

This item is the archived peer-reviewed author-version of:

Who you are / where you live : do neighbourhood characteristics explain coproduction?

Reference:

Thijssen Peter, Van Dooren Wouter.- *Who you are / where you live : do neighbourhood characteristics explain coproduction?*

International review of administrative sciences - ISSN 0020-8523 - (2015), p. 1-33

Title: Who you are / where you live.

Subtitle: Do neighbourhood characteristics explain coproduction?

This article is part of a special issue on “Citizen Coproduction” of the International Review of Administrative Sciences (IRAS) – forthcoming in 2015

Peter Thijssen & Wouter Van Dooren

University of Antwerp

Abstract

Coproduction establishes an interactive relationship between citizens and public service providers. Successful coproduction hence requires the engagement of citizens. Typically, individual characteristics such as age, gender, and income are used to explain why citizens co-produce. In contrast, neighbourhood-level variables receive less attention. Nevertheless, the coproduction literature, as well as social capital and urban planning theory, provides good arguments for why neighbourhood variables may be relevant. In this study, we examine the administrative records of citizen-initiated contacts in a reporting program for problems in the public domain. This coproduction programme is located in the district of Deurne in the city of Antwerp, Belgium. A multilevel analysis is used to simultaneously assess the impact of neighbourhood characteristics and individual variables. While the individual variables usually found to explain coproduction are present in our case, we also find that neighbourhood characteristics significantly explain coproduction. Thus, our findings suggest that participation in co-production activities is determined not only by who you are, but also by where you live.

Keywords

Citizens participation, Coproduction, local government, social capital, multilevel analysis

Introduction	3
Why neighbourhoods would matter	5
The case: reporting to local authorities	10
Data and methodology	12
Level I: Individual characteristics	13
Level II: neighbourhood variables	17
Results: neighbourhoods matter.	18
Discussion: neighbourhoods matter, but how?	22
Conclusion	27

Introduction

Coproduction in the public sector actively involves citizens in the service delivery. The relation between citizen and the public services hence has to be interactive. The responsibility for high-quality service delivery is shared between government producers and citizens. Yet, not all citizens may be equally capable of taking up this responsibility. Whilst coproduction in public services is gaining momentum, the question who is better able to coproduce, becomes more pressing. Coproduction may have a negative impact on equal access to public services. The benefits of coproduction could disproportionately accrue to those who actively coproduce, and be to the detriment of those who, for a variety of reasons, do not coproduce. Governments that are concerned with equity should keep the representativeness of the coproducers in sight, when they embrace coproduction for public services.

The political participation literature provides some first insights into the individual profile of the coproducer. Gender, educational attainment, age and immigrant background are repeatedly found to explain levels of participation (Alford, 2002; Brady, Verba, & Schlozman, 1995). We assume that the same drivers of participation apply to coproduction. The main purpose of this article however is to add a layer of analysis to those individual characteristics. Specifically, in addition to individual level variables, we examine whether neighbourhood-level variables have an impact on coproduction levels. Relatively few studies include the contextual dimension of coproduction (a notable exception is Marshall (2004)). Yet, the impact of the context on coproduction levels is fairly plausible. Coproduction is typically tied to the living environment of the coproducer. It is a highly contextual activity: tied to time, space and task (Pollitt, 2008). We thus hypothesise that participation in coproduction activities is determined not only by who you are, but also by where you live.

Coproduction policies should hence take both individual and geographic representation into account.

Our case of coproduction is a local initiative where residents can report problems in the public domain and make propositions about how government could improve local living conditions. It is form of coproduction because professional service provision is guided through user-community consultation (Bovaird 2007). The initiative is being used in Deurne, a district with 70,000 inhabitants in the city of Antwerp, Belgium. We use multilevel logit analysis with two levels: the individual and the neighbourhood. The dependent variable indicates whether an adult inhabitant of Deurne submitted one or more problem reports over the period 2004-2007 or not. The data originate from the administrative registration system of the district and the civil registry.¹ . As a result, we did not have to resort to sampling or surveying and thus have a unique set of unobtrusive population data.

The text first discusses why neighbourhoods would be a relevant level of analysis. We discuss theoretical arguments from social capital theory, urban planning and the coproduction literature. Next, we present the case of the reporting initiative, the data and the methodology. The empirical results are first reported at the level of the individual. They roughly confirm what we know from political participation research. Next, we add the level of the neighbourhood to the analysis. We find that neighbourhoods do matter. In the discussion that follows, we speculate on how a neighbourhood might attain high reporting levels. The conclusion elaborates on the implications for research.

Why neighbourhoods would matter

There are good reasons to believe that the neighbourhood makes a difference in explaining levels of coproduction. In this article, we build upon three streams of literature support the relevance of studying the neighbourhood in which coproduction takes place: social capital theory, urban planning, and coproduction theory proper.

Social capital theory provides a first theoretical argument for why neighbourhoods may matter for coproduction. Social capital refers to connections among individuals, social networks and the norms of reciprocity and trustworthiness that arise from them (Putnam, 2001). Social capital is what unites the collectivity (the organisation, community, nation, and in our case, the neighbourhood)ⁱⁱ. Putnam's definition is situated in the bonding school of social capital. Adler & Kwon (2002) oppose social capital as internal bonding to social capital as external bridging. In the latter conceptualisation, the quality of the collectivity's external ties makes up the social capital. Since we are interested in internal characteristics of districts rather than their external relationships, the definition of social capital within a bonding tradition is more useful.

Research connects social capital to many *individual* benefits (Adler & Kwon, 2002; Granovetter, 1973; Putnam, 2001): career success, innovation, entrepreneurship, learning, companionship, and support. Political participation is also attributed to social capital of individuals (Brady, Verba, & Schlozman, 1995; Teorell, 2003). Social capital, however, is not only expected to have an influence on the individual. It also has, as Putnam (2001) argues, a

public face. Social capital has the capacity to reinforce civic virtue, engagement, and interpersonal trust (Brehm & Rahn, 1997). Since relationships in networks are not strictly reciprocal, the benefits of social capital may spill over to other residents that are not part of the social networks in neighbourhoods. Putnam (2001) provides a plain example on how poorly connected individuals may derive some of the spill over benefits from living in a well-connected community. If neighbours keeping an eye on one another's homes lower the crime rate in a own neighbourhood, the benefit accrues to all inhabitants even if you many of them spend most of their time on the road and never even nod to another resident on the street (p.19). The bonding school's definition of social capital as collective good that transcends the individual allows for such spillover effects (Adler & Kwon: p.22). Social capital inheres in the structure of relations between actors and not in the actors themselves (Coleman, 1988, p. S98). It has been argued that social networks increasingly diverge from the neighbourhoods in which people live. We believe this trend to be of less relevance for a coproduction setting where people interact with public services on the state of the public domain (McClurg, 2006). The case of coproduction in our study is almost by definition tied to the living context of the neighbourhood.

