



Biases in the effects of family background characteristics on voting preference: The Dutch case

Jannes de Vries^{a,*}, Nan Dirk de Graaf^b, Rob Eisinga^c

^a Department of Sociology, Tilburg University, P.O. Box 90153, 5000 LE Tilburg, The Netherlands

^b Nuffield College, Oxford University, New Road, Oxford OX1 1NF, United Kingdom

^c Department of Methodology, Radboud University Nijmegen, P.O. Box 9104, 6500 HE Nijmegen, The Netherlands

ARTICLE INFO

Article history:

Received 11 September 2007

Received in revised form 13 August 2008

Accepted 18 August 2008

Keywords:

Party preference

Voting preference

Reliability

Family background

Structural equation models

Measurement error

ABSTRACT

This article examines whether intergenerational transmission of party preference is biased by retrospective and other-report measurement of family background characteristics [In our model the dependent variable is voting preference, while one of our explanatory variables is father's party preference. Therefore we speak of the intergenerational transmission of party preference.]. In addition the consequences of measurement error for the effects of father's church membership, his church attendance, whether he is self-employed, educational attainment, church membership, church attendance, whether the respondent is self-employed, and occupational status on voting preference are investigated. It turns out that the effects of educational attainment and father's party preference when the respondent was 15 years old on voting preference are underestimated if measurement error is not taken into account. The role of correlated error is negligible. As the effect of father's party preference is substantial and becomes even stronger after correcting for measurement error, it is advisable to include it in the model, while imputing information on measurement error.

© 2008 Published by Elsevier Ltd.

1. Introduction

The intergenerational transmission of political party preference is usually investigated by measuring family background characteristics with retrospective survey questions (De Graaf and Ultee, 1990; De Graaf et al., 1995; Need, 1997; Becker and Mays, 2003). Surveys obtain information on the political party preference and other attributes of parents by asking respondents questions referring to the time they were about 12 or 15 years of age. There are two reasons which make it plausible to assume that information respondents supply about their parents is less reliable than the information they supply about themselves. One reason is that there will be additional measurement error because the survey questions refer to

a situation in the past (Bradburn et al., 1987; for an overview see Dex, 1995). The time passed varies from a few years for the youngest respondents to more than fifty years for the oldest respondents. Another reason for the presence of additional measurement error is that the questions refer to characteristics not of the respondent but of other persons. Information about oneself will be more accurate than 'proxy information' about other people (Blair et al., 1991; for an overview see Looker, 1989). Though the parents are close to the respondents, their political preference may be not so familiar to the respondents to guarantee sufficient reliability.

While the measurement of family background characteristics might be questionable, theoretically we expect them to have an important influence on voting preference. Popkin (1991) uses a theory on 'low-information rationality' to explain why someone's voting behavior is influenced by others. Voting for a party is a form of collective action. It is only useful if others vote for the same party or

* Corresponding author. Tel.: +31 13 4662071; fax: +31 13 4663002.

E-mail addresses: j.devries_4@uvt.nl, devries@dds.nl (J. de Vries).

candidate. Therefore voters look at the preferences and votes of others to determine whether it will be effective to vote for a specific party or candidate. Need (1997) extends Popkin's theory of 'low-information rationality' to explain the influence of family background on voting behavior. Investigating party programs to know which party best serves one's interests takes a lot of time; since the influence of a single vote is very small, it is not rational to investigate much time in determining which party to vote for. Moreover, because politicians inflate their promises, they do not form a reliable source of information. Instead, people base their votes on what political parties have done in the past. Parents know more about the past behavior of political parties than their children. In addition, parents are close to their sons/daughters, which makes it easy for the latter to trust them. Therefore, it is rational for sons and daughters to follow the opinion of their parents. Achen (2002) also assumes that sons and daughters use parental party identification to know which party best serves their interests when they are young and have little life experience. Growing older, new experiences may cause them to change their party choice.

Family background characteristics relevant for voting can be divided into three groups: religiosity, social class, and parental party preference. Religiosity refers to parental denomination/church membership, parental church attendance, and religious upbringing. Need (1997) hardly finds any effect of parental denomination on confessional voting in the Netherlands, after controlling for parental voting preference and own denomination. In a sibling model in which the left–right score of the preferred party is the dependent variable, parental church membership has a negative effect, after controlling for parental voting preference and own denomination. In Germany, those who were brought up religiously are more likely to vote for the rightwing Christian-democratic CDU/CSU (Becker and Mays, 2003).

Looking at social class, De Graaf and Ultee (1990) have investigated the effect of social mobility on left–right voting preference in the Netherlands. People of the higher social classes are more rightwing than people of the lower social classes. However, the effect of origin (father's social class) is more important than the effect of destination (own social class). De Graaf et al. (1995) show that the voting preference of socially mobile persons is in between the preference of their father's class and that of their own class in Germany, Great Britain, the Netherlands, and the United States. According to Breen and Whelan (1994), in Ireland, own class has no effect on voting for the Fianna Fáil (the largest party), while those whose father belonged to the working class have a higher probability to vote for Fianna Fáil; the latter effect is only present among the older people. For two other parties, Fine Gael and the left, own class and father's class have an equally strong effect, with Fine Gael being more popular among the professional and managerial workers and the left among the non-skilled working class. However, after holding constant father's voting preference, father's occupation has no effect on son's/daughter's voting preference in the United States (Knocke, 1976), and hardly any effect on son's/daughter's voting preference in Great Britain and Australia (McAllister

and Kelley, 1985). For the Netherlands, Need (1997) finds no effect of father's class if parties are classified into three categories (left, right, and confessional) and if own social class and parental party preference are held constant. Using the left–right score of the preferred party as the dependent variable (in a sibling model), the effect of father's social class on left–right voting is negative, i.e., those whose father belongs to the higher classes vote more leftwing, while the effect of own social class is positive.

Addressing parental voting/party preference and party identification, Campbell et al. (1960), Jennings and Niemi (1968, 1974), and Goldberg (1969) find a strong bivariate relation between parental party identification and the party identification of their sons and daughters in the United States. According to Knocke (1976) father's party identification is the strongest predictor of son's/daughter's party identification in a multivariate analysis. The intergenerational transmission of voting preference and party identification is also strong in Great Britain (Butler and Stokes, 1969; McAllister and Kelley, 1985; Hudson, 1995). Nieuwbeerta and Wittebrood (1995) find a strong transmission effect of parental party preference on their children in the Netherlands, while controlling for parental social class and religiosity. Although the effects of fathers and mothers are equally strong, fathers have a larger effect on their sons and mothers a larger effect on their daughters. Moreover, the transmission of political party preference is stronger if the parents are politically homogeneous. Need (1997) replicates the finding of a strong intergenerational transmission of party preference in the Netherlands. In Germany, people are also most likely to vote for the party their father or mother voted for (Becker and Mays, 2003). In line with Nieuwbeerta and Wittebrood (1995), if both parents voted for the same party, this effect is stronger. The effects of parental characteristics decrease with the respondent's age.

In this article we focus on the question to what extent the effects of family background characteristics (father's party preference, church membership, church attendance, and whether he is self-employed) on voting preference are under- or overestimated by random and correlated measurement error in the Netherlands. The similarities in the answers of respondents, one of their parents, and one of their siblings will give us information on the reliability of the effects that have been found in earlier research in which only respondent information was available.

2. The consequences of measurement error

For the consequences of measurement errors (De Vries and De Graaf, 2008a,b) it is important to distinguish between random and correlated (systematic) measurement error. Various sources of measurement error exist: a lack of precision of the questions in the questionnaire, a lack of precision in the answers respondents provide, the data entry process (typing errors), or the incorrect coding of correct information. Random error means that the direction of the error is not correlated with characteristics of the respondents or, as in this study, with characteristics of the parents of the respondents. In addition to the distinction between random and correlated measurement

error, it is important to distinguish between models with one independent variable and models with multiple independent variables. We start with the simplest case of random measurement in a bivariate analysis.

In bivariate analyses, random measurement error in the dependent variable leads to a correct estimate of the (unstandardized) regression slope, but an underestimation of the correlation between the dependent and the independent variable (Blalock, 1970) and hence to an underestimation of the standardized effect. Thus, the bias in the standardized effect is not the same as the bias in the unstandardized effect. Random measurement error in the explanatory variable (and that is where this study focuses on) leads to an underestimation (attenuation) of the effect of that variable on the dependent variable (Bohrnstedt and Carter, 1971; Wansbeek and Meijer, 2000; Fox, 1997).

