

The Role of Religion in the Dutch Fertility

Transition

Starting, Spacing, and Stopping in the heart of the Netherlands 1845-1945

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Summary

This contribution investigates how religion has retarded the Dutch fertility transition by looking at how denominations were associated with the timing of the first birth (starting), the length of birth intervals (spacing), and the timing of the last birth (stopping). First, we apply a simple descriptive model of starting, spacing, and stopping to life course data from the province of Utrecht. Then, we apply multivariate regression to assess the independent effects of religious denominations, net of socio-economic status, on stopping behaviour. The results indicate that liberal Protestants were more prone to adopt stopping behaviour than orthodox Protestants and Catholics.

(4,447 words, 3 Tables, 2 Figures)

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I. INTRODUCTION

In the historiography of the Dutch demographic transition religion plays an important role.¹ The slow decline of fertility levels as well as regional differentiation within the demographic transition has been ascribed to the influence of both Catholicism and orthodox Protestantism. Both Roman Catholics and 'Gereformeerden' (orthodox Protestants) had strengthened their social and political position in the second half of the nineteenth century and both groups were virulently opposed to 'Neo-Malthusianism'. Their attitude on 'morality' induced liberal and even socialist groups to adopt more or less puritan positions as well.²

The difference between orthodox Protestantism and Catholicism on the one hand, and the rest of the population on the other, are often reduced to the juxtaposition of a 'traditional' mentality to a 'liberal' or 'modern' one.³ The 'traditional' groups rejected modern forms of birth control and continued to rely on the Malthusian methods of late marriage and celibacy. In this view, liberal Protestants and persons without a religion were more prone to accept the innovation of parity specific birth control.

Yet, most empirical studies have analysed fertility levels without discriminating between the behavioural components that determine the number of children eventually born

within marriages. This paper starts off from the distinction between starting, spacing and stopping to analyse the underlying dimensions of fertility differences between religious groups during the second half of the nineteenth century. We address two questions. First: were the differences between religious groups due to starting, spacing, or stopping, or some combination of these behaviours? Second: do the differences between religious groups disappear after controlling for their socio-economic characteristics?

II. RELIGIOUS BELIEFS AND REPRODUCTIVE BEHAVIOUR

In the literature about the relation between religion and fertility, the classic theoretical reference is a book by C. Goldscheider.⁴ Noting that religion can have indirect as well as direct effects on reproductive behaviour, Goldscheider proposed three hypotheses: the particularized ideology or doctrine hypothesis, the characteristics hypothesis, and the minority group status hypothesis. Here, we concentrate on the first hypothesis and discuss why we would expect different reproductive behaviour between religious groups for ideological reasons.

We distinguish between religious groups with a relatively 'liberal' mentality with respect to beliefs and norms on the one hand, and groups with stringent doctrines and orthodox attitudes on the other. In the Dutch case, we assume that the liberal group consists of Protestants only. More precisely, the 'liberal Protestants' consist of the majority denomination of the Dutch Reformed, as well as the Mennonites, the Lutherans and the Remonstrants.⁵

Catholics as well as some Protestant groups are counted as 'orthodox'. In contrast with the neighbouring Belgian situation, for example, Catholics were in a minority position in the Netherlands. In this context, they developed stronger religious institutions and social control. In the category 'Orthodox Protestants' we have combined members of the various Calvinist secessionist churches. Also, Dutch Reformed persons born in

communities where their church was dominated by fundamentalists were counted as orthodox.⁶ We assign a couple to this category when at least one of the partners was orthodox. We expect that orthodox Protestants shared a stringent and defensive attitude and strong social control mechanisms with the Catholics. Intermediate positions will be held by couples of mixed Protestant-Catholic religion. In our view, a mixed marriage is a sign of moderate religiousness.

The classic hypothesis is that orthodox groups rejected modern forms of birth control and continued to rely on the Malthusian methods of late marriage and celibacy. Therefore, we expect both Catholics and orthodox Protestants to exhibit a more Malthusian marriage pattern than liberal Protestants. This would be in line with the data on the provincial level: in the middle as well as at the end of the nineteenth century, provinces with a Catholic majority clearly had a lower nuptiality level than predominantly Dutch Reformed provinces.⁷

We expect that liberal Protestants were more prone to accept new ways to limit fertility within marriage. As to birth spacing and stopping, we have to consider various aspects of adhering to a particular faith.