Studies have empirically studied the relationship between social capital in a neighbourhood and civic participation. Saxton and Benton (2005) found that social capital has a positive effect on county level non-profit foundings. Graddy and Wang (2009) found that community foundations that serve counties with high levels of social trust receive more gifts per capita. Poverty and homeownership had a negative impact on donations, while density had a positive effect. The authors did not hypothesize the positive effect of density, referring to studies of urbanisation that predict that the disorganising effect on social life (Lincoln, 1977). A potential explanation for the positive effect of density is the proximity of neighbours, which

facilitates the formation of social capital. The urban structure of the neighbourhoods may foster urban density, which points to urban planning as a second body of literature.

Secondly, urban planning theory may be helpful in understanding the impact of the spatial structure of a neighbourhood, including the houses, the layout of the streets, and squares or public spaces. The spatial morphology of a neighbourhood may either support or obstruct the formation of social capital. One of the canonical contributions to this field has been Jane Jacob's 'Death and Life of great American cities' (Jacobs, 1961; Scott, 1998). In a powerful critique on modernist town planning, she studies how diversity in neighbourhoods sustains the development of social capital. While the precise legacy of Jacobs is still controversial (Teaford, 2013), her theory does provide some insights in how spatial characteristics of neighbourhoods may influence social capital and the prospects for coproduction programmes. The place-based logic of understanding social phenomena is becoming more prominent today. A landmark study is Sampson's book *The Great American City*, which explores the extent to which an individual's state of deprivation is affected by the spatial context (Sampson, 2012). A key conception in his book is 'collective efficacy' – a community level set of resources such as trust, cohesion and social control. These qualities are persistent in time and may help to explain why also deprivation and disorder in neighbourhoods are tenacious in specific neighbourhoods. A focus on social capital as a neighbourhood characteristic seems warranted.

Social capital in neighbourhoods grows from interpersonal, mostly casual contact on sidewalks, parks and neighbourhoods (Jacobs, 1961). Among the many benefits are safety ('eyes on the street') and a sense of belonging (see also Wilson and Kelling's (1982) broken window theory). The spatial morphology of the neighbourhood can increase the chances of interpersonal contact. Neighbourhoods should have mixed uses in order to have lively streets

at different times of the day and have short blocks with high permeability for pedestrians use. They should also have a diverse housing market, with different prices, in order to attract a diverse population of dwellers and businesses. Car-centred modernist planning generally did the opposite and created large blocks and traffic arteries that cut across neighbourhoods and made interpersonal contact more difficult. More recent research has found that walkable neighbourhoods have higher levels of social capital (Leyden, 2003; Southworth, 2005). The observation that the spatial structure of neighbourhoods supports the formation of social capital, and hence may condition coproduction, provides an additional argument for studying the neighbourhood level.

Finally, we find some cues in the coproduction and participation literature that point in the direction of the neighbourhood level. Determinants for levels of coproduction and participation are typically either supply or demand driven (Paarlberg & Gen, 2009). Demand-side explanations suggest that coproduction will primarily occur when there is an unfulfilled need for public services. This thesis is inspired by research on government failure, which provides several arguments on why non-profits fill the gaps left by public services (Corbin, 1999). First, coproduction could occur when service levels are perceived too low or of a too low quality. Rather than voice their concerns with government, citizens choose to exit the failing services (Gofen, 2012). The assessment of quality has both perceptual and objective aspects. Although the perception of quality may diverge from the real quality of services, Charbonneau and Van Ryzin (2012) found that in many instances citizens are capable of assessing real value. A second explanation for coproduction is the irresponsiveness of public services to the needs of specific communities (James, 1986). The argument is that in heterogenic communities, public agencies will have difficulties in providing for the diverse preferences for public services. For this reason, co-producers would take things in their own

hands. Quality and perceptions of quality of service delivery may differ across neighbourhoods. Different demands for services may in turn nurture different co-production levels that aim to fill the gaps.

Supply-driven explanations of coproduction focus on the availability of citizens willing to coproduce. The participation literature is a source of inspiration. Brady, Verba and Schlozman (1995) focus on the resources that individuals need for political participation: time, money and civic skills. All three resources may be relevant for coproduction, although not for all forms of coproduction in equal quantities. In some instances, the financial consequences of coproduction may be substantial. This may for instance be the case when local communities participate in local schools (Paarlberg & Gen, 2009). Many coproduction cases mainly ask an investment of time. A good example is a neighbourhood watch programme, but also in deliberative co-planning, time investment can be substantial. Finally, coproduction may require a high level of civic skills. Civic skills refer to communicative and organisational capacities and are to a large extent obtained through education (Brady e.a., 1995). For coproduction to work citizens must be informed about public services, the responsibilities and duties expected of them, and the environmental factors that may affect the provision and quality of these services (Marshall, 2004, p. 232). Again, not all forms of coproduction will require the same level of civic skills. Time, money and civic skills of residents are unevenly distributed across neighbourhoods. Therefore, the benefits of coproduction may disproportionately accrue in neighbourhoods with highly skilled inhabitants.

Thus, supply-driven determinants may lead to equity issues among people, but also among neighbourhoods. Although not all coproduction schemes are equally susceptible to skewed distribution of benefits, the fundamental point is that without active citizen engagement in the

co-productive effort, the capacity of government to provide public goods and services is compromised (Marschall, 2004). If mainly privileged people and neighbourhoods engage in coproduction, it may well be that those who need services the least, get the most. This would be an instance of what Merton (1988) has called the Matthew effect. Referring to a biblical gospel, the effect shows that in many instances there is an accumulated advantage of reward and recognition for those who already are in a strong position. Coproduction with strong coproducers may leverage the capacity of government to provide for those who already have the better opportunities. Demand-driven coproduction on the contrary would moderate inequalities, since coproduction would occur when public services are falling behind.

The case: reporting to local authorities

The study is a quantitative case analysis of reporting behaviour in Deurne (70.000 inhabitants), a local district of the city of Antwerp, Belgium (500.000 inhabitants). The local district of Deurne is an independent political entity with a directly elected council and an authority over youth, the elderly, sports and infrastructure, and the general streetscape, among other areas. For most decisions, the district shares its authority with the city of Antwerp.