The bivariate case is straightforward, but family background effects are usually estimated in a multivariate analysis instead of a bivariate one. In multivariate analyses, ignoring random measurement error in variables can lead to a lower, a higher or the same estimation as the true effect of these variables (Bollen, 1989). Moreover, the effects of variables that are measured without error but correlated with the variables with error may also be biased (Hanushek and Jackson, 1977; Wansbeek and Meijer, 2000). For example, in the hypothetical case where an explanatory variable X has been measured without error, but an intermediate variable Z between X and the dependent variable Y contains error, the direct effect of X on Y is overestimated (since the effect of Z is not appropriately controlled for). A similar bias occurs if random measurement in one independent variable is larger than in a second independent variable and the two variables are correlated.

In a multivariate analysis it is only possible to calculate whether random measurement error leads to an under- or overestimation of effects if the sizes of the errors in the variables and the covariance matrix of the variables are known (Bohrnstedt and Carter, 1971). Therefore, it is not possible to predict beforehand whether effects are under- or overestimated. However, the population multiple correlation coefficient (the R^2) is underestimated (Bollen, 1989). Thus standardized effects are more likely than not to be underestimated.

Measurement error may not be random, but instead correlated with other characteristics. In general, correlated measurement error is considered to be more serious problem than fully random measurement error, since correlated measurement error is more likely to lead to an overestimation of an effect, and hence to lead to the corroboration of a hypothesis that should not receive support.

Measurement errors are correlated if they are related to characteristics of the respondents or their parents. Answers on family background variables may be biased towards characteristics of the respondent or towards other characteristics of the parents. If respondents are asked for the parental background characteristics when they were 12–15 years old, their answers can be biased in the direction of the present characteristics of the respondent, since respondents may have a tendency to minimize the social distance between themselves and their parents. Psychological

research has found that people tend to minimize the differences in personality, taste, and status with people for whom they have affective feelings (Fiedler et al., 1952; Michaelson and Contractor, 1992), and this mechanism may be present for the relationship between parents and children. Correlated measurement error may also affect the effects of family background on party preference when answers to questions about family background are made more consistent than they really are. This may be the case if respondents want to make several situations in the past consistent with each other (e.g., 'My father was a church member, so he probably went to church'). This probably occurs unintentionally: missing information on one family background characteristic is guessed on the basis of information about other family background characteristics. This leads to an overestimation of the correlation between father's church membership and father's church attendance, which may imply that the effects of these variables, controlled for each other, are underestimated, due to collinearity.

One could argue that the underestimation and the overestimation of effects cancel each other out, which leads to the true effects. However, this would be very coincidental: effects may as well be underestimated or overestimated. From the different arguments above, one cannot reach a final conclusion about the degree and the direction of the bias of the effects of family background. Empirical research must show which arguments carry the most weight. Without empirical research both the attitude of completely neglecting measurement error (as if they are known not to affect the results) and the attitude of rejecting the use of retrospective family background data (as if they are known to lead to completely distorted effects) are preliminary.

3. Previous research on the quality of variables related to voting preference

We were unable to locate studies about the quality of the measurement of parental political behavior or party preferences in the past, with the exception of Need (1997). However, the measurement of current parental characteristics, and the measurement of respondent's own voting in the past have been investigated. Niemi (1973) discusses the reliability of students' reports on the political behavior and attitudes of their parents, in the United States. He uses information obtained from both students and their parents and assumes that the parental reports are correct. It turns out that students report higher proportions of parents who voted and also higher proportions of parents who voted democratic than the parents themselves. The correlation between the answers of students and the answers of parents differs strongly between the issues involved. For the direction of the presidential vote it is .82, for voting turnout it is .68, for party identification it is .59, while for political interest it is only .25. The correlation seems to be higher for factual information than for attitudinal information. More than 60 percent of the incorrect answers was closer to the students' own attribute than to the parents' attribute. Furthermore, the correlation between a parental characteristic and a students' characteristic was about .10

higher if the student's answer about the parent was used than if the parent's answer was used. Goldberg (1969), who uses the same data as Niemi (1973), finds that 78.4 percent of the respondents give the same answer as their father about father's party identification.

Himmelweit et al. (1978) focus on the recall accuracy of reports on voting in previous elections in Great Britain using panel data (survey years: 1962, 1964, 1966, 1970, February 1974, and October 1974). The percentage of errors (inconsistent answers between two waves and "can't remember") is 16 percent. This increases with the length of the recall period. Those voting for the same party in different elections and those voting for the major parties, give more accurate answers. Incorrect answers are biased towards respondent's current voting preference.

For the Netherlands, recall accuracy of voting in previous elections has been studied by Van der Eijk and Niemöller (1979). They use a panelsurvey in which respondents were repeatedly asked for which party they voted in the national elections of 1971, 1972, and 1977. Only 53% of the respondents gave completely consistent answers in the three years. Furthermore, there is less switching from one party to another in recall data than in the contemporary data files. Hence it seems that recall data underreport switching, which is in line with Himmelweit et al. (1978). Moreover, high political involvement has a positive effect on recall accuracy. However, Van der Eijk and Niemöller only examine whether the answers are the same and not how much the parties differ when the answers are not the same.

Need (1997) showed that 90 percent of the answers of sons and daughters about parental church membership, occupation, and voting preference in the past correspond to the answers of the parents themselves. Moreover, an analysis using the information provided by the parents does not lead to substantially different results than an analysis that uses the answers of sons and daughters. However, in none of her analyses measurement error is accounted for.

4. Data and descriptives

4.1. Data

For our analyses we use three Dutch data sets in which information about family background effects is present for multiple informants (cf. De Vries and De Graaf, 2008a,b), namely the Family Survey Dutch Population 1992, 1998, and 2000 (Ultee and Ganzeboom, 1992; De Graaf et al., 1998, 2000). Of a representative selection of Dutch municipalities, samples were drawn from the population registers. With contact rates of about 90 percent and cooperation rates of about 50 percent, the response rates were 42.5 percent in 1992, 47.3 percent in 1998, and 40.6 percent in 2000, resulting in sample sizes of 1000, 2029, and 1561 respondents, respectively (i.e., 4590 respondents in total).

Primary respondents aged 18–70 and their (married or unmarried) partners were interviewed in face-to-face interviews plus self-completion questionnaires. Many of the older respondents do not have living parents and

therefore we could not obtain information from the parental source for these respondents. We want to avoid that the parental source addresses respondents in a completely different age range than the respondent and sibling sources. For that reason, we included in the analysis only respondents of 54 years or younger.¹ This leaves us with 3677 respondents.

In line with previous research (cf. Need, 1997), we excluded people who had no voting preference, since it does not make sense to predict someone's voting preference if they do not have any preference. After this selection 2968 respondents remain. Also in line with previous research (cf. Need, 1997), people whose father did not have a party preference or who really did not know their father's party preference were excluded. Since we study the intergenerational transmission of party preference, it is essential that the father has a party preference.² This leaves us with 2583 respondents. Selecting on valid respondent information on sex, age, father's and respondent's church membership, father's and respondent's church attendance, father's and respondent's self-employment, and respondent's educational attainment and occupational status, leads to the exclusion of about 10 percent of the respondents, resulting in a final sample size of 2320 cases.

85.6 percent of the respondents aged 18–54 had at least one living parent at the time of the interview, while 89.5 percent of the respondents (in the 1992 and 2000 surveys³) had at least one living sibling. Respondents were asked for their parents' address and the address of one randomly selected sibling. The siblings and parents then were sent a mail-questionnaire. After two reminders, the second one with a fresh questionnaire, completed parent questionnaires were obtained from 43.3 percent of the respondents with living parents and from 39.4 percent of the siblings of respondents with at least one living sibling. The non-response is both due to the fact that some respondents did not give the address of their parents or siblings and that some parents and siblings did not return the questionnaire they received. Not all questionnaires contain all the information we want to include in our analysis: in 1998, parents were asked only about their church membership and not about other characteristics when the primary respondent was 15 years old, and in all three questionnaires no questions were asked about deceased spouses of the surviving parent. The result is that, although we have data on 2320 respondents between 18 and 54 years old who gave all necessary information about themselves and their father,

¹ We might also exclude persons under 25, since we want to use educational attainment in our model and not all respondents under the age of 25 have completed their education. However, excluding people under 25 would imply a decrease in statistical power. We also performed our analyses excluding people under 25. The results of these analyses do not deviate from the findings presented here that refer to respondent aged 18–54.

