The Increase of Social Mobility in the Netherlands During the Nineteenth Century

The Influence of Universalistic Values, the Middle Class, Secularization, Pillarization and Sibling Size

Bachelor Thesis

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1. Introduction

During the nineteenth century, the Netherlands, like other countries, experienced considerable modernization. The phenomenon of modernization was marked by increases in industrialization, the availability of and access to education, urbanization, migration, mass communication and mass transport (Knigge, Maas and Van Leeuwen, 2014). Modernization theorists (e.g. Kerr et al. 1960; Blau and Duncan, 1967; Treiman, 1970) claim that these modernization processes increased social mobility. Although social mobility indeed increased in the Netherlands during the nineteenth century, Knigge et al. (2014) have shown that the increase in social mobility cannot be fully explained by the modernization mechanisms mentioned above. Thus, the question of what led to the rise of social mobility in the nineteenth-century Netherlands remains partly unanswered. That's why the research question of this paper is: What explains the increase in social mobility during the nineteenth century in the Netherlands besides the modernization processes?

I study five mechanisms that might have increased social mobility in the nineteenth-century Netherlands. First of all, universalistic values are believed to disseminate with modernization (Treiman, 1970). However, it is also possible that universalistic values disseminated independently of the other modernization processes. The rise of democracy that took place in the Netherlands during the nineteenth century, for instance, could have an independent impact on the values of its citizens. Universalistic values stress that individuals should be judged on their qualities and not on ascribed characteristics, thereby promoting social mobility.

Secondly, the Netherlands experienced a rise of the middle class during the second half of the nineteenth century (Brugmans, 1977; Leeuwen and Maas, 2007). I argue that the emergence of a middle class could increase social mobility. The gap between the lower class and the middle class or between the middle class and upper class is smaller than the gap between a lower and upper class, and is therefore easier to bridge.

Thirdly, I argue that secularization could explain the increase in social mobility. During the nineteenth century, the church provided important direction for the organization of society (Schutte, 1992). The church preached that social mobility was not to be pursued because, in her view, God determined the socioeconomic position of every person at birth (see for example Van Meerten, 1845). A decrease in the importance of religion, secularization, could thus remove a barrier to climb up the social ladder.

Fourthly, there are indications that the Netherlands started to undergo the process of "pillarization" during the latter half of the nineteenth century (Sturm, Groenendijk, Kruithof and Rens, 1998; Hellemans, 1990; Pennings, 1991). Pillarization is the ideological segregation of society into various segments or 'pillars'. In the Dutch case, there are four ideological pillars commonly distinguished: Catholics, Protestants, socialists and liberals. I argue that ideological preferences could have replaced family socioeconomic status as recruitment criteria. If this is the case, employers might have preferred to hire someone with a low family status within their own pillar rather than someone with a high family status from a different pillar, thereby allowing for more social mobility with regard to socioeconomic status.[1]

Lastly, a shift in the average number of siblings might affect social mobility. Siblings influence each other via the provision of resources and via socialization (Benin and Johnson, 1984). I argue that as sibling size increases, inter-sibling influence might partly replacing the influence of the parents. When a father has more children, he increasingly has to divide his resources, time and attention among all his children. This means that siblings spend less time with the father and more time with each other as sibling size increases, thereby increasing the influence of siblings at the expense of the father's influence. If the average sibling size increases, the influence of the parents on the occupational status of the sons might thus decrease, thereby increasing intergenerational social mobility.

Until now, all of these mechanisms have not received attention with regard to social mobility in the nineteenth century. By using GENLIAS, a large-scale database containing the marriage certificates (which contain valuable information such as the occupation of groom or bride and occupation of father and mother) from individuals for 5 out of the 11 provinces in the nineteenth-century Netherlands, I am able to estimate the influence of the father's occupational status on the son's occupational status. This influence is a conventional indicator for a lack of social mobility. Using additional data (using HISCI-NL) from the municipalities within these 5 provinces, I can study whether the rise of universalistic values, the middle class, pillarization, secularization and sibling size explain the increase in social mobility during the nineteenth century

[1] Although the mechanisms of pillarization and secularization seem conflicting, this does not have to be the case. Righart (1986) showed that pillarization was in fact partly a strategy of the different churches to protect their religion against secularization. Therefore, both processes happen simultaneously.

By studying these new theories that provide possible explanations for the increase in social mobility, I contribute to the current literature of social mobility. Since these theories have not been studied before, appropriate indicators for testing these theories are not yet available. I will also take the first step in establishing these indicators.

The study of social mobility now seems more relevant than ever. Recently, Piketty (2014) showed that in many Western societies wealth inequality is returning to levels as high as in the pre-modernization period. This is quite a troubling development, as an individual's socioeconomic position influences many aspects of life, such as health (Mackenbach, 1992), academic achievement (White, 1982), lifestyle (Lynch, Kaplan and Salonen, 1997), self-esteem (Twenge and Campbell, 2002), and attitudes and political behavior (Weeden and Grusky, 2012). Possibly even more worrisome, Clark (2014) recently argued that social mobility has not increased at all during the past eight centuries and that social mobility rates are resistant to social policies. Although not many sociologist would agree with Clark, his research does raise questions about the development of social mobility and the causes of these developments. By studying the influence of universalistic values, the middle class, secularization, pillarization and sibling size on social mobility during the nineteenth century, I contribute to the heated subject of social mobility.

2. Theory

2.1 Universalistic values

As modernization proceeds, several changes occur that enhance universalistic values; educational expansion, mass communication and urbanization are all believed to disseminate values whereby people are judged less on their family status, and more on individual skills and talents (Treiman, 1970). However, it is also possible that universalistic values in part increased independently of these modernization processes. One way by which universalistic values could have increased in the Netherlands independently of the other modernization processes is the rise of democracy.

In 1815, a constitutional monarchy was instituted in the Netherlands. Although from that time on a House of Representatives and Senate were present, neither was chosen by Dutch citizens. In 1848, a revision of the Constitution of the Netherlands instituted a parliamentary democracy. From then on, male citizens aged 23 and older who paid a certain amount of taxes had the opportunity to vote directly for the members of the House of Representatives. This resulted in about 11 percent of the male citizens aged 23 and over being able to vote. Further

revisions of the Constitution over the nineteenth century slowly led to increases in the population being able to vote. By the year of 1900, already 49 percent of all men were able to vote. Finally, in 1917 all men were able to vote and in 1919 all women were able to vote too (Parlement & Politiek, n.d.).

The increasing level of democracy in the Netherlands could have increased universalistic values. After all, a democracy emphasizes individual freedom, rights and equality among people. Indeed, Schwartz (2007) found that the more democratic a country, the more the citizens within that country apply universalistic values to all members of society. However, we have to be careful in interpreting causality. It is also possible that increases in universalistic values led to increasing the degree of democracy.

A wider dissemination of universalistic values could increase social mobility. As employers base their recruiting less on ascribed characteristics, such as family status, and more on achieved characteristics, such as education and skill, employees from different family backgrounds now have more equal opportunity to be hired. That is why I hypothesize that *H1a: the father's occupational status has less of an influence on the children's occupational status in communities where universalistic values are more widely disseminated.* Because universalistic values could have increased during the latter half of the nineteenth century in the light of the increasing degree of democracy, I hypothesize that *H1b: a wider dissemination of universalistic values provides an explanation for the increase in social mobility in the nineteenth-century Netherlands.*

2.2 The rise of the middle class

The structure of the labour market influences opportunities for social mobility. I will argue that where the gap between social classes is too large to bridge, social mobility is limited. This might have been the case in the Netherlands during the first half of the nineteenth century. According to Brugmans (1977), there was no middle class during this period. In his view, the majority of the Dutch population belonged to the poor lower class. Not only the unemployed belonged to the poor, most employed citizens did as well because the wages were so low that most of the employed also lived close to the subsistence level. A small group of citizens belonged to the richer upper class. Brugmans estimates that the lower class comprises about 80-85% of the population and the upper class about 15-20%.

As a consequence, Brugmans claims that occupations often seen in the middle class, such as retailers, independent artisans and commercial farmers were largely missing at the beginning of the nineteenth century. He argues that retailers were less necessary, because many products nowadays sold by retailers, such as food, were still fairly common produced within the family. Products that families could not produce themselves were sold by the producers directly at markets. The retailers that were present often had low incomes and thereby belonged to the lower class. The same applies to the farmers. Subsistence agriculture, where farmers mainly produce food for themselves and their family, was the common way of farming. Since there was no market production, these farmers had low income. Artisans were present, but did not profit much from their occupation. Their income was so low that they belonged to the lower class. Because production was not very mechanized or complex, administrative and technical staff were for the most part not necessary in the first half of the nineteenth century.