- (1) There is a difference in openness to information from outside the group. In their insistence on personal knowledge of Biblical texts, Protestants in general have laid greater emphasis on literacy and education than Catholics. This may have led to a greater susceptibility to scientific insights on, for instance, the effects of breastfeeding. Indeed, in the late nineteenth century child mortality declined much slower in Catholic areas.⁸ An individual-level enquiry in The Hague in 1908 shows that Catholics practiced less breastfeeding than Protestants (and both groups less than Jews).⁹
- (2) There is a difference in beliefs about who's in charge of the things in life. The Reformation has been associated with rationalist and pragmatic attitudes. According

to McQuillan, Protestantism encouraged individuals to accept responsibility for handling the problems of everyday life.¹⁰ However, Dutch Calvinism appears to have shared a tendency towards fatalism, - that is, submission to God's will - with Roman Catholics. For instance, in the early nineteenth century, both Catholic and orthodox Protestant villages were very reluctant to adopt vaccination against smallpox. On the other hand, liberal protestant denominations like the Mennonites took the lead in this respect.¹¹

- (3) The perception of the function of marriage differs between Catholic and Protestants creeds. Whereas in Catholicism, the prime function of marriage was procreation, Protestantism emphasized mutual support between the spouses.¹² Clearly, in marriages in which communication between the spouses is valued, there is more room for 'negotiating' tactics for birth control like abstinence or coitus interruptus.¹³
- (4) The conformity of individuals to official church norms was related to the internal structure of religious groupings. Both Catholics and orthodox Protestants formed minorities, bent on defending their identity. In 1795, the Catholics were granted equal rights and throughout the nineteenth century they would strengthen their institutions and positions. The Calvinists had seceded from the mainstream and increasingly 'modernist' Dutch Reformed Church in two successive movements (1834 and 1886). Both Catholics and Calvinists secured high levels of conformity with mechanisms of social control, such as public shaming of pregnant brides. On the other hand, in the Reformed Church these mechanisms had become obsolete by the first half of the nineteenth century. Indeed, there were conspicuous differences in the levels of bridal pregnancy and illegitimacy between Catholics and Calvinists on the one hand, and Dutch Reformed on the other.¹⁴ It may have been more difficult to 'experiment' with fertility limitation in tightly controlled religious communities than in more tolerant (or indifferent) surroundings.

(5) Finally, we have to consider the creed and pastoral practice. Although the strong Catholic positions against neo-Malthusianism were voiced long after the start of the fertility transition,¹⁵ various elements in their pastoral practice may have promoted high fertility in an earlier period as well. In various places around 1850 'Brotherhoods of the Holy Family' began to devote themselves to improving catholic morality and family life. These organizations attracted thousands of members.¹⁶ Perhaps more important, the Catholic clergy started in the same period a campaign against breastfeeding on the ground that exposing the breasts was something shameful.¹⁷

To sum up, we expect Catholics and orthodox Protestants to have the highest marital fertility. A combination of factors works in that direction: high internal social control, a fatalistic attitude towards life and less receptiveness to new, scientific knowledge would hinder the acceptance of parity-specific stopping behaviour. With respect to birth spacing, Catholic pastoral advice against breastfeeding may have been a pressure towards shorter birth intervals. Possibly, there was also less room for communication on sexual matters in Catholic marriages, which would hinder both deliberate birth spacing and stopping. In contrast, couples from liberal protestant denominations were probably more willing to consider and experiment with birth control. Our empirical analysis will try to find out where the differences were, if any: in starting, spacing, or stopping behaviour, or in all or some combination of these. We do not discuss the fertility pattern of religious groups other than Catholics and Protestants, like Jews, for example, because the number of observations in our sample for those groups is too low.

III. CONTEXT AND DATA

In this article we analyse family reconstructions covering the province of Utrecht, the Netherlands in the period 1845-1945. Utrecht is located in the central part of the country.