² The intergenerational transmission of party preference only addresses those with a preference themselves and whose father had a preference, but still it addresses the overwhelming majority of the population. The average voting turnout in the Netherlands between 1968 and 1995 is 83 percent (Franklin, 1999), which is slightly above the mean of 25 countries described by Franklin (1999).

³ In the 1998 survey, siblings were not asked about their parents.

we have parent reports on father's church membership for 711 respondents, and parent reports on father's church attendance for 321 respondents. For 346 respondents, we have parent reports on whether the father was self-employed, while for 319 respondents we have parental information about father's party preference (for 286 respondents we have parental information on all four characteristics). In addition, we have sibling reports on the four paternal characteristics for 425, 466, 454, and 420 respondents, respectively (we have sibling information on all four characteristics for 364 respondents).

Although we assume that both the father and the mother play an important role in the political socialization of their children, the possible difference between the influence of fathers and mothers (on sons and daughters separately) is beyond the scope of this article. We restrict our analyses to characteristics of the father. For self-employment we use father's occupation since many mothers did not have a paid job. For the other characteristics we use only characteristics of fathers for convenience. Using paternal and maternal characteristics as separate variables may cause high collinearity (the correlations between the characteristics of the fathers and those of the mothers are larger than .80); using the average of father and mother would either imply restricting the analysis to cases for which both the paternal and maternal characteristic have no missing values, or using the paternal information and maternal information interchangeably. Another solution would be to create a higher order latent parental characteristic measured by the latent father and the latent mother characteristic. This method for including information on both parents, however, would deviate from previous research on voting preference. Moreover, such an approach makes the models too complex. An analysis with both the characteristics of fathers and those of mothers showed that the effects of father's characteristics are stronger. In addition, part of the previous research (e.g. Goldberg, 1969; Knoke, 1976; Need, 1997) uses only information about the father. Father's characteristics refer to the father when the respondent was 15 years old.

On the basis of previous research we decided to examine religious and socio-economic factors and father's voting preference. For religiosity we analyze both church membership and church attendance of both the father and his adult child. Church membership is incorporated as a dummy variable (0 = no member of a church or religious community; 1 = member). Differences between denominations are not investigated. Although there are differences with respect to voting preference between the different denominations, these differences disappear after controlling for church attendance.⁴ Church attendance is the number of visits to a church per year, which is an ordinal variable that is treated here as an interval one (1 = never,

2 = one or several times a year, 3 = about once a month, 4 = about once a week or more often).

The social-economic dimension is investigated using (father's) self-employment, occupational status, and educational attainment. Since the latter two did not have an effect when they addressed the father (even in a model in which measurement error was incorporated), we used them only for respondents. Self-employment is a dummy indicator (0 = salaried employment, 1 = self-employment). People without a job are treated as missing. For respondents this variable refers to the current or last job. Highest completed education is the number of years necessary to complete the level of education: primary school is 6 years of schooling, lower vocational training (LBO) is 9 years, lower general education (MAVO) and short intermediate vocational training (KMBO) are 10 years, normal intermediate vocational training (MBO⁵) and intermediate general education (HAVO) are 11 years, pre-university education is 12 years (VWO), higher vocational training (HBO) is 15 years, university (WO) is 17 years, and post-university is 20 years. Occupational status is coded according to the International Socio Economic Index (ISEI) scale, as constructed by Ganzeboom et al. (1992).

To measure party preference, respondents were asked which political party they would vote for if an election for the national parliament was held today. Father's party preference refers to the political party that he preferred when the respondent was 15 years old (Question: *Which party did your parents prefer when you were 15 years old?* with answer categories for the father and the mother separately). We classified party preference using left–right scores. This classification has been used by Van der Eijk and Niemöller (1983). They review previous research on the classification of parties. The left–right dimension turns out to be the dominant one. Although most studies find at least two dimensions, there is no agreement on what the second dimension would be (Van der Eijk and Niemöller, 1983). Left–right scores have been calculated in the same way as Van der Eijk and Niemöller did. For each party a left–right score has been calculated, on the basis of the classification by respondents in the Dutch National Election Survey (NKO). For the paternal left–right score we used the National Election Survey of 1981, for the sons and daughters we used those of 1994 and 1998. The left–right scores of political parties are related to parties being confessional or not, since all confessional parties have a high score on being rightwing. For the fathers, the correlation between the left–right score and a dummy indicating whether a political party is secular or confessional is .72, while for the respondents it is .39. The latter is probably lower due to the increase in the popularity of the secular rightwing Liberal Party.

Since men and women may have different political preferences and differ on explanatory variables like occupational status and educational attainment, we included sex as a control variable. The same accounts for age.

⁴ In addition, the use of measurement models for nominal variables is not possible with the LISREL software. We have made use of other software packages, namely LEM (Vermunt, 1997) and Mplus (Muthén and Muthén, 2001), which can deal with nominal variables by applying log-linear models and Latent Class Analysis (Hagenaars, 1993; Vermunt, 1996), but this caused unsolvable problems that will be discussed in the section on secular versus confessional voting.

⁵ MBO gets a score that is somewhat lower than the actual years necessary to complete the education, since this type of the education is less advantageous than other types with the same number of years.

4.2. Descriptives

Basic descriptive information about the variables used in the analyses is presented in Table 1. We have information about father's church membership from three informants, and the table reports on the similarities in the answer of three types of pairs: respondent–parent pairs ($n = 711$), respondent–sibling pairs ($n = 425$), and parent–sibling pairs ($n = 219$). According to the 2320 respondents in the analysis, the proportion of fathers belonging to a church when the respondent was 15 years old is .76. The respondents for whom we have direct information obtained from their parents or siblings, have reported somewhat higher proportions for their father's church membership (.79 and .80). In addition, it appears that parents report a 6 percent points lower proportion than primary respondents; a significant difference ($p < .05$) according to a paired sample T -test. This difference could be due to question formulation. In Dutch survey research, different types of questions on church membership are used. In the surveys we use, the one and a half stage and the two stage question are used. In the one and a half stage question, people are asked whether they belong to a denomination and to which denomination they belong (the two questions are posed at once), while in the two stage question respondents are first asked whether they belong to a denomination and if so, to which denomination they belong.⁶ People might more easily say that they belong to a church when a one and a half stage question is asked than when a two stage question is asked. In the surveys used here, the respondents were asked a one and a half stage question, the parents were asked a two stage question, while the siblings were asked a one and a half stage question in the 1992 survey and a two stage question in the 2000 survey. The correlation between the answers given by the respondents and their parents is .689. We examined whether the difference in question formulation influenced the correlation, by comparing pairs who were asked the same question with pairs who were asked different questions. It turned out that the correlation was not affected by question formulation. The proportions according to respondents and according to siblings do not differ from each other, and the correlation between their answers is .727. For the parent–sibling pairs the averages do not differ significantly either, and the correlation is the same as for the respondent–sibling pair. Cronbach's alpha reliability coefficient for father's church membership based on the information from the three informants is .883.

Focusing on father's church attendance when the respondent was 15 years old, it turns out that respondents and siblings report father's church attendance to be lower than parents do, while the averages according to respondents and siblings do not differ from one another. The correlation coefficients for the three pairs of informants are higher for father's church attendance than for father's

Table 1

Descriptive information about all variables in the analysis.

