

## **Does associational behaviour raise social capital?**

### **A cross country analysis of trust.**

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#### **Abstract**

For a sample of 30 countries, this paper examines the impact that associational behaviour has on trust and, more specifically, trustworthiness; that is the degree of trust placed in others. Voluntary associational behaviour involving social interactions, can be viewed as underpinning the development of social capital in the sense of helping to form trust in society. The paper examines both informal activities such as meeting with family and friends, as well as more formal association connected with participation in cultural, political, civic, sport and religious groups. From a broadly neoclassical perspective a positive influence of engagement through voluntary association on trust could be interpreted as deriving from current experiences and support the idea that such institutional arrangements raise social capital. However, an alternative approach might argue that trust is more 'moralistic' and formed in deeper and more long-term socio-economic circumstances. Under such a perspective 'experienced' trust can be viewed as more fragile and unlikely to be sustainable. Further, such moralistic trust might underpin associational behaviour, rather than be derived from it. Using a generalised methods of moments estimator to control for the potential simultaneity between trust and associational behaviour this paper finds support for this latter case.

#### **JEL classification**

D60, I31, C25

#### **PsycINFO classification**

3020

#### **Keywords**

Trust, associational behaviour, social capital, GMM estimation.

## 1. Introduction

There is a growing economic literature analysing trust in society. Seminal contributions argue that trust can help to facilitate a more efficient exchange of resources because of the presence of incomplete contracts (Arrow, 1972). More recently, it has been argued that trust can promote economic growth because it represents the formation of social capital through social interactions and associative behaviour (Ben-Ner and Halldorsson, 2010; Kugler *et al*, 2007; Glaeser *et al*, 2000; Knack and Keefer, 1997; Fukuyama, 1995). However, there is debate about this possibility. Olson (1982) identifies negative consequences from associational activity deriving from agents identifying with particular groups with the likely consequent promotion of special interests. This can limit benefits to wider society and the promotion of growth because of lobbying for preferential policies.<sup>1</sup> In contrast, Putnam (1993) argues that associational activity can promote growth because it encourages cooperation, solidarity and public spiritedness. More recently, Roth (2009) has argued that the presence of these potentially opposite impacts could be rooted in the initial levels of trust held by societies. Activities that promote trust from initial positions of low trust, will promote economic growth, but not if the initial levels of trust in society are high. More broadly in the management, political and social sciences the foundations of trust have been discussed and it is this issue that is addressed in this paper (Nooteboom, 2002; Rothstein, 2000, Uslaner, 2002).

The emphasis of the research is upon the potential to produce trust, as social capital, from associational activity. This potential has underpinned a lot of public policy discussion. Currently in the UK, the Conservative-Liberal Democrat coalition government has championed a 'Big Society' in which volunteering and involvement in social action is to be encouraged, along with charitable giving and philanthropy, and the need to get young people mixing from different backgrounds and getting involved in their communities.<sup>2</sup> The particular contribution of the paper, using micro data of

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<sup>1</sup> Earlier contributions such as James (1904) and Loury (1977) identified social capital with the ability of an individual to do well in social situations. As will be seen in the discussion that follows, to an extent the neoclassical approach to social capital follows this approach. An alternative position is, however, supported in this paper.

<sup>2</sup> See for example, [http://www.cabinetoffice.gov.uk/sites/default/files/resources/building-big-society\\_0.pdf](http://www.cabinetoffice.gov.uk/sites/default/files/resources/building-big-society_0.pdf)

Accessed 16<sup>th</sup> June 2011.

individual activity across countries, is to examine if different forms of association, and the frequency with which it takes place, affects trust. Both informal activities such as meeting with family and friends, as well as voluntary association connected with participation in cultural, political, civic, sports and religious organisations are investigated.<sup>3</sup>

Two issues that are crucial to assessing this potential is the nature of what surveys actually measure as 'trust' and the causality that can be inferred from respondents experiences of associational activity and such statements of trust. In this paper it is argued that generalised trust questions in micro-data surveys measure the 'trustworthiness' of others as viewed by respondents rather than their own 'trusting' of others. As such trust questions can be related to social capital in as much that they measure the individuals' perspectives of their known community. Further, the paper argues that once allowance is made for the endogeneity between measures of trust and associational activity then there is no robust evidence to support claims that experience of such association raises trust. In contrast, the paper's statistical results are more supportive of the determinants of trust lying in deeper associational dispositions as, for example, exemplified by Uslaner's (2002) view of moralistic trust. It follows that policy proclamations about the efficacy of voluntary activity in producing social cohesion, need to be tempered.