The historical setting

During the seventeenth and early eighteenth centuries, Utrecht had benefited greatly from the commercial successes of the Dutch Republic. However, the second half of the eighteenth century was characterized by economic decline. The Napoleonic Wars sealed the fate of the Netherlands as a leading seafaring nation. In the first half of the nineteenth century, the coastal provinces were only slowly recovering from this crisis. The size of the population in cities like Amsterdam stagnated until 1850.¹⁸ The small, inland province of Utrecht had suffered less from the collapse of the sea trade. Its population grew strongly, in particular in the eastern part of the province. From around 1850 onwards, the number of factories increased with chemical, textile and cigar making industries predominating. The province, especially its major cities Utrecht and Amersfoort, profited strongly from its central location at the nexus of Dutch railway lines. This attracted railroad offices and workshops, metallurgical industries and a host of commercial service companies.¹⁹

The Netherlands as a whole was relatively late in industrializing. The industrial ‘take-off’ did not occur until the 1890’s. In this respect, Utrecht was no exception. Apart from the service sector, their economies were built on agriculture, in particular on dairy farming which grew continuously in importance. Farms were small in size and workforce but highly oriented towards producing quality products for export. By and large, farmers in the western part of Utrecht were rather prosperous. Due to the commercialised and specialised character of the economy in these areas, most people depended on wages. The labour market was clearly divided in a skilled and an unskilled segment. Up until the final decades of the nineteenth century, there were large numbers of unskilled day-labourers whose income was highly insecure and who often turned to charity to supplement their incomes. In fact, around 1850 15 per cent of the Utrecht population was on poor relief. In the country as a whole, this was 14 per cent.²⁰

The demographic transition in The Netherlands has followed a somewhat different course from the rest of Europe. Although mortality declined early, marital fertility declined later and slower, which caused a strong population growth until well after the Second World War.²¹

[Figure 1 about here]

Explanations of this pattern tend to combine the late industrialization of the country with the strong impact of religious organizations on Dutch mentality and procreative behaviour (see below). As is shown in Figure 1, marital fertility in the Netherlands declined slowly from the 1890s onwards. The low level in 1831-1836 and the slumps in 1846-1850 and 1856-1860 have been ascribed to the effects of the war of Belgian Secession (1830-1838), and severe food crises and outbursts of epidemic diseases.²² The figure also shows that the level of marital fertility of Utrecht was somewhat higher than the Dutch average.

The family reconstructions

Our dataset is drawn from the Historical Sample of the Netherlands, a large database that is scheduled to contain more than 70.000 life courses. The database is built from a random sample (0,5 per cent) from the Dutch birth certificates of 1812-1922, linking and entering all information in both the civil registers (birth, marriage and death certificates) and the continuous population registers which started in 1850.²³ We use the first, more or less completed, part of this database that covers the province of Utrecht. We limit the analysis to married sample persons. Their birthplaces were evenly spread over the urban and rural parts of the province. More important, their complete life courses were reconstructed by following them in all their successive places of residence. From 1850

onwards, Dutch population registers recorded all life events (birth, death, marriage and migration) of individuals within their households, and noted additional information on occupation and religion.

In the following analyses, we will only use completed marriages because we are analysing completed fertility (N=481). Completed marriages are defined as all marriages that remain intact at least until the wife reaches age 45.

IV. STARTING, SPACING, AND STOPPING

McDonald has proposed a simple model to describe completed marital fertility.²⁴ Starting from the fact that the average completed fertility of a group of ever-married women is a function of their starting, stopping and spacing behaviour, he proposed the following equation as a tool to distinguish between the different components:

$$CEB = s \cdot \left(1 + \frac{l - m - f}{i} \right)$$

The mean number of children ever born (CEB) is a function of:

s = the proportion of the group who have at least one child;

l = the mean age at last birth of the wife;

m = the mean age at marriage among women who ever have a birth;

f = the mean length of the interval between marriage and first birth;

i = the mean length of interbirth intervals.²⁵

The purpose of the model is to find out what proportion of an observed change in CEB is due to starting, spacing and stopping respectively. Starting is represented by m and f , spacing by i , and stopping by l .

Our sample includes only marriages with at least one child, so we are excluding all marriages that were permanently sterile. This makes s equal to one in all cases. Table 1

gives the values calculated for the other parameters by generation and religious group. We distinguish between two generations: the first includes all marriages where the wife was born before 1861, the second all those where the wife was born in 1861 and afterwards. The oldest women from the first generation were born in 1815, while the youngest from the second generation was born in 1902. As to religion, we distinguish between liberal Protestants, orthodox Protestants, and Catholics, as discussed in section 2.

[Table 1 about here]

First, the table indicates that Catholics and orthodox Protestants had about the same completed marital fertility as liberal Protestants in the older generation and that the differences became bigger in the younger generation. The lack of significant differentiation in the first generation is remarkable since liberal Protestants married markedly earlier than orthodox Protestants and Catholics. This can be explained by the shorter birth intervals among the orthodox groups, especially among Catholics, and also by a somewhat higher mean age at last birth.