	<i>n</i>	Mean	<i>s.d.</i>	<i>r</i>	α
<i>Father's church membership at age 15</i>					
(range 0–1)					.883
All respondents	2320	.76			
Respondent–parent pairs					
Respondent	711	.79*		.689	
Parent	711	.73*			
Respondent–sibling pairs					
Respondent	425	.80		.727	
Sibling	425	.80			
Parent–sibling pairs					
Parent	219	.80		.728	
Sibling	219	.83			
<i>Father's church attendance at age 15</i>					
(range 1–4)					.951
All respondents	2320	2.72	1.37		
Respondent–parent pairs					
Respondent	321	2.76*	1.33	.871	
Parent	321	2.87*	1.33		
Respondent–sibling pairs					
Respondent	466	2.90	1.32	.842	
Sibling	466	2.84	1.35		
Parent–sibling pairs					
Parent	202	3.04*	1.26	.886	
Sibling	202	2.90*	1.33		
<i>Father self-employed at age 15</i>					
(range 0–1)					.934
All respondents	2320	.24			
Respondent–parent pairs					
Respondent	346	.23*		.816	
Parent	346	.19*			
Respondent–sibling pairs					
Respondent	454	.25		.801	
Sibling	454	.25			
Parent–sibling pairs					
Parent	210	.22		.857	
Sibling	210	.25			
<i>Father's party preference at age 15</i>					
(range 1.67–8.17)					.924
All respondents	2320	6.07	2.29		
Respondent–parent pairs					
Respondent	319	6.26	2.20	.751	
Parent	319	6.39	2.14		
Respondent–sibling pairs					
Respondent	420	6.31	2.19	.818	
Sibling	420	6.39	2.15		
Parent–sibling pairs					
Parent	186	6.49*	2.12	.839	
Sibling	186	6.31*	2.20		
Respondent's educational attainment	2320	11.96	3.21		
(in years: range 6–20)					
Respondent's church membership	2320	.46			
(range 0–1)					
Respondent's church attendance	2320	1.80	1.00		
(range 1–4)					
Respondent's occupational status	2320	51.30	15.72		
(ISEI: range 10–90)					

(continued on next page)

⁶ A one stage question is also possible; this implies that respondents are asked directly to which denomination they belong (without asking whether they belong to a denomination). This question type has not been used in the surveys used here.

Table 1 (continued)

	<i>n</i>	Mean	s.d.	<i>r</i>	α
Respondent self-employed (range 0–1)	2320	.08			
Respondent's voting preference (range 2.40–8.29)	2320	5.30	1.60		
Female (male = 0, female = 1)	2320	.49			
Age (in years: range 18–54)	2320	39.28	8.54		

Note: * indicates that the difference between the means is significant at the 0.05 level (two-sided test).

α = Cronbach's alpha reliability coefficient based on the three correlations.

church membership, namely .871, .842, and .886, and the overall reliability coefficient is .951.

With respect to father's self-employment when the respondent was 15 years old, respondents report the proportion to be higher than their parents. The correlation coefficients for the three pairs of informants are .816, .801 and .857, and the overall reliability coefficient is .934.

Addressing father's party preference when the respondent was 15 years old, the subgroups of respondents of whom parents or siblings cooperated report a slightly higher (i.e., more rightwing) party preference than the entire group of respondents. Parents report a more rightwing party preference than siblings do. The correlation coefficients for the three pairs of informants are lower than for father's church attendance, namely .751, .818, and .839, and the overall reliability coefficient is .924.

Looking at the respondent characteristics, the average educational attainment is 11.96 years. The proportion of church members is .46, which is 30 percent points lower than the proportion among fathers, which implies a strong secularization in one generation. Respondent's church attendance is also lower than that of the father. The average occupational status is 51.30, which is about the average of the lowest and the highest possible score. The proportion of self-employed respondents is .08, which is a third of that for fathers. Several explanations are possible for this large difference. First, the number of self-employed has declined. Second, the proportion for respondents is based on both men and women. Third, young respondents might be salaried employees, but become self-employed later in life. Respondent's party preference is more leftwing than that of their fathers. About 49 percent of the respondents is female, and the average age is 39.28 years.

5. Models

5.1. Approach to measurement error

We will estimate a structural equation model to explain party preference. This model will be estimated four times (cf. De Vries and De Graaf, 2008a,b) and all models are estimated with the LISREL software (version 8.54, Jöreskog and Sörbom, 1996).

In Model 1 all information used in the analysis stems from primary respondents only. This information will be assumed to be measured without error. The model is shown in Fig. 1.

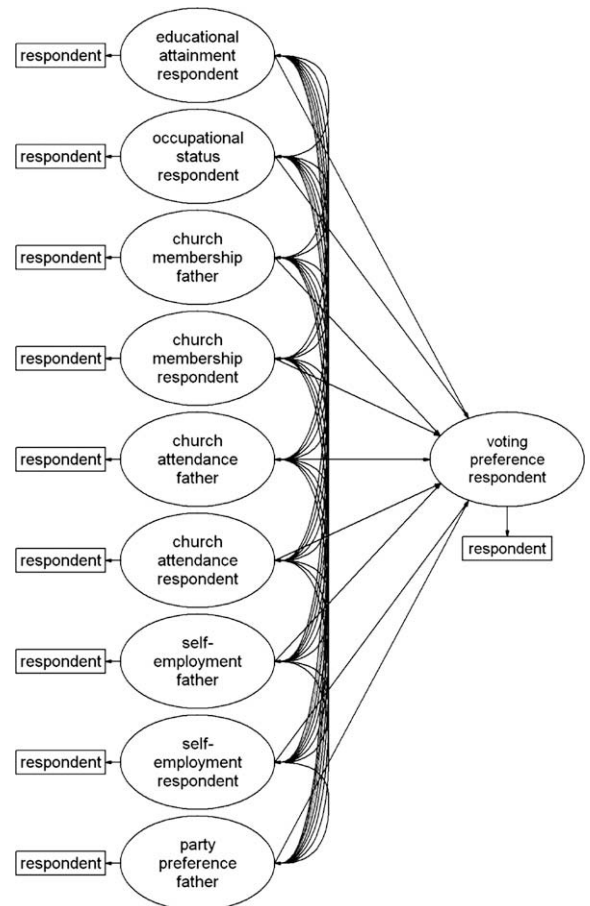


Fig. 1. Model without measurement error.

Model 2 allows for random measurement error (see Fig. 2). Father's church membership, father's church attendance, father's self-employment, and father's party preference are treated as latent variables with three indicators each. The respondent's characteristics have one indicator only, but we will account for measurement error in these variables too. This is done on the basis of the correlations between the answers of respondents about themselves, and the answers of the parents about the respondents in the 2000 survey. Using these correlations, the reliability of educational attainment is set at .85, the reliability of occupational status and church attendance at .80, and the reliability of church membership,⁷ self-employment, and voting preference at .75.⁸ According to Hayduk (1987) this can be done for continuous and dichotomous variables by fixing the error variance at the total variance multiplied by (1 – reliability). The effects we are interested in are the structural (regression) effects. The

⁷ In contrast to the questions on father's church membership (see above) the questions on respondent's church membership were exactly the same for the different informants.

⁸ We also performed analyses with a .05 lower and a .05 higher reliability. These experiments did not lead to different conclusions, albeit that the analyses with a .05 lower reliability suffered from multicollinearity.

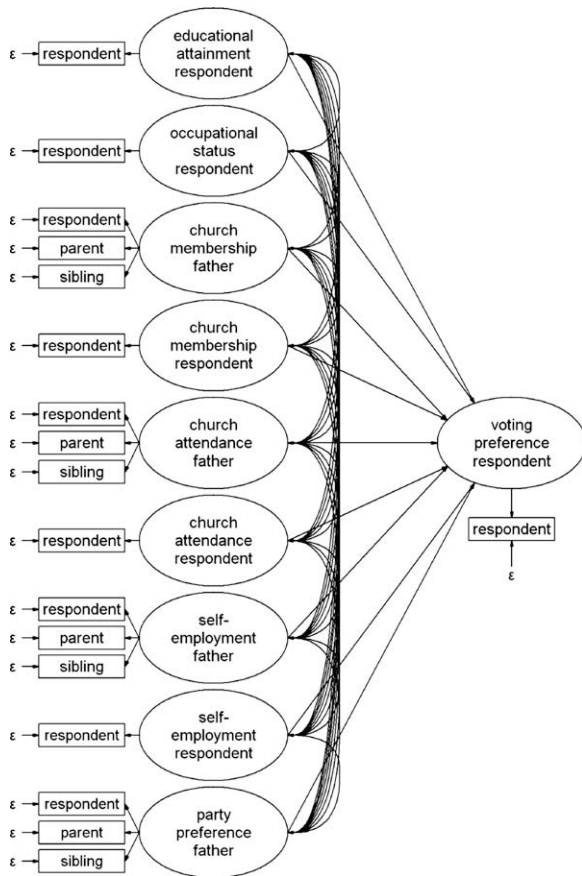


Fig. 2. Model with random measurement error.

regression effects in Model 2 will be compared with the regression effects of Model 1, which has been estimated on the family background information from the 2320 primary respondents only.

