Development of Social Value Orientations: Socialization and Life-Cycle Effects*

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Why do older people have more prosocial value orientations than youngsters? The 'prosocial-growth hypothesis' (Van Lange, Otten, De Bruin & Joireman, 1997) suggests that people become more prosocial as they grow older. In contrast, the alternative 'prosocial generation hypothesis' states that older people are more prosocial because they were raised in a more religious social context. By adding historical data on the formative socialization context to a cross-sectional survey, this article shows that more than 85% of the correlation of birth year with social value orientations is the result of generational differences, for instance with regard to religious socialization at the micro-level. Life cycle-effects account for 15% of the relation: the longer people are married, the more prosocial they are.

Why do older people have more prosocial value orientations than youngsters? Van Lange, Otten, De Bruin & Joireman (1997) reported that the proportion of people with a prosocial value orientation increases with age: from 56% among 15-29 year olds, to 81% among respondents aged 60 and over. This finding can be explained by two competing hypotheses. The first is suggested by Van Lange, Otten, De Bruin & Joireman, (1997): people become more prosocial as they get older, because they learn the value of cooperation in social interaction. This interpretation is called the *Prosocial Growth Hypothesis*. The alternative hypothesis suggests that a process of value change due to cohort replacement underlies the observation that older people have more prosocial value orientations. Younger people are born in a more rationalized culture, marked by individualistic and secular values. This interpretation is called the *Prosocial Generation Hypothesis*. Which hypothesis is (more) correct? To what extent can the correlation of birth year with social value orientations be explained by generational differences or life cycle effects?

This question, however, meets with methodological as well as practical problems because a conventional cross-sectional design is not suitable for these questions: it mixes up age and cohort differences, and longitudinal follow-up studies covering a considerable time lag are often difficult to organize.

One option is to conduct a cross-temporal meta-analysis of experimental research. With regard to extraversion, such an analysis showed that extraversion-scores rose systematically with

the entrance of new cohorts of students (Twenge, 2001). Although this option is possible, it would require a lot of work gathering several decades of experimental data.

A less well known method to separate age and cohort differences is adding data from the historical context in which people have grown up to a cross-sectional survey (Rodgers, 1982; De Graaf, 1988). The logic of this method is that the correlations with birth year are interpreted substantively as either life cycle or cohort effects by adding data on socialization experiences and the wider social context that are cohort specific. This method has been applied with empirical success to postmaterialism, an important value orientation in political sociology. De Graaf (1999) showed that the correlation between birth year and postmaterialism, which remained after controlling for life cycle effects of being married, having children, having a job and so on, was reduced to zero after adding contextual data on the mean level of welfare, the number of non-religious people, and the mean level of education in the formative years and the regions in which respondents grew up. The method of adding contextual to cross-sectional data offers the possibility to test theoretically founded hypotheses on the origin of cohort differences in social values and personality. This article applies this method to social value orientations, a measurement of altruism in allocation decisions in a series of decomposed games, for a large, nationwide sample of adults in The Netherlands.

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Theory

Prosocial value orientations may be related negatively to birth year because people become more prosocial as they get older (the aging effect, as stated in the *prosocial growth hypothesis*), or because people who were born in earlier times had different socializing experiences, which made them into more prosocial generations (the cohort-effect, as stated in the *prosocial generation hypothesis*). Which generational differences and which life cycle experiences can make people more or less prosocial?

BIRTH COHORT EFFECTS – Three different types of birth cohort effects can be considered as candidates for explaining cohort changes in social value orientations:

- (a) The effects of broad social changes, such as secularization and individualization;
- (b) Effects of a changing socialization context at the micro-level (possibly as a consequence of broader social changes);
- (c) Effects of sudden events such as war experiences.

Each of these types will be discussed in detail.

A. Broad social changes

The Netherlands have become a much more rationalized country in the last century. A very important societal development in this respect is the rise of the average level of education. The Netherlands have witnessed a massive secularization, mostly as a result of rising levels of education (Te Grotenhuis, 1998). As the average level of education grew with the raise of the age limit for compulsory education and the introduction of a new grant system for university students, the proportion of the Dutch population which is not affiliated with any organized religion has increased from a mere 2% to more than 50% over the last century (SCP, 1998). The religious beliefs of Christians in The Netherlands have also become much less orthodox (Dekker, De Hart & Peters, 1996). Declining levels of religiosity may be responsible for decreasing levels of prosocial values. All the different forms of Christianity in The Netherlands encourage prosocial values and 'good deeds'. Sermons in churches and religious education in schools contain clear moral messages supporting prosocial values. The loss of religious beliefs and practices may well have decreased levels of prosocial values.