Shorter birth intervals may have two reasons: a shorter waiting time to conception or shorter postpartum infecundity. We guess that the latter applies: the waiting time is highly determined by coital frequency, and there are no reasons to expect that this frequency would be higher among the orthodox groups than among the liberal Protestants. Postpartum infecundity differentials are highly associated with breastfeeding habits and, as discussed in section 2, there are reasons to expect less breastfeeding, in particular, among Catholics.

The differences in mean age at last birth are so small in the first generation that they can easily be explained by the age at marriage and by differences in birth spacing. Under

natural fertility condition, both high ages at marriage and short birth intervals are associated with a higher age at last birth.²⁶

In the younger generation, the difference between the liberal and orthodox religious groups are mainly due to the much lower age at the birth of the last child among liberal Protestant women, although fertility had declined among all religious groups. This can best be seen in Figure 2. Figure 2 (a and b) is to be read as follows. The baseline is the completed marital fertility when all parameters are equal to those calculated for the liberal Protestant group. The outcome is, of course, equal to the observed mean number of children ever born in that group, which is 6.32 in the older and 4.44 in the younger generation. Then, step by step, we apply the parameters calculated for the other groups, going from left to right in the figures.

First, we introduce the observed mean ages at marriage into the equation for each group and then calculate what completed fertility would have been while keeping the other parameters equal to the ones observed for the liberal Protestants. In the older generation, the mean age at marriage was more than a year higher among orthodox Protestants and more than two years higher among Catholics. If they would only differ in this respect from the liberal Protestant marriages, orthodox Protestant fertility would be about half a birth lower on average than the baseline and Catholic fertility about one birth lower. In the younger generation, the differences were negligibly small.

Second, we apply not only the observed mean age at marriage but also the observed interval between marriage and first birth observed for each religious group. This would not make a big difference, neither in the first nor in the second generation, as indicated by the nearly horizontal lines in the curves between the $b(m)$ - and $b(j)$ -points.

[Figure 2 about here]

Third, we also apply the observed mean interbirth intervals to the equation. Now the curve for Catholics bends markedly upwards. If liberal Protestants and Catholics groups would have differed only with respect to their starting behaviour, as measured by their age at marriage and time to first birth, then the Catholics would have had about one birth less, on average, in the first generation. However, when we also take their shorter birth spacing into account, the fertility gap becomes much smaller already. The orthodox Protestants are still in between. In the second generation, there is hardly any difference anymore at this stage.

Finally, the age at last birth closes the gaps in the first generation and creates a dramatic new gap in the other direction in the second generation. Catholic and orthodox Protestant women from the second generation finally got more children than the liberal Protestant women due to their higher age at last birth. Or, more correctly, it is due to earlier stopping that the baseline group has the lowest fertility. Orthodox Protestants were between Catholics, who had the highest mean age at last birth, and liberal Protestants.

Summing up, in the first generation, there were significant differences between religious groups with respect to age at marriage and birth spacing, but in the end, completed fertility was about the same. In the second generation, the differences in age at marriage were reduced, while different birth spacing persisted and stopping became more differentiated.

However, McDonald's model does not tell anything about the causes underlying the observed differences in mean birth intervals and ages at last birth. Were they due to deliberate spacing and stopping or were they the unintended consequence of other characteristics of the religious groups?

In order to shed more light on these questions, we need to proceed to multivariate analysis. For z , birth spacing, this is done in another paper.²⁷ The findings there indicated

less birth spacing behaviour among Catholics and orthodox Protestants than among liberal protestants, net of the effect of occupation. The next section of the current paper analyses l , the index for stopping behaviour because the evolution of fertility and the difference between the religious groups appears to have been predominantly due to earlier stopping among the liberal Protestants. The question is whether this is confirmed in a multivariate framework that controls for demographic and socio-economic variables.

V. MULTIVARIATE ANALYSIS OF STOPPING

For both generations separately, we model the age at last birth l by means of a proportional hazards model.²⁸ We have chosen to use this regression model because the dependent variable, age at last birth, is a duration variable. Yet, application of OLS regression yields essentially the same results as the ones presented below.²⁹ The list of predictor variables includes mother's birth year, her age at marriage m , the interval to first birth f , the mean duration of interbirth intervals i as well as the occupational status of the husband and religious affiliation in the list of predictors. Including the duration of interbirth intervals forces us to limit the analysis to married couples with at least two children. The results are in Table 2. (Table 3 in appendix gives the conventional distribution characteristics of the covariates).