In Model 3, displayed in Fig. 3, correlated error is accounted for. Two types of bias are incorporated. The first is the tendency of respondents to make one's father more similar to oneself than he actually is. This is incorporated by a direct effect of the answer of the respondent about him- or herself on the answer of the respondents about his/her father. It is possible to distinguish this effect from the effect of the father characteristic on the respondent characteristic due to the fact that the father characteristic has been measured with three indicators. The second bias is the tendency of respondents (and their siblings) to make the paternal characteristics more similar to each other. This is included in the model by allowing correlations between the errors in the answers of respondents and their siblings on the different paternal characteristics.

For the estimation of Model 4 (see Fig. 4) only information from primary respondents is used, but measurement error is incorporated in this information on the basis of the results of Model 2 and Model 3. This procedure shows that it is possible to obtain correct estimates with respondent information only.

We use four fit statistics to evaluate the model fit, namely Chi-square, the RMSEA, the TLI/NNFI, and the CFI

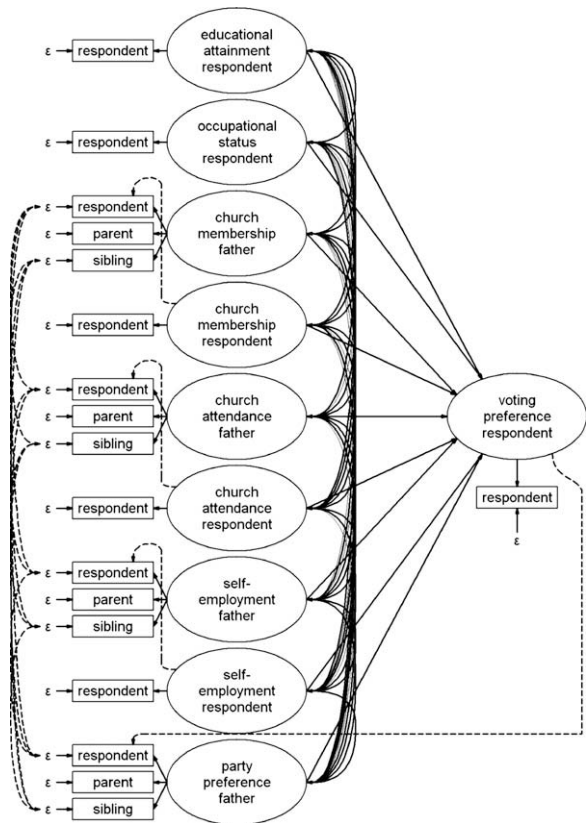


Fig. 3. Model with correlated measurement error.

(Schumacker and Lomax, 2004). With the Chi-square, it can be assessed whether the estimated model deviates significantly from the saturated model. However, in large samples the Chi-square easily becomes significant. The RMSEA (Root Mean Square Error of Approximation) solves this problem by taking the number of cases into account. An RMSEA below .05 implies a good fit (Browne and Cudeck, 1993). The TLI/NNFI (Tucker–Lewis Index or Non-Normed Fit Index) and CFI (Comparative Fit Index) compare the model under study with the independence model.

5.2. Approach to missing values

In Section 4 we showed that parent and sibling information is not available for all respondents. For that reason we estimate the model using Full Information Maximum Likelihood (FIML) (Enders, 2006; Arbuckle, 1996). With FIML missing value patterns are calculated. Missing values are not replaced by imputed values, but all available information is used to provide a maximum likelihood estimation (Acocck, 2005).

6. Model 1: no measurement error

The effects of an analysis without measurement error are presented in Model 1 of Table 2. Since all relations between the independent variables are allowed to be freely estimated (as in ordinary regression analysis) the model fit is perfect. The Chi-square and the number of degrees of

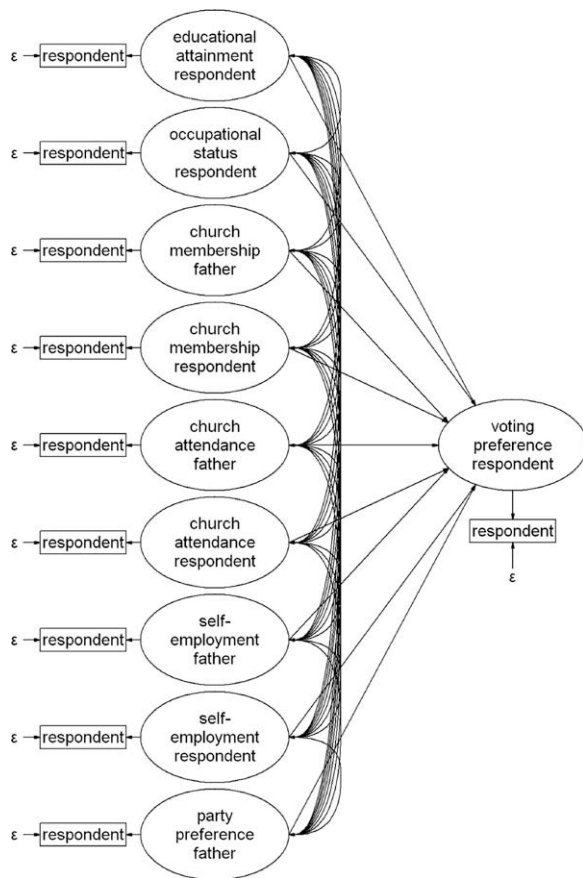


Fig. 4. Model with imputed measurement error.

freedom are zero, which implies that the CFI has its maximum value of 1 and that the TLI/NNFI and the RMSEA cannot be calculated for this model. The R^2 is .162.

Father's party preference when the respondent was 15 years old has a substantial effect on respondent's party preference. This effect is the strongest of all explanatory variables. It turns out that religious respondents (i.e., both church members and church attenders) are more rightwing than non-religious respondents. The effect of church membership is stronger than that of church attendance. However, father's church attendance during socialization has an opposite effect. This is due to the fact that those who leave church vote more leftwing than non-members who never belonged to a church and the fact that we control for father's voting preference (in the past). The total effect of father's religiosity on rightwing voting is positive, but this effect is mediated by his party preference and son's/daughter's religiosity. If voting preference and son's/daughter's religiosity are deleted from the model, the effect of father's religiosity becomes positive.

With respect to socio-economic characteristics, respondent's occupational status has a positive effect on rightwing voting, while educational attainment has a negative effect. Since these two effects are held constant for each other, the effect of occupational status is an effect of economic status, while the effect of educational attainment is an effect of the intellectual and cultural aspects of

education. Both father's and son's/daughter's self-employment have a positive effect on rightwing voting, but the effect of the latter is stronger than that of the former.

Furthermore, women are more leftwing than men, and, in contrast to our expectations, age has no effect on voting rightwing.

7. Model 2: random measurement error

Random measurement error is accounted for in Model 2 presented in Table 2. The four fit statistics provide ambiguous information about the fit of the model. The Chi-square statistic is significant, but the TLI/NNFI and CFI are above .95 and the RMSEA is below .05. The R^2 (.285) is much higher than in the previously discussed model without measurement error.

Compared to Model 1, two effects are significantly⁹ stronger, namely the effect of father's party preference when the respondent was 15 years old, the strongest effect in Model 1, and the effect of educational attainment; the standardized effects are about 50 percent stronger.

Looking at respondent's religiosity, it turns out that the positive (standardized) effect of church membership on rightwing voting almost doubles (it is 89 percent stronger), while the effect of church attendance becomes insignificant. The effect of father's religiosity in the past becomes stronger. The negative effect of father's church attendance is 94 percent stronger. The effect of father's church membership stays insignificant, although the size is larger too. Since the correlation between church attendance and church membership is larger, one should be aware of multicollinearity. We therefore re-estimated the model without church membership. This had hardly any impact on the effects of the remaining variables.