In the meantime, the rising level of education may also have offset the detrimental effects of secularization. In politics, the rise of educational levels decreased self-interested forms

of class-based voting, and gave birth to postmaterialist values (Inglehart, 1977, 1996). Postmaterialists more often support environmental and human rights movements (Inglehart, 1977), which may be seen as prosocial behaviors because these organizations strive for the production of collective goods. The rising level of education has also given rise to increases in personality traits such as extraversion and openness, which are related to prosocial behaviors such as membership in associations (Bekkers & De Graaf, 2002). Rising levels of education may have tempered the effects of decreasing levels of religiosity. To investigate the effects of education, both the level of education of the respondent as well as the average level of education in the social environment will be included in the analysis.

B. Changing socialization context

Other explanations of cohort differences in social value orientations can be located at the micro-level, in the immediate socialization context. One of the findings in a previous study of social value orientations (Van Lange, Otten, De Bruin & Joireman, 1997) suggest such an explanation. Prosocials have more siblings than competitors, especially more older siblings and more sisters. Two older findings are consistent with this result. In one of the first articles on measures of social value orientations, the proportion of points allocated to the other was correlated .35 with the number of older sisters (Sawyer, 1966, p. 35). Furthermore, a study of empathy revealed that later borns show more empathy with other persons who experience pleasure or pain than firstborns and only children (Stotland, Sherman & Shaver, 1971, p. 70). Persons with prosocial value orientations exhibit higher levels of empathy (Bekkers, 2002a). Van Lange, Otten, De Bruin & Joireman (1997) interpret the relation of social value orientations with the number of siblings as a result of experiences with conflicts over scarce resources: children in larger families are more likely to encounter such situations than only children, and they are also more likely to learn the values of fairness and reciprocity in social interaction. Sawyer (1966) provided a similar explanation for the relation with the number of older sisters.

One may wonder how this result provides an explanation for the negative relation between social value orientations and birth year. To understand this, consider the demographic changes that took place in most Western-European countries in the previous century. In the Netherlands, as in the USA, the mean household size declined steadily over the last decade, as the

number of married persons decreased and the number of children per couple diminished. Children nowadays have fewer siblings than children of previous generations, and are simply less likely to encounter situations in which conflicts over scarce resources arise.

C. War experiences

Another generational difference that may be important for social value orientations is the experience of war. Suffering from starvation, homelessness or losing relatives in a war may provide powerful experiences for learning the value of cooperation, for instance when given refuge or food. In the 'Hongerwinter' in World War II (1944), many inhabitants from the urbanized western part of The Netherlands depended on the help of people in rural areas, where food was less scarce and refugees found hiding places for the Germans. Although for many people these forms of help came too late or not at all - of the Dutch Jews, a large majority of 73% did not survive the war (Moore, 1997) - the people who did survive the war may have done so because they received crucial forms of help. Having received help in difficult times may have promoted a general willingness to prosocial behavior, although it may be doubted how lasting this influence has been. In any case, the events that took place in the lives of ordinary people in World War II have had such large consequences that it seems wise to include them in the analysis.

AGE EFFECTS – The basic reason why aging may increase prosocial values is that many events in the life course can make people see the value of cooperation. Examples could be cohabitation, marriage and having children. In close relationships, the well being of both partners becomes interdependent (Van Lange, Agnew, Harinck & Steemers, 1997). Simply living together with a partner requires a certain level of cooperation, if only for managing the household. Marriage and having children signify higher commitments to the relationship, and may increase prosocial values even more. A successful marriage will probably reinforce prosocial motives that already existed at the beginning of the relationship. The empirical evidence for the prosocial growth hypothesis is indirect. The first indication that intimate relations may increase prosocial value orientations is the result of Van Lange, Otten, De Bruin & Joireman (1997) that prosocials report more secure attachment with intimate partners than proselves. The second indication that intimate relations may increase prosocial value orientations is that prosocial

value orientations do not increase after 60 years of age, and increase most strongly between 15 and 29 years of age (Van Lange, Otten, De Bruin & Joireman, 1997). This is the precisely the period in which adolescents form intimate relationships.