The results indicate that the covariates in the model are not doing a good job in predicting the age at last birth of first generation mothers. In fact, the likelihood ratio chi-squared test indicates that, for the first generation, the model is not significantly better than the null-model without covariates. The only covariate that comes close to explaining some variance of the dependent variable is age at marriage ($p < 0.085$).

[Table 2 about here]

If the sample size would have been larger, age at marriage would probably have had a statistically significant effect.³⁰ But apart from this, the model indicates that the age at last birth was probably determined largely by the onset of natural sterility. Stopping was not yet part of a parity-aimed fertility controlling strategy.

This changed dramatically in the second generation. Now, the global likelihood ratio test indicates that the model is explaining some significant part of the variance in the age at last birth. In interpreting the hazard ratio's (i.e. the exponentiated beta-coefficients of the Cox regression) it should be reminded that the dependent variable is in fact the inverse of the age at last birth, i.e. a hazard rate. The modelled hazard is the rate at which the event of interest happens, which is giving birth to the last child here. Therefore, the higher the hazard ratio, the lower the age at last birth.

First, within the second generation, the more recent a mother was born, the quicker she would stop reproducing: per additional year of birth, the hazard ratio increased with about one per cent (statistically significant only at the level of $\alpha=0.09$). Second, the higher the age at marriage was, the higher the age at last birth. This effect was stronger than in the first generation and clearly statistically significant. Third, the longer the birth intervals, the earlier reproduction would stop. This is to be expected also under natural fertility conditions³¹, so presumably this effect was present in the first generation as well, even though it was not detected there.

Turning to the differences between occupational groups, the hazard ratio of stopping was about 94 per cent higher among the elite ($p<0.09$) and white collar workers and civil servants ($p<0.008$) than among unskilled and casual blue collar workers. The differences with other occupational groups were in the same direction but not statistically significant. Finally, we get to the point at issue here: did religious affiliation make a difference after controlling for the covariates discussed so far? The results indicate that it did. Catholic women stopped significantly later than liberal Protestants: the estimated hazard ratio of

stopping for Catholics was about 37 per cent lower than for the reference group ($p < 0.004$). The estimated ratio for mixed Catholic-Protestant marriages was about the same size in the same direction, but statistically not significant. The ratio for orthodox Protestants was in the same direction but smaller and also not statistically significant. Not unlikely, this lack of significance is a consequence of measurement error: in some villages, all Protestants were counted as orthodox, even though some may not have been.³² Also, we have considered all couples with at least one of the partners with an orthodox denomination as orthodox, even if the other partner had a liberal denomination.

Jews, by contrast, were clearly more likely to stop earlier than liberal Protestants: the hazard ratio was estimated as high as 4.44, statistically significant ($p < 0.005$) even though Jewish marriages are a very small sub-sample of the population only ($N=8$). The Jewish husbands in our sample were mostly holding elite occupation ($N=3$) or were shopkeepers or artisans ($N=4$). (The last one was a skilled worker).

VI. CONCLUSION

Most empirical studies about differences between religious groups in reproductive behaviour have analysed fertility levels without discriminating between the behavioural components that determine the number of children eventually born within marriages. This paper has distinguished starting, spacing and stopping to analyse the underlying dimensions of fertility differences between religious groups in the province of Utrecht, the Netherlands, during the second half of the nineteenth century. We have addressed two questions. First: where the differences between religious groups due to starting, spacing, or stopping, or some combination of these behaviours? Second: do differences between religious groups disappear after controlling for socio-economic characteristics?

Clearly, religious denomination did matter a lot for reproductive behaviour. We have distinguished two generations: the first including the marital fertility histories of mothers born between 1815 and 1860, the second of mothers born between 1861 and 1902. Although completed fertility hardly differed between liberal Protestants, orthodox Protestants, and Catholics in the first generation, there were notable differences between religious groups with respect to age at marriage, birth spacing and stopping. Catholics married much later than liberal Protestants. Orthodox Protestants were in between. Once married, Catholics had on average shorter birth intervals than Protestants. This probably also explains their somewhat higher age at last birth in the first generation.

