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GEOGRAPHICAL DIFFERENCES IN BLOOD DONATION AND PHILANTHROPY IN THE NETHERLANDS – WHAT ROLE FOR SOCIAL CAPITAL?

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ABSTRACT

The key question addressed in this paper is whether geographical differences in blood donation and philanthropy reflect differences in social capital. We do find considerable spatial variation in blood donation and philanthropy between municipalities in the Netherlands. But we do not find that blood donation and philanthropy have strong or even moderately positive relations with each other or with indicators of prosocial norms and engagement in voluntary associations. However, voter turnout is strongly related to both blood donation and philanthropy. We conclude that the spatial variation in blood donation and philanthropy is not due to differences in social capital.

Key words: Social capital, blood donation, philanthropy, volunteering, turnout, civic engagement

INTRODUCTION

A large majority of households in the Netherlands engage in traditional philanthropy – the donation of money to charitable causes (Schuyt *et al.* 2007). A less common health related form of philanthropy is the donation of blood (Bekkers 2006). Charitable giving and blood donation are puzzling forms of prosocial behaviour because they are voluntary commitments of money and time from donors that generate few (if any) tangible self-benefits (Elster 1990; Andreoni 2006).

One factor that may promote both the donation of blood and the donation of money to charitable causes is social capital. Social capital makes people give some of their resources to others without an immediate return (Putnam

2000). Social capital inheres in social networks that to some extent are locally based (Putnam 2000; Lin 2001a). Therefore, it is likely that spatial variation in blood donation and philanthropy exists, reflecting spatial variation in social capital. One would expect that areas, in which citizens are more strongly embedded in community life, and areas in which prosocial norms are stronger, have higher proportions of blood donors and higher levels of generosity to charitable causes.

Our aims in the paper are (1) to describe the spatial variation in blood donation and philanthropy between municipalities in the Netherlands; (2) to examine the correlation between levels of blood donation and philanthropy; (3) to test whether levels of blood donation and philanthropy are correlated with indicators of social capital.

FROM SOCIAL CAPITAL TO DONATIONS

The concept of social capital has attracted a lot of attention in the past decade. Social capital consists of three components: (1) prosocial norms; (2) social networks; and (3) trust (Putnam 2000). Social capital is assumed to be higher when people are better connected to others, when they live in communities that more strongly emphasise reciprocity, fairness, tolerance, and in communities sharing the belief that people are trustworthy. Social capital is assumed to have a wide variety of beneficial consequences, such as higher subjective well being (Helliwell 2003), better health (Kawachi *et al.* 1999), greater economic prosperity (Zak & Knack 2001), more labour market success (Lin 2001b), higher levels of civic engagement (Putnam 2000; Bekkers *et al.* 2008), and lower crime rates (Rosenfeld *et al.* 2001). In this paper, we examine whether blood donation and philanthropy can be added to the list of behavioural consequences of social capital. Do regions with higher levels of social capital donate more money and blood?

Putnam (2000, pp. 116–133) in a chapter ‘Altruism, volunteering and philanthropy’, presents charitable giving, volunteering and blood donation as behavioural indicators of social capital. The crucial element linking social capital to donations of time, money and blood is prosocial norms. Prosocial norms are socially shared normative expectations about prosocial behaviour. Prosocial norms are embedded in a ‘civic culture’: as a good citizen, one is expected to help one’s neighbours, to participate in voluntary associations, to vote, to give blood, to volunteer, and to give money to charitable causes (Almond & Verba 1963). Blood donation is considered as the ‘gift of life’, a deed of altruism or compassion for fellow citizens who need blood. Charitable giving has similar connotations.

One would expect that prosocial norms are positively related to the level of charitable giving and the proportion of blood donors in regions (Kolins & Herron 2003). However, to date no empirical evidence supports the conjectures that different types of donations are positively related to each other, and that these relationships are due to prosocial norms. The ‘comprehensive social capital index’ presented by

Putnam (2000, p. 291) largely consists of measures that are assumed to be behavioural consequences of social capital such as voluntary association memberships, volunteering and turnout in elections. However, the index does not include measures of prosocial norms or donations of money and blood. It remains to be seen if such donations are positively correlated with each other and with prosocial norms. Below we will test these conjectures with municipal level data on blood donation and philanthropy in the Netherlands.

Social capital is an attractive concept because it may explain geographical differences (Mohan & Mohan 2002). Social capital inheres in social networks, which commonly include persons living in the same geographical unit such as the municipality or neighbourhood (Völker & Flap 2007). Thus, social capital may be a characteristic of geographic areas that affects the functioning of actors in that area (Adger 2003; Schnur 2005). Indeed, because social norms are produced and maintained in social networks (Coleman 1990), it is likely that geographical differences exist in prosocial norms. In turn, these differences may explain geographical variation in blood donation and philanthropy. It is this link that we explore in the analyses below.