Data

To test the hypotheses of this article, the third edition of the family survey of the Dutch population (De Graaf, De Graaf, Kraaykamp & Ultee, 2000) is used. This nationwide survey used a two stage stratified sample of individuals in households. In the first stage, a random sample of municipalities in the Netherlands, stratified according to urbanization level, was drawn. In the second stage, a sample of persons was drawn from the population registers of these municipalities. In total, 864 persons agreed to participate. Of these primary respondents, 723 partners also participated in the study.

The respondents completed a computer assisted personal interview as well as a written questionnaire. In the personal interview, data were obtained on birth year, socialization experiences and life cycle experiences. As indicators of socialization experiences the following variables were used: religious activities of parents (church membership, church attendance, reading the bible, praying at meals, and voluntary work by parents, which were combined into a factor score), the frequency of church attendance (in number of times per year), war experiences (a sum score of food shortage, being a refugee, and losing family members in the World War II), birth order (the number of older and younger brothers and sisters), and the level of education (7 categories, from elementary school to university degree). As indicators of life cycle experiences, the following variables were used: dummies for marital status (married, divorced and widow, unmarried served as a reference category), having children, sharing a household (also recoded into dummies, in both cases 'no' was the reference category), the number of children, length of marriage or cohabitation (in number of years) were used.

To measure social value orientations, the written questionnaire contained two ranking tasks, in which respondents had to compare four pairs of allocations to the self and an unknown other (see table 1). The respondents were instructed that the allocation was hypothetical and that the other was someone they did not know and would never meet. The measure differs from previous assessments of social value orientations in that it did not make use of a forced choice or triple dominance format. Instead, an innovative ranking design was used, which allows for more detailed measures in less

time (Snijders & Weesie, 1999). Based on the preference ordering, respondents were assigned a score on the altruism-egoism dimension. For instance, respondents with a preference for ranking 1342 in table 1 received a score of .30. This represents their preference to give away a maximum of 30% to the unknown other, and keep at least 70% of the points in the allocation task for themselves (note that respondents with a preference of 3142 would have chosen ranking 3142). The rankings obtained in the two tasks correlated .715 with each other. The mean score was .4255.

Table 1. Example of allocation task

	<i>Self</i>	<i>Other</i>	<i>Other/sum ratio</i>
1.	375	125	.25
2.	200	300	.60
3.	325	175	.35
4.	250	250	.50

The total group of 1564 respondents was separated in four cohorts: born before 1945 (n=408), between 1946 and 1955 (n=370), between 1956 and 1966 (n=415) and born after 1966 (n=368). Due to missing data on the social value orientation measure, the number of valid respondents per cohort is often lower in the analyses.

The context data added to the original data file consisted of the mean percentage of non-religious persons in the region in which the respondent was born (variable labeled 'secular context') and the mean level of education of the cohort entering the labour market when respondents were twelve years of age (variable labeled 'regional level of education').² Descriptive information on all variables is available in table 2.

Method

In the following section, mean scores for social value orientation will be presented for the four birth cohorts. If the prosocial generation hypothesis is correct, the mean scores should increase with cohort. Next, correlations between

birth year and social value orientation are presented for separate cohorts. If aging effects are absent, the latter should be zero. Finally, a regression analyses of social value orientation will be performed. In a first step, only gender and birth cohort were included.³ The first model presents confounded aging and cohort effects. In model 2 through 6, formative context variables were added. If rising levels of education and secularization completely account for a decrease in prosocial value orientations, the effect of birth year should be reduced to zero in this step. Remaining correlations may indicate the presence of life cycle effects. To test this, marital status, the number of children and the age of marriage will be included in model 7 through 9.

