Model 3</i>	<i>S.E.</i>
Variance across levels								
Context (municipality*year)	33.23	6.48	0.31	0.38	0.01	0.01	0.34	0.36
Individuals	476.28	24.24	379.55	19.50	374.19	19.57	373.84	19.00
Occupational measurements	108.12	6.63	125.01	4.77	124.24	4.71	123.31	4.81
-2*log likelihood:	20,047.10		20,106.60		19,142.40			19,121.00

Note: Experience is counted from age 15, year is counted from 1865.

Source: HISC1-NL and HSN (2010).

\* $p < 0.05$ .

\*\* $p < 0.001$ . (← 482)

the course of her working life ('Individuals').<sup>7</sup> Five and a half per cent of the variance in women's occupational status can be attributed to context. Although variance at the context level seems small, it is statistically significant, as is the variance at the two other levels. Other research on the status attainment of men and women in The Netherlands has found comparable variance at the context level (Schulz *et al.* 2015).

Model 1 presents the effects of individual characteristics on the social status of single women. It shows that women gained status with increasing work experience. For every 10 years of career experience, women's status increased by about three status points. Also, social background is related to status attainment; for every additional status point of the father, women increase in status by 0.6 points. Interestingly, on average, single women who had a child have an occupational status that is around five status points higher than women without a child. This finding may indicate that employers might have given single mothers the opportunity to work in higher-status occupations in order to take care of their child. Alternatively, many of the lower-status occupation were hardly compatible with childcare, so that only those women in higher-status occupations who could combine work and motherhood are still active in the labour market.

The squared experience term is not significant, indicating that the speed at which status increased over the course of a career did not slow down towards the end of that career. In all the models except model 0, we included time, i.e. the variable 'year/10', as a control variable. The significant positive effect of this variable indicates that if we take the characteristics of women into account, there is some evidence of an overall movement towards more successful careers over time. With the passing of every 10 years, the average occupational status increased by 2.65 status points. Additional analyses (not shown here) revealed that adding the time variable causes the huge reduction in the variance at the context level.

In model 2, the modernization indicators 'post office', 'train station', 'educational expansion', 'female students in secondary schooling', 'secularization', and 'presence of a top 100 company' are added. Of these modernization indicators, only the presence of top 100 companies had an effect on women's status. The status of women in contexts with one or more top 100 companies was around three and a half points (3.56) higher than was the case for single women in contexts without top 100 companies. Accordingly, hypothesis 1a is supported. Descriptive analyses, too, support the indication that large industrial facilities did

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<sup>7</sup> Studies analysing complete career data of women show comparable amount of variance attributable to changes over career (see Manzoni *et al.* 2014).

indeed offer women specific opportunities for higher-status occupations by offering them administrative jobs. In places in which at least one top 100 company was located, 3% of single (← 483) women worked in administrative jobs; in places with no top 100 companies the corresponding figure was just 1%.

The modernization indicators ‘post office’, ‘train station’, ‘educational expansion’, and ‘secularization’ did not significantly influence women’s status. In additional analyses (not shown here), the modernization indicators were added separately to the model, controlling for just population size. Post office, train station, and the number of female students in a context positively influenced women’s status. After including an additional modernization indicator, the effects disappeared. Some of the context indicators are correlated to a moderately high degree, but none of the correlations exceeds 0.65 (not shown). The modest correlations are unlikely to be responsible for modernization indicators lacking a significant effect. Also, the strong reduction in variance at the context level after adding individual predictors (compare models 0 and 1) already indicates that much of the variance across contexts is explained by the characteristics of women. Much of the remaining variance is explained by modernization processes, as indicated by the reduction in variance at the context level from 0.31 (model 1) to 0.01 (model 2).

Before we test hypotheses 1b and 2, we present in models 2 and 3 the interaction between year and experience to test whether over historical time women moved into higher-status occupations faster. The negative effect indicates that this was not the case, to the contrary per decade the speed of growth of occupational status decreased with almost 1 status point (see model 2). However, this effect vanishes when taking into account the effects of the modernization indicators on the speed of growth (model 3).

Model 3 presents interaction terms for the indicators of modernization and year with experience. A more rapid increase in status was found for women in contexts in which a post office was present. In a context with a post office, women’s status increased 3.82 points per decade faster than in a context without a post office. The effect of school participation of girls is significant in model 3. But this effect is restricted to the start of the career and does not influence the speed at which status grows over the career. At the start of the career every additional female pupil increased women’s status by 6 status points. None of the other indicators influenced the speed at which status grew during women’s careers. Accordingly, we find only limited support for hypothesis 1b, which states that in contexts with more extensive socio-technological changes women started their career at a higher level and experienced a

more rapid increase in status.

Furthermore, we found no indication that, notwithstanding hypothesis 2, women had more successful careers in places characterized by a greater degree of secularization. (← 484)

## **Discussion and conclusion**

In what kind of occupations did single women in The Netherlands in the late nineteenth and early twentieth centuries work, and how did modernization processes influence their careers?

Descriptions of the occupations in which women worked showed that over time women worked in a larger number of different and higher-status occupations. Women became much less likely to work as maids and unspecified workers. Instead they became clerks, telephone operators, and teachers.