In the second generation, the differences in age at marriage were reduced, while differential birth spacing persisted and stopping became much more differentiated. In another paper, we have investigated birth spacing.³³ The analysis there indicated less birth spacing behaviour among Catholics and orthodox Protestants than among liberal Protestants, even after controlling for professional status. The multivariate analysis in this paper has found that also the differences in stopping behaviour cannot be reduced to correlations with occupational position. Hence, as far as we can tell, the characteristics hypothesis cannot explain the differences between the denominations. Catholics were clearly more reluctant to adopt early stopping behaviour to limit their fertility than Protestants. Orthodox Protestants tended towards the same reluctance, but we were not able to detect statistically significant differences with the liberal denominations for this group. We guess that this lack of significance is due to measurement error. Finally, although the number of Jews in our sample is very small, we found significantly earlier stopping among Jewish marriages, even after controlling for occupation.

In order to be able to model the age at last birth, the empirical analyses had to be limited to completed marriages only. This not only reduces the size of the sample substantially (to about 480 completed marriages), it means also that we are looking at a selective sub-

sample of the married population. Furthermore, we have looked at families from just one part of the Netherlands, namely the province of Utrecht. Therefore, it remains to be seen how representative our families are for their contemporaries in the rest of the country. Assuming that the findings presented in this article can be generalised, we may conclude that reproductive differences between Protestants, Catholics, and Jews were real in the Netherlands: they cannot be reduced to socio-economic factors. The findings about stopping behaviour confirm that religion did indeed play a major role in speeding up or retarding the spread of innovative ways of fertility control. Future contributions should investigate with more detail which dimensions of denomination mattered.

ACKNOWLEDGEMENTS

This is a revised version of a paper presented at the 2003 annual meeting of the *Social Science History Association* in Baltimore, Maryland (USA). The authors thank all the participants of the session on 'religion and the decline of fertility' for their stimulating comments, and especially organizer and discussant Renzo Derosas.

TABLES AND FIGURES

Table 1. McDonald-parameters of starting, spacing, and stopping by generation and religious group, the Netherlands, province of Utrecht, 1845-1945

	G1815-'60			G1861-1902		
	Liberal Protestants	Orthodox Protestants	Catholics	Liberal Protestants	Orthodox Protestants	Catholics
<i>m</i> (years)	25.56	26.69	28.23	24.87	25.38	25.60
<i>f</i> (months)	17.31	14.64	15.87	14.51	14.67	15.12
<i>i</i> (months)	27.11	26.82	25.09	30.94	28.55	27.34
<i>l</i> (years)	39.02	39.92	40.29	34.94	36.18	37.91
<i>CEB</i>	6.32	6.37	6.14	4.44	5.03	5.85
<i>N</i> (marriages)	68	32	59	96	106	108

Source: Historical Sample of the Netherlands, Utrecht file

Table 2. Cox regression of age at last birth, province of Utrecht, the Netherlands, 1845-1945, by generation; completed marriages only

<i>Covariate</i>	<i>Generation</i>					
	<i>G1815-'60</i>			<i>G1861-02</i>		
	<i>exp(coëff.)</i>	<i>std(coëff.)</i>	<i>p</i>	<i>exp(coëff.)</i>	<i>std(coëff.)</i>	<i>p</i>
Birth year mother	1.00	0.008	0.7613	1.01	0.006	0.0829
Age at marriage mother	0.97	0.018	0.0843	0.94	0.015	<.0001
Interval marriage- 1 st birth	1.00	0.004	0.8447	1.00	0.005	0.4677
Average interbirth interval (in years)	1.06	0.113	0.6394	1.11	0.046	0.0236
Occupation of husband						
Unskilled/casual worker	1.00	/	/	1.00	/	/
Elite	3.41	1.054	0.2451	1.94	0.389	0.0880
Farmer	0.93	0.265	0.7778	1.13	0.204	0.5566
White collar/civil servant	1.51	0.413	0.3229	1.94	0.249	0.0079
Shopkeeper/artisan	1.14	0.275	0.6387	0.94	0.182	0.719
Skilled worker	0.86	0.207	0.4739	1.15	0.161	0.3907
Unknown				0.78	0.734	0.7363
Religious affiliation of couple						
Liberal Protestant	1.00	/	/	1.00	/	/
Catholic	1.08	0.214	0.7055	0.64	0.157	0.0039
Orthodox Protestant	0.84	0.237	0.4647	0.81	0.158	0.1925
Mixed Catholic-Protestant	1.33	0.442	0.5176	0.65	0.288	0.1285
Jewish	0.55	0.744	0.4159	4.45	0.521	0.0042
Unknown	1.07	0.347	0.8395			
Other	0.74	0.536	0.5817	0.98	0.340	0.948
N	173			308		
Global Likelihood Ratio test: H ₀ : all beta = 0	LR=11.90	df=15	p>0.686	LR=64.61	df=15	p<.0001

