Regional Science and Urban Economics 42 (2012) 323–340

Contents lists available at SciVerse ScienceDirect

Regional Science and Urban Economics

journal homepage: www.elsevier.com/locate/regec

The impact of social capital on crime: Evidence from the Netherlands ☆

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ARTICLE INFO

Article history:
Received 7 April 2011
Received in revised form 22 September 2011
Accepted 23 September 2011
Available online 6 October 2011

JEL classification:
A13
A14
K42
Z13

Keywords:
Social capital
Crime
The Netherlands

ABSTRACT

This research shows that social capital is important in explaining why crime is so heterogeneous across space. Social capital is considered as a latent construct composed of a variety of indicators, such as blood donations, voter turnout, voluntary contributions to community well-being, and trust. To isolate exogenous variation in social capital, three historical variables are used as instruments: the fraction of foreigners, the number of schools and the fraction of Protestants in 1859. The historical information provides heterogeneity across municipalities in these three variables. In an application to Dutch municipalities the 2SLS estimates suggest that the exogenous component of social capital is significantly and negatively correlated with current crime rates, after controlling for a range of contemporaneous socio-economic indicators. Next, the robustness analysis shows why some social capital indicators are more useful than others in applied economic research.

> "The larger and more colorful a city is, the more places there are to hide one's guilt and sin; the more crowded it is, the more people there are to hide behind. A city's intellect ought to be measured not by its scholars, libraries, miniaturists, calligraphers and schools, but by the number of crimes insidiously committed on its dark streets…" *Orhan Pamuk, My name is Red, p. 123.*

1. Introduction

One of the most puzzling elements of crime is its heterogeneity across space. Even after controlling for a range of variables, there remains a high variance of crime across space.[2] How can we explain these differences in crime rates across space? The overall annual crime rate in our data varies between 1.6 and 14.6 incidents per capita, with observable factors, such as population density and size, the youth unemployment rate, the mean level of education and income inequality explaining only a small fraction of this difference. Next to that, consider the following example: The cities of Utrecht and Leiden are comparable on various socio-economic indicators, but Utrecht faces a crime rate of 14.3 per capita, relative to a rate of only 6.3 in Leiden.

In this research, we argue that differences in social capital account for a significant part of the observed differences in crime rates across cities. We test our ideas using a dataset with elaborate information of about 140 Dutch municipalities. To do so, we view history as a main determinant of present outcomes and show that we can isolate exogenous variation in social capital by using historical institutions as instruments, following a recent body of empirical studies (e.g., Guiso et al., 2008a; Akçomak and ter Weel, 2009; Tabellini, 2010). Our estimates suggest that differences in crime rates can for some part be traced back to historical differences in social capital between Dutch municipalities.

To what extent do these historical indicators shape current social capital? We employ a variety of social capital measures. Previous

☆ We would like to thank the editor and the referee of this journal for insightful comments. We also benefited from discussions with Lex Borghans, Paolo Buonanno, Richard Freeman, Henri de Groot, Pierre Koning, Boris Lokshin, Bas Straathof, Ben Vollaard and Dinand Webbink. We acknowledge seminar participants at UNU-MERIT and the Department of Economics, Maastricht University; Netherlands Bureau for Economic Policy Analysis (CPB), the Department of Spatial Economics, Vrije Universiteit Amsterdam; ISER, University of Essex, the Utrecht School of Economics and the Regional Studies Association meetings in Prague in May 2008. Akçomak acknowledges financial support from the Maastricht Research School of Economics of Technology and Organizations (METEOR).

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[2] Glaeser et al. (1996) and Sampson et al. (1997) find that observable local area characteristics explain only about 30% of the variance in crime rates across space in the United States. See Freeman (1999) for an overview of the crime literature in economics.

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doi:10.1016/j.regsciurbeco.2011.09.008

Table 1
Correlations among social capital indicators for 142 municipalities.

	Charity	Blood	Vote	Trust	*ppltrust*	Help	Fair	*trustplc*	Foreign	Divorce	Immig	Emmig	Movers
Charity	1.00												
Blood	0.11	1.00											
Vote	0.70	0.12	1.00										
Trust	0.24	0.24	0.36	1.00									
ppltrust	0.12	0.23	0.28	0.90	1.00								
Help	0.26	0.18	0.35	0.84	0.61	1.00							
Fair	0.24	0.19	0.30	0.88	0.72	0.61	1.00						
trustplc	0.26	0.23	0.24	0.58	0.56	0.48	0.49	1.00					
Foreign	−0.74	−0.10	−0.73	−0.23	−0.15	−0.19	−0.25	−0.13	1.00				
Divorce	−0.68	−0.01	−0.66	−0.11	−0.04	−0.11	−0.14	−0.19	0.74	1.00			
Immig	−0.41	0.01	−0.28	−0.04	−0.04	−0.03	−0.03	−0.01	0.53	0.47	1.00		
Emmig	−0.49	−0.05	−0.42	−0.16	−0.11	−0.17	−0.14	0.01	0.59	0.37	0.69	1.00	
Movers	−0.47	−0.01	−0.36	−0.09	−0.07	−0.09	−0.08	−0.00	0.59	0.47	0.96	0.87	1.00

research treats social capital as a positive sum in the sense that social capital is an asset to the individual and the community.[3] Fukuyama (1996) suggests that it might be easier to measure the absence of social capital through traditional measures of social dysfunction such as, family breakdown, migration and erosion in intermediate social structures. This approach hinges on the assumption that just as involvement in civic life is associated with higher levels of social capital, social deviance reflects lower levels of social capital. We use voluntary contributions to charity, electoral turnout, blood donations and trust to measure the presence of social capital. Divorce rates and population heterogeneity are used as indicators for the absence of social capital. These indicators are highly correlated to each other and a common denominator, combining several multifaceted dimensions, may serve as a useful proxy for social capital (see e.g., Table 1 and Fig. 1). We treat social capital as a latent construct and build a number of social capital indices using principal component analysis (PCA).