This all changed during the latter half of the nineteenth century. The industrial revolution made its way to the Netherlands, thereby changing the occupational structure. The factory replaced the old way of production by hand. The new, more mechanized, way of production called for more administrative and technical staff, which are middle class occupations. The production of farmers also became more and more mechanized, thereby increasing production and profit. Moreover, production of farmers started to replace the production of own food by citizens. Because the increased production of the factory and farms were now increasingly sold by the retailers, retailing increased and became more profitable. Brugmans argues that these changes transformed the Netherlands from a two-class society to a three-class society. However, other authors (e.g. Griffiths and de Jong, 2002) found that the service sector, a middle class sector according to Brugmans, was not as small in the first half of the nineteenth century in the Netherlands as Brugmans claims. In addition, Van Leeuwen and Maas (2007) directly tested Brugmans' thesis and found that the middle class was not absent during the first half of the nineteenth century. However, they did show that the share of occupations regarded as middle class by Brugmans increased during the nineteenth century from a fifth to a third. It thus seems that, although not being entirely absent at the beginning of the nineteenth century, the middle class did increase in the course of the nineteenth century.

I argue that a rise of the middle class could enhance social mobility. It can be very hard to bridge the gap between a lower and upper class. When an intermediate step becomes more available, via the middle class, social mobility becomes more accessible. The gap between the lower class and the middle class or between the middle class and upper class is smaller and easier to bridge.

Indeed, Kooij (1987) showed that social mobility in Groningen, a Dutch city, was most often from lower to middle classes or from middle to upper classes in the period of 1870-1910. Since I argue that a rise of middle class can increase social mobility, I hypothesize that *H2a: the father's occupational status has less of an influence on the children's occupational status in communities where a larger proportion of the labour force is of the middle class.* Because there are indications that the middle class increased during the nineteenth century, I also hypothesize that *H2b: the rise of the middle class provides an explanation for the increase in social mobility in the nineteenth-century Netherlands.*

2.3 Secularization

Although social class was important during the nineteenth century, religion was as well. The church influenced the Dutch citizens by preaching its values via school, pastors, books and social control. In this way, the church gave important direction for the organization of everyday life and society (Schutte, 1992). Virtually every Dutch citizen at the beginning of the nineteenth century was religious (Knippenberg, 1992). The church expressed aversion to social mobility because, in her view, God determined the socioeconomic position of an individual at birth (see for example Van Meerten, 1845). The desire to achieve a higher status was thus hampered by religion. Therefore, secularization could remove the barrier for aspirations to achieve a higher status, thereby increasing the likelihood of social mobility. I hypothesize that *H3a*: *the father's occupational status has less of an influence on the children's occupational status in communities where the percentage of unreligious citizens is higher.*

Although there might be regional variation in secularization, which makes it possible that hypothesis H3a can be confirmed, the number of unreligious citizens nationwide increased only slightly over the latter half nineteenth century from 0% to 2.3% (Knippenberg, 1992). Secularization only started to increase rapidly after the nineteenth century. I therefore do not expect a very large influence of secularization, but this does not mean that no effect can be found. After all, a percentage of 2.3% unreligious citizens means that in general one in fifty persons is an atheist, which makes the chance to come into contact with an atheist not unlikely. This contact with atheists might also change the views of the persons who have not (yet) abandoned their religion. In addition, even the mere presence of atheists might show individuals that it is not self-evident that everything the church preaches has to be accepted. That is why I hypothesize that *H3b: secularization provides an explanation for the increase in social mobility in the nineteenth-century Netherlands.*

2.4 Pillarization.

Since 1651, Calvinism (a reformed branch of Protestantism) was the public religion in the Netherlands. Catholics and Jews were also present, but had a disadvantaged position. In 1813 a new Constitution was approved which included freedom of religion, thereby reducing the disadvantage of Catholics and Jews. This allowed for more differentiation in religion. The Calvinist Dutch Reformed Church lost some members during the nineteenth century, but was still the largest denomination at the end of the nineteenth century with almost 50% of the population. Some orthodox Calvinist separated themselves from the Dutch Reformed Church and combined into neo-Calvinist Churches, or *Gereformeerde Kerken*, their share of the population was about 7% at the end of the nineteenth century. The Catholics remained rather stable and occupied about 35% of the population. Lastly, as described in section 2.3, the unreligious increased to 2.3% at the end of the nineteenth century.

Because of the new freedom of religion and the rise of modernization and associated opportunities to switch or leave denominations, the denominations faced a potential loss of power (Wintle, 2000; Righart, 1986). One response of the denominations to this threat was to set up their own broadcasting organisations, newspapers, political parties, et cetera (Lijphart, 1975), thereby increasing their influence on social life outside of the church. This allowed for more social control within each denomination, as to make sure that people would not leave their religion or switch denominations. This is often described as the "pillarization" of Dutch society. Pillarization is the ideological segregation of society into various segments or 'pillars'. The consequence of pillarization was that persons mostly had contact with people from their own denomination, contact between the different pillars was limited. Although a socialist and liberal pillar are sometimes also distinguished, it is believed that social segregation was especially the case for the religious pillars of Protestants and Catholics (Lijphart, 2008; Schrover, 2010; Vink, 2007; Semetko; 1998).

Pillarization can have an effect on social mobility. If one's ideological preference (such as being a Protestant) becomes a criterion by which employers select employees, this might increase social mobility. Although it allows for less movement between the different pillars, it may allow for more socio-economic mobility when employers prefer to hire someone with a low family status within the same pillar rather than someone with a high family status from a different

pillar. In this way, ideological preferences could replace family status as recruitment criterion. [2]

However, religious denomination as a recruitment criterion is only useful in communities where both Protestants and Catholics are present. If a community is entirely dominated by Protestants, being a Protestant would not be an advantage in the job market. Moreover, when the percentage of Catholics is low in such a community, the Catholics will not be able to set up institutions based on their religious denomination, because they need a sufficient number of members to, at least economically, survive. Thus, possibilities for pillarization rise when the proportions of Protestants and Catholics become more equal, which could increase social mobility. I hypothesize that *H4a: the father's occupational status has less of an influence on the children's occupational status in communities where possibilities for pillarization are higher.*

It is unclear when pillarization really started. Although the most extreme pillarization is visible around the mid-twentieth century (Hellemans, 1990), the process of pillarization has roots long before that period and is noticeable from 1880 and onwards according to several authors (Sturm, Groenendijk, Kruithof and Rens, 1998; Hellemans, 1990; Pennings, 1991). Indeed, Schulz, Maas and van Leeuwen (2014a) show that from 1870 to 1900, job advertisements increasingly included a preference for employees of a specific religious denomination (Protestant or Catholic). In the period of 1870-1880, preference for a specific religious denomination was mentioned in about 12% of all job advertisements, in the period 1890-1900, preference for a specific religious denomination was mentioned in about 18-19% of all job advertisements. Because there is indication that pillarization increased from 1880 and on, I hypothesize that *H4b: An increase in the possibility for pillarization provides an explanation for the increase in social mobility in the nineteenth-century Netherlands.*

[2] There is debate whether pillarization really presented a new dimension to the Dutch society. Some argue that each denomination consist of a different class (Kieve, 1981). They argue, for example, that Catholics belonged to the lower class, while Protestants belong to the upper classes. Others (e.g. Lijphart, 1975) state that individuals from all classes are present in each denomination, and that therefore pillarization does present a new dimension to society. Bakvis (1984) compares both views and comes to the conclusion that pillarization did present a new dimension to Dutch society. Although certain classes are overrepresented in certain denominations, he showed that various classes were present within each denomination. Moreover, he shows that the denominations actually tried to improve the socioeconomic situation of their members via insurance companies, broadcasting organizations and schools (Bakvis, 1981; Bakvis, 1984).

2.5 Sibling size

Next to the influence of the father, siblings might also influence each other. Siblings have been found to influence each other via the provision of resources (Benin and Johnson, 1984) and via socialization, such as role-modelling (Benin and Johnson, 1984) or even active tutoring (Zajonc, 1976). As a result, siblings might become more alike in their achieved status (Jencks et al., 1972). I argue that the sibling influence might be at the expense of the father's influence, especially with a larger sibling size. The influence of the father as role model, for example, might decrease as sibling size increases. A first born son usually has only one role model: his father. The second born son already has two possible role models: the father and the first born son. As this process continues, the relative influence of the father as role model decreases with each new born child. However, this idea does not limit itself to just role-modelling. Every form of (individual) interaction between the father and child decreases as the child has more siblings, because the father increasingly has to divide his resources, time and attention among all his children. As a result, siblings spend more time with each other and less time with the father as sibling size increases. That is why I argue that *H5a*: *the father's occupational status has less of an influence on the children's occupational status when these children have more siblings.* Because the number of siblings increased during the latter half of the nineteenth century (Bras, Kok and Mandemakers, 2010), I hypothesize that *H5b*: *the increase in the average number of siblings provides an explanation for the increase in social mobility in the nineteenth-century Netherlands.*

3. Methods

3.1.1 Data

I use the GENLIAS dataset (version 2007_03) combined with the HISCI-NL (Historical International Standardized Community Indicators) dataset. GENLIAS contains all marriage certificates for 5 out of 11 Dutch provinces, *Zeeland, Gelderland, Overijssel, Limburg* and *Groningen*, for the period of 1812 to 1922. These marriage certificates contain valuable information, such as the name, age, birthplace and occupation of the groom or bride, the place of marriage and the names and occupations of the father and mother. Moreover, in the version of GENLIAS that I use, the marriage certificates of parents and their children are linked, which allows me to establish which children are siblings of each other. The HISCI dataset that I use provides information at the municipal level on several yearly indicators, Because I will label a municipality in one year as a community, I will call these indicators 'community indicators' or

'community variables' from now on. Because some of these HISCI community indicators do not cover the whole time period of 1812 to 1922 available in GENLIAS, part of my analyses will be restricted to the sub-period of 1858 to 1890, the period in which all the HISCI community indicators are present.