With respect to occupational characteristics, the effect of father's self-employment during socialization disappears, respondent's self-employment is about the same, while the effect of occupational status is 75 percent stronger. However, these differences in effects are not significant.¹⁰

⁹ We computed the significance using the formula: $T = (b_1 - b_2) / \sqrt{(s.e._1^2 - s.e._2^2)(var_{e1}^2 / var_{e2}^2)}$, where b_1 and b_2 are the unstandardized regression coefficients, se_1 and se_2 the standard errors of the regression coefficients, and var_{e1}^2 and var_{e2}^2 the unexplained variances in the dependent variables (Clogg et al., 1995).

¹⁰ Church membership and self-employment are dichotomous variables, but FIML in LISREL assumes that all variables are continuous. It is unknown to what extent the effects of these variables are biased due to the violation of the assumption of variables being continuous. Moreover, other treatments of missing values (multiple group option, Allison, 1987, multiple imputation using the EM algorithm, Enders, 2001) could not lead to a better treatment of dichotomous variables. Since the inclusion of dichotomous variables can bias the effects of continuous variables too, we also estimated our models, without the dichotomous variables. This did not affect the changes in the effects of the other variables, except the change in the effect of father's church attendance (which becomes somewhat stronger after correction for measurement error) and the change in the effect of son's/daughter's church attendance (which becomes stronger instead of smaller after correction for measurement error). Since church attendance is strongly related to church membership, it is not remarkable that the change in the effect of church membership is accounted for by church attendance, if church membership is discarded.

Table 2

Effects of various variables on voting preference (left–right).

	Model 1 no measurement error			Model 2 random measurement error			Model 3 correlated measurement error			Model 4 imputed measurement error		
	<i>b</i>	s.e.	β	<i>b</i>	s.e.	β	<i>b</i>	s.e.	β	<i>b</i>	s.e.	β
<i>Effects on voting preference</i>												
Father's church membership (0–1)	–.187	.098	–.050	–.337	.364	–.085	–.303	.359	–.071	–.274	.486	–.069
Father's church attendance (1–4)	–.178*	.034	–.152	–.327*	.104	–.295	–.326*	.102	–.290	–.360*	.132	–.325
Father self-employed (0–1)	.158*	.075	.042	.030	.105	.008	.097	.110	.026	.036	.109	.010
Father's party preference (1.67–8.17)	.209*	.016	.298	.320*	.028	.467	.300*	.035	.430	.328*	.027	.479
Educational attainment (6–20)	–.076*	.012	–.153	–.108*	.018	–.229	–.108*	.018	–.230	–.108*	.018	–.231
Church membership (0–1)	.472*	.086	.147	.893*	.294	.278	.870*	.285	.271	.859*	.340	.267
Church attendance (1–4)	.203*	.042	.127	.104	.130	.088	.146	.127	.094	.155	.150	.100
Occupational status (10–90)	.006*	.002	.061	.011*	.004	.107	.011*	.004	.114	.010*	.004	.105
Self-employed (0–1)	.372*	.113	.063	.472*	.155	.081	.465*	.157	.079	.497*	.156	.085
Female (0–1)	–.285*	.062	–.089	–.300*	.063	–.108	–.304*	.064	–.108	–.302*	.064	–.109
Age (18–54)	–.006	.004	–.034	–.007	.004	–.041	–.007	.004	–.041	–.006	.004	–.039
R^2	.162			.285			.267			.294		
χ^2	0			149.936			132.195			0		
df	0			112			96			0		
TLI/NNFI	–			.993			.993			–		
CFI	1			.996			.996			1		
RMSEA	–			.012			.013			–		
<i>n</i>	2320			2320			2320			2320		

Note: *indicates that the effect is significant at the .05 level (one-sided test).

8. Model 3: correlated measurement error

Correlated measurement errors can be of two kinds. First, respondents might bias answers about their father towards their own situation. Second, respondents might make several characteristics of their father more consistent

with each other. In Table 3, the error-covariances between answers (of respondents and siblings) on different paternal characteristics are given. It appears that the errors in the answers about father's church membership and father's voting preference are positively correlated with each other for respondents and siblings. In addition, for respondents, the answer on father's church membership is positively correlated with that on father's church attendance and the answer on the father being self-employed is positively correlated with that on father's voting preference. Table 4 shows the degree in which respondents bias answers about their father towards themselves. Although all four effects are positive, only the bias of the answer on father's church membership towards respondent's church membership is significant.

In Model 3 of Table 2 our voting preference model is estimated again, but now errors are allowed to correlate. The model fit statistics of Model 3 do not differ strongly from those of Model 2. The Chi-square is significant, the TLI/NNFI and CFI are above .95, and the RMSEA is below .05. Looking at the difference in model fit between Model 2 and Model 3, it turns out that the difference in Chi-square is not significant. Therefore, allowing measurement error to correlate does not improve the model fit.¹¹

The changes in the regression effects are small. The largest absolute difference in standardized effect between Model 2 and Model 3 is in the effect of father's voting preference, which is .037 smaller (8 percent of the effect in Model 2). The difference compared to Model 1 is still significant (just as the effect of educational attainment).

Table 3

Correlation between errors in answers on different family background variables.

	Covariance	s.e.	Correlation
<i>Respondent information</i>			
Father's church membership and father's church attendance	.016*	.003	.028
Father's church membership and father self-employed	–.002	.001	–.012
Father's church membership and father's party preference	.017*	.006	.017
Father's church attendance and father self-employed	–.001	.003	–.001
Father's church attendance and father's party preference	.006	.017	.002
Father self-employed and father's party preference	.020*	.006	.020
<i>Sibling information</i>			
Father's church membership and father's church attendance	.003	.004	.005
Father's church membership and father self-employed	.000	.001	.003
Father's church membership and father's party preference	.015*	.007	.016
Father's church attendance and father self-employed	–.005	.004	–.008
Father's church attendance and father's party preference	–.030	.018	–.010
Father self-employed and father's party preference	.000	.007	.000

Note: *indicates that the covariance is significant at the .05 level (one-sided test).

¹¹ Since respondent answers seem to be more biased than sibling answers, we also tested whether a model in which only the errors in respondent answers were correlated fits significantly better than the random error model. However, this model did not fit significantly better either.

Table 4

Effects of characteristics of respondents on their answer about the father characteristic.

	Effect (ly)	s.e.	Standardized
Father's and respondent's church membership	.065*	.029	.066
Father's and respondent's church attendance	.023	.039	.015
Father and respondent self-employed	.005	.049	.003
Father's and respondent's party preference	.053	.046	.032

Note: *indicates that the covariance is significant at the .05 level (one-sided test).

In brief, the regression effects in Model 3 do not differ substantially from the regression effects in Model 2.

9. Model 4: imputed measurement error

To facilitate the incorporation of measurement error in future research on voting preference, [Tables 5 and 6](#) present information on the reliability of the answers to questions about paternal characteristics.

[Table 5](#) shows the effects of the latent paternal characteristics on the answers of the different informants. The square of the standardized effects refers to the reliability. With respect to father's church attendance and whether the father is self-employed, the parent information is more reliable than the respondent/sibling information, while for voting preference the parental information is less reliable than the sibling information. The error proportions of the indicators are presented in [Table 6](#). The error proportions in father's church attendance (in the past) are about half of that in father's church membership. The reliability of father's self-employment and father's voting preference is in between that of father's church membership and father's church attendance. Model 4 in [Table 2](#) uses only respondent information on the paternal characteristics, but the model corrects for random measurement error using the error variances reported in [Table 6](#). The effects of Model 4 are similar to those of Model 2. Those who consider the differences between Model 2 and Model 3 to be important, may question why we do not use the information on the significant error-covariances in Model 4. The answer is that the only difference of any importance between Model 2 and Model 3 is the change in the effect of father's party preference, which is caused by the error-covariance of respondent answers about father's party preference and respondent's voting preference. But this error-covariance is by far not significant.

Table 5

Effects of latent paternal characteristics on their indicators.