Our case of coproduction is a local reporting initiative (known as the '*meldingskaarten*') for propositions on how government could improve local living conditions by improving the public domain. The initiative started in 2004 and was communicated to the population in newsletters of the district that were distributed in every mailbox. The reporting initiative is organised by the district, which dispatches the reports to the district and city services that are then able to take action. The reports can be filled out online, by telephone, or by post. The topics that are suggested relate to issues in the public domain such as street cleaning, street subsidence, street furniture, parks and playgrounds, mobility, and parking. The report has to

be formulated in an open box without a pre-formatted list of issues. Reporters hence are able to provide the narrative of the problem or issues. The district engages itself to respond to the suggestions by explaining what actions will be taken or why it is not possible to take action. The data section provides more details on the 4303 reports that were submitted in the four years under study.

Reporting behaviour is an individualised form of participation of which citizens can freely determine timing and content. In this sense, it fits within the trend towards more homocentric and critical citizenship (Inglehart & Welzel, 2005). However, the reporting behaviour under study goes beyond the unilateral personal initiative of citizens. Reporting behaviour is the result of an interactive relationship between the citizen and local government. By initiating a reporting centre for problems or propositions for improvement of the living environment, the local government is explicitly seeking coproduced interventions. That said, the case is undoubtedly a light version of coproduction in the sense that the role of the citizen is relatively limited. The programme was designed to make reporting effortless. Yet, we would argue that reporting systems such as the Antwerp *Meldkaarten* system have some coproductive features. Building on Bovaird's (2007) discussion of coproduction, we find that service-model is no longer provider-centred. While professionals still take up the main responsibility for service delivery, users have a significant impact on the public interventions. In Bovaird's categorization, it would fall in the category of '*traditional professional service provision with user-community consultation on service planning and design issues*' (p.849). Van Dooren, Thijs and Bouckaert (2004) have labelled this kind of citizen involvement in service delivery as co-planning.

Data and methodology

The database consists of all adult citizens the local district of Deurne ($n=56510$). In total, 2451 citizens submitted one or more reports to the reporting centre between 2004 and 2007. In total, 4303 reports were submitted, with 1068, 1054, 1082, and 1099 reports submitted in the respective years. In the analysis, we will estimate the likelihood that a citizen files a report. In this study, we are mainly interested in the citizen who is filing the reports, not the report in itself. To establish whether neighbourhoods matter in reporting behaviour, we matched these individual observations to the neighbourhoods in which they live.

To match the individual reports to neighbourhoods, we first needed to define the boundaries of the neighbourhoods. To do so, we used the statistical sectors created by the National Statistics Office. These sectors were defined based on the national census of 2001 based on the socio-economic and morphological structure. The National Statistical Office also provides statistical data on the level of the statistical sector. The district of Deurne consists of 35 statistical sectors of which seven were not included because have fewer than 150 inhabitants (namely parks, a regional airport and an industrial zone). The remaining 28 sectors have about 2500 inhabitants. The statistical sectors have real life meaning and coincide with what inhabitants experience as being a neighbourhood. We also examined the working areas of 38 neighbourhood associations, and found that these areas fairly well match the boundaries of the statistical sector (Van Laecke, 2008). The inhabitants perceive the statistical sectors as a recognisable spatial entity that for our purposes is defined as the neighbourhood.

Next, we need to match the 2451 citizens that filed reports to their home neighbourhoods. Through the civil registry, we were able to obtain background data, including home addresses. We were able to successfully match 79.6% (1950) of the cases. Failures to match were due to

people moving or passing away, or because of incomplete names on the reports. The 1950 matched observations then needed to be attributed to the statistical sectors. The reporting citizens that lived in the sparsely populated sectors were excluded from analysis. A comparison of the 1918 ‘matched’ observations with the population of 54.592 adult inhabitants yields a reporting rate of 3,4% of the inhabitants in four years. This number stands for 6,3% of the households.

We use multilevel analysis to simultaneously assess the impact of both individual and neighbourhood variables.ⁱⁱⁱ Multilevel analysis not only allows for the introduction of variables at different levels of aggregation, but also allows for the modelling of interactions between different variables and levels. Since our dependent variable is dichotomous (to report or not), we use a logit transformation. To estimate this multilevel logit model, we use the ‘penalized quasi-likelihood’-method (PQL). We thus model a nested configuration of individual (level I) and neighbourhood characteristics (level II) to explain coproduction levels. In the next section, we discuss the operationalisation of the two levels of analysis.

Level I: Individual characteristics

The participation literature provides insight into the profile of participants in policy and political processes. It has been demonstrated that the same individuals are often active in different participatory activities – there is a group of ‘quasi professional’ participants.

Moreover, the group of participants disproportionally consists of higher educated, richer, and older men (Verba, 1987). The resources needed for participation such as money, time, and knowledge, could explain this bias in participation. In our multilevel analysis, we include some of these established variables at level I. Specifically, we study the impact of (1) gender, (2) age, (3) ethnicity, (4) time of registration in civil registry (i.e. when a person moved to

Deurne), and (5) family composition of the individual citizen who submits a report (i.e. whether a person is single, married and has children).

(1) *Gender*. Of those who filed a report, 59,5% were male. This is disproportionate of the overall population, which is only 46,6% male. This difference is surprising since older studies found relatively weak gender effects in citizen-initiated contact with local officials (Verba, Schlozman & Brady 1995: 251). To determine whether the gender effect was an artefact of the match with the civil registry, we performed an additional check for those observations that could not be found in the civil registry. For 74.2% of these cases, we were able to determine gender based on the name. We found 208 (55,9%) were men and 164 (44,1%) were women. The civil registry match provides no explanation for the prevalence of men in the dataset. An alternative explanation, which we could not check, is that women used the name of their husbands, a practice that is common in formal communication.

(2) *Age*. The average age of the citizen who reports for the first time is 54. Elderly people are overrepresented among report filers (see figure 1).^{iv} Moreover, there is a strong underrepresentation of people younger than 40, and a strong overrepresentation of people between 50 and 75. This should not come as a surprise. Political participation research suggests that older people are more likely to participate because they have the time and resources to do so, but also because they have paid into the system (through taxes among other mechanisms), and hence have a higher stake and commitment (Dalton, 2008). In addition, perceptions of political efficacy tend to be weaker amongst youth, which in turn may affect their motivation to participate (Nabatchi, 2010). In their research on individual contacts of citizens with municipal civil servants, Thomas and Melkers (1999: 669) also assumed a positive effect of age. Since senior people usually are more vulnerable and less mobile, they

are more dependent on local service delivery, and thus more inclined to report dysfunctions. Although Thomas and Melkers (1999) did not find empirical evidence for their thesis, they assumed a linear relation between age and coproduction. In contrast, our data suggests a parabolic age effect (see figure 1). There are substantially more middle-aged citizens who report than young people.