To sum up, I have individuals nested in families (grooms or brides who have the same father), and these families are nested in communities (municipalities in certain years). This means that my data have interdependencies. Brothers will most likely be more similar than non-related individuals, and persons in the same community will most likely also be more similar than persons from different communities. However, it was not feasible to account for these interdependencies in the analyses. Possible consequences of these interdependencies will be mentioned in the analyses section. For now, it is important to know that, because I want to assess how adequate my results are, I will compare my results with Knigge et al. (2014) who use the same dataset and do account for the interdependencies. In order to do this properly, I will try to reproduce their methods as closely as possible.

3.1.2 Community

Because GENLIAS provides the municipality and year in which a person married, I can link persons to the community indicators in HISCI. Ideally, I want the community to be the municipality in which a son enters the labour market, because many of the theorized mechanisms contain arguments regarding the matching process in the labour market. However, because I do not have this exact information, I have to approximate the municipality in which a son enters the labour market. I follow Knigge et al. (2014) and choose the municipality in which the father married + 15 years to be the community. For example, if a father was married in 1850 in Apeldoorn, the community of the son is Apeldoorn in 1865. Because many families have their first child(ren) close to the start of their marriage, firstborn sons will be approximately 15 years old in the definition of community, and this was the age that children began to enter the labour market (Bras and Kok, 2003).

3.1.3 Data selection

First of all, I study only grooms, because brides often stopped working when they married (Van Poppel, 1992; Scott & Tilley, 1975). Only a small number of brides listed an occupation on their marriage certificate (Schulz, 2013). For the same reason, I only analyse the influence of the father's occupational status on that of his son: married mothers often did not have an occupation. Moreover, it is not clear whether women with an occupation have a higher status

than women without an occupation. It was also a sign of high status when the income of the father was sufficient to provide for the family and the mother did not have to work (Schulz, Maas and Van Leeuwen, 2014b). There are 959,727 grooms in the dataset.

Secondly, I study only grooms that marry for the first time. Persons marrying a second or third time are likely to have a more advanced career, and their prior career might influence the effect family status has on son's occupational status. This drops the number of grooms to 849,747.

Thirdly, grooms marrying at the beginning and end of the observation period are problematic for the upcoming analyses. Grooms that marry in 1812 or shortly after will not have their parents available in the data, because these parents married before the observation period. Thus, I cannot link sons who marry at the beginning of the observation period to their parents. To give every son an equal chance of being linked to their parents, I take a 30-year margin at the beginning of the observation period, following Knigge et al. (2014). Parents marrying at the end of the observation period are problematic because some or all of the children from these parents will not be old enough to have been married themselves and are therefore not present in the data. Because I want to analyse complete families, I follow Knigge et al. (2014) and only include parents married no later than 1882. After this year, the average sons per father drops steeply. To sum up, I only include families in which sons married no earlier than 1842 and only include parents married no later than 1882. This results in sons observed at a period of 1842-1922 and parents observed at a period of 1812-1882. After these selections, the number of grooms that have parents available in the analysed time period is 696,060.

Fourthly, not all sons and fathers could be linked. 29.5 percent of the grooms could not be linked to their father, which reduces the number of grooms to 490,827. Due to missing or insufficient information on the occupation of the son or father, occupational status scores could not be assigned for 2.2% of the grooms and 24.7% of the fathers. After the deletion of these cases, 362.138 grooms remain.

3.1.4 Possible Selection Biases

Because I use marriage certificates as the source for occupations of fathers and sons, I cannot study persons who do not marry. This might not be very problematic, since the vast majority of the nineteenth-century Dutch citizens got married. Between 1780 and 1935, 87-88% of the men and 85-86% of the women in the Netherlands married (van Poppel 1992). Moreover, the unmarried at the end of the nineteenth-century Netherlands (1890-1909) were found not to be very different from the married on several background characteristics, such as family

background, religion and region (Engelen and Kok, 2003). They were are also found to be quite similar with regard to their occupational status (Schulz, 2013).

Another possible selection bias arises because I link sons and fathers within five provinces. This means that I miss the sons that migrate to one of the six unstudied provinces before they marry. I do not think this influences the results to a large degree. Migration to other provinces was not very common in the nineteenth century. In 1849, only 8% of the Dutch citizens lived in another province than where they were born, this percentage was 13% in 1899 (Knippenberg and De Pater, 2002). Moreover, I do not miss persons who migrate to one of the five provinces that I do study. Furthermore, in the same dataset that I use, Knigge et al. (2014) estimated the average correlation between the father's and the son's occupational status for two provinces with and without migrants from the three other studied provinces and found that the correlation is largely similar with and without migrants. When migrants are excluded, the correlation is only slightly lower (.54 instead of .56).

Lastly, I miss sons who do not have their father's occupation listed on the marriage certificate. I reduce this problem because fathers often had multiple children. When the occupation of the father is missing for one son, I can use the occupation listed on the marriage certificate from another child. This decreases the missing occupations of fathers from 41.8 percent to 24.7 percent. Delger and Kok (1998) argue that the missing occupations of the fathers might lead to biased results, because a missing occupation is often a results of the death of the father, and it is believed that fathers who die early had a lower occupational status. However, Van Poppel and Gaalen (2008) showed that there was no relationship between social position and mortality for Dutch men in the period of 1850 to 1920.

3.2 Measures

3.2.1 Individual-level measures

The son's and father's occupational status

The occupation of the son is available on his marriage certificate. That occupation is coded into HISCO (Historical International Standard Classification of Occupations) (see Van Leeuwen, Maas and Miles (2002). The occupations in HISCO are then coded into HISCAM (see Lambert et al. 2013), which gives the appropriate status score for each occupation. One limitation of HISCAM is that the status score of an occupation cannot change over time. It is thus assumed that, for example, farmers have the same occupational status score throughout history. I do not deem this problematic, since most occupations are ranked in the same order in most nations and

over time, a finding referred to as the 'Treiman Constant' (see Hout and DiPrete, 2006). Although the scale has a possible range from 1 to 99, I observe status scores between 10.6 (domestic servant) and 99 (e.g. lawyer). In the same way, I coded the occupational status of the father. I used the occupation of the father listed on the son's marriage certificate. If a father has multiple sons, the average of the father's occupational status scores available on the sons' marriage certificates is used. See Table 1 for descriptive statistics on all the (individual and community) variables.

Time

Following the definition of community, the time is the point at which sons approximately entered the labor market, which I say is 15 years after the parent's year of marriage. This means that the range of time is between the years 1827 and 1897. I code the beginning year as 0 and add 0.1 point for each additional year. This means that for analyses beginning in 1827, 0 stands for 1827, 0.1 stands for 1828, and so on. As mentioned earlier, part of the analyses will be restricted to the time period of 1858-1890. In that case, 1858 is coded as 0, 1859, is coded as 0.1, et cetera.

Number of Siblings

Because the marriage certificates from parents and children are linked, the number of siblings is easily found by counting the number of times a father is linked on different marriage certificates from the children. For example, if a father is linked to four children, each of these four children have three siblings. Because I only count married children, I underestimate the total number of siblings. As a consequence, the possible influence of each sibling might be overestimated. However, as mentioned the vast majority of woman and men married, so the extent of overestimation is likely not very large. The youngest daughter in the family was most likely to not marry (Bras, Kok and Mandemakers, 2010). See Figure 1a for the trend in average number of siblings from the period of 1827-1897. The period of analysis is indicated with the vertical dashed lines (the same goes for the other figures). During the period of analyses, average sibling size showed a rather steady increase, which coincides with Bras, Kok and Mandemakers (2010).