Table 2. Descriptive characteristics of variables

variable	min	max	mean	St. dev
Social value orientation	.25	.55	.43	.09
Cohort	0	1	.74	.44
Female	0	1	.50	.50
Regional level of education	1.10	3.28	2.22	.46
Level of education	0	8	3.47	1.89
Regional % of non-religious	.68	75.80	26.53	16.93
Religious socialization	-1.20	3.25	.00	1.00
Frequency of church attendance	0	75	7.83	17.71
War experience	0	7	.41	.92
Older brothers	0	7	.85	1.21
Younger brothers	0	7	.77	1.10
Older sisters	0	10	.77	1.15
Younger sisters	0	9	.73	1.08
Sharing household	0	1	.90	.30
Married	0	1	.78	.42
Divorced	0	1	.05	.21
Widow	0	1	.02	.15
Years married	0	53	16.96	14.72
Years cohabitation	0	50	4.50	7.56
Children	0	1	.79	.41
Number of children	0	8	1.77	1.28

² These data were collected by Maarten Wolbers and Nan Dirk de Graaf, Department of Sociology, University of Nijmegen, The Netherlands. The data on educational level are derived from the 'Volkstelling' of 1960, the 'Arbeidskrachtentelling' of 1977, 1985, and the 'Enquete Beroepsbevolking' of 1992 and 1996. Data for 1996 to 2000 were imputed with a linear regression-analysis. The data on religiosity are derived from the 'Volkstellingen' of 1930 and 1947, from Faber & Ten Have (1970), Zeegers, Dekker & Peters (1967), and the Social and Cultural Planning Office (SCP, for period 1970-1995). For more details, see Te Grotenhuis (1998, p. 64-65).

Results

Table 3 shows the mean scores for social value orientation for four birth cohorts in The Netherlands. Higher scores indicate a less

³ It was impossible to include birth year instead of birth cohort because the context data increase linearly with birth year, causing multicollinearity problems in the regression analysis.

prosocial value orientation (keeping a higher proportion of points for oneself).

Table 3. Mean scores for social value orientation (source: FNB2000, n=1323)

Birth cohort	SVO	(n)
Before 1945	44.66	254
1946-1955	42.53	287
1956-1965	41.88	364
after 1966	41.64	314
<i>All Cohorts</i>	<i>42.55</i>	<i>1219</i>
<i>Mean st.dev.</i>	<i>8.75</i>	

The results in table 3 are consistent with previous research. Prosocial value orientations decrease systematically with cohort: the mean decrease is about one third of a standard deviation. However, in this table, life cycle and cohort differences are intertwined. The lower scores of later cohorts may be due to life cycle differences: younger people may be less prosocial because they are less likely to cohabitate, to be married, or to have children.

Table 4, however, shows that within the four birth cohorts, correlations between birth year and social value orientations are small and non-significant. These results indicate that not so much life cycle events, but rather cohort specific experiences are related to the decrease in prosocial value orientations.

Table 4. Correlations between cohort and social value orientations for four cohorts (Source: FNB2000, n=1323)

Birth cohort	SVO	(n)
before 1945	-.024	254
1946-1955	-.063	287
1956-1965	-.017	364
after 1966	.052	314
<i>All Cohorts</i>	<i>***-.116</i>	<i>1515</i>

Note: none of the correlations is significant at the $p < .05$ level, except ***, $p < .001$

Still, table 4 reveals interesting differences. The correlation between social value orientations and birth year is most strongly negative for the postwar generation of 'baby-boomers'. In the youngest generation, born after 1966, the correlation is positive.

Table 5 shows the results of nine successive regression models of social value orientation. Model 1 serves a baseline model with gender and cohort as predictors only. In models 2 through 6 indicators for different cohort experiences are introduced, in models 7 through 9 life cycle indicators were introduced. In the first

model, significant effects of cohort and gender are observed: As in previous research (Van Lange, De Bruin, Otten & Joireman, 1997), females have more prosocial value orientations than men (means for females: .4432; for males: .4074). Although the gender difference is interesting, it is ignored in the analysis. Our objective is to reduce the cohort difference in successive models. In the second model, the beta-coefficient for cohort declined with almost 50%, due to the introduction of the regional level of education. Those who grew up in more highly educated areas have less prosocial value orientations. The own level of education is not a significant predictor of social value orientations. This is also in line with the results obtained by Van Lange, De Bruin, Otten & Joireman (1997). With regard to the religious factor in socialization, the converse is the case: the regional level of religiosity is not related to social value orientation, but the degree of religious socialization in the family is rather important for social value orientations (see model 3). Those who were raised in religious families have more prosocial value orientations.⁴ Introducing the current frequency of church attendance in model 4 diminishes the relation with religious socialization, although it does not disappear altogether. This indicates that for people who are not engaged in religious activities anymore, a religious upbringing does not have strong and long lasting effects. Only those who are still frequently engaged in organized religion profit from religious parents.