Also the results of cross-classified multilevel growth models support the descriptive findings of increasing career success. However, while women gained status over the course of their career, there is no indication that the rate of increase slowed down towards the end of that career. That is a rather surprising finding, as we had expected that the new experiences gained by individuals would have been finite. As expected, in the nineteenth and early twentieth centuries, the careers of men showed a decline in the rate at which status increased towards the end of their career (Schulz and Maas 2012). One possible explanation for this finding could lie in the high dropout rate among women after marriage. Because many women stopped working at younger ages, very few of them managed to acquire the experience necessary to be eligible for higher-status jobs. Because there were few competitors for jobs that required more experience, single women who remained active in the labour market throughout their life had fairly good prospects of getting such a job.

Contextual modernization processes had a limited influence on women's status. Only women in municipalities with large industrial facilities had a higher status. In these municipalities, the percentage of women working as office clerks was twice as high as in municipalities without top 100 companies. Moreover, higher rates of female participation in schooling were related to a higher status at the start of the career. The descriptive results also show that educational expansion did offer women possibilities to work as teachers. This suggests that teaching and administrative jobs, especially, provided women with better prospects of career success.

Also pointing in that direction is the finding that women in municipalities with mass

communication experienced a more rapid increase in status over the course of their career. The measure of mass communication – the presence of a post office – is in fact an indicator of the presence of a bureaucratic organization.

Other modernization processes had no effect on the rate of growth of status. Thus, the process of status attainment over the life course among single women was only to a limited extent affected by modernization processes.

The findings of this study offer some interesting theoretical implications and directions for further research. The logic of industrialism thesis seems (← 485) to capture the effect of societal changes on the career success of women only partly. Our findings imply that only the emergence of large (public) bureaucratic organizations and the emergence of the teaching sector as job market were developments that offered women opportunities for more successful careers. Research showed that the banking sector in the nineteenth and twentieth centuries offered employment opportunities for women (Stovel *et al.* 1996; Holmberg and Stanfors 2009). But whereas these studies show that women were blocked in their further advancement we found that women in regions with post offices experienced a more rapid increase in status. This finding is especially interesting as for men the presence of a post office was related to a slower growth in career success (Schulz *et al.* 2015). Further research may compare how different types of bureaucratic organizations shape the career trajectories of women and men.

Regarding the lack of support for hypothesis 2 that suggested that the spread of universalistic values would be related to more successful careers, we suggest that further research should put effort in finding a more direct indicator for a value change. As discussed before, secularization is only an indirect indicator for changes in values that we expect to be responsible for more successful careers of single women. Desirable would be an indicator that more specifically measures to what extent the population adheres to universalistic values, i.e. to what extent they are convinced that people should not be judged on characteristics that are not directly relevant for performance, e.g. based on their sex.

The findings of this study further indicate that there were circumstances that hindered women from fully taking advantage of the newly offered conditions created by modernization processes, such as mass transportation. Mass transportation was related to more successful careers for men (Schulz *et al.* 2015). Perhaps the role of restrictive provisions aimed at prohibiting employment for married women would provide a fruitful direction for further research, which should focus on the prevalence of such practices in sectors of the labour

market as well as regional and temporal variations therein. After 1900 marriage bars were introduced in the postal service and the teaching sector. While these restrictions aimed at barring married women, there were ongoing discussions aimed at banning unmarried women from employment too, and these public debates set the tone for the role of women in society.

One could study the influence of legislative proposals and provisions by creating an indicator that captures for which sectors provisions to ban the employment of married and unmarried women were proposed. Archival documents on the debates concerning the introduction of labour market restrictions can be found in the archives of the National Office for Women's Work and the Committee for the Advocacy of Free Labour for Women. (← 486)

Finally, studying differences across occupations as reflected in variables other than status would extend our understanding of the changes to occupational careers that modernization brought about. Next to the perspective of tenure that higher-status job at the beginning of the career might have offered, these jobs maybe provided better prospects for good working conditions as well. A tentative hypothesis could be that tenure and improved working conditions were characteristics of a successful career to which modernization processes gave rise.

The logic of industrialism thesis has been formulated with a focus on the attainment processes of men (see Treiman 1970). Its application to the careers of Dutch single women shows that there were important differences in how men's and women's careers were shaped by modernization processes. Single women did not benefit from same modernization processes as men did. Whereas men profited from general modernization processes (mass communication, educational expansion, and presence of industrial facilities) (cf. Schulz *et al.* 2015), women seem to have benefited mainly from the expansion in female schooling and the emergence of bureaucracies. To understand what processes might have hindered women from benefiting from, for example, mass transportation, a comparative perspective would be an interesting direction for further research.

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**Wiebke Schulz** obtained a PhD from Utrecht University in 2013. In her dissertation titled ‘Careers of Men and Women in the 19th and 20th Centuries’, she studied processes of career and status attainment of men and women during modernization. She is currently employed as a postdoctoral researcher at Bielefeld University/DIW-Berlin in the TwinLife project. Her current research focuses on (long-term trends in) status attainment and the intergenerational transmission of inequalities. Recent publications include: Intergenerational Downward Mobility in Educational Attainment and Occupational Careers in West Germany in the Twentieth Century. (with M. Diewald and T. Baier) *Eur Sociol Rev* (2015) 31 (2): 172–183; Career Chances and Constraints in The Netherlands 1865– 1940. (with I. Maas). *Eur Sociol Rev* (2012), 28, 220–240; Employer’s choice – Selection through job advertisements in the nineteenth and twentieth centuries. (with I. Maas & M.H.D. van Leeuwen) *Research in Social Stratification and Mobility* 36: 49–68.

**Address for correspondence:** Wiebke Schulz, Bielefeld University/DIW-Berlin, Mohrenstraße 59, Berlin, Germany. E-mail: [wschulz@diw.de](mailto:wschulz@diw.de) (← 490)