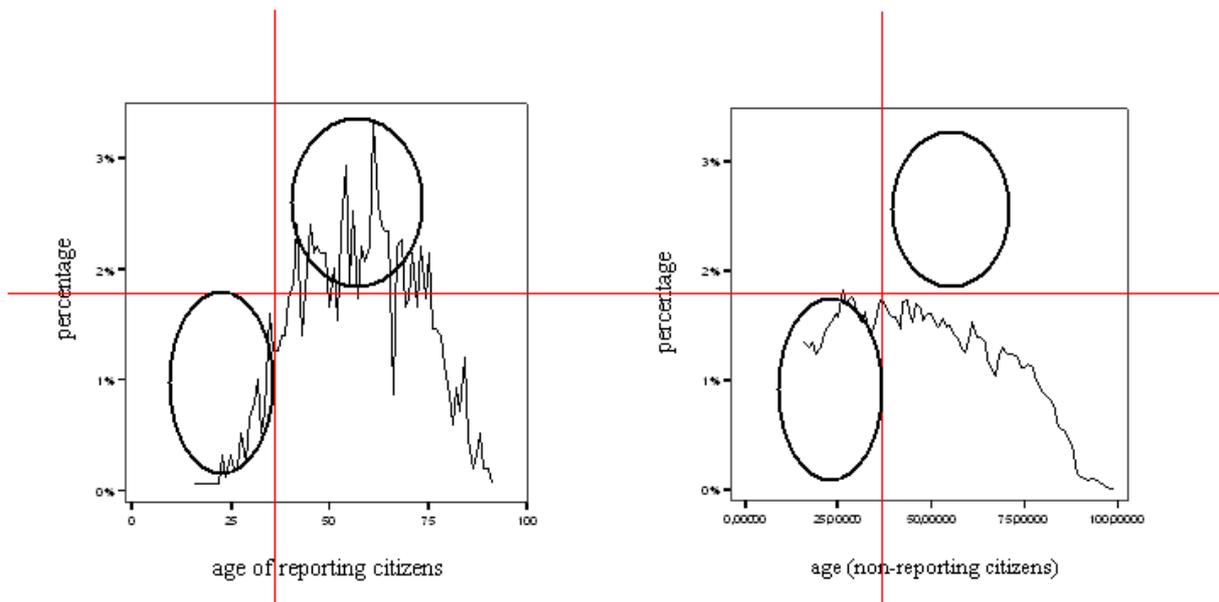


FIGURE 1: age of reporting and non-reporting citizens compared

Explanations for the low proportion of young people are not straightforward. Did they use their parents as ‘messengers’? Or does this mode of coproduction mainly appeal to older people with more resources and a higher perception of efficacy? An interesting observation in this respect is that age gap diminishes somewhat between 2004 and 2007. This trend seems to coincide with a shift in the reporting medium in favour of e-mail. Moreover, there is a significant negative correlation ($r=-0,28$) between age and e-mail reporting. The digital divide between young and old seems to be confirmed once more (see also Thomas and Streib,2003).

(3) *Immigrant*. Resources and perceptions of efficacy may not only differ across age cohorts. Immigrant populations also tend to have fewer resources and lower efficacy than non-immigrants (Brady e.a., 1995; Leighley & Vedlitz, 1999). This may be due to the generally lower social status of immigrant groups, which reduces their ability to participate. Since investment of time and money is low in a reporting scheme, the lack of system knowledge and information are expected to have an impact in our case. In Deurne, the main immigrant groups with a lower social status are typically from northwest Africa and Turkey. To assess the impacts of immigrant status on our data, we cannot use self-reported data on nationality since many immigrants have obtained Belgian citizenship. We therefore focus on the ethnicity to analyse the impact of immigrant background. Unsurprisingly, we found that immigrants report significantly less than non-immigrants (defined as citizens of the European Union).

(4) *Time of registration in the civil registry*. It can be assumed that those who live at the same place for a longer period, will be more involved in the local community (Sharp, 1986, p. 156) (Thomas & Melkers, 1999: p. 669). The civil registry tells us how long the population is enrolled in the city of Antwerp and thus may be a good proxy for determining whether people stay at the same place. The median registration period of reporting citizens is 34,9 years while the average in the district is 26,2 years. The propensity of a citizen reporting is higher when they are enrolled for a longer period. However, time of registration will correlate strongly with age, and thus a multivariate analysis is warranted.

(5) *Family composition*. Thomas & Melkers (1999: 669) hypothesised that families with children are more concerned with the local living conditions. However, they did not find empirical proof for this hypothesis, and neither do we. In fact, our data suggest that the opposite is true. Families without children living at home are overrepresented by 9,1%. This

finding seems to disconfirm the stakeholder approach to coproduction. Although families with children may have more distresses with problems in the public domain, they may as well lack the time to act against it.

Level II: neighbourhood variables

We argued above that neighbourhood level might matter for coproduction because social capital may differ and that levels of social capital may be influenced by the spatial structure of the neighbourhood. We measure social life through an analysis of neighbourhood associations. Putnam (1993) found that the density of associations could explain differences in political participation between the North and South of Italy. Based on this social capital theory, we include a variable that measures the activity levels of neighbourhood associations. Since we are focussing on coproduction with local government, not all kinds of associations are relevant. Many associations have a thematic focus and do not only recruit their members in the neighbourhoods. Therefore, we limit our analysis to initiatives that are directly involved with the neighbourhood, for instance by organising neighbourhood events and by publishing neighbourhood letters. The city of Antwerp has a fairly accurate registration of these initiatives. To control for differences in the population of neighbourhoods, we standardised this variable as the number of neighbourhood initiatives per 1000 inhabitants.

The socio-demographic profile of the neighbourhood taps into two of the three dimensions of Brady, Verba and Schlosmann's (1995) resource model of participation; time and civic skills. The third dimension, money, is in our case not so relevant since reporting is free of cost. The proportion of 30-58 year are in a hyperactive phase in their life in which they usually have high participation in social life (professional life, children) which may reinforce civic skills. If participation is infectious, social participation may result in higher levels of coproduction as

well. On the contrary, participation in social networks may also crowd out public participation in coproduction due to a lack of time. Educational attainment is measured through the proportion of lower educated residents. Generally, a lower education coincides with a lesser understanding of the political and administrative system. This administrative literacy may be needed to formulate a complaint.

We also include an interaction effect between age and education at neighbourhood level because both may reinforce each other. In this respect we were inspired by the findings of electoral participation research (e.g. Wolfinger and Rosenstone, 1980; Rosenstone and Hansen 1993; Goerres 2006). They have shown that the participatory differences between different educational groups are smaller for older voters. Goerres (2006: 103) for instance pointed out that “*Highly educated citizens generally show a higher likelihood of electoral participation because they are more likely to understand the political process and live in a social context where norms of participation prevail*”. Over a lifetime, however, less-educated people catch up with their more-educated fellow citizens of the same age due to a substituting effect of life experience for education. Probably this can be explained by contextual effects as well.