The results for religious and educational cohort experiences are only partially in line with expectations. Declining levels of religiosity have decreased prosocial values in the Netherlands, but rising levels of education have not countered this trend. The converse seems to be the case: rising levels of education declined prosocial values, but also diminished religious socialization practices, which in turn again diminished prosocial values.

War experiences are not very important for prosocial values, although controlling for them further diminished the relation with cohort (see model 5).⁵

In model 6, characteristics of the family of origin are added. In contrast to the findings by Van Lange, Otten, De Bruin & Joireman (1997),

⁴ Separating the religious socialization factor score into its original components, additional analyses (not shown in table) revealed that praying at dinner was the most important factor contributing to prosocial value orientations. Religious denomination of either parents or respondents did not have a significant effect.

⁵ Additional analyses (not shown in table) showed that being a fugitive was the most important element, not so much suffering from starvation or losing family members during the war.

the effects of the number of sisters and the number of older siblings is not substantial or significant. However, a simple means analysis showed that prosocial motives tended to increase with the number of siblings (see figure 1). In this analysis the number of older and younger siblings were collapsed because the effects were very similar. Only children, with no brothers and sisters, gave away 42.0% of the points in the allocation task. Those with two sisters or brothers gave away 43.3%, those with six brothers 47.0% and with six sisters 45.5%. Those with more than six sisters tended to be less generous in the allocation task, giving away 42.7%, while for the number of brothers generosity still increased to 47.9%. These differences did not show up as significant effects in the regression analysis because the number of siblings is mostly a result of a religious socialization and lower education. This can be seen from the regression analysis: the introduction of the number of siblings partly mediated the effect of parental religiosity and the regional level of education.

Figure 1. Social value orientation by number of siblings

The results from model 7 show that married, widowed and divorced persons did differ significantly from unmarried persons in their social value orientations, although the difference between married and unmarried persons came close to significance. Neither were respondents with children more prosocial in the allocation task than childless respondents. Neither marriage, nor having children makes people more prosocial. Marital status and the number of children did not reduce the correlation with cohort, to the contrary: the relation with cohort became more negative.

Model 8 reveals an interesting finding: not so much the marital status is important, but the age at which people get married. The younger the respondents were when they got

married, the more points they allocated to the unknown other. However, two alternative interpretations of this effect are possible. Because the age at which people marry has increased in the past decades, one can also regard this effect as a cohort effect. But one can also interpret the relation of age at marriage with social value orientation as a life cycle effect, because persons who marry young are usually married for a longer period of time. The success of the marriage may have strengthened prosocial values. The introduction of age at marriage diminished the relation of cohort with social value orientation to $-.051$, which is the same as in model 6.

Taken together, the regression analysis shows that life cycle indicators are less important explanations for the correlation of social value orientation with birth year than cohort differences. Although the beta-coefficient for cohort further increased from $-.051$ to $-.036$, this decline is not as large as the one due to socialization experiences (from $-.150$ to $-.053$). Of the life cycle indicators, length of marriage turns out to be the most important factor. It doesn't matter whether people are married or cohabitate, whether they have children or share a household with a partner. What counts is the number of years they are married. Length of cohabitation also doesn't matter. In other words, above religious socialization experiences, marriage provides a real advantage with regard to prosocial value orientations.

In sum, socialization experiences account for the reduction in the correlation of social value orientation and cohort. A clear victory for the *Prosocial Generation Hypothesis*, although the *Prosocial Growth Hypothesis* cannot be rejected.

Conclusion and discussion

This research note replicated the large age differences in prosocial value orientations found in previous survey research on social value orientation (Van Lange, Otten, De Bruin & Joireman, 1997) with a slightly different measure. Because experimental research attracts a more restricted age group of students, the proportion of prosocials in laboratory experiments is typically lower than in survey research.