EMPIRICAL EVIDENCE THUS FAR

Previous studies in the United States (Putnam 2000; Kropf & Knack 2003; Brooks 2005; Brown & Ferris 2007) reveal that charitable giving is more common among individuals with a more trusting attitude towards others and that average charitable contributions are higher in areas with higher voter turnout. However, blood donation has rarely been investigated as an indicator of social capital. One study in the United States revealed that traditional and health related philanthropy are positively correlated (Meslin *et al.* 2008). This finding has also been reported in the Netherlands (Bekkers 2004). To estimate the correlation between blood donation and philanthropy accurately, it is important to control for socio-demographic characteristics that are related to both behaviours. To some extent, the correlation may be due to common individual level determinants. Middle-aged and higher educated persons, and those in better

health are more likely to give blood and money (Bekkers 2006). Nonprofit sector employees are more likely to give blood as well as money (Houston 2006). Protestants are more likely to donate blood than the non-religious (Healy 2000; Bekkers 2006). However, other socio-demographic characteristics of blood donors are rather different from the characteristics of those who give money to charitable causes. Obviously, donations of money increase with income. In contrast, blood donors make less money than average. Also, the personality characteristics of the two types of donors differ (Bekkers 2006). Neuroticism, which is negatively related to trust, is negatively related to charitable giving, but not to blood donation.

Still, prosocial norms may be at the root of the correlation between charitable giving and blood donation. A study of intentions to give blood and money (Lee *et al.* 1999) showed that both types of donations are positively related to personal norms and perceived expectations. People who give blood and money are more likely to say that others expect them to donate and are more likely to endorse the norm that one should donate. In theory, dense networks promote norm conformity through processes of 'control' (Coleman 1990; Buskens & Raub 2002). Empirically, blood donors do have more dense networks than non-donors, though donors to charitable causes do not (Bekkers *et al.* 2005). Because prosocial norms seem to be crucial, more so than trust or social networks, our empirical question is: are prosocial norms indeed associated with geographical differences in blood donation and philanthropy?

DATA AND MEASUREMENTS

To test the assumptions, we analysed relationships among levels of blood donation, different types of charitable giving, indicators of prosocial norms and socio-demographic characteristics. The relationships were first studied using bi-variate correlation matrices. In addition, multiple regression analyses, with the proportion of blood donors and the average amount donated per household to charitable causes in door-to-door collections and through bank transfers as dependent variables, and prosocial norms, civic engagement and an array of socio-demographic characteristics as inde-

pendent variables, were conducted. All our measures are aggregate measures at the level of municipalities in the Netherlands in the year 2005.

Our first dependent variable, the proportion of blood donors, is measured by the proportion of the total population in a municipality that are registered as blood donors at Sanquin, the national blood collection organisation in the Netherlands. Donors who register with Sanquin first undertake a medical examination for donor eligibility.¹ They then receive a call to make their first donation. Donors have to wait for a call by the blood bank in order to make subsequent donations.

Our second dependent variable, donations in door-to-door collections, refers to the average amount donated to charitable causes per household per year in door-to-door fundraising campaigns registered at the municipalities. This measure is taken from the website of the Central Bureau of Fundraising (<www.cbf.nl>). Because donations in door-to-door collections are usually collected by volunteers in the neighbourhood in which they live, such donations are more likely to be made in areas with higher levels of social capital.

Our third dependent variable, donations through bank transfers, refers to the average amount donated to charitable causes per household per year. These data were provided by WDM Nederland BV (Wegener Direct Marketing the Netherlands, Inc.). Because donations through bank transfers are less likely to be observed by others, they are less likely to be related to social capital indicators.

Our key independent variables are prosocial norms and civic engagement. Prosocial norms were measured by two variables: the frequency of helping friends and neighbours and the willingness to volunteer obtained from a large online public opinion poll conducted in November 2005 by McKinsey called '21 minuten' ('21 minutes' study; <21minuten.nl>). In municipalities where the frequency of helping friends and neighbours and the willingness to volunteer are higher, prosocial norms are stronger. More details on these measures are given elsewhere (Bekkers 2007).

Voter turnout in the 2003 general elections (obtained from the CBS Statline service; <statline.cbs.nl>) served as an indicator of civic

engagement (Putnam 2000; Kropf & Knack 2003), as did the proportion of the population that holds at least one membership in voluntary associations and the average number of memberships (also obtained from the '21 minutes' study).

Finally, we included the log of the address density as a measure of population density. While population density is not a direct indicator of social capital, it has a theoretical connection with social capital. In less densely populated areas in the Netherlands, citizens have fewer friends and connections to others. As a result, people in less densely populated areas are more strongly dependent on the few social ties they have, and networks in rural areas are stronger than in urban areas (Mollenhorst *et al.* 2005).

A dummy variable was included for the presence of a blood collection point in the municipality, which indicates lower opportunity costs for blood donation because the distance to the blood collection point is smaller. Such aspects of convenience have been shown to be important factors in blood donation (Schreiber *et al.* 2006).