Results: neighbourhoods matter.

Before we develop a multilevel explanatory model, we need to establish the variation in reporting activities among the neighbourhoods. An empirical test of neighbourhood differences only makes sense when there is contextual variation. Therefore, we map the proportion of reporting citizens for the 28 neighbourhoods in Deurne. The ratio is calculated as the number of reporting citizens in the period 2004-2007 divided by the number of adult inhabitants (see figure 2). The average is 3.5% with a standard deviation of 1.1%. There is

considerably more reporting behaviour in the southern neighbourhoods than in other neighbourhoods. The only exceptions in the north are two neighbourhoods that lie near district hall. Proximity seems to have an effect, but only with a limited radius of action.

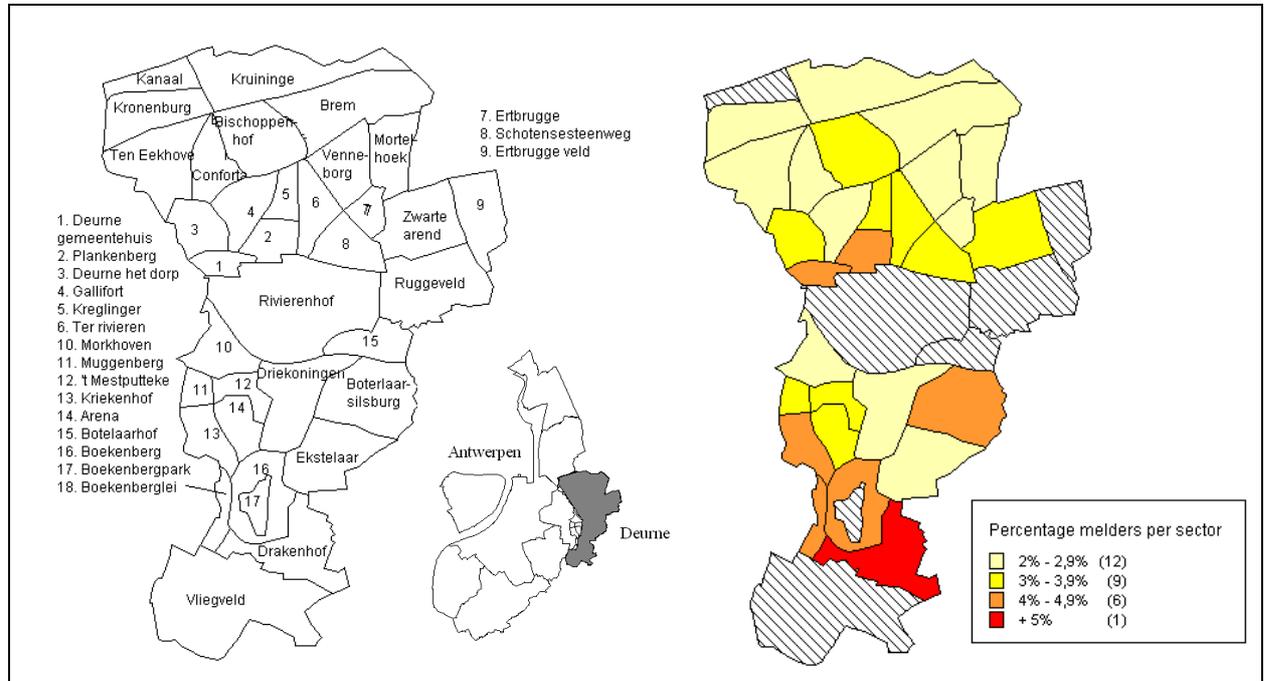


Table 2 shows the results of the logit multilevel analysis. All the models estimate the probability that an adult inhabitant of the local district submits one or more reports. Model I only includes individual variables. The positive coefficient ($b=0,532$) for gender for instance implies that the propensity that someone reports is higher for men (with women as a reference category). In model II, neighbourhood variables are introduced along with the individual variables. The only significant effect is the variable 'neighbourhood associations. The positive coefficient ($b=0,152$) indicates that there are more reporting citizens in neighbourhoods with a lot of neighbourhood initiatives. Model III includes interaction effects at the neighbourhood level.

Table 1. Logit Multi-level Estimators: Who files a report?

	Model I		Model II		Model III	
	Coefficient	St. dev.	Coefficient	St. dev.	Coefficient	St. dev.
'FIXED EFFECTS'						
Level 1 (person)						
Intercept	-4.690***	0.129	-4.863***	0.571	-10.770***	2.074
Gender (Reference.= female)	0.532***	0.048	0.532***	0.048	0.533***	0.048
Age (standardised)	2.935***	0.186	2.929***	0.186	2.927***	0.186
Age ² (standardised)	-2.655***	0.175	-2.646***	0.175	-2.646***	0.175
Immigrant (Reference = EU-citizen)	-0.861***	0.112	-0.851***	0.111	-0.847***	0.111
Family composition						
Single without children (Reference)	0.000		0.000		0.000	
Single with children	0.025	0.111	0.022	0.111	0.023	0.111
Pair without children	0.119	0.061	0.116	0.061	0.116	0.061
Pair with children	0.167*	0.071	0.167*	0.071	0.168*	0.071
Another family composition	-0.310	0.252	-0.313	0.252	-0.314	0.252
Duration of registration civil registry (standardised)	0.246***	0.029	0.245***	0.029	0.246***	0.029
Level 2 (context)						
Proportion with lower education (2001)			-0.006	0.006	0.132**	0.047
Proportion 30-58 year old			0.007	0.007	0.103**	0.033
Neighbourhood associations /1000 inh. (standardised)			0.152***	0.038	0.133***	0.035
Proportion with lower education X 30-58 year old					-0.002**	0.001
'RANDOM EFFECTS'						
σ_c^2 (scale factor)	1		1		1	
σ_u^2	0.061	0.021	0.018	0.010	0.010	0,007
N level 1	56,510		56,510		56,510	
N level 2	28		28		28	

$P < 0.05$ *; $P < 0.01$ **; $P < 0.001$ ***

Level 1: Adult Inhabitants; Level 2: Statistical sectors with more than 100 inhabitants

Our results in model 1 reconfirm that the individual determinants of coproduction identified in earlier research apply to our case as well. Men, the elderly, families with children, and individuals who have lived in Antwerp for a longer time are more likely to file reports. The immigrant population is unlikely to participate in the reporting system. Notwithstanding the efforts to lower the barriers for reporting by providing many and easy-to-use reporting channels, the coproducers in the database are not a reflection of the broader population. One

explanation may be that such initiatives facilitate participation among those who are already used to reporting, rather than attracting new reporting citizens with different characteristics.