The results of the regression analysis support the *Prosocial Generation Hypothesis* that the relation of social value orientations with age is mainly the result of cohort changes. Furthermore, some of the factors accounting for these cohort differences could be identified: the regional level of education, religious socialization practices by parents and to a lesser degree also war experiences explained more than 85% of the correlation with

birth year. Rising levels of education and declining levels of religious socialization decreased the level of prosocial value orientation. Life cycle indicators are also important, but explain a minor part, about 15%. The length of marriage is what matters, not simply living together, being married or having children. Apparently, only a long lasting intimate relationship with a relative high level of commitment makes people more prosocial.

In contrast to previous research (Van Lange, Otten, De Bruin & Joireman, 1997), the regression analysis indicated that the number of siblings is not a significant predictor of prosocial value orientations. This result may have been found in previous research because religious socialization experiences were not measured. In the present study, the number of older and younger brothers and sisters partly mediated the effect of religious socialization.

Because this article relies on cross-sectional data, it is possible to criticize theoretically the supposed order of causality at a number of points. Using context data, an effort was made to rule out this possibility. It is hard to imagine how the social value orientation of one individual may have influenced the regional level of education or the proportion of non-religious persons in the area in which the respondent grew up. Furthermore, previous research has shown that social value orientations are not very stable (Van Lange, 2000; Bekkers, 2002b), which makes a reversed order of causality rather implausible. However, the relation between social value orientation and length of marriage may be from social value orientation to length of marriage rather than the other way around. People who have more prosocial value orientations may be more likely to stick to the same marriage partner for a longer time, because they are more committed in intimate relations. The only way to investigate this possibility is to conduct a longitudinal study of relational histories and social value orientations. This is a task for future research.

In retrospect, the results of this paper reinforce classical sociological theories of Emile Durkheim and Talcott Parsons on solidarity. Durkheim's integration theory of social cohesion, first stated more than a century ago in *Le Suicide* (1897), states that norm-conform behavior is more likely to be found in members of highly cohesive social groups, such as religious congregations and the family. Parsons (1937) criticized this theory for lacking an account of individual socialization processes. Individuals who have been the subject of stronger

socialization patterns, are more likely to have adopted the values of the group. Differences in solidary behavior are not only to be found at the group level, but also between individuals within the same group. Our results show that the strongest effects on prosocial value orientations indeed come from individual socialization experiences. The effect of marriage and present church attendance fits in Durkheim's integration theory. In sum, prosocial value orientations are found more often in members of traditional intermediary social structures like religion and the family.

Furthermore, the results give rise to serious worries about the prevalence of prosocial value orientations in future generations. After all, the number of people that raises their children in a religious manner decreases rapidly. Also, marriages have shorter expiry dates than they used to do, as the number of divorces is increasing.

Table 5. Regression analyses of social value orientation (Source: FNB 2000, n=1073 and n=897)

	All respondents							Ever married only	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
Basic Model									
Birth cohort	***-.150	~-.074	~-.079	-.070	-.053	-.051	-.065	-.051	-.053
Female	***.213	***.214	***.212	***.213	***.212	***.213	***.213	***.181	***.181
Socialization									
Regional level of education		*-.099	-.070	-.073	-.069	-.058	-.034	-.040	-.045
Own level of education		-.031	-.038	-.030	-.032	-.027	-.025	.003	.001
Regional % of non-religious			-.005	-.007	-.008	.003	.004	-.033	-.034
Religious socialization			**-.089	.051	.053	.041	.035	.020	.019
Church attendance				*.077	*.076	*.074	*.075	*.076	*.080
War experiences					.037	.042	.044	.060	.057
Number of older brothers						.028	.030	.016	.016
Number of younger brothers						.030	.028	.041	.040
Number of older sisters						.034	.036	.038	.038
Number of younger sisters						.017	.018	-.005	-.002
Age married								**-.094	**-.087
Life Cycle									
Number of children							.001		*.013
Married							.046		----
Divorced							.032		(ref.)
Widow							-.011		-.032
Still married									-.050
Remarried									-.060
Constant	***.432	***.469	***.459	***.455	***.449	***.435	***.418	***.473	***.490
Adjusted R Square	.060	.065	.070	.074	.074	.074	.072	.068	.065
F-Value	35.39	19.53	14.52	13.22	11.71	8.10	6.21	6.02	4.67

Note: all F-values are significant at the p<.000 level; ** p<.01; * p<.05.