	Indicator respondent			Indicator parent			Indicator sibling		
	Effect (ly)	s.e.	Standardized	Effect (ly)	s.e.	Standardized	Effect (ly)	s.e.	Standardized
Father's church membership	1.000	–	.828	1.125	.037	.875	1.034	.040	.873
Father's church attendance	1.000	–	.913	1.047	.027	.964	1.037	.027	.928
Father self-employed	1.000	–	.879	.975	.037	.922	1.025	.038	.902
Father's voting preference	1.000	–	.888	.947	.040	.873	1.017	.034	.933

Note: the effects of the latent variables on the respondent-indicators are set to one.

Table 6

Proportion of indicator error variance.

	Indicator respondent	Indicator parent	Indicator sibling
Father's church membership	.314	.235	.237
Father's church attendance	.166	.072	.139
Father self-employed	.227	.150	.186
Father's party preference	.212	.237	.130

10. Secular versus confessional voting

Above we investigated leftwing–rightwing voting and we argued that the left–right scores of political parties are related to parties being confessional or not, because all confessional parties have a high score on being rightwing in the Netherlands. Still, some studies investigate confessional versus secular voting explicitly. This is less of a continuous scale than leftwing–rightwing voting and parties are usually put in two (secular–confessional) or three (leftwing–rightwing–confessional) categories. Though Structural Equation Modeling software has incorporated possibilities to analyze categorical variables (e.g. Mplus ([Muthén and Muthén, 2001](#))), it has some limitations. Our models did not converge in Mplus. However, a simple model estimated in Mplus, only controlling for sex and age, did not indicate the presence of a bias of respondent's answer on father's secular–confessional party preference towards respondent's secular–confessional voting preference. Unfortunately, due to convergence problems, we could not investigate whether and how the regression coefficients would change in a model comparable to the leftwing–rightwing model, i.e. with the inclusion of all relevant control variables.

Another possibility is to estimate a linear probability model in LISREL. This model suffered from estimation problems as well.

We also analyzed the data, using loglinear models with latent class analysis, which can be done with the program LEM ([Vermunt, 1997](#)). However, at present these models still have some disadvantages. First, one cannot include measurement error in the respondent characteristics if only one indicator for these characteristics is present. Second, model identification is sometimes problematic. Third, for complex models with more than 150 parameters, calculation of standard errors is currently not possible with LEM. For these reasons the parameter estimates of these models are not presented here, as the conclusions on the basis of

Table 7

Effects of various variables on voting preference (secular–confessional).

	Model 1 no measurement error		Model 2 random measurement error bootstrap	
	<i>b</i>	s.e.	<i>b</i>	s.e.
Father's church membership (0–1)	–.017	.316	.033	.771
Father's church attendance (1–4)	–.003	.079	–.252	.146
Father self-employed (0–1)	.425*	.142	.394*	.175
Father's confessional party preference (0–1)	1.265*	.183	1.885*	.364
Educational attainment (6–20)	–.124*	.025	–.126*	.040
Church membership (0–1)	1.599*	.201	2.363*	.434
Church attendance (1–4)	.753*	.073	.713*	.125
Occupational status (10–90)	–.005	.005	–.007	.007
Self-employed (0–1)	–.070	.234	–.056	.309
Female (0–1)	–.123	.130	–.143	.138
Age (18–54)	–.025*	.008	–.026*	.009
Constant	–2.052		–2.008	
χ^2 (df)	853.49* (11)			
Wald (df)			27.88* (11;2308)	
Bootstraps replications			199	
<i>N</i>	2320		2320	

Note: *indicates that the effect is significant at the .05 level (one-sided test).

these analyses would be provisional and tentative. Our main conclusion with respect to these models is that the effect of father's party preference is underestimated. Hence, the estimation of loglinear models with latent class analysis does not seem to lead to different conclusions than our analyses for leftwing–rightwing voting.

With simulation extrapolation (Carroll et al., 1995), available in STATA (Hardin et al., 2003), it is possible to include random measurement error (in a logit model), if one has multiple measurements or the error variance is known. First, the model is estimated, without accounting for measurement error; this results in the so called naive estimate. Second, the model is estimated with different sizes of simulated measurement error. Third, from the regression coefficients of the different models, the coefficient for the model with errorfree variables is extrapolated. Standard errors are obtained via bootstrapping.

Model 1 of Table 7, is a logit model which does not account for measurement error shows that church membership and church attendance have a positive effect on confessional voting (0 = secular voting, 1 = confessional voting).¹² If the father preferred a confessional party, this increases the chance that his children vote for a confessional party. No effect of father's church membership and father's church attendance has been found, controlling for father's voting preference and own religiosity. The sons and daughters of self-employed fathers have a higher chance to vote for a confessional party, but being self-employed oneself and own occupational status do not affect confessional voting. Sex does not influence confessional voting, while the chance of voting for a confessional party decreases with age, due to holding constant for own religiosity.

Random measurement error is accounted for in Model 2. Two changes are worth mentioning. The first is the increase in the effect of father's confessional voting preference: the unstandardized¹³ effect increases with 49 percent. The second is the increase in the effect of church membership. This effect increases with 48 percent. No strong declines in effects are found, nor do significant effects become insignificant. One should not draw very strong conclusions from this model, since, for instance, it is not possible to incorporate correlated measurement error. Still, as we told above, a simple model estimated in Mplus, did not find support for the presence of a bias of the respondent's answer about father's secular–confessional party preference towards respondent's secular–confessional voting preference.

11. Conclusion and discussion

In many studies on voting preference, parental characteristics are not incorporated or even asked because the information could be unreliable. This study shows that the presence of measurement error in these variables offers no good reason for excluding these variables. The effect of father's party preference is even stronger than the effects of respondent characteristics. Moreover, taking measurement error into account makes this effect stronger instead of weaker.

In addition to father's party preference when the respondent was 15 years old, we also examined the implications of measurement error in father's church membership, father's church attendance, and father's self-employment during socialization for the effects of these and other variables on rightwing voting. We showed that the effect of father's church attendance becomes stronger after the inclusion of measurement error, while the effects

¹² The Christian-Democratic party (CDA), its predecessors, and three small confessional parties (SGP, GPV, and RPF) are considered to be confessional parties, while the other political parties are considered to be secular.

¹³ We could not calculate the standardized effect, since with simulation extrapolation, variances of the true variables are not presented.

of father's church membership and father's self-employment disappeared. We did not find sufficient support for the presence of correlated measurement error. Neither did we find support for the assumption that the errors in paternal characteristics are stronger than those in respondent's own characteristics.

Furthermore, since parental party preference is so important, it should be included in future models, using the information on measurement error. Such information should be obtained for other countries as well. The generalizability of our findings on reliability of father's party preference and other family background variables towards other countries may depend upon whether the salience of these variables in other countries differs from their salience in the Netherlands. The more salient a characteristic in a certain country is, the more reliable its measurement is likely to be. The salience of voting preference probably depends on the degree of political polarization in a country. Many of our respondents grew up during the seventies, a time in which politics in the Netherlands was polarized. This might have made it easier for respondents to answer questions about father's voting preference correctly. On the other hand, the Dutch political system consists of a lot of different political parties. Moreover, parties merged or split up into different parties, which makes it more difficult to recollect father's voting preference.

In sum, father's party preference is a very important predictor of voting preference, it is worthwhile to include it in future research, while correcting for measurement error.