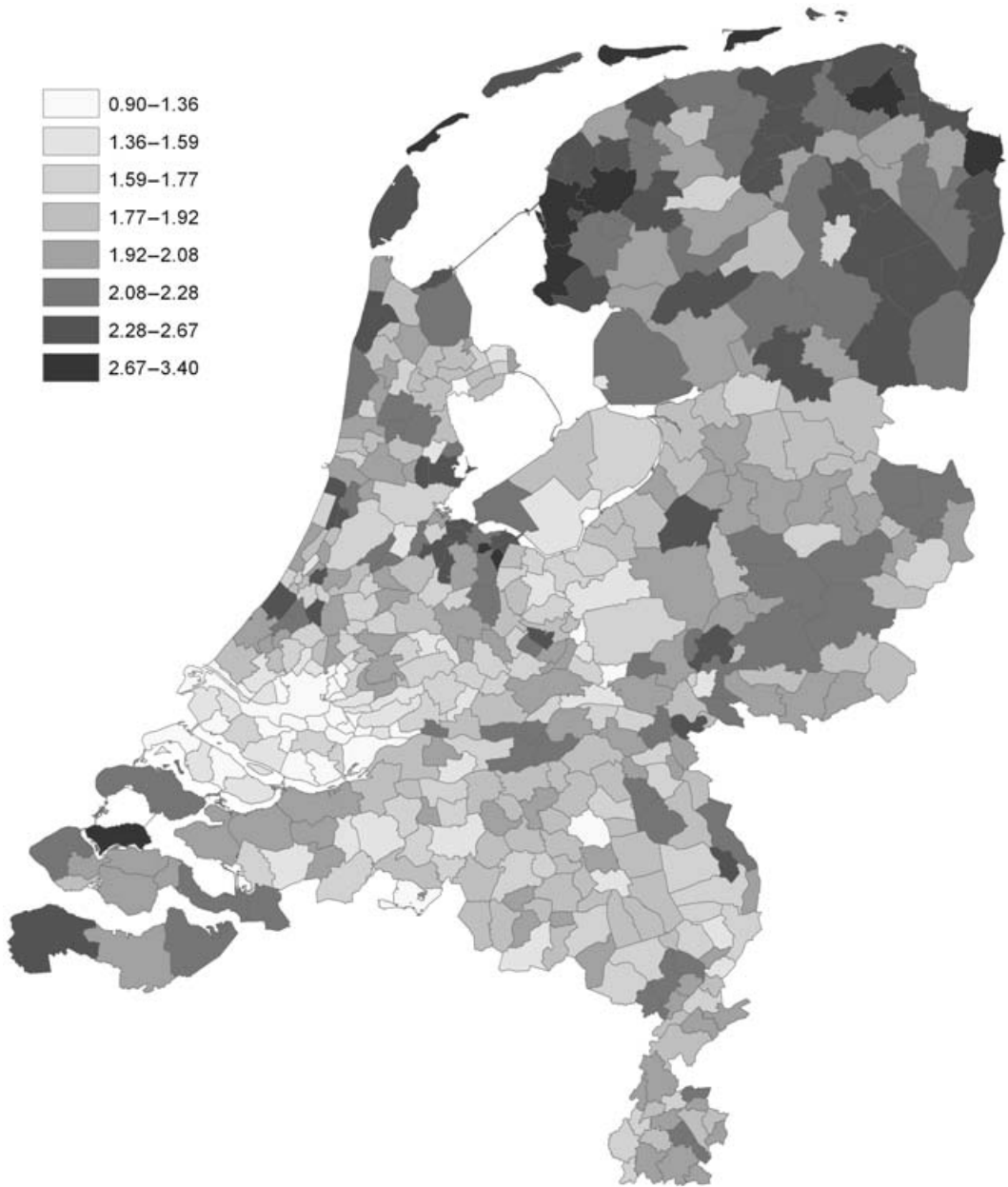
Previous research has shown that blood donation and philanthropy are related to socio-demographic characteristics. Both types of donations increase with age and education, and donations are more often made by nonprofit sector employees, rural residents and Protestants (Healy 2000; Bekkers 2006; Houston 2006). Higher income is related to higher donations of money but a lower likelihood of donating blood (Bekkers 2006). Charitable donations seem to be less common among ethnic minorities than among native Dutch citizens (Bekkers & Egelie 2007). To control for these characteristics, we took measures from the Central Bureau of Statistics Statline service (<statline.cbs.nl>). The specific controls are the proportion of population above 70 and the proportion below 30, religiosity, ethnicity, income, residential property value ('WOZ-waarde') and car ownership. Unfortunately, we could not find measures of the average level of education. Instead, we included measures of the proportion of the population that received a diploma in the year 2005 in secondary education, higher vocational education, and university. Finally, we included measures of the proportion of the work force employed in agriculture, forestry and fishery, in industry, and in for-profit services.

RESULTS

Spatial variation in blood donation and philanthropy – Figures 1, 2 and 3 map differences between municipalities in the Netherlands in 2005 in the proportion of blood donors, the average amount donated through bank transfers, and in door to door collections, respectively.