Models 8 and 9 are estimated only for persons who are married or who were married in the past, because age of marriage is missing for the other respondents. In model 9, the married category is missing because

References

- Bekkers, R.H.F.P. (2002a). Personality Correlates of Social Value Orientations. Research Note, Utrecht University.
- Bekkers, R.H.F.P. (2002b). Reliability and Construct Validity of Social Value Orientations. Research Note, Utrecht University.
- Bekkers, R.H.F.P. & De Graaf, N.D. (2002). Verschuivende achtergronden van verenigingsparticipatie. Working paper, Utrecht University.
- De Graaf, N.D. (1988). *Postmaterialism and the Stratification Process: An International Comparison*. Utrecht: ISOR.
- De Graaf, N.D. (1999). Event History Data and making a History out of Cross-Sectional Data: How to Answer the Question 'Why Cohorts Differ?' *Quality & Quantity*, 33: 261-276.
- De Graaf, N.D., De Graaf, P., Kraaykamp, G., & Ultee, W. (2001). *Familie-enquête Nederlandse Bevolking [datafile]*. Nijmegen: Nijmegen University, Department of Sociology.
- Dekker, G., De Hart, J. & Peters, J. (1997). *God in Nederland*. KRO/RKK.
- Durkheim, E. (1897). *Le Suicide*. Paris: Alcan.
- Inglehart, R. (1977). *The Silent Revolution: Changing Values and Political Styles Among Western Publics*. Princeton: Princeton University Press.
- Inglehart, R. (1996). *Modernization and Postmodernization*. Princeton: Princeton University Press.
- Faber, H. & Ten Have T.T. (1970). *Ontkerkelijkheid en buitenkerkelijkheid in Nederland tot 1960*. Assen: Van Gorcum.
- Moore, B. (1997). *Victims and Survivors: The Nazi Persecution of the Jews in the Netherlands 1940-1945*. London: Arnold.
- Parsons, T. (1937). *The Structure of Social Action*. New York: The Free Press.
- Rodgers, W.L. (1982). Estimable functions of age, period, and cohort effects. *American Sociological Review*, 47: 774-787.
- SCP (1998). *Sociaal en Cultureel Rapport 1998*. Den Haag: SCP.
- Stotland, E., Sherman, S. E. & Shaver, K.G. (1971). *Empathy and Birth Order: Some Experimental Explorations*. Lincoln: University of Nebraska Press.
- Te Grotenhuis, M. (1998). *Ontkerkelijkheid: oorzaken en gevolgen*. Nijmegen: Katholieke Universiteit Nijmegen, Vakgroep Sociologie (thesis).
- Twenge, J.M. (2001). Birth Cohort Changes in Extraversion: a Cross-Temporal Meta-Analysis, 1966-1993. *Personality and Individual Differences*, 30: 735-748.
- Twenge, J.M. & Campbell, W.K. (2001). Age and Birth Cohort Differences in Self-Esteem: A Cross-Temporal Meta-Analysis. *Personality and Social Psychology Review*, 5 (4): 321-344.
- Van Lange, P.A.M. (2000). Beyond Self-Interest: A Set of Propositions Relevant to Interpersonal Relations. In W. Stroebe, & Hewstone, M. (Ed.), *European Review of Social Psychology*, 11. London: Wiley.
- Van Lange, P.A.M., Agnew, C.R., Harinck, F., & Steemers, G.E.M. (1997). From Game Theory to Real Life: How Social Value Orientation Affects Willingness to Sacrifice in Ongoing Close Relationships. *Journal of Personality and Social Psychology*, 73(6), 1330-1344.
- Van Lange, P.A.M., Otten, W., De Bruin, E.M.N. & Joireman, J.A. (1997). Development of Prosocial, Individualistic and Competitive Orientations: Theory and Preliminary Evidence. *Journal Of Personality and Social Psychology*: 73 (4), 733-746.
- Zeegers, G.H.L., Dekker, G. & Peters, J.W.M. (1967). *God in Nederland*. Amsterdam: Van Ditzmar.