In contradiction to a common assumption, the age variable does not show a linear relationship, but rather shows a parabolic relationship with reporting behaviour (as expected based on the bivariate analysis in figure 1). Younger and older citizens report less than those who are middle aged. The low reporting rates of the older generations runs counter to the evidence from the participation literature, which suggests an increase of participation with age (Dalton, 2008). One explanation may be that older generations generally have a more abiding attitude towards government, while the more vocal middle-aged generation has fewer reservations in articulating their demands to government (Durant, 1995). Obedience to government may explain why older generations do not file reports of problems (hence the parabolic in our case of coproduction), as well as why they go to the polling booth when they are called to vote (hence the linear relation in political participation research).

Model II introduces variables at the neighbourhood level. At the level of the neighbourhood, a high activity of neighbourhood associations is associated with higher reporting activities. This variable, which is closely related to Putnam's concept of social capital (1993), has a strong positive effect on the reporting behaviour. In neighbourhoods with many neighbourhood initiatives, more citizens are reporting. This seems to confirm Serra's (1995) research on citizen-initiated contacts with bureaucracy, which found social involvement to be an important explanatory variable of bureaucratic encounters. Thus, our findings suggest that social capital in neighbourhoods reinforces coproduction levels. What matters in coproduction is not only who you are and what resources you possess, but also where you live. Social

networks rather than the accumulated advantages of pooled individual resources explain this neighbourhood effect.^v

Two other neighbourhood variables ‘proportion of middle aged’ and ‘proportion with lower education’ also have an impact, but only after the introduction of an interaction effect between these variables. Model III introduces this interaction term. Moreover, the effect of the variable ‘proportion with lower education’ is positive, while there is a negative bivariate correlation between the ‘proportion with lower education’ and the ‘proportion of reporting citizen’s’ in neighbourhoods. The interplay between social capital formation and the spatial layout of the neighbourhoods may be an explanation. We come back to these seemingly contrasting findings in the discussion.

Discussion: neighbourhoods matter, but how?

Our findings suggest that the probability that a citizen files a report depends not only on his or her individual characteristics, but also on the where neighbourhood he or she lives. The multilevel model showed that there is an effect of the neighbourhood when controlling for individual characteristics. Most research on the individuals’ propensity to coproduce or to participate in politics and society does not account for the spatial context in which coproduction or participation is taking place. Our findings suggest that an increased awareness for the context may be warranted. The impact of the neighbourhood factors, even in a low effort coproduction arrangement such as ours, also could raise awareness for spatial clustering in other data on participation and coproduction. It is our expectation that multilevel structure might be found in many other datasets.

Higher education is usually associated with more participation. However, participation research has shown that the participatory differences between different educational groups are smaller for older participants. This is also confirmed in our analyses at neighbourhood level. It seems that the variables ‘proportion of middle aged’ and ‘proportion with lower education’ divide the 28 neighbourhoods into four subgroups that have contrasting reporting profiles. Table 3 lays out the four subgroups of neighbourhoods. First, there is a subgroup of neighbourhoods with a relatively low number of lower educated residents and a relatively high number of middle-aged residents. This population composition typically forms an *active middle class*. These relatively privileged neighbourhoods have a high number of reporting citizens. A second subgroup consists of neighbourhoods that have a high number of lower educated residents and a relatively low number of middle-aged residents. These *older working class* neighbourhoods are relatively deprived, but also have a disproportionately high number of reporting citizens. Third, there are neighbourhoods with a low number of lower educated and a low number of middle aged residents. These *older middle class* neighbourhoods show a low reporting activity. Finally, there are neighbourhoods with both many lower educated and many middle-aged residents. These *working class* neighbourhoods have low levels of reporting activity. The negative interaction term has a much stronger moderating effect on the last two subgroups compared to the first two,^{vi}.

		Proportion lower educated	
		Low	High
Proportion middle aged	High	Type I – Active middle class Many reporting citizens Exemplary neighbourhood: Drakenhof 23.45 reporters per mille	Type IV – Active working class Few reporting citizens Exemplary neighbourhood: Brem 8.03 reporters per mille
	Low	Type III - Older middle class Few reporting citizens Exemplary neighbourhood: Morkhoven 11.50 reporters per mille	Type II – Older working class Many reporting citizens Exemplary neighbourhood: Arena 15.77 reporters per mille

These findings suggest that neighbourhood composition matters. Moreover, we also observe a substantial decline in the effect of the variable ‘neighbourhood initiatives’ after we introduced the interaction term. This seems to imply that each of the low-high combinations of these socio-economic variables in the table also create a context conducive to more social cohesion. Here, urban planning theory may come into the analysis. Planning theory suggests that the physical morphology has an important impact on how people use a neighbourhood. A close-knit fabric of variations in functions (working, residing, leisure, shopping) also fosters social networks (Jacobs, 1961; Scott, 1998). Large infrastructure, waterways, and modernist planning schemes that separate functions tear up this social fabric.

Accordingly, a potential underlying dimension may be the spatial morphology of the neighbourhood. The neighbourhoods with low reporting activity have a rather impersonal streetscape without landmarks that reinforce neighbourhood identity. Morkhoven, an older middle class neighbourhood with low reporting rates, has a series of modernist housing blocks and is literally walled with noise barriers from a busy six-lane highway. Likewise, a

nondescript green zone, a football stadium, and a major road artery intersect Brem, a working class neighbourhood with low reporting rates. On the contrary, Arena consists largely of public housing built at a more human scale around a cluster of sport facilities, playgrounds, and a neighbourhood meeting space. Similarly, Drakenhof is a much greener neighbourhood in the vicinity of a park and with a more homogenous spatial plan. These latter two neighbourhoods have much higher rates of reporting activity, respectively 15.77 and 23.45 reporters per mille over the four-year period.

While our analysis of the impact of the spatial structure presented here is inductive and tentative, our findings do point in the direction of spatial morphology. More generally, the impact of spatial context on coproduction, participation, and other dimensions of citizen behaviour may be a fruitful avenue for research (Sampson, 2012). Such an agenda could be supported by an interdisciplinary effort of at least public administration, political participation, and urban theory. Research in this area should go beyond the analysis of social status of a neighbourhood – previously described as the “standard model” of participation (Verba, 1987). A thorough analysis of how spatial morphology has an impact on social capital and citizen engagement may provide an answer to the question how neighbourhood characteristics set to work. The interaction between space and participation may provide new insights for developing coproduction policies that are equitable and effective.