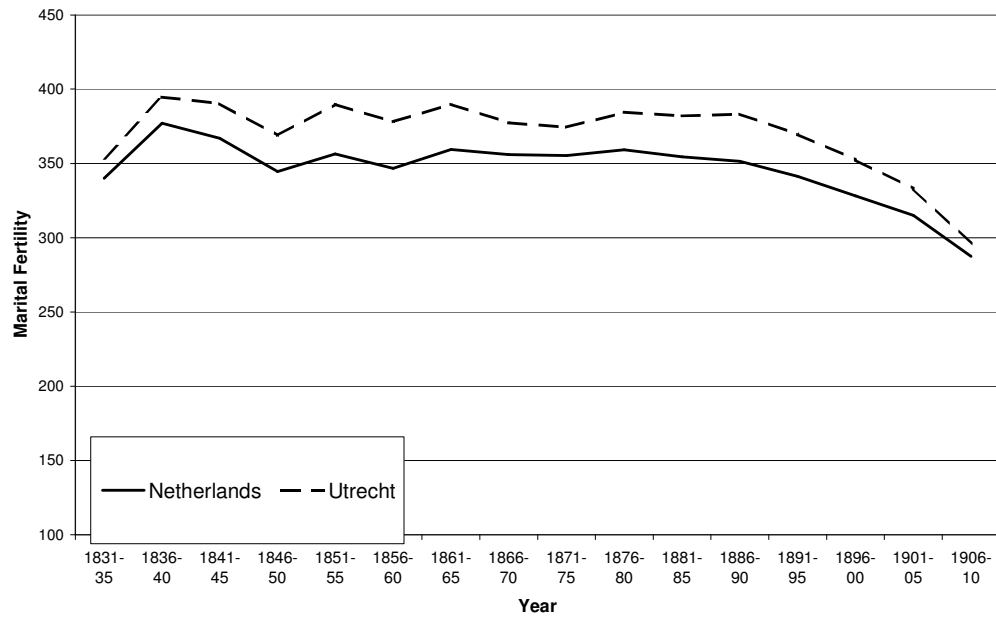
Source: as for table 1.

Appendix: Table 3. Distribution of covariates used in Table 2.

<i>Covariate</i>	<i>Generation</i>			
	<i>G1815-'60</i>		<i>G1861-02</i>	
	<i>mean</i>	<i>std</i>	<i>mean</i>	<i>std</i>
Mother's age at last birth	40.12	4.22	36.88	5.52
Birth year mother	1842.69	11.08	1879.77	9.89
Age at marriage mother	26.73	4.91	24.81	4.12
Interval marriage- 1 st birth (in months)	15.00	20.31	13.13	11.98
Average interbirth interval (in years)	2.43	1.04	2.86	1.39
Occupation of husband				
Unskilled/casual worker	27.75	%	25.00	%
Elite	0.58		2.92	
Farmer	14.45		12.34	
White collar/civil servant	4.62		7.79	
Shopkeeper/artisan	12.14		18.51	
Skilled worker	40.46		32.79	
Unknown	0.00		0.65	
Religious affiliation of couple				
Liberal Protestant	38.15	%	27.27	%
Catholic	32.37		32.79	
Orthodox Protestant	16.76		29.87	
Mixed Catholic-Protestant	3.47		4.87	
Jewish	1.16		1.62	
Unknown	6.36		0.00	
Other	2.31		3.57	
N	173		308	

Source: as for table 1.