Figure 1 reveals considerable spatial variation in the proportion of blood donors throughout the Netherlands. The proportion of blood donors varies from 0.9 per cent in Capelle aan den IJssel (an urbanised town near Rotterdam) to 3.4 per cent in Schiermonnikoog (one of the Wadden islands). High proportions of blood donors are also found on the other islands and more generally in the northern provinces Groningen and Friesland.² Other areas with high proportions of blood donors are the relatively rich municipalities near Hilversum (Bussum, Blaricum). The lowest proportions of blood donors are found in and around the city of Rotterdam, especially to the south. Among the 50 municipalities with the lowest proportions of blood donors, 37 are in the same two regions around Rotterdam. Other regions with lower than average proportions of blood donors are in the province of Utrecht, in the northern part of Limburg and the western part of Brabant. Of the major cities Amsterdam ranks 386 (of a total number of 457 municipalities), The Hague 187 and Utrecht 139.

Figure 2 shows donations to charitable causes through bank transfers reveal even more spatial variance than the map for blood donation. Average donations in the municipality with the lowest average amount (€10.02 in Reiderland, a village in the north east) are only one tenth of the highest average amount donated (€107.27 in Rozendaal, a village near Arnhem in the mid east). Municipalities donating high amounts to charitable causes through bank transfers are mainly small high wealth and high income villages in North Holland (Wassenaar, Bussum, Bloemendaal and Oegstgeest rank 6–9), and Brabant (Etten-Leur and Vught rank 3 and 4). Other regions with high average donations through bank transfers are located in the province of Utrecht, at the Veluwe (a less populated area in the centre of the country), and the province of Zeeland in the south west. These regions contain a higher proportion of

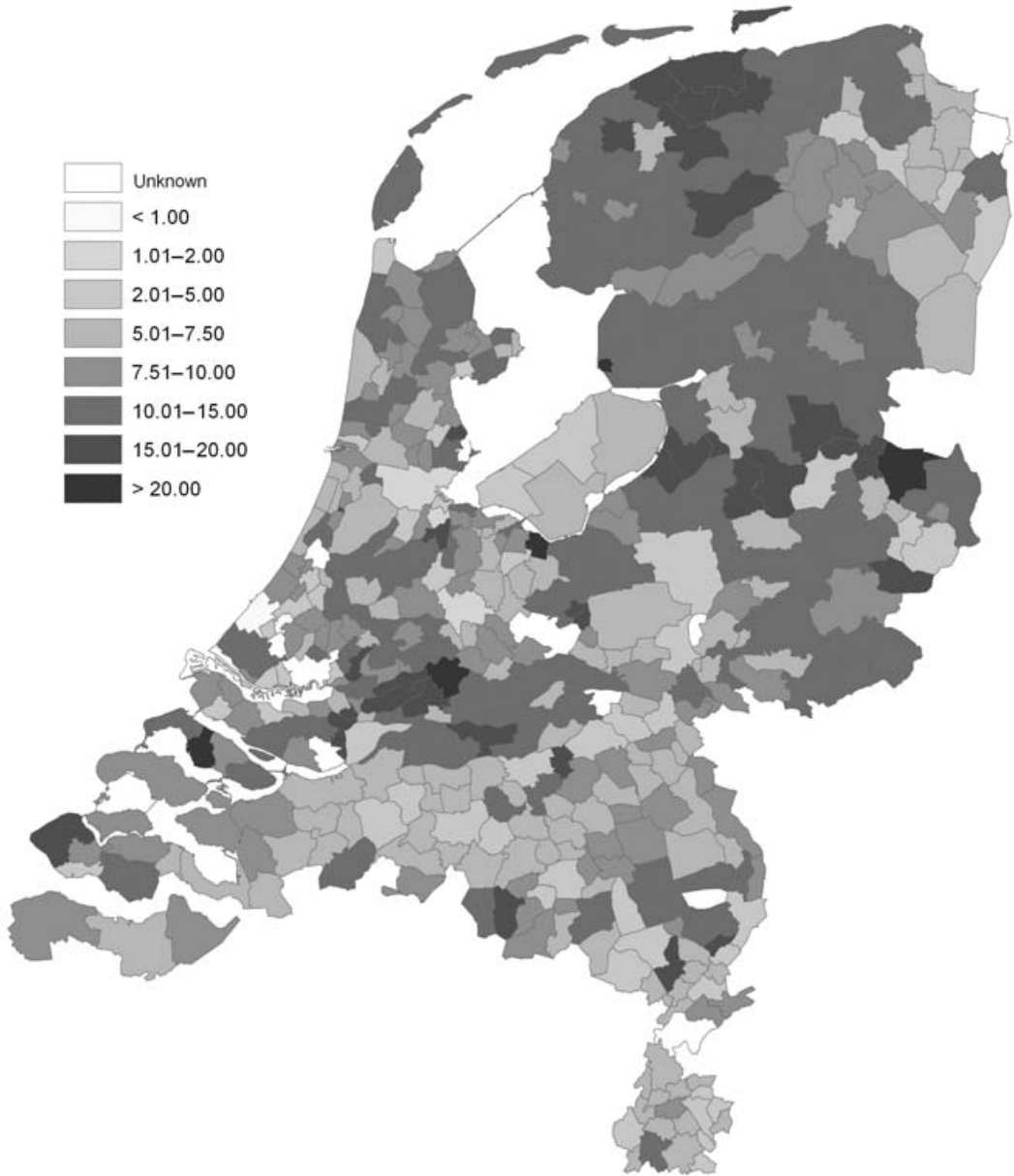


Source: Sanquin (2007).