For the practice of coproduction, our findings can be read both as a warning and as advice. Critical voices warn for the equity effects of involving citizens in political decision-making and coproduction. In particular, it is argued that strong citizens might reap the benefits of coproduction and participation more easily than weaker citizens. Theoretically, one would expect equity to be compromised in those coproduction arrangements where the effort is high

and the resources to be invested are considerable. Nevertheless, we found the usual suspects of the socio-demographic biases (e.g. age, education, ethnicity) even in a low-effort coproduction arrangement. We have a critical case here. If you find equity issues here, you will probably find it anywhere. Our analysis adds that equity issues are not only relevant at the level of the individual. Neighbourhood characteristics should be taken into account as well. A participation and coproduction policy that aims at involving all citizens should for this reason aim at involving all citizens *and* all neighbourhoods.

A more positive reading however is that unlike socio-demographic explanations, the impact of social capital in neighbourhoods offers an actionable perspective for policy-makers.

Generally, altering the socio-demographic characteristics of the city population while avoiding gentrification effects is a long-term and tough target (Smith, 1996). Moreover, the impact of local authorities is moderated by other public interventions as well as the general condition of the economy. Social capital in neighbourhoods on the contrary is a concept on which policies can be built. Neighbourhood associations can be supported, dialogue can be fostered and citizens can be involved in coproductive arrangements.

Theoretically, a virtuous circle may be put at work where social capital leads to coproduction that further reinforces social capital in the neighbourhoods. Public professionals can help build such a social infrastructure in a neighbourhood that in turn may reinforce engagement (Nalbandian, 1999). Moreover, spill-over effects from coproduction to political participation and deliberation may occur. When citizens come together to co-produce services, they may also find each other when political issues need to be put on the agenda. Coproduction may develop the weak ties between people that could be a great strength in more distressful times (Granovetter, 1973). Our analysis has been cross-sectional and hence we do not have evidence

for such an effect, but social network research supports the plausibility of this thesis. Further research might address issues such as the potentially virtuous circles of coproduction and social capital formation, and the spill-over effects between coproduction, participation and engagement.

Conclusion

This article asks a straightforward question; do neighbourhood characteristics have an impact on coproduction? In other words, does participation in coproduction depend not only on who you are, but also on where you live? The answer is also forthright. Neighbourhoods do make a difference in explaining coproduction. However, the social capital, rather than the social status, of the neighbourhood explains the difference between neighbourhoods. We further tentatively assert that the spatial morphology of the neighbourhood enables or hinders the formation of social capital.

We believe that our study opens up some avenues for further research. First, while the literature on coproduction mainly looks at individual, personal characteristics of participants, our study points to the relevance of contextual factors. Yet, context is almost by definition very case-specific. It remains to be seen to what extent our findings travel across time and place. Future research should assess the generalizability of these findings in other contexts and programs. A second topic for research lies in the interplay between social capital in a neighbourhood and the spatial structure of that neighbourhood. Our case has some tentative indications that spatial morphology may explain levels of social capital and coproduction. We were not able to study this relation systematically. A cross-disciplinary effort of urban planning theory, coproduction, and participation research seems warranted. Finally and more generally, our study may raise awareness for the spatial level of analysis in datasets on citizen

attitudes and behaviour. Pollitt (2008) has argued that impact of 'space' has become victim of the trend towards decontextualization in contemporary scholarship. Together with Pollitt we conjecture that the impact of space is still relevant today.

- Adler, P. S., & Kwon, S.-W. (2002). Social Capital: Prospects for a New Concept. *The Academy of Management Review*, 27(1), 17–40.
- Alford, J. (2002). Why Do Public-Sector Clients Coproduce?: Toward a Contingency Theory. *Administration & Society*, 34(1), 32–56.
- Bovaird, T. (2007). Beyond Engagement and Participation: User and Community Coproduction of Public Services. *Public Administration Review*, 67(5), 846–860.
- Brady, H. E., Verba, S., & Schlozman, K. L. (1995). Beyond Ses: A Resource Model of Political Participation. *The American Political Science Review*, 89(2), 271–294.
- Brehm, J., & Rahn, W. (1997). Individual-Level Evidence for the Causes and Consequences of Social Capital. *American Journal of Political Science*, 41(3), 999–1023.
- Charbonneau, É., & Van Ryzin, G. G. (2012). Performance Measures and Parental Satisfaction With New York City Schools. *The American Review of Public Administration*, 42(1), 54–65.
- Coleman, J. S. (1988). Social Capital in the Creation of Human Capital. *American Journal of Sociology*, 94, S95–S120.
- Corbin, J. J. (1999). A Study of Factors Influencing the Growth of Nonprofits in Social Services. *Nonprofit and Voluntary Sector Quarterly*, 28(3), 296–314.
- Dalton, R. J. (2008). *Citizen Politics: Public Opinion and Political Parties in Advanced Industrial Democracies*. Washington D.C.: CQ press.
- Durant, R. F. (1995). The Democratic Deficit in America. *Political Science Quarterly*, 110(1), 25–47.
- Goerres, A. (2006). Why are Older People More Likely to Vote? The Impact of Ageing on Electoral turnout in Europe. *The British Journal of Politics & International Relations*, 9(1), 90-121.
- Gofen, A. (2012). Entrepreneurial Exit Response to Dissatisfaction with Public Services. *Public Administration*, 90(4), 1088–1106..x

- Graddy, E., & Wang, L. (2009). Community Foundation Development and Social Capital. *Nonprofit and Voluntary Sector Quarterly*, 38(3), 392–412.
- Granovetter, M. S. (1973). The Strength of Weak Ties. *American Journal of Sociology*, 78(6), 1360–1380.
- Inglehart, R., & Welzel, C. (2005). *Modernization, Cultural Change, and Democracy: The Human Development Sequence*. Cambridge: Cambridge University Press.
- Jacobs, J. (1961). *The death and life of great American cities*. New York: Vintage.
- James, E. (1986). The private nonprofit provision of education: A theoretical model and application to Japan. *Journal of Comparative Economics*, 10(3), 255–276.
- Leighley, J. E., & Vedlitz, A. (1999). Race, Ethnicity, and Political Participation: Competing Models and Contrasting Explanations. *The Journal of Politics*, 61(4), 1092–1114.
- Leyden, K. M. (2003). Social Capital and the Built Environment: The Importance of Walkable Neighborhoods. *American Journal of Public Health*, 93(9), 1546–1551.
- Lincoln, J. R. (1977). The Urban Distribution of Voluntary Organizations. *Social Science Quarterly (University of Texas Press)*, 58(3), 472–480.
- Marschall, M. J. (2004). Citizen Participation and the Neighborhood Context: A New Look at the Coproduction of Local Public Goods. *Political Research Quarterly*, 57(2), 231–244.
- McClurg, S. (2006). Political Disagreement in Context: The Conditional Effect of Neighborhood Context, Disagreement and Political Talk on Electoral Participation. *Political Behavior*, 28(4), 349–366.
- Merton, R. K. (1988). The Matthew Effect in Science, II: Cumulative Advantage and the Symbolism of Intellectual Property. *Isis*, 79(4), 606–623.
- Nabatchi, T. (2010). *Deliberative Democracy: The Effects of Participation on Political Efficacy*. Doctoral thesis. Indiana University,
- Nalbandian, J. (1999). Facilitating Community, Enabling Democracy: New Roles for Local