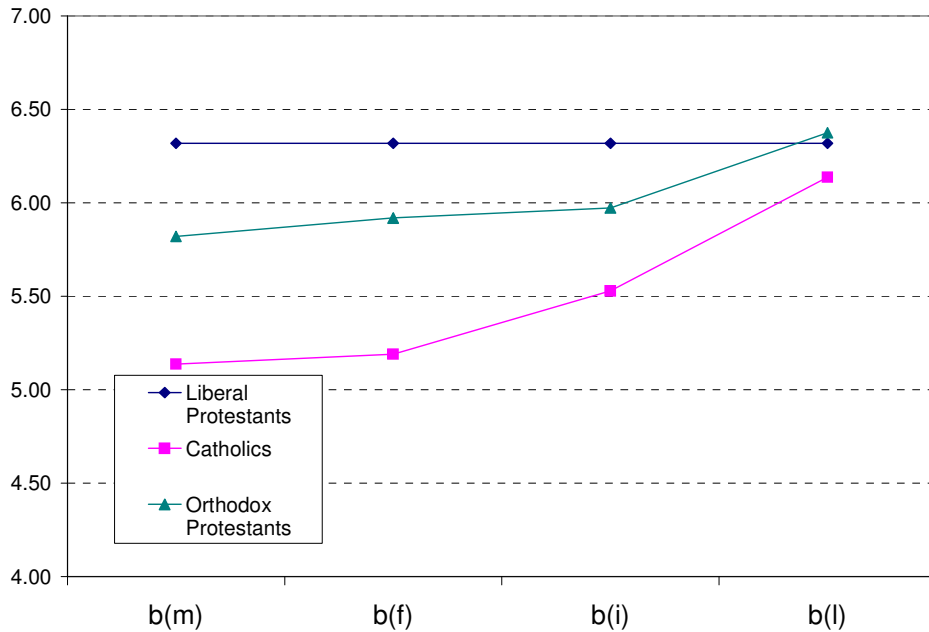
Figure 1. General marital fertility (*) in the province of Utrecht and in the Netherlands as a whole, 1830-1920



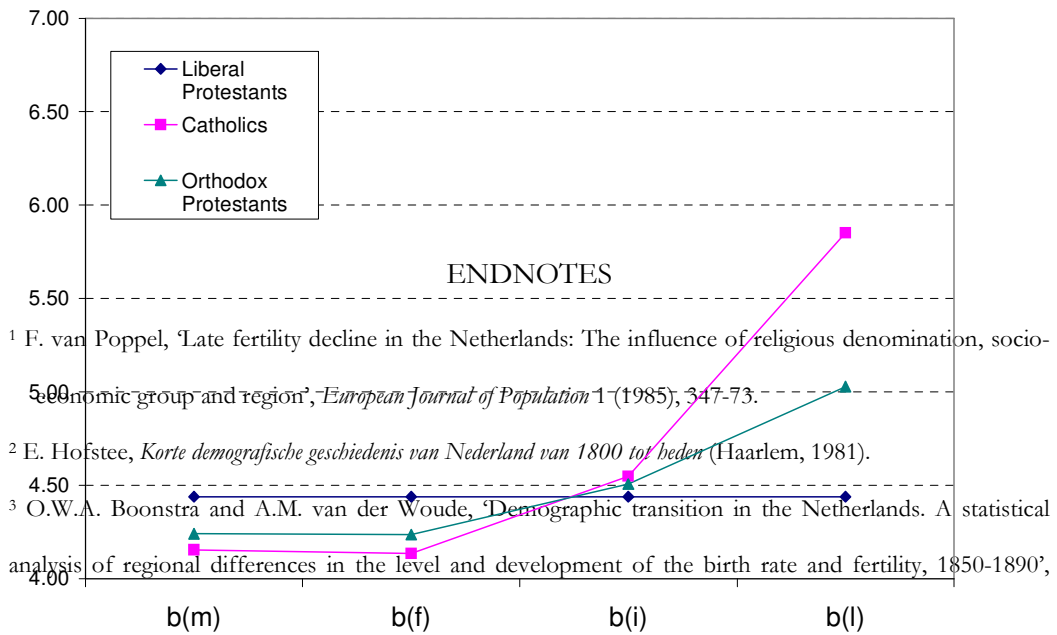
(*) Number of births per 1000 married women of age 15-45. Source: Hofstee (1981) p. 132

Figure 2 McDonalds stepwise de-standardisation, applied to the completed marriages of the province of Utrecht; liberal Protestants are the baseline

2a. Generation - 1860



2b. Generation 1861 and >



ENDNOTES

¹ F. van Poppel, 'Late fertility decline in the Netherlands: The influence of religious denomination, socio-economic group and region', *European Journal of Population* 1 (1985), 347-73.

² E. Hofstee, *Korte demografische geschiedenis van Nederland van 1800 tot heden* (Haarlem, 1981).

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