Figure 1. *The proportion of blood donors among the total population in municipalities in the Netherlands (2005; n = 457).*

people affiliated with a Protestant religion. The lowest levels of anonymous giving are found in the Catholic south eastern corner of the Netherlands in the provinces of Brabant and

Limburg. Among the bottom 100 municipalities 65 are located in the southern half of the Netherlands. Amsterdam ranks 49, The Hague 87, Rotterdam 199 and Utrecht 81.

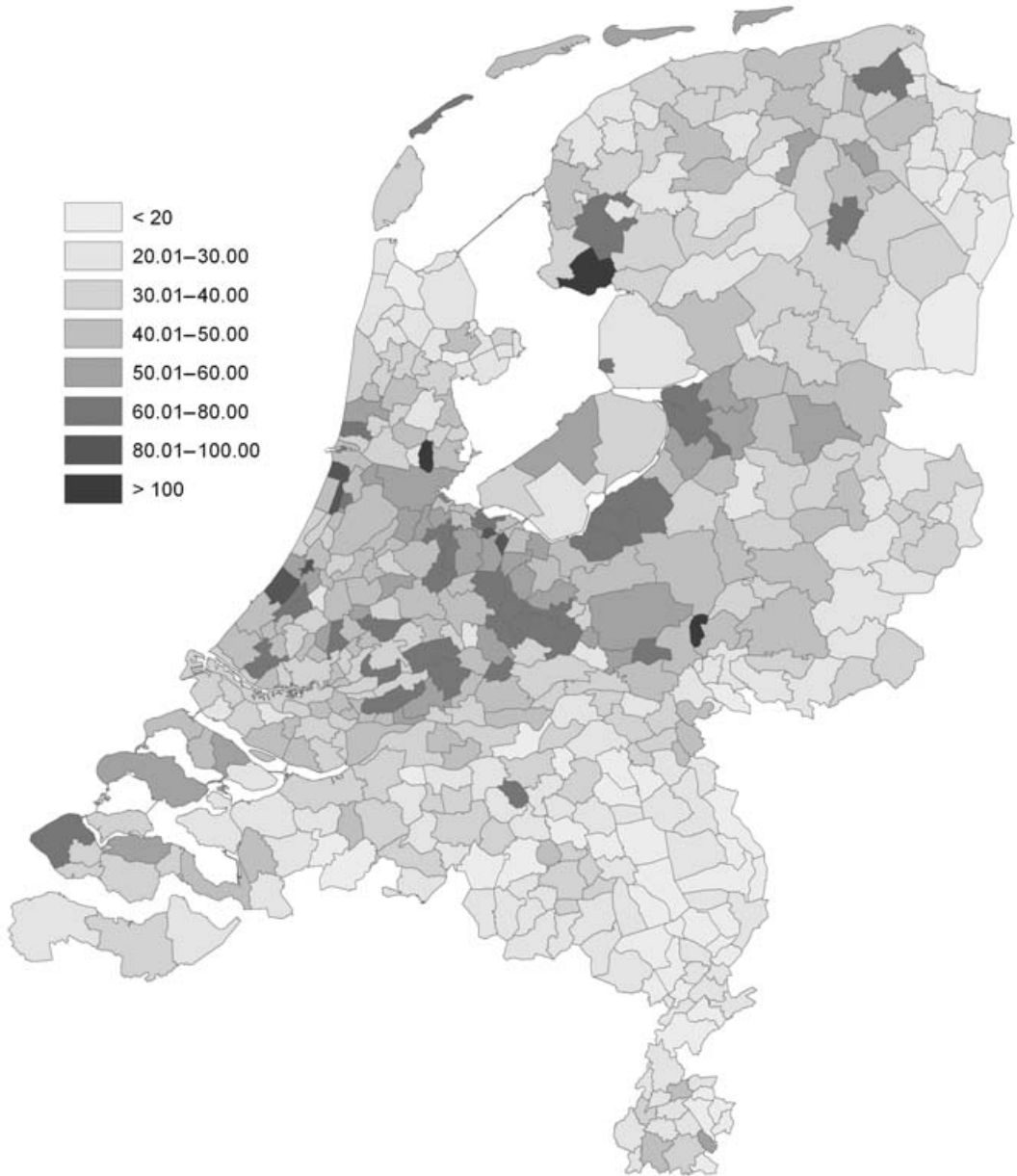


Source: Central Bureau of Fundraising (2006).

Figure 2. Average amount donated to charitable causes in door-to-door collections per household (in €) in municipalities in the Netherlands (2005; $n = 457$).

The average amount donated by households in door-to-door collections has a strikingly high spatial variance, ranging from as low as €0.75 in The Hague to more than sixty times

that amount, €45.27 in Urk (a fishing port). High amounts are donated in door-to-door collections on the Wadden islands, in the northern provinces Friesland and Groningen,



Source: WDM Nederland BV (2007).