Table 1. Descriptive Statistics

	Year of Socialization between 1827 and 1897				Year of Socialization between 1858 and 1890			
Variables	Mean	Std. dev.	Min.	Max.	Mean	Std. dev.	Min.	Max.
Status								
Son's occupational status	46.33	12.86	10.60	99.00	46.78	12.75	10.60	99.00
Father's occupational status	47.00	10.29	10.60	99.00	46.82	10.24	10.60	99.00
Time								
Time	3.98	1.98	.00	7.00	1.74	.94	.00	3.20
Community variables								
Universalistic values: percentage of girls in secondary education					.25	1.82	.00	36.84
Lower class: percentage of grooms in the lower class					69.99	14.07	.00	100.00
Middle class: percentage of grooms in middle class					27.79	13.35	.00	100.00
Upper class: percentage of grooms in the upper class					2.21	3.28	.00	100.00
Secularization: percentage of unreligious citizens					.24	.60	.00	9.53
Pillarization: reversed prop. of Protestants – prop. of Catholics					25.03	25.57	.00	100.00
Community Control Variables								
Industrialization: number of steam engines purchased per 1000 inhabitants					1.51	2.42	.00	24.53
Educational expansion: number of students in secondary education per 1000 inhabitants					2.08	5.29	.00	62.93
Urbanization: number of in inhabitants in a community divided by 1000					7.55	9.79	.21	56.41
Geographic mobility: number of in-migrants per 1000 inhabitants					51.37	30.92	.00	566.06
Mass communication: presence of post office					.31	.46	.00	1.00
Mass transportation: presence of train station					.33	.47	.00	1.00

Individual control variables								
Age at marriage	28.19	5.72	16.00	83.00	27.85	5.57	16.00	74.00
Number of siblings	2.95	2.05	0.00	14.00	2.98	2.08	.00	14.00
Birth order	2.47	1.61	1.00	15.00	2.49	1.63	1.00	15.00
Father farmer	.20	.40	0.00	1.00	.20	.40	.00	1.00
N	362,138				192,707			

3.2.2 Community-level measures

Universalistic values

I do not have a direct indicator for universalistic values for the Netherlands in the nineteenth century. An indirect measure of universalistic values is the attendance in secondary school of girls. During the nineteenth century, gender was an ascribed characteristic on which school attendance was based. Girls had little opportunity to go to secondary school (Essen, 1990). As universalistic values become wider disseminated, ascribed characteristics become less influencing in judgement. As a result, girls previously denied because of their gender are now increasingly allowed to enter secondary school. Thus, the secondary school attendance of girls increases as universalistic values increase, which is why I measure universalistic values by dividing the number of girls enrolled in secondary education by the total number of students enrolled in secondary education in a community. See Figure 1b for this indicator over the period of 1858-1897. The increase in universalistic values seems to be very limited. Only a little over one percent of the students in secondary school was a girl at the end of the nineteenth century.

The Lower, Middle and Upper Class

I use HISCLASS (Van Leeuwen and Maas, 2011), which uses the occupations available in HISCO, to sort the occupations of sons into several classes. The occupations of the sons are derived from their marriage certificate. I use a version of HISCLASS that distinguishes seven classes, which are (roughly from upper to lower class): *Higher managers and professionals; Lower managers and professionals, clerical and sales personnel; Foremen and skilled workers; Farmers and fishermen; Lower-skilled workers; Unskilled workers; Lower-skilled and unskilled farm workers*. Van Leeuwen and Maas (2007) regard the *Higher managers and professionals* as the upper class; they regard the *Lower managers and professionals, clerical and sales personnel* and *Foremen and skilled workers* as Brugmans' proposed (1977) middle classes and they regard the *Farmers and fishermen,* the *Lower-skilled workers,* the *Unskilled workers* and the *Lower-skilled and unskilled farm workers* as the lower class. I follow this. To calculate the percentage of the middle class in a community, I first divide the number of married sons with a middle class occupation by the total number of married sons with an occupation in each municipality in each year. This indicates, for example, what percentage of married grooms in Apeldoorn in 1850 have a middle class occupation. Because in some municipalities only very few grooms married in certain years, which can cause unreliable results, I decided to take the mean of this percentage for a community in the preceding 5 years and the upcoming 5 years. That is, for the community of Apeldoorn in 1850, the mean of the percentage middle class

grooms in Apeldoorn from 1846 to 1855 is used. For Apeldoorn in 1851, the percentage of middle class grooms in Apeldoorn from 1847 to 1856 is used, et cetera.[3] The same procedure is used to arrive at the percentage of the lower and upper class in communities. In order to easily draw conclusions for the middle class hypotheses from the analyses, the middle class will be used as reference category for social class. In this way, the effect of the lower and upper class are both in relation to the middle class.

In Figure 1c, the percentages of grooms in the lower, middle and upper class occupations are displayed for the period 1827-1897. The figure confirms the findings of Van Leeuwen and Maas (2007): the middle class rose from about one fifth to almost one third of the labour force. Both the share of the lower and upper class decreased during the period under study.

Secularization

The percentage of citizens without a religious affiliation in a community is used as indicator for secularization. I only have information on the number of unreligious citizens for municipalities in the years 1809, 1829, 1849, 1859, 1869, 1879, 1899, 1909, 1920 and 1930. Linear interpolation is used to estimate the number of unreligious persons in municipalities for the intermediate years. See Figure 1d for the percentages of unreligious citizens during this period. Although Knippenberg (1992) showed that the 2.3 percent of the population had no religious affiliation at the end of the nineteenth century, I only see a little over one percent of unreligious citizens at the end of the nineteenth century. The difference can be explained by the fact that Knippenberg analysed all 11 provinces of the Netherlands, while I only studied 5 provinces. Zeeland (1.2%), Gelderland (0.9%), Overijssel (1.1%) and Limburg (0.0%) all had very little unreligious citizens at the end of the nineteenth century, only Groningen (4.2%) showed a relatively large percentage of unreligious citizens (Knippenberg, 1992).

Pillarization

No direct indicator for pillarization is available in the data that I use. However, I do know the proportion of Protestants and Catholics in each community, and I can use this to assess the effect of possible pillarization. I argue that there is less opportunity for segregation at the community level when the difference between the proportion of Protestants and Catholics is

[3] Because I only have data for the period of 1827-1897, not all 5 preceding or 5 following years are available for some communities. Not all the 5 preceding years are available for communities in the first 4 years of the period (1827-1830) and not all 5 following years are available for communities in the last 4 years (1894-1897). In that case, the percentages of classes are based on the available years. For example, the score of the community of Apeldoorn in 1829 is based on Apeldoorn's scores between 1827-1833, and not on the period of 1824-1833.

larger. If a community is almost entirely dominated by Protestants, the Catholics in that community will not be able to set up their own schools, stores and churches, because these organisations need enough visitors to (at least economically) survive. When the proportion of Protestants and Catholics become more equal, the possibilities to set up institutions based on one's own denomination increase. Moreover, I suggest that religious denomination as a criterion in the job market will be more useful when the proportions of Catholics and Protestants are more equal. In municipalities where virtually everyone is a protestant, being a protestant would not be an advantage for lower class individuals, because denomination as criterion for hiring is of no use when everyone shares the same denomination. When the proportion of Catholics and Protestants become more equal, religion as recruitment criterion becomes more relevant. In conclusion, when the proportion of Protestants and the proportion of Catholics become more equal in a community, possibilities for segregation increase and religion as recruitment criterion is more relevant, which is why I measure the possibility for pillarization by the absolute difference between the proportion of Protestants and Catholics within a community. I then subtract this absolute difference from the maximum difference of 100, in this way communities attain higher scores on this variable when the proportions of Catholics and Protestants are more equal.

Because I measure the possibility for pillarization, and not directly pillarization, I cannot firmly prove that pillarization actually increased social mobility. However, I believe it is possible to show that pillarization did not increase social mobility (if that is the case). If social mobility is not higher in communities where the possibility for pillarization is larger, pillarization either was not present or did not influence social mobility. In both cases I can conclude that pillarization does not provide an explanation for the increase of social mobility in the Netherlands during the nineteenth century.

As mentioned in section 2.4, a socialist pillar and liberal pillar are sometimes also distinguished. I do not have information on these pillars. However, I believe that information on the Catholics and Protestants, which I do have, are most in line with my theoretical arguments. Many authors (such as Lijphart, 2008; Schrover, 2010; Vink, 2007; Semetko; 1998) argue that the religious pillars showed most coherence and had the most influence throughout one's life. Just like the data on unreligious citizens, I only have information on the percentages of Protestants and Catholics for certain years, these years are 1809, 1829 (I do not have information on Protestants for this year), 1849, 1859, 1869, 1879, 1889, 1899, 1909, 1920 and 1930. Again, linear

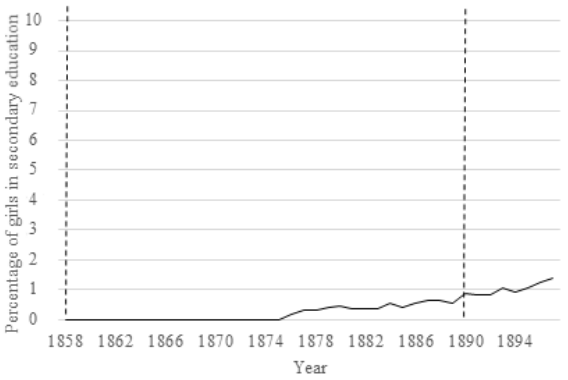
interpolation is used for estimating the religious affiliations in the intermediate years. See Figure 1e for the percentages of Protestants and Catholics in the period of 1827-1897.