References

- Achen, C.H., 2002. Parental socialization and rational party identification. *Political Behavior* 24, 151–170.
- Acoc, A.C., 2005. Working with missing values. *Journal of Marriage and Family* 67, 1012–1028.
- Allison, P.D., 1987. Estimation of linear models with incomplete data. *Sociological Methodology* 17, 71–103.
- Arbuckle, J.L., 1996. Full information estimation in the presence of incomplete data. In: Marcoulides, G.A., Schumacker, R.E. (Eds.), *Advanced Structural Equation Modeling: Issues and Techniques*. Lawrence Erlbaum Associates, Mahwah, NJ, pp. 243–277.
- Becker, R., Mays, A., 2003. Soziale herkunft, politische sozialisation und wählen im lebensverlauf. *Politische Vierteljahresschrift* 44 (1), 19–40.
- Blair, J., Menon, G., Bickart, B., 1991. Measurement effects in self vs. proxy response to survey questions: an information-processing perspective. In: Biemer, P., Groves, R.M., Lyberg, L.E., Mathiowetz, N.A., Sudman, S. (Eds.), *Measurement Errors in Surveys*. Wiley, New York, pp. 145–166.
- Blalock, H.M., 1970. A causal approach to nonrandom measurement errors. *American Political Science Review* 64 (4), 1099–1111.
- Bohrnstedt, G.W., Carter, T.M., 1971. Robustness in regression analysis. *Sociological Methodology* 3, 118–146.
- Bollen, K.A., 1989. *Structural Equations with Latent Variables*. John Wiley & Sons, New York.
- Bradburn, N.M., Rips, L.J., Shevell, S.K., 1987. Answering autobiographical questions: the impact of memory and inference on surveys. *Science* 236, 157–161.
- Breen, R., Whelan, C.T., 1994. Social class, class origins and political partisanship in the Republic of Ireland. *European Journal of Political Research* 26 (2), 117–133.
- Browne, M.W., Cudeck, R., 1993. Alternative ways of assessing model fit. In: Bollen, K.A., Long, J.S. (Eds.), *Testing Structural Equation Models*. Sage, Newbury Park, CA, pp. 136–162.
- Butler, D.E., Stokes, D.E., 1969. *Political Change in Britain: Forces Shaping Electoral Choice*. St. Martin's Press, New York.
- Campbell, A., Converse, P.E., Miller, W.E., Stokes, D.E., 1960. *The American Voter*. Wiley, New York.
- Carroll, R.J., Ruppert, D., Stefanski, L.A., 1995. *Measurement Error in Nonlinear Models*. Chapman & Hall/CRC Press, New York.
- Clogg, C.C., Petkova, E., Haritou, A., 1995. Statistical methods for comparing regression coefficients between models. *American Journal of Sociology* 100 (5), 1261–1293.
- De Graaf, N.D., De Graaf, P.M., Kraaykamp, G., Ultee, W.C., 1998. *Familie-enquête Nederlandse Bevolking 1998* [dataset]. Department of Sociology, Radboud University Nijmegen, Nijmegen.
- De Graaf, N.D., De Graaf, P.M., Kraaykamp, G., Ultee, W.C., 2000. *Familie-enquête Nederlandse Bevolking 2000* [dataset]. Department of Sociology, Radboud University Nijmegen, Nijmegen.
- De Graaf, N.D., Nieuwbeerta, P., Heath, A., 1995. Class mobility and political preferences: individual and contextual effects. *American Journal of Sociology* 100 (4), 997–1027.
- De Graaf, N.D., Ultee, W., 1990. Individual preferences, social mobility and electoral outcomes. *Electoral Studies* 9, 108–131.
- De Vries, J., De Graaf, P.M., 2008a. Is the intergenerational transmission of high cultural activities biased by the retrospective measurement of parental high cultural activities? *Social Indicators Research* 85, 311–327.
- De Vries, J., De Graaf, P.M., 2008b. The reliability of family background effects on status attainment: multiple informant models. *Quality & Quantity* 42, 203–234.
- Dex, S., 1995. The reliability of recall data: a literature review. *Bulletin de Méthodologie Sociologique* 49, 58–89.
- Enders, C.K., 2001. A primer on maximum likelihood algorithms for use with missing data. *Structural Equation Modeling* 8, 128–141.
- Enders, C.K., 2006. Analyzing structural equation models with missing data. In: Hancock, G.R., Mueller, R.O. (Eds.), *Structural Equation Modeling: a Second Course*. IAP – Information Age Publishing, Greenwich, CT, pp. 313–342.
- Fiedler, F.E., Warrington, W.G., Blaisdell, F.J., 1952. Unconscious attitudes as correlates of sociometric choice in a social group. *Journal of Abnormal and Social Psychology* 47, 790–796.
- Fox, J., 1997. *Applied Regression Analysis, Linear Models and Related Methods*. Sage, Thousand Oaks, CA.
- Franklin, M.N., 1999. Electoral engineering and cross-national turnout differences: what role for compulsory voting? *British Journal of Political Science* 29 (1), 205–216.
- Ganzeboom, H.B.G., De Graaf, P.M., Treiman, D.J., 1992. A standard international socio-economic index of occupational status. *Social Science Research* 21, 1–56.
- Goldberg, A.S., 1969. Social determinism and rationality as bases of party identification. *The American Political Science Review* 63 (1), 5–25.
- Hagenaars, J.A.P., 1993. *Loglinear Models with Latent Variables*. Sage, Newbury Park, CA.
- Hanushek, E.A., Jackson, J.E., 1977. *Statistical Methods for Social Scientists*. Academic Press, New York.
- Hardin, J.W., Schmiediche, H., Carroll, R.J., 2003. The simulation extrapolation method for fitting generalized linear models with additive measurement error. *The Stata Journal* 3 (4), 373–385.
- Hayduk, L.A., 1987. *Structural Equation Modeling with Lisrel: Essentials and Advances*. Johns Hopkins University Press, Baltimore.
- Himmelweit, H.T., Jaeger Biberian, M., Stockdale, J., 1978. Memory for past vote: implications of a study of bias in recall. *British Journal of Political Science* 8 (3), 365–375.
- Hudson, J., 1995. Preferences, loyalty and party choice. *Public Choice* 82 (3–4), 325–340.
- Jennings, M.K., Niemi, R.G., 1968. The transmission of political values from parent to child. *The American Political Science Review* 62 (1), 169–184.
- Jennings, M.K., Niemi, R.G., 1974. *The Political Character of Adolescence: the Influence of Families and Schools*. Princeton University Press, Princeton, NJ.
- Jöreskog, K.G., Sörbom, D., 1996. *Lisrel 8: User's Reference Guide*. Scientific Software International, Chicago.
- Knoke, D., 1976. *Change and Continuity in American Politics: the Social Bases of Political Parties*. Johns Hopkins University Press, Baltimore.
- Looker, E.D., 1989. Accuracy of proxy reports of parental status characteristics. *Sociology of Education* 62 (4), 257–276.
- McAllister, I., Kelley, J., 1985. Party identification and political socialization: a note on Australia and Britain. *European Journal of Political Research* 13, 111–118.
- Michaelson, A., Contractor, N.S., 1992. Structural position and perceived similarity. *Social Psychology Quarterly* 55 (3), 300–310.
- Muthén, L.K., Muthén, B.O., 2001. *Mplus User's Guide*, second ed. Muthén & Muthén, Los Angeles.
- Need, A., 1997. *The Kindred Vote: Individual and Family Effects of Social Class and Religion on Electoral Change in the Netherlands, 1956–1994*. University of Nijmegen, Nijmegen.

- Niemi, R.G., 1973. Collecting information about the family: a problem in survey methodology. In: Dennis, J. (Ed.), *Socialization to Politics: a Reader*. Wiley, New York.
- Nieuwbeerta, P., Wittebrood, K., 1995. Intergenerational transmission of political party preference in the Netherlands. *Social Science Research* 24, 243–261.
- Popkin, S.L., 1991. *The Reasoning Voter: Communication and Persuasion in Presidential Campaigns*. University of Chicago Press, Chicago.
- Schumacker, R.E., Lomax, R.G., 2004. *A Beginner's Guide to Structural Equation Modeling*. Lawrence Erlbaum Associates, Mahwah, NJ.
- Ultee, W.C., Ganzeboom, H.B.G., 1992. *Familie-enquête Nederlandse Bevolking 1992 [dataset]*. Department of Sociology, Radboud University Nijmegen, Nijmegen.
- Van der Eijk, C., Niemöller, B., 1979. Recall accuracy and its determinants. *Acta Politica* 14, 289–342.
- Van der Eijk, C., Niemöller, K., 1983. *Electoral Change in the Netherlands: Empirical Results and Methods of Measurement*. CT-Press, Amsterdam.
- Vermunt, J.K., 1996. *Log-linear Event History Analysis: a General Approach with Missing Data, Latent Variables, and Unobserved Heterogeneity*. Tilburg University Press, Tilburg.
- Vermunt, J.K., 1997. Lem: a general program for the analysis of categorical data. Available from: <http://spitswww.uvt.nl/web/fsw/mto/lem/manual.pdf>.
- Wansbeek, T.J., Meijer, E., 2000. *Measurement Error and Latent Variables in Econometrics*, first ed. Elsevier, Amsterdam.