Figure 3. Average amount donated to charitable causes through bank transfers per household (in €) in municipalities in the Netherlands (2005; $n = 457$).

at the Veluwe, in the rural area between Rotterdam and the Hague, and in Zeeland. Low amounts are donated at the door in the large cities: Amsterdam (€1.06), Utrecht

(€1.87) and Groningen (€2.19). Also the urbanised area around Rotterdam donates below average in door-to-door fundraising campaigns.

Table 1. *Correlations among indicators of social capital at the level of municipalities (2005; n = 457).*

	1	2	3	4	5	6	7
1. Blood donors	–						
2. Bank transfers	–0.042	–					
3. Door to door	0.118**	0.084	–				
<i>Prosocial norms</i>							
4. Helping others	0.025	–0.034	0.007	–			
5. Would volunteer	–0.043	0.070	0.040	0.108**	–		
<i>Civic engagement</i>							
6. Members	–0.030	0.099**	–0.025	0.083*	0.073	–	
7. Number of memberships	–0.055	0.017	0.137***	–0.032	–0.015	0.106**	–
8. Turnout	0.132***	0.426***	0.637***	–0.063	0.008	0.052	–0.031

All variables are log transformed.

* significant at 10% level; ** significant at 5% level; *** significant at 1% level.

Sources: Sanquin, CBF, WDM Nederland, CBS.

Blood donation, philanthropy and social capital

– Casual observation reveals some interesting similarities and remarkable differences between the maps presented in Figures 1, 2 and 3. To further explore the relationships, we first examine correlations between levels of blood donation, philanthropy, prosocial norms and civic engagement indicators (see Table 1).

Table 1 confirms the impression from the maps that levels of blood donation and philanthropy are not strongly correlated. The proportion of blood donors shows a significantly positive but weak correlation with the amount donated in door-to-door collections. The relation with donations through bank transfers is not significant. Donations at the door and through bank transfers are only weakly correlated. Prosocial norms are not significantly correlated with either blood donation or philanthropy, but are positively related to the proportion of the population that is a member of at least one type of voluntary association. The proportion that is a member of voluntary associations is positive, related to the amount donated through bank transfers, but not in door-to-door collections or the proportion of blood donors. In contrast to the weak relationships reported so far, voter turnout is strongly related to donations to charitable causes, both via bank transfers and in door-to-door collections. Voter turnout is also positively correlated with the proportion of blood donors, but to a much lesser extent.

A higher proportion of voluntary association members is related to somewhat higher proportions of citizens who say they are helping friends and neighbours. The number of memberships has negative relationships with most of the other indicators; the relationship with amount donated to charity via door-to-door collections is significant. The proportion of the residents that would volunteer is positively related to the proportion of the population helping friends/neighbours.

In sum, the results presented in Table 1 show that levels of blood donation, philanthropy, prosocial norms and civic engagement are only weakly correlated.

Multivariate analyses – The bivariate correlations presented above may be misleading because socio-demographic correlates of blood donation and philanthropy are omitted. Therefore we conducted multiple regression analyses of the proportion of blood donors in a municipality, the amount donated in door-to-door collections and through bank transfers, including our array of socio-demographic characteristics, prosocial norms, and indicators of civic engagement (see Tables 2, 3 and 4).

First of all, Tables 2 to 4 show that the two indicators of prosocial norms, the proportion helping friends/neighbours and the proportion willing to volunteer, have no significant relationships with the proportion of blood donors within a municipality or with the

Table 2. OLS Regression analysis of proportion of blood donors (log) in municipality ($n = 457$).

	Coefficient	SE	<i>p</i>
<i>Socio-demographic characteristics</i>			
Percentage of Catholics ^a	0.013	0.019	
Percentage of Reformed Protestants ^a	-0.029	0.019	
Percentage of Rereformed Protestants ^a	0.037	0.022	*
Percentage of Muslims ^a	-0.090	0.019	***
Percentage of non-western immigrants	0.016	0.016	
Average home value	0.081	0.058	
Average income	-0.035	0.136	
Percentage of car owners	-0.134	0.043	***
Percentage on welfare	0.072	0.030	**
Address density	-0.068	0.021	***
Percentage above 70	0.034	0.058	
Percentage below 30	-0.617	0.150	***
Percentage of secondary education graduates	-0.073	0.041	*
Percentage of higher vocational education graduates	-0.026	0.017	
Percentage of university graduates	-0.003	0.008	
Percentage employed in agriculture, forestry and fishery ^b	-0.005	0.005	
Percentage employed in for-profit services ^b	-0.087	0.036	**
Percentage employed in industry ^b	-0.015	0.017	
Blood collection point	0.058	0.015	***
<i>Prosocial norms</i>			
Percentage helping friends/neighbours	0.018	0.122	
Percentage willing to volunteer	-0.103	0.145	
<i>Civic engagement</i>			
Turnout in 2003 general elections	0.765	0.228	***
Percentage of member of an association	-0.103	0.100	
Average number of association memberships	0.019	0.092	
Constant	1.428	1.547	
Observations		457	
Adjusted R-squared		0.433	

* significant at 10% level; ** significant at 5% level; *** significant at 1% level.

All variables are log transformed.

^a omitted variable: proportion non-religious.

^b omitted variable: proportion employed in nonprofit services.