The proportion of Protestants varies between 60 and 70 percent and the proportion of Catholics varies between the 30 and 40 percent throughout the nineteenth century. One can see that there is a marked change in the ratio of Catholics to Protestants at the year 1848. This happens because I have data on the religious affiliation of citizens in 425 municipalities for the period 1809-1848. From 1849 on, I have information on 511 municipalities. The 86 new municipalities appear to be less Catholic and more Protestant than the original 425 municipalities, which leads to a sudden change in the ratio of Protestants to Catholics at the national level. Because I am interested in the difference between Protestants and Catholics at the community level (see *H4a)*, this does not pose a problem. It also does not influence the degree to which pillarization might explain the trend towards a higher level of social mobility (*H4b*), because the analyses regarding this question are based on the period after the sudden change of proportion of Catholics and Protestants (see dashed vertical lines in Figure 1e).

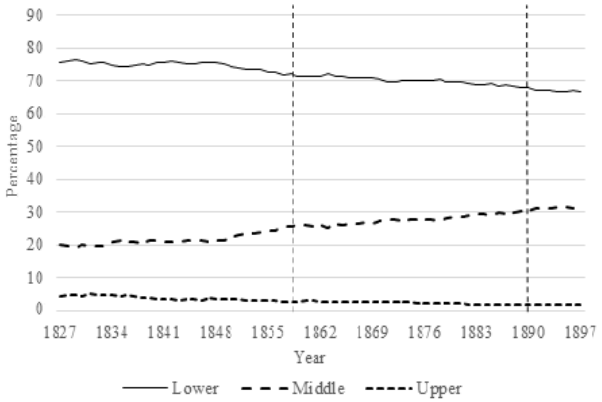
Figure 1. Community indicators

a. Average Sibling Size, 1827-1897

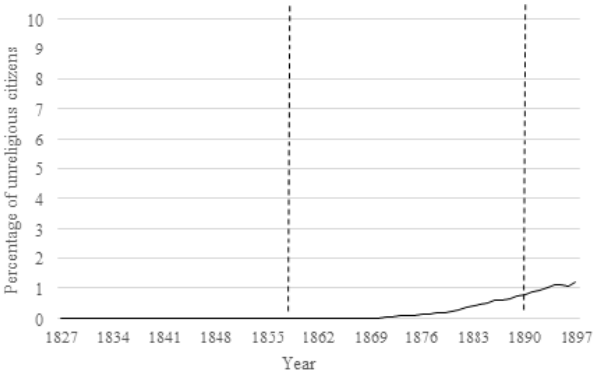
b. Universalistic Values, 1858-1897



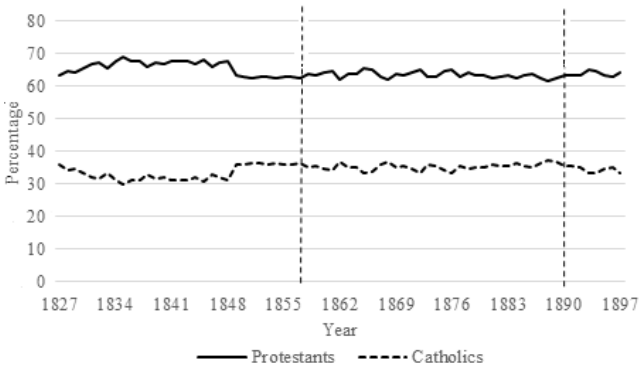
c. Lower, Middle and Upper Class, 1827-1897



d. Secularization, 1827-1897



e. Protestants and Catholics, 1827-1897



3.2.3 Individual-level controls

I control for several possible individual level confounding variables. I control for the son's age at marriage, because age at marriage varies strongly by class and region (Van Poppel and Nelissen, 1999) and this could bias my results. I also control for birth order, which can be found by comparing the birth years listed on the marriage certificates of siblings. Birth order might influence the effect of the father's occupational status via multiple ways. For instance, it could be the case that the father leaves his family business only to the first born child. Or on the other hand, it could be possible that second born or third born children eventually profit from the occupational status of their older sibling, which in turn is influenced by the father's occupational status. I control for whether the father is a farmer, because there is evidence that the status attainment process works differently within farming families (Bras, Kok and Mandemakers, 2010). A father is labelled as farmer if more than half of his married children list him as farmer on their marriage certificate. The number of siblings (see section 3.2.1) is also added as control, because the status of a son might be lower if he has more siblings (Bras, Kok and Mandemakers, 2010).

3.2.4 Community-level controls

As noted, several other modernization processes have been studied with regard to social mobility. The industrialization mechanism, the educational expansion mechanism, the common culture mechanism and the anonymization mechanism all propose arguments for increases in social mobility (Treiman, 1970). To make sure that my community indicators of universalistic values, the middle class, secularization and pillarization do not represent these already studied mechanisms, I will use the indicators for the modernization processes studied by Knigge et al. (2014) as community-level controls in my analyses. Knigge et al. studied industrialization, educational expansion, a common culture and anonymization

Industrialization is measured by the number of steam engines purchased per 1000 inhabitants in a community. Educational expansion is measured by the number of students enrolled in secondary education per 1000 inhabitants in community. A common culture is measured by a dichotomous variable indicating whether a post office is present in a community. Anonymization is measured by urbanization (the number of in inhabitants in a community), inmigration (the number of people migrating to a community) and by the availability of mass transportation (operationalized as a dichotomous variable indicating whether a train station is present in the community). See Knigge et al. (2014) for a more detailed description of these indicators.

Correlations between the community indicators and the modernization variables (the community-level controls) of Knigge et al. are presented in Table 2. All correlations are positive and significant, which suggests that the community and modernization mechanisms tend to occur together. I do not deem the correlations problematically high.

Table 2. Correlations between Modernization and Community indicators

	Girl students	Middle class	Unreligious citizens	Poss. For Pillarization	Steam engines	Students	Post office	Population	In-migration	Train station
Girl students	1.00									
Middle class	.15	1.00								
Unreligious citizens	.31	.38	1.00							
Poss. For Pillarization	.04	.20	.07	1.00						
Steam engines	.19	.25	.35	.15	1.00					
Students	.24	.50	.33	.27	.34	1.00				
Post office	.19	.59	.28	.31	.36	.52	1.00			
Population	.06	.57	.40	.35	.24	.59	.60	1.00		
In-migration	.06	.20	.16	.20	.13	.19	.19	.12	1.00	
Train station	.08	.30	.23	.21	.27	.39	.46	.47	.21	1.00

3.3 Analyses

As mentioned in section 3.1.1, the data contain interdependencies. Individuals are nested in families, and families are nested in communities. Brothers are probably more similar than two random individuals and families from the same community are also likely to be more similar than families from different communities. In the case of the family level for example, the father's influence or inter-sibling influence might cause brothers to be more similar than random individuals. As a consequence, the average correlation between the variables measured on brothers will be higher than the variables measured on random individuals. This violates the assumption of independence of observation and could lead to smaller estimates of standard errors, which can cause results to seem significant in ordinary analyses while they would not be significant when the interdependencies are taken into account (Hox, 1995). To prevent this problem, multilevel analysis should be performed. However, it was not feasible to use multilevel analysis in this paper.

To assess whether it is problematic that I do not use multilevel analyses, I will replicate part of the research of Knigge et al. (2014), where multilevel analysis is used. In this way, I am able to compare my results with theirs and evaluate the appropriateness of my method. As will be shown, results are very similar, so I have good reason to believe that my results are adequate as well.

I will start the results section with computing correlations between the occupational status of the father and his sons for several decades in the nineteenth century. This gives a first indication of how social mobility developed. The larger the similarity between the occupational status of the father and the son, the lower social mobility. On the basis of these correlations, I will decide whether to use linear time variables in the analyses, or whether I will use quadratic terms of time, for non-linear trends in social mobility. I will then perform OLS regression with son's occupational status as dependent variable. I use the father's occupational status, time, the interaction between the father's occupational status and time and the individual-level control variables as independent variables in Model 1. The interaction between the father's occupational status and time reveals whether and to what extent social mobility increased. If the regression coefficient of the interaction between the father's occupational status and time is negative, this means that the influence of the father's occupational status has decreased over the nineteenth century, which means that social mobility increased. Because all the variables in Model 1 are available during the period of 1827-1897, this is the period of analyses for Model 1.

I report Model 1 (and models 2, 3 and 4 later on too) in two ways. In the first representation, all variables are centered on their mean (except for time, which is centered at the beginning year, and the dichotomous variable that indicates whether the father is a farmer). For model 1, this means that the regression coefficients apply to a son in 1827 with average scores on all the continuous variables and whose father was not a farmer, which facilitates interpretation of the coefficients. In the second representation of Model 1 (and model 2, 3 and 4 later on), I standardize the dependent variable and all continuous variables. In this way, the original scaling of the variables does not influence the magnitude of their effect, which makes comparability with studies that use variables with other scales easier.