What is the causal effect of social capital on crime? Sampson (1988) argues that communities are empowered through their trust in each other, which enables them to take action against crime and to cooperate with formal control, such as the police.[4] Ferrer (2010) shows that crime rates fall if communication between the police and the general public increases because community involvement stimulates the productivity of law enforcement. Involvement in community activities leads to strong social bonds by which conflicts are resolved in a more peaceful way compared to communities with weak social bonds (e.g., Hirschi, 1969). Hence, the cost of conflict resolution decreases and more conflicts will be solved. Consequently, social capital increases the probability of being caught and the costs of crime, which reduces the crime rate. This effect of social capital on crime is different from the effects of more traditional measures to explain crime, such as unemployment and inequality. These measures focus on the difference between earnings from legal and illegal activities to explain crime rates.

We use three historical "institutions" to instrument social capital. First, we measure the opportunities for formal education by measuring the number of schools in 1859. Goldin and Katz (1999) show that historical differences in human capital investments help to explain differences in current levels of social capital.[5] Second, we measure population heterogeneity by the percentage of foreign inhabitants in 1859. Population heterogeneity is a factor that may trigger disattachment because higher levels of heterogeneity would break closure, reduce acquaintance among residents and may result in lower trust among members of the community (Rose and Clear, 1998; Rosenfeld et al., 2001).[6] Third, we use the number of mainline Protestants in 1859 as an indicator for social capital. Mainline Protestants participate more in community-wide activities which build bonds across communities (Beyerlein and Hipp, 2005). Recent studies show the validity of such an approach by consistently highlighting the role of history in explaining current social capital and culture (e.g., Guiso et al., 2008a; Akçomak and ter Weel, 2009; Tabellini, 2010).[7]

Our estimates show that social capital is negatively associated with crime rates across Dutch municipalities. On average a one standard deviation increase in social capital would reduce crime rates by 0.32 of a standard deviation. This implies that the inclusion of social capital explains about 10% of the total variation in crime rates. Given that standard determinants explain only about half of the variation in crime rates, our estimates are of a substantial magnitude. The findings reveal that non-survey indicators such as voluntary contributions and voter turnout are more robust when compared to survey indicators such as generalized trust. The empirical results are robust to the inclusion of other variables, to the exclusion of influential observations, to alternative specifications, to the use of different subsamples and regional definitions, and across different types of crime.

This paper contributes to the literature in several aspects. First, we treat social capital as a latent construct. There are only a number of recent studies that follow a similar approach using survey data at the individual level to measure the presence of social capital (e.g., Svendsen and Bjørnskov, 2007; Owen and Videras, 2009; Sabatini, 2009). We measure and compare both the presence (e.g., blood donations and voluntary givings) and absence of social capital (e.g., family breakdown and population heterogeneity) using survey and non-survey data, which differentiates our study from the existing literature. This allows us to assess the quality of the different

[3] Higher social capital is associated with higher economic growth (e.g., Knack and Keefer, 1997); more investment in human capital (e.g., Coleman, 1988); higher levels of financial development (e.g., Guiso et al., 2004); more innovation (e.g., Akçomak and ter Weel, 2009); lower homicide rates (e.g., Rosenfeld et al., 2001) and lower car theft (e.g., Buonanno et al., 2009).

[4] See also Kornhauser (1978), Sampson and Groves (1989) and Bursik and Grasmick (1993).

[5] Recent papers by Akçomak and ter Weel (2009) and Tabellini (2010) show that for European regions literacy rates in the 1880s do have an impact on current levels of social capital and on a set of cultural indicators. The idea is that education builds human and social capital at the same time. Gradstein and Justman (2000) show that education affects social capital because education is an important socializing instrument. It builds common norms and facilitates interaction between community members who might be different along cultural, religious or ethnic lines.

[6] The effects of racial or ethnic heterogeneity on outcomes are well documented. Heterogeneity has an effect on corruption (Mauro, 1995), rent seeking and low educational attainment (Easterly and Levine, 1997), and lower provision of public goods (Goldin and Katz, 1999). Alesina and La Ferrara (2000) argue that racial composition affects the degree of participation in social activities. Zak and Knack (2001) and Rupasingha et al. (2002) show that higher levels of ethnic diversity may result in less trusting societies.

[7] This could be due to formal institutions (Zucker, 1986; Acemoglu et al., 2001) or due to intergenerational transmission of values and attitudes (Dohmen et al., 2006; Tabellini, 2008b). Tabellini (2008a) and Guiso et al. (2008b) present an excellent discussion of the power of such an approach.