Sources: Sanquin, CBS.

amount donated to charitable causes through bank transfers or in door-to-door collections. Also in models excluding civic engagement indicators, prosocial norms are not related to the proportion of blood donors in a community (results available upon request). Prosocial norms do not explain spatial variance in blood donation or charitable giving.

Second, voter turnout in the 2003 general elections, an indicator of civic engagement, shows a strongly positive relationship with blood donation and philanthropy. An increase in voter turnout of 1 per cent is associated with

increases of 0.8, 1.1 and 2.9 per cent in the proportion of blood donors, the amount donated through bank transfers and in door-to-door collections, respectively. The two other indicators of civic engagement (the proportion of the population that is a member of at least one voluntary association and the average number of voluntary association memberships) have no significant relationships with blood donation or philanthropy, with one exception: a higher number of memberships is associated with a lower amount donated in door-to-door collections. Perhaps this reflects the trend that

Table 3. OLS Regression analysis of amount donated through bank transfers (log) in municipality (n = 457).

	Coefficient	SE	p
<i>Socio-demographic characteristics</i>			
Percentage of Catholics ^a	0.053	0.029	*
Percentage of Reformed Protestants ^a	-0.040	0.030	
Percentage of Rereformed Protestants ^a	0.144	0.034	***
Percentage of Muslims ^a	0.054	0.030	*
Percentage of non-western immigrants	0.073	0.025	***
Average home value	0.213	0.091	**
Average income	1.268	0.214	***
Percentage of car owners	-0.117	0.068	*
Percentage on welfare	-0.041	0.048	
Address density	-0.107	0.033	***
Percentage above 70	0.528	0.090	***
Percentage below 30	1.099	0.237	***
Percentage of secondary education graduates	-0.013	0.065	
Percentage of higher vocational education graduates	-0.038	0.026	
Percentage of university graduates	0.021	0.012	*
Percentage of employed in agriculture, forestry and fishery ^b	-0.027	0.007	***
Percentage employed in for-profit services ^b	-0.038	0.057	
Percentage employed in industry ^b	-0.066	0.027	**
Blood collection point	0.027	0.024	
<i>Prosocial norms</i>			
Percentage helping friends/neighbours	-0.227	0.193	
Percentage willing to volunteer	-0.184	0.229	
<i>Civic engagement</i>			
Turnout in 2003 general elections	1.145	0.359	***
Percentage of member of an association	0.125	0.157	
Average number of association memberships	0.057	0.145	
Constant	-15.996	2.441	***
Observations		457	
Adjusted R-squared		0.592	

* significant at 10% level; ** significant at 5% level; *** significant at 1% level.

All variables are log transformed.

^a omitted variable: proportion non-religious.

^b omitted variable: proportion employed in nonprofit services.

Sources: WDM Nederland, CBS.

'chequebook memberships' flourish in municipalities where door-to-door fundraising campaigns are difficult to organise.

Third, we find many relationships with socio-demographic variables. However, the relationships with blood donation, donations in door-to-door collections and through bank transfers sometimes differ. The relationships of religious affiliation with donations are largely in line with previous research. A higher percentage of people with a Rereformed Protestant religious preference is positively related to the proportion of blood donors and the amount

donated through bank transfers. The percentage of Catholics shows a weakly positive association with the amount donated through bank transfers. In municipalities with higher proportions of Muslims the proportion of blood donors is lower, but the amount donated through bank transfers is higher. It is not clear why this is the case. We find no relationships between religious affiliation and donations in door-to-door collections.

We find that the proportion of the population owning a car is negatively related with the proportion of blood donors and the amount

Table 4. OLS Regression analysis of amount donated in door-to-door collections (log) in municipality ($n = 457$).

	Coefficient	SE	<i>p</i>
<i>Socio-demographic characteristics</i>			
Percentage of Catholics ^a	-0.024	0.042	
Percentage of Reformed Protestants ^a	0.017	0.043	
Percentage of Rereformed Protestants ^a	0.038	0.050	
Percentage of Muslims ^a	0.003	0.043	
Percentage of non-western immigrants	-0.047	0.036	
Average home value	0.037	0.131	
Average income	-0.264	0.310	
Percentage of car owners	0.193	0.099	*
Percentage on welfare	-0.119	0.070	*
Address density	-0.101	0.048	**
Percentage above 70	0.087	0.130	
Percentage below 30	0.355	0.343	
Percentage of secondary education graduates	0.357	0.095	***
Percentage of higher vocational education graduates	-0.083	0.038	**
Percentage of university graduates	-0.007	0.018	
Percentage employed in agriculture, forestry and fishery ^b	0.024	0.010	**
Percentage employed in for-profit services	0.047	0.083	
Percentage employed in industry ^b	0.114	0.039	***
Blood collection point	-0.019	0.035	
<i>Prosocial norms</i>			
Percentage helping friends/neighbours	0.362	0.280	
Percentage willing to volunteer	0.288	0.331	
<i>Civic engagement</i>			
Turnout in 2003 general elections	2.926	0.520	***
Percentage of member of an association	-0.089	0.228	
Average number of association memberships	-0.581	0.210	***
Constant	-14.662	3.534	***
Observations		457	
Adjusted R-squared		0.569	

* significant at 10% level; ** significant at 5% level; *** significant at 1% level.