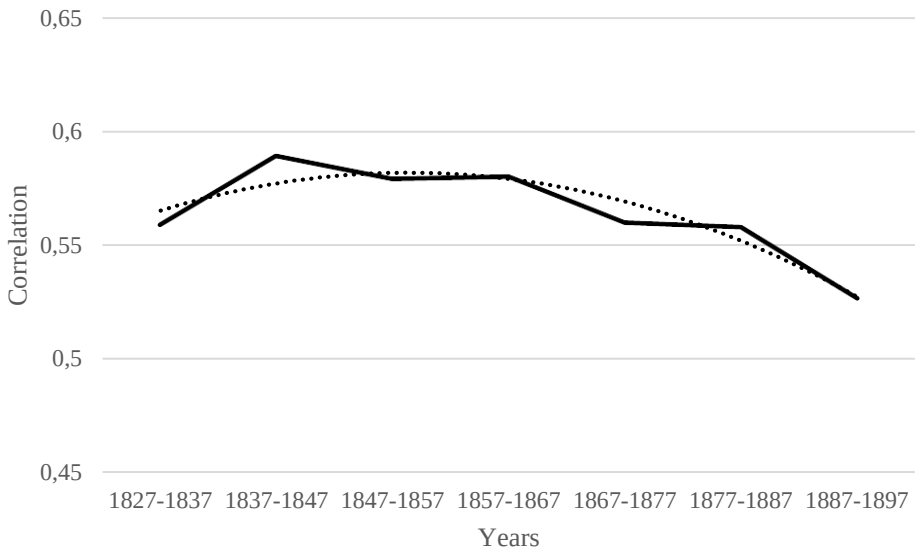
After establishing to what extent social mobility increased in Model 1, I will assess whether this increase in social mobility can be linked to the community variables (universalism, middle class, pillarization, secularization and sibling size) in Model 2, Model 3 and Model 4. Because not all of these variables are available in the period of 1827-1897, these models are based on the period of 1858-1890, where all the variables are available. In Model 2, I add all the individual level control variables and the father's status, time and the interaction between the father's status and time (which are nearly the same variables as in model 1, but then for the period of 1858-1890). In Model 3, I add the community-level control variables (industrialization, educational expansion, geographic mobility, urbanization, mass communication and mass transportation) that have already been tested by Knigge et al. (2014) and interactions between these modernization variables and the father's status to the variables that are already included in Model 2. In Model 4, I add to Model 3 the community variables that are of main interest in this article (universalistic values, the middle class, pillarization, secularisation and sibling size) and accompanying interactions with the father's status.

Looking at the interactions between the father's occupational status and the community variables will show whether the community variables have an influence on social mobility as hypothesized. For example, if the interaction between the father's occupational status and secularization is negative, this would mean that father's occupational status has less influence on his son's occupational status in communities that are more secular. The difference in the (standardized) interaction of time and father's occupational status between the different models indicates to what degree the community variables explain the increase in social mobility. The community variables at least partly explain the increase in social mobility if the interaction between time and father's occupational status is lower in Model 4 than in Model 3.

4. Results

The average correlation between the occupational status of the father and the occupational status of the son during 1827-1897 is .56. This means that we can explain 31.3% (0.56^2) of the variation in the status of sons by the status of the fathers. To examine how this correlation fluctuated over the nineteenth century, average correlations are computed for each available decade from 1827 onwards (the first decade being 1827-1837). The correlations are displayed in Figure 2. An order 2 polynomial trend line approximates the trend well (with an R^2 of .88) and is therefore shown as dotted line.

Figure 2. Correlation between the father's and the son's status, 1827-1897



It can be seen that the influence of the father increased in the first half of the nineteenth century, and decreased during the latter half of that century. This means that there is no linear relation between the father's influence and time in the period of 1827-1897, which is why I add a quadratic term of time to Model 1. Model 1 (see Table 3) demonstrates how the influence of the father's status on the status of the son changed during the period of 1827-1897.

Table 3. Model 1. The influence of the father's status on the status of the son, 1827-1897

	b^a	B^b
Intercept	44.941	.056***
	(.063)	
Father's status	.699	.551***
	(.006)	
x Time	.021	.033***
	(.004)	
x Time^2	-.005	-.057***
	(.000)	
Time	.296	.046***
	(.037)	
Time^2	.047	.056***
	(.005)	
Age Son at Marriage	.184	.082***
	(.003)	
Birth order	.459	.058***
	(.013)	
Sibling size	-.497	-.079***
	(.011)	
Father being a Farmer	-2.073	-.161***
	(.040)	

*p<.05; **p<.01; p***<.001 (two-tailed).

[a]All variables, except for the time variables and Father being a farmer, centered on their mean

[b]Dependent variable and all continuous variables standardized.

The status of an average son (whose father was not a farmer) was 44.941 (the intercept) in 1827 and increased by 4.375 points (which is found by multiplying the time coefficients by their maximums: 7*.296+49*.047) to an average status of 49.316 in 1897. We see that the father has considerable influence on the status of his son. For every status point increase of the father, the son's status rises by .699 points in 1827. From the positive sign of the regression coefficient of *Father's status x Time,* we see that the influence of the father's status initially increased. However, the negative sign of the regression coefficient of *Father's status x Time*^{2} indicates that this might not hold true for the entire period under study. Indeed, comparing both time interaction coefficients reveals that the influence of the father's status increased to a maximum of .721 in 1848 (by using the derivative of .021 × Time - .005 Time^2) and declined from then on. By the year of 1897, the regression coefficient of the father's status is .601, which means that the influence of the father's status decreased by almost 17% (1-(.601/.721)) in the period of 1848-1897. That the father's influence is highest around 1848, and decreases from then on

coincides with Figure 2 and the findings of Knigge et al. (2014). As for the controls, we see that sons who marry at a later age attain a higher status and sons with more siblings, sons who are older than their siblings, and sons of farmers attain a lower status.

In models 2, 3 and 4 (see Table 4) we will see whether the decreasing influence of the father's status during the second half of the nineteenth century can be explained by the community variables. As previously mentioned, some of the community variables were only available for the period of 1858-1890, which is why the upcoming analyses will be restricted to this time period. In Model 1, we saw that the father's influence only started to decrease after 1848, which is why it is not problematic for present purposes to study the period of 1858-1890. Because the father's influence decreased rather linearly over this period, adding quadratic terms of time in these models does not significantly improve the model (results not shown). Again, centered and standardized coefficients are shown. It is important to reiterate that the middle class is used as reference category for the class variables, in order to properly examine the influence of the middle class on social mobility.

Table 4. Model 2, 3 and 4. The influence of the father's status on the status of the son as a function of the community variables, 1858-1890

	Model 2		*Model 3*		*Model 4*	
	b^a	B^b	b^a	B^b	b^a	B^b
Intercept	46.538	.048***	46.479	-.001	46.524	.004
	(.055)		(.062)		(.064)	
Father's status	.732	.551***	.716	.544***	.712	.542***
	(.005)		(.006)		(.006)	
x Time	-.026	-.020***	-.022	-.017***	-.021	-.016***
	(.002)		(.003)		(.003)	
x Universalistic Values					.001	.001
					(.001)	
x Lower Class[4]					-.001	-.012***
					(.000)	
x Upper Class					.002	.005*
					(.001)	
x Secularization					.009	.004*
					(.004)	
x Pillarization					.000	-.001
					(.000)	
x Siblings					-.010	-.016***
					(.001)	
x Industrialization			.001	.002	.000	.001
			(.001)		(.001)	
x Educational expansion			.000	-.001	-.001	-.006**
			(.000)		(.001)	
x Mass communication			-.028	-.023***	-.046	-.037***
			(.007)		(.007)	
x Urbanization			-.001	-.009***	-.002	-.013***
			(.000)		(.000)	
x Geographic mobility			.000	-.006**	.000	-.006**
			(.000)		(.000)	
x Mass transportation			-.028	-.022***	-.021	-.017***
			(.006)		(.006)	
Universalistic Values					-.002	.000
					(.014)	
Lower Class[5]					-.063	-.070***
					(.002)	

[4] The interaction between Father's Status and the Middle class is the reference category.
[5] The Middle Class is the reference category.

Upper Class					-.010	-.003
					(.008)	
Secularization					.041	.002
					(.049)	
Pillarization					.013	.025***
					(.001)	
Industrialization			.125	.024***	.116	.022***
			(.011)		(.011)	
Educational Expansion			.082	.034***	.051	.021***
			(.006)		(.006)	
Mass communication			1.339	.105***	.693	.050***
			(.069)		(.073)	
Urbanization			.058	.044***	.025	.019***
			(.003)		(.004)	
Geographic mobility			.005	.013***	.001	.003
			(.001)		(.001)	
Mass transportation			.137	.011*	.317	.025***
			(.060)		(.060)	
Time	.740	.055***	.411	.030***	.416	.031***
	(.025)		(.027)		(.029)	
Siblings size	-.400	-.065***	-.364	-.059***	-.352	-.057***
	(.013)		(.013)		(.013)	
Age son at marriage	.215	.094***	.242	.106***	.239	.104***
	(.004)		(.004)		(.004)	
Birth order	.566	.045***	.557	.044***	.556	.044***
	(.025)		(.025)		(.025)	
Father being a Farmer	-2.176	-.171***	-1.455	-.114***	-1.153	-.090***
	(.054)		(.056)		(.057)	

*p<.05; **p<.01; p***<.001 (two-tailed).