To address these issues, the paper proceeds as follows. Section 2 examines the definitions and measurement of trust in economics, and hence why this paper investigates trustworthiness as a dimension of this. It also reviews how the economic literature examines social interactions and associative behaviour as a basis for understanding the formation of (different types of) social capital. Section 3 presents the data used in the analysis, and Section 4 the empirical methods employed. A Generalised Methods of Moments Estimator is employed on the data accounting for the endogeneity between trust and experiences of associative activity. The analysis also accounts for the cross-country nature of the data by treating the data as clustered according to the

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<sup>3</sup> As discussed further below, different dimensions of trust may be associated with these activities.

country of origin. Results are presented and discussed in Section 5 and conclusions then follow in Section 6.

## 2. Literature Review

There are two main ways in which trust has been investigated in economics. The first is primarily theoretical and conceptual as expressed in both neoclassical and more heterodox, socio-economic narrative. The second has been to examine secondary data for an empirical assessment of either how trust affects economic growth, or other macroeconomic performance indicators, or to explore the factors which affect statements about trust in large-scale surveys. The current research draws upon both of these elements of the literature. Whilst, the second research approach is the one utilised in this paper, as it explores the determination of trust, the literature in the first approach illustrates the theory of trust, and how it is formed, which is needed to interpret empirical results. Consequently, it is this analysis of trust that is reviewed first.

From a neoclassical perspective the basis of the analysis of trust can be illustrated with reference to Berg *et al's* (1995) experimental approach, which has used primary data to test the predictions of the 'trust game' (see, for example, Kugler, *et al* 2007 for an extension of the analysis from individuals to groups)<sup>4</sup>. In the trust game donors and recipients are randomly paired and given a monetary endowment by the experimenter. The donor may transfer some or all of their endowment to the recipient, and this amount is tripled by the experimenter and the recipient informed that they can return to the donor any amount less than or equal to the transfer to them. The donor thus receives the initial endowment plus the net receipts from the transfers to and from the recipient. In this game it is argued that the amount that the donor originally transfers to the recipient is a measure of trusting behaviour- how much the individual is prepared to trust another. In contrast, the amount returned from the original recipient to the donor is a measure of the trustworthiness of the recipient, that is, can the recipient

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<sup>4</sup> A test between altruism and trust can be performed by varying the endowments given to the agents. If more is transferred from rich to poor then altruism may dominate. If results are invariant to this then trust dominates.

Brulhart and Usunier (2010) find support for the latter hypothesis.

actually be trusted by the donor? In game theoretic terms this presents trust as a voluntary transfer to someone, with expected but not guaranteed reciprocity.

One might expect that a one-shot game would reveal no trustworthiness and reciprocity as there are no reputational effects, that is costs to 'B' in capturing the transfer in full. Despite this, and challenging the neoclassical approach, it has been shown experimentally that trustworthiness is common and this has been linked to the formation of social capital (Chaudhuri *et al*, 2002). Such results are not necessarily criticism of the game-theoretic or neoclassical perspective, however. As argued by Gunnthorsdottir *et al* (2002), 'other-regarding' acts can be viewed as investments in reputation *per se*. Investing trust in others produces a trustworthy return. From this neoclassical perspective the experimental results can be interpreted that in practice agents persist in the view that there is always the possibility that they may meet the agent with whom they are currently trading again. It can also be argued that the reputational effects from reciprocity have externalities that spill over to other activities and interactions with other agents as well.