All variables are log transformed.

^a omitted variable: proportion non-religious.

^b omitted variable: proportion employed in nonprofit services.

Sources: CBF, CBS.

donated through bank transfers, while at the same time it has a positive relationship with the amount donated in door-to-door collections. These results are somewhat puzzling. While owning a car reduces transportation costs to blood collection points, it is also an expression of wealth and high opportunity costs of time. One would expect higher opportunity costs of time to decrease blood donation and more wealth to increase donations. The positive relationship of the proportion of the population in a community that is on welfare with the propor-

tion of blood donors is in line with the opportunity costs of time argument.

In densely populated areas fewer people give blood, and lower amounts are donated through bank transfers and in door-to-door collections, which is in line with previous research. The proportion of the population, younger than 30, has a strongly negative relationship with the proportion of blood donors, which is not surprising because one cannot give blood under the age of 18. We find a strongly positive relationship of the population younger than 30 with

the amount donated through bank transfers and no relationship with donations in door-to-door collections. Why the latter two results diverge is not clear.

Higher proportions of graduates of secondary or tertiary education are not associated with the proportion of blood donors. A higher proportion of citizens with secondary education is even negatively associated with the proportion of blood donors. This finding is not in line with the finding from previous research that lower educated individuals less often report having donated blood in the past year (Healy 2000; Bekkers 2006). While the relationship of the proportion of university graduates with the amount donated through bank transfers and the relationship of secondary education graduates with the amount donated in door-to-door collections are positive as expected, the relationship of the proportion of higher vocational education graduates with the amount donated in door-to-door collections is negative.

The result that a higher proportion of the work force employed in the nonprofit sector rather than in the for profit sector is associated with a lower proportion of blood donors is in line with previous research in the United States (Houston 2006). Donations to charitable causes through bank transfers are higher in municipalities with a higher proportion employed in industry, agriculture, forestry and fishery (rather than in the nonprofit sector). However, for donations to charitable causes in door-to-door collections we find the reverse.

Finally, having a blood collection point within the municipality is associated with a slight increase (0.06%) in the proportion of blood donors, probably because it reduces the time needed to give blood.

CONCLUSION AND DISCUSSION

The results presented in this paper call into question the utility of social capital as a one dimensional concept that explains geographical differences in blood donation and philanthropy. We do find considerable spatial variation in blood donation and philanthropy between municipalities in the Netherlands. But we do not find that indicators of civic engagement (e.g. memberships of voluntary associations) and prosocial norms (e.g. willingness to

volunteer) have strong or even moderately positive relations with each other that legitimise labelling them as indicators of social capital. We have found no evidence at all supporting the hypothesis that prosocial norms in the community are positively related to donations. Instead, we find that a higher turnout in general elections, as an indicator of civic engagement, has a fairly strong positive correlation with the proportion of blood donors as well as with the proportion of people donating to charitable causes, either through door-to-door collections or via bank transfers.

The finding of weak relationships among different indicators of social capital speaks against theoretical arguments on social capital (Putnam 2000). Our finding is not unique. Several other empirical studies have also reached the conclusion that social capital is not a one-dimensional phenomenon (Sabatini 2005; Bjørnskov 2006). Our results suggest that donations of blood and money are reflecting a 'civic culture' (Almond & Verba 1963), which is largely independent of prosocial norms and engagement in voluntary associations. This suggestion requires further research.

We are somewhat puzzled by the often diverging and sometimes conflicting relationships of socio-demographic variables with blood donation and philanthropy. Previous research (Healy 2000; Bekkers 2006) sketched a more consistent picture. Recent changes in the blood donor population as a result of a reorganisation of blood collection may be a partial explanation. In addition, our analyses included some variables that were not included in previous research such as the proportion of ethnic minorities and voter turnout. Another potential explanation is that our data are average donation levels aggregated at the level of municipalities, while previous research used individual level data. Future research should combine these two types of data in multilevel analyses of blood donation and philanthropy. This is also important to rule out the possibility that the relationships between voter turnout and blood donation are the result of composition effects and not the result of social context. The question to what extent these relationships are actually the result of a shared 'civic culture' can only be answered with a multi-level analysis. Individual level data on blood donation will

become available later in 2008, enabling such an analysis.

To conclude, the considerable spatial variation in blood donation and philanthropy is not related to variation in prosocial norms, serving as an indicator of social capital. In addition, the proportion of blood donors in a municipality shows no, or only a weak, relationship with charitable giving. These results question the utility of social capital as a one-dimensional concept underlying blood donation and charitable giving.

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Notes

1. Donor eligibility criteria include age (18–70 years), weight (minimal weight 50 kl), haemoglobin level (men at least 8.4 mmol/l, women 7.8 mmol/l), and the absence of infectious disease markers such as HIV.
2. It should be noted that the larger number of blood donors in these provinces is somewhat overestimated. In the last two years the Dutch blood bank has been revising the donor files. In 2005 the revision process in the northern part on the Netherlands had not been fully completed.

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