[a]All variables, except for the time variables and Father being a farmer, centered on their mean

[b]Dependent variable and all continuous variables standardized.

Looking at the interaction coefficients in Model 3 of the father's status with each modernization process studied by Knigge et al. (2014), reveals that mass communication, mass transportation, urbanization and geographic mobility all are partly related to a decreasing influence of the father's status. These interactions are all negative and significant. Industrialization and educational expansion however, are not related to the decrease in the father's influence. All these findings are in line with Knigge et al. (2014), who use multilevel analyses instead of OLS regression. Not only are, without exception, similar patterns found, but the coefficients are also

very similar. As a consequence, it does not seem problematic that I performed OLS regression analysis instead of multilevel analysis.

Now that I know that there is no reason to doubt the results of the analyses, I turn my attention to the tests of the hypotheses. I expected universalistic values to decrease the influence of the father's status on the status of the son (H1a), because universalistic values stress that individuals should be judged on their qualities and not on ascribed characteristics, such as family background. However the results do not bear this out (B=.001; p=.545). The dissemination of universalistic values does not seem to have an effect on the influence of the father's status.

Next, I predicted that an increasing proportion of the middle class in the labour force would decrease the father's influence (H2a), because the gap between the lower class and the middle class or between the middle class and upper class is smaller than the gap between a lower and upper class and therefore easier to bridge. If the father's influence is lower in communities where a larger proportion of labour force occupies a middle class position, the interactions between the lower class and the father's status and between the upper class and the father's status should both be positive. Then, a larger lower or upper class, relative to the middle class (the reference category), would increase the father's influence, meaning that a larger middle class would decrease the father's influence. This is not supported by the results. A larger proportion of the lower class in the labour force, relative to the middle class, decreases the father's influence (B = -.012, p <.001). A larger proportion of the upper class in the labour force, relative to the middle class, increases the father's influence (B = .005, p = .012). Social mobility thus appears to be higher in lower class communities, and lower in upper class communities, than in middle class communities.

Because a religious belief was that God determined your position at birth (by your family background) and therefore social mobility should not be pursued, I expected that secularization would remove this believe and thereby decrease the father's influence (H3a). However, the exact opposite seems to be the case: the influence of the father is higher in more secular communities (B = .004, p = .034). The other expectation regarding religion, was that the influence of the father's occupational status is lower in communities where possibilities for pillarization are larger (H4a), because religious denomination could (partly) replace family background as recruitment criterion in the job market of these communities. Although the effect of pillarization was in the expected direction (B = -.001, p = .580), it was not significant. Thus, the father's influence is not lower in communities with more possibilities for pillarization.

My last expectation was that a larger sibling size decreases the father's influence (H5a), because inter-sibling influence (partly) replaces the influence of the father. The results support this mechanism: a larger sibling size decreases the father's influence (B = -.012, p<.001).

I noted before that educational expansion was found not to be related to social mobility in Model 3 and previous research (Knigge et al., 2014). In Model 4, however, educational expansion does seem to increase social mobility (B = -.006, p = .007). Further examination (by stepwise leaving out the newly added variables in Model 4) revealed that the inclusion of the social class variables and interactions with social class and the father's status led the educational expansion mechanism to show its significance. In other words, when controlled for changes in social class, educational expansion actually does appear to decrease the father's influence. A possible explanation for this finding is that educational expansion mainly took place in upper class communities and that the upper class families were best able to capitalize on the process of educational expansion. Because the father's influence is higher in upper class communities (remember that the interaction between the father's status and the upper class was B = .005), educational expansion showed no effect in Model 3 where I did not control for class at the community level.

All the hypothesis were tested while I used the modernization processes as community-level control variables. Because the modernization processes all correlated positively with the newly tested mechanisms (see table 2), results might be different had I not controlled for the modernization processes. Running model 4 without the modernization processes confirms this (see table 5 in the appendix). Universalistic values and secularization now decrease the father's influence (although not significantly), a larger middle class, relative to the lower or upper class now significantly decreases the influence of the father, and possibilities for pillarization also significantly decrease the father's influence. It thus seems essential to control for the modernization processes in order to properly test the independent effects of new mechanisms.

The second set of hypotheses concern the question of whether the increase of social mobility in the Netherlands during the latter half of nineteenth century can be explained by adding the modernization and community variables. In order to test these hypotheses we have to turn our attention to the interactions between the father's status and time. In Model 2, this standardized interaction has a coefficient of -.020, which ones again indicates that the influence of the father decreases over time. In Model 3, where the modernization variables are added, the standardized

interaction decreases to -.017. This means that part of the decrease in the influence of the father can be explained by adding the modernization processes of Knigge et al. (2014).

Adding the new community variables in Model 4 results in a standardized interaction between the father's status and time of -.016. It thus seems that the community variables contribute little to the explanation of the increasing social mobility. The two new mechanisms in Model 4 that decrease the father's influence and thereby might increase social mobility during the nineteenth century were an increase in sibling size (H5b) and changes in social class combined with educational expansion. However, these two processes might be counteracted by the process that seemed to increase the influence of the father, namely secularization. As a consequence, the interaction between the father's status and time might even drop further than -.016 if the interaction between secularization and the status of the father is not included in the model. Running Model 4 without secularization and stepwise adding sibling size and social class reveals that the interaction of father's status with time indeed drops even further, to -.014, and that both sibling size and social class have an equal share in this decline (results not shown). Note that the decline of the interaction coefficient from Model 2 to Model 3 (from -.020 to -.017) is now of the same magnitude as the decline from Model 3 to Model 4 without secularization (from -.017 to -.014). This means that adding the mechanisms of sibling size and social class explain as much of the increase in social mobility as the mechanisms of mass communication, mass transportation, urbanization and geographic mobility.

5. Conclusion and Discussion

Previous research (Knigge et al., 2014) has shown that mass communication, urbanization, geographic mobility and mass transportation are related to the increase in social mobility during the nineteenth century in the Netherlands, while the relations between industrialization or educational expansion and social mobility are less clear. However, the modernization processes were not able to fully account for the observed increase in social mobility.

The main aim of this paper was to further explain the increase in social mobility in the Netherlands during the nineteenth century. To do this, I tested whether the mechanisms of a wider dissemination of universalistic values, an increasing proportion of the middle class in the labour force, secularization, pillarization and an increasing sibling size decreased the influence of the father's occupational status on the occupational status of his son, a conventional measure for social mobility.

I found convincing support for the mechanism of sibling size. Siblings are known to influence each other via socialization and the provision of resources (Benin and Johnson, 1984), and I argued that this inter-sibling influence increasingly goes at the expense of the father's influence when sibling size increases. When a child has more siblings, he has more sources of inter-sibling influence. In addition, when a child has more siblings, he receives less time, attention and resources from the father, because the father has to divide all of these things among more children. The father's influence thus decreases with an increasing sibling size, while inter-sibling influence increases. Because average sibling size increased during the latter half of the nineteenth century, the father's influence decreased in this period, thereby increasing social mobility. The finding that an increasing sibling size can explain part of the increase in social mobility during the nineteenth century demonstrates that it is important to include demographic aspects in the study of social mobility. What seems as a rather personal and private choice – how many children parents choose to raise –, can have consequences for social mobility at the national level. Now that we know that inter-sibling influence is likely important for social mobility, it is also worth exploring in more depth how intra-family stratification works. A first step in this direction was taken by Knigge (2015), who tested several explanations for status differences between brothers in the nineteenth century.

If a larger sibling size increases social mobility, a decline in the average sibling size might decrease social mobility. I studied sibling size until the year of 1890, but quickly after 1890 average sibling size started to decline. If this decline continued in the twentieth century, which seems to be the case for at least the first few decennia (Bras, Kok and Mandemakers, 2010), the trend towards a higher level of social mobility in the twentieth century might be hindered by the developments in sibling size.

After taking class and changes in class structure at the community level into account, educational expansion also appeared to increase social mobility. The fact that educational expansion only revealed its influence after taking class into account could be a consequence of educational expansion mainly taking place in upper class communities during the nineteenth century. That the upper class families were best able to capitalize on this process is in line with status maintenance theory. Status maintenance theory argues that the upper class maintain their status in the early stages of modernization, because they are better able to take advantage of the modernization processes such as educational expansion (Bourdieu and Passeron, 1997). In the case of educational expansion, upper class fathers might be better able to send their children to the new secondary schools, because these fathers have more resources (such as money for

tuition) to do so. As a result, status maintenance theorists argue that the modernization processes do not increase social mobility. However, the results showed that other modernization processes, such as mass communication, urbanization, geographic mobility and mass transportation did increase social mobility, regardless of class, confirming modernization theory. Although the aim of this paper was to test new theories for the increase of social mobility, and not to examine modernization theory or status maintenance theory, it thus appears that lessons can be drawn for modernization and status maintenance theory as well. For some modernization processes, such as educational expansion in the nineteenth century, status maintenance theory is useful, but for the other processes, modernization theory seems more fitting.