- Government Managers. *Public Administration Review*, 59(3), 187–197.
- Paarlberg, L. E., & Gen, S. (2009). Exploring the Determinants of Nonprofit Coproduction of Public Service Delivery The Case of k-12 Public Education. *The American Review of Public Administration*, 39(4), 391–408.
- Pollitt, C. (2008). *Time, policy, management: governing with the past*. Oxford: Oxford University Press.
- Putnam, R. D. (2001). *Bowling alone: The collapse and revival of American community*. London: Simon and Schuster.
- Rosentraub, M. S., & Sharp, E. B. (1981). Consumers as producers of social services: Coproduction and the level of social services. *Southern Review of Public Administration*, 4(4), 502–539.
- Sampson, R. J. (2012). *Great American City: Chicago and the Enduring Neighborhood Effect*. Chicago ; London: University Of Chicago Press.
- Saxton, G. D., & Benson, M. A. (2005). Social Capital and the Growth of the Nonprofit Sector. *Social Science Quarterly*, 86(1), 16–35.
- Scott, J. C. (1998). *Seeing like a state: How certain schemes to improve the human condition have failed*. New Haven: Yale University Press.
- Serra, G. (1995). Citizen-Initiated Contact and Satisfaction With Bureaucracy: A Multivariate Analysis. *Journal of Public Administration Research and Theory*, 5(2), 175–188.
- Sharp, E. B. (1986). *Citizen demand-making in the urban context*. Birmingham, AL: University of Alabama Press.
- Smith, N. (1996). *The New Urban Frontier: Gentrification and the Revanchist City*. London: Routledge.
- Southworth, M. (2005). Designing the Walkable City. *Journal of Urban Planning and Development*, 131(4), 246–257.

- Teaford, J. C. (2013). Jane Jacobs and the Cosmopolitan Metropolis: 2012 UHA Presidential Address. *Journal of Urban History*, 39(5), 881.
- Teorell, J. (2003). Linking Social Capital to Political Participation: Voluntary Associations and Networks of Recruitment in Sweden¹. *Scandinavian Political Studies*, 26(1), 49–66.
- Thomas, J. C., & Melkers, J. (1999). Explaining Citizen-Initiated Contacts with Municipal Bureaucrats: Lessons from the Atlanta Experience. *Urban Affairs Review*, 34(5), 667–690.
- Thomas, J. C., & Streib, G. (2003). The New Face of Government: Citizen-Initiated Contacts in the Era of E-Government. *Journal of Public Administration Research and Theory*, 13(1), 83–102.
- Van Dooren, W., Thijs, N., & Bouckaert, G. (2004). Quality management and the management of quality in European Public Administrations (Vol. Improving the Quality of East and West European Public Services, pp. 91–107). Ashgate: Aldershot.
- Van Laecke, P. (2008). *Wat ligt er op de buurtbarbecue: een onderzoek naar het sociaal kapitaal*. University of Antwerp, Antwerpen.
- Verba, S. (1987). *Participation in America: Political Democracy and Social Equality*. Chicago: University of Chicago Press.
- Wilson, J. Q., & Kelling, G. L. (1982). Broken windows. *Atlantic monthly*, 249(3), 29–38.

ⁱ Due to privacy regulation, it is usually impossible to adequately trace the individual context of participants (Gimpel, Dyck, and Shaw 2006). In our dataset, we have been able to link individual respondents to home addresses, which allowed us to test a nested explanatory model with both individual characteristics and contextual factors

ⁱⁱ Theoretically one could argue that all system integrating variables at neighborhood levels are somehow dependent on individual activities (Archer, 1996). In this respect endogeneity problems are always imminent in multilevel analysis. This is certainly the case for analytical variables that are an aggregation of omitted individual characteristics, such as prosocial

attitudes and values. However, because prosocial attitudes only have behavioral consequences (e.g. lead to participation in neighbourhood activities) in a very limited number of cases, it would be very hard to identify them at the individual level due to the inevitability of missing observations in survey analysis. Moreover, because neighborhood activities at moment T are closely linked to the past prosocial context at T-1, they can be distinguished in the facts from individual prosocial attitudes.

ⁱⁱⁱ An assessment of intraclass correlation is usually used for assessing whether multilevel analysis is appropriate. In a model with two levels, this coefficient expresses the share of the total variation that is found at the second level. In a model with a dichotomous dependent variable, it is impossible to calculate standard intraclass correlation. Moreover, since our dependent variable is extremely skewed, variance partition coefficients are less useful. We can observe however that the variance at the second level significantly differs from zero. The estimated variance σ^2_u in a model that only has an intercept is 0,062 with a standard error of 0,021. In any case, in a traditional single-level logistic regression, the standard errors of the contextual factors would be estimated erroneously

^{iv} The underrepresentation of younger people is not a methodological artefact. Again, we checked whether the absence of younger people is not an artefact of the match with the civil registry. It is plausible that many of those who were not found in the civil registry are young people who lived with their parents at the time of reporting, but now left the parental home. It appeared that this group is limited. We did find namesakes for only 10,8 % of the reporting citizens that we did not find in the civil registry on the address that they noted down.

^v A bivariate analysis of neighbourhood reporting analysis shows significant correlations for socio demographic variables such as average income (positive), proportion new inhabitants (negative), proportion with lower schooling levels (negative), proportion in the 30-38 age cohort (positive) and neighbourhood initiatives (positive). In the multilevel model, all the variance in the socio-demographic indicators is absorbed by the variable neighbourhood initiatives.

^{vi} Note that the magnitude of the unstandardized effects in this analysis is not relevant. The effect of the interaction term is for instance very small ($b=-0,002$), but this is only the result the measurement unit. The effect of the interaction term is in fact larger than the first order effects of the two constitutive variables. This becomes evident when we look at the standardised coefficients, which are for the effects 'proportion of middle aged' and 'proportion lower educated' respectively 0,634 and 0,873, while the standardised effect for the product of both variables is -0,905.