Returning to the central theories in this paper, I found no relationship between universalistic values and social mobility, and this might have methodological reasons. Universalistic values were measured by the percentage of girls in secondary education, which is an indirect measure for universalistic values. Although I presented arguments why it is likely that this percentage increases as universalistic values increase, it is also possible the prevalence of girls in secondary education reflects something else. Because the incidence of girls in secondary education also remained very low (just a little over 1 percent at the end of the nineteenth century), there might not have been enough variation to easily detect patterns. Yet another explanation for the insignificant results lies in the fact that universalistic values are expected to increase with the modernization processes that were also included in my models, such as educational expansion, mass communication, et cetera (Treiman, 1970). Since the increase in universalistic values is already captured in these mechanisms one might think that it would be hard to find an additional significant effect of universalistic values. However, even when I did not control for the modernization processes, universalistic values still did not significantly decrease the father's influence. Nonetheless, the coefficients of other mechanisms did substantially change, which suggests that there are interrelations between the modernization processes and the new mechanisms that I studied. I leave for future research how these interrelations exactly work.

I already noted that status maintenance theory offers an explanation for the fact that educational expansion only showed an effect when social class is taken into account. However, I also explicitly formulated expectations for social class. I expected a larger middle class to increase social mobility. Instead, a larger lower class relative to the middle class appeared to increase social mobility, while a larger upper class relative to the middle class appeared to decrease social mobility. As with the process of educational expansion, status maintenance theory

provides an explanation here. As we saw, families from higher classes might profit more from some of the modernization processes than families from lower classes. The upper class is a higher class than the middle class, thereby explaining the finding that social mobility is lower in upper class communities than in middle class communities. Fewer fathers are able to take explicit advantage of the modernization processes in communities where the proportion of the lower class is higher, so social mobility is higher in the lower class communities. This also corroborates Knigge, Maas, Van Leeuwen and Mandemakers (2014), who show that social mobility increases as inequality decreases.

Social mobility was lower in communities where the percentage of secular individuals was higher. Both substantive and methodological reasons may explain this finding. To begin with the substantive reason, it was still unusual at the end of the analysed time period to be an atheist. Not even one percent of the citizens was a self-acclaimed atheist in the year 1890 (see Figure 1d in section 3.2.2), the end of the analysed time period. As is common with more processes, the forerunners of secularization are probably not representative of the secular individuals later on. The secular individuals in the nineteenth century were often well-educated thinkers (Wils, 2006). However, for secularization to increase social mobility, I argued that the aspirations of the unreligious citizens to be socially mobile are especially relevant. These aspirations are mainly important in lower status individuals, because they can be upwardly mobile. Aspirations among the well-educated thinkers are not really relevant because they more likely already have a high status. As a consequence, the secularization mechanism might not work yet in the nineteenth century. Thus, as secularism becomes more widespread among all social strata, the relation between social mobility and secularization might change.

Although this may explain why secularism did not increase social mobility, it still does not explain why secularization might decrease social mobility. I do not see a plausible mechanism for secularization to decrease social mobility. However, it is possible that secularization first emerges in communities where social mobility is low, as a reaction to this low level of social mobility. Then, instead of a being a cause, secularization is the consequence of a low level of social mobility. This idea is supported by the fact that the first atheist organisation in the Netherlands, *De Dageraad,* is known for wanting to improve the situation of people in lower positions and is also known to be closely related to socialism (Derkx, 2002). However, the fact that secularization did not increase social mobility would imply that the aim of improving the situation of people in lower positions was at least till the end of the nineteenth century not

accomplished. Future research should establish whether early signs of secularism may really be a consequence of a low level of social mobility.

Methodically, the measure for secularism was not perfect either. Information on the percentage of secular individuals in a community was only available for certain years in the analysed time period. To arrive at estimates for the percentage secular individuals in unavailable years, linear interpolation was used. At a certain point, linear interpolation even had to be used to estimate 19 adjacent years. It is thus unlikely that the information for secularization is completely correct.

The exact same problem also holds for the mechanism of pillarization, found not to be related to the increase in social mobility. Because information on the religious affiliation of citizens was only present for limited years and linear interpolation was used to estimate the percentage of Catholics and Protestants for the unavailable years, the measure for pillarization is most likely not completely correct. Another similarity with secularization is that pillarization only really accelerated after the nineteenth century (Hellemans, 1990), which may explain why no effect of pillarization on social mobility was found yet in this study.

Since I did not entirely solve the question of what increased social mobility in the nineteenth century, I have a few suggestions for future research. Firstly, because vital registers are increasingly digitalized and international historical databases are growing in geographical and temporal coverage (Van Leeuwen and Maas, 2010), it will likely become possible to test the mechanisms studied in this paper for later periods in the Netherlands and for other countries than the Netherlands. This will give us an idea of the generalizability of the Dutch case in the nineteenth century. If, for example, future results will bear out that secularization increases social mobility in virtually each studied country, I may be tempted to argue that the measure for secularization in my study was indeed invalid. On the other hand, if secularization was negatively related to social mobility in nearly every studied country, it becomes less likely that my finding of a lower level of social mobility in more secularized communities is a result of an invalid measure.

Secondly, more adequate measures for some of the processes might be found. For example, Schulz, Maas and Van Leeuwen (2014a) showed that we can measure pillarization in a more direct way. By analysing to what extent religious criteria (such as being a Protestant) are used in employer's job advertisements in newspapers, they showed that religious criteria became more important in the Dutch job market in the period of 1870-1900. Besides analysing national time trends, it is also possible to compare the percentage of job advertisements that contain religious criteria in newspapers between communities, because numerous regional newspapers are also available to study (at: http://www.delpher.nl/nl/kranten). This makes it possible to assess whether the father's influence is higher or lower in communities where religion as recruitment criterion is more important, which is a more direct test of pillarization. Although it was not feasible for this study to use more direct measures like this one, I advise to use more direct measures in future research on the relationship between pillarization and social mobility.

Lastly, it is possible that we have missed mechanisms that are related to the increase in social mobility. I propose two possible mechanisms: increasing literacy rates and an increasing level of democracy. Illiteracy is a phenomenon that virtually disappeared during the nineteenth century and this might have had consequences for social mobility. Indeed, the chance for a son to be upwardly mobile has been found to be lower and the chance to be downwardly mobile higher when his father was illiterate in the nineteenth century (Boonstra, 2008). It is thus worth exploring whether the increasing literacy in the Netherlands during the nineteenth century adds to the explanation of the increase in social mobility. Even better, a measure for literacy is available in the GENLIAS dataset. Putting a signature on your marriage certificate is a sign of being able to write, and in the nineteenth century writing was only taught in school after one learned to read (Boonstra, 2008). Someone who is able to put his signature on a marriage certificate is thus not illiterate, because he can read and write.

The increasing level of democracy, which I referred to in the theory (section 2.1) might be studied more explicitly with regard to social mobility. The percentage of citizens able to vote for the parliament, for example, cannot be easily studied at the community level (because census suffrage existed and the required amount of taxes that had to be paid in order to vote differed per municipality), but information on the percentage of the population able to vote is already available at national level (Parlement & Politiek, n.d.). It is therefore possible to study the effect of an increasing democratic form of government on social mobility at the national level. A rise of democratic institutions, such as the rise of socialist parties and the woman's movement that are known to have taken place (Van der Laarse, 2000), can also be studied in this regard.

Hopefully, studying these new mechanisms will help us, just like the present study, to learn more on the developments in social mobility. We now know that demographic aspects and social class composition should be included in the study of social mobility, next to the modernization processes. I conclude that Clark (2014) seems wrong in his assertion that social mobility did not increase and cannot be influenced. Mass communication, urbanization, geographic mobility, mass transportation, changes in social class composition in combination with educational expansion and a rise of the average sibling size all increased social mobility during the nineteenth century.

6. Appendix – Table 5. Model 4 without the community-level controls

	b^a	B^b
Intercept	46.572	.025***
	(.058)	
Father's status	.662	.532***
	(.006)	
x Time	-.220	-.017***
	(.027)	
x Universalistic Values	.000	-.001
	(.001)	
x Lower Class[6]	.001	.006**
	(.000)	
x Upper Class	.003	.007***
	(.001)	
x Secularization	-.003	-.001
	(.004)	
x Pillarization	.000	-.009***
	(.000)	
x Siblings	-.009	-.015***
	(.001)	
Universalistic Values	.037	.005**
	(.013)	
Lower Class[7]	-.092	-.101***
	(.002)	
Upper Class	-.019	-.005*
	(.008)	
Secularization	.302	.014***
	(.046)	
Pillarization	.021	.042***
	(.001)	
Time	.054	.040***
	(.003)	
Age Son at Marriage	.229	.100***
	(.004)	
Birth order	.560	.044***
	(.025)	
Sibling size	-.352	-.057***
	(.013)	
Father being a Farmer	-1.192	-.093***
	(.057)	

[6] The interaction between Father's Status and the Middle class is the reference category.
[7] The Middle Class is the reference category.

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