The mechanism by which such interactions occur are seminaly developed in Becker (1974). Here it is recognised that agents can invest in social characteristics as part of their social environment, which is part of the wealth of individuals. Important features of Becker's analysis are that the economic agent is a consumer-producer of the goods and services yielding utility, and that all externalities stemming from the benefits of accruing social characteristics are effectively internalised. Cauley and Sandler (1980) generalised the analysis to one in which the consumption of other agents affects the ability of agents to produce the goods that they ultimately consume. This implies that the Coase Theorem does not have to hold, that is that agents take full account of their interactions with others, which is implied in Becker (1974). In contrast, a series of possibilities exist bounded by two extremes. These are, first, the Coase Theorem result in which all externalities are internalised, and second, no account being taken by individuals of interactions. . In general, the outcomes depend on the extent of bargaining between agents and their awareness of spillovers. Glaeser *et al* (2002) develops a similar analysis in which the individual invests in the stock of individual social capital in a context of an environment in which there is an aggregate stock of social capital to

which they contribute and indirectly receive flows of utility as a return on that investment. Further, a neoclassical approach would emphasise that club-goods, in which voluntary groups derive benefit from sharing production costs, the members' characteristics, or a good characterised by excludable benefits, naturally build upon such interactions (Cornes and Sandler, 1986).

However, it has long been recognised in economics outside the neoclassical paradigm that individuals fundamentally act through connection in social interactions. The most traditional formats have been through either the preferences of agents being directly affected by the consumption of others (Veblen, 1934; Duesenberry, 1949; Liebenstein, 1950) or through the expectations of agents stemming from adaptive mechanisms in the light of others' behaviours (Cyert and March, 1963; Tversky and Kahneman, 1974). Further, the idea that voluntary association underpins reciprocity can be motivated by a non-neoclassical perspective. The literature on relational goods suggests that there is something essentially different about social interactions than the usual economic analysis of externalities. It can be suggested that the neoclassical analysis of club goods and reciprocity, is still essentially founded upon private exchange. This is in the sense that individual agents account for an external social circumstance by internalising it as an externality, thereby extracting private gain from social interactions. The 'public good' or interpersonal aspect of the relational or club good is thus suppressed. However, this interpersonal aspect is an emergent feature that is indicative of a change in the ontological status of agents and their context. This change is from one in which the individual stands primarily externally related to others to one in which individuals become internally related in a collective that exists as a *relationship* between agents (Bruni and Stanca, 2008). Relational goods from this perspective are inextricably connected to both the identity of the agents involved as well as the non-instrumental nature of the relationships between them.<sup>5</sup>

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<sup>5</sup> This distinction can be exemplified with reference to Glaeser *et al's* (2002) neoclassical approach in which it is argued that, '...our treatment of social capital as an individual characteristic sharply differentiates us from the bulk of the modern literature on social capital, which treats social capital as the characteristic of a community' (F440).

The transmission mechanism by which interactions takes place can also be understood through different intellectual origins to neoclassical economics, which emphasises exchange. In contrast Gui and Sugden (2005), Sugden (2005) and Bruni and Stanca (2008) suggest that Adam Smith's theory of moral sentiments provides such a foundation. The basis of this argument is that relationality is intrinsically connected to the pleasure that people find through being in another's company and, in part, this is determined by the affective nature of the relationship, that is, what contributes to agents' moods and emotions (Frey, 2008). This is not an instrumental activity. What is significant from these discussions is that in accounts of social capital, these alternative views on social interactions and relational goods resonate strongly at a conceptual level, despite their citation by neoclassical analysis. Further, that trust – and its dimensions – underpin social capital, is made clearer in considering the origins of the concept of social capital from Fukuyama (1995), Bourdieu (1997), Coleman (1994) and Putnam (1993, 2000).

Fukuyama (1995) argues that trust is literally the manifestation of social capital and this facilitates the efficiency of organisations. For example, in situations of low-trust, relationships tend to be limited to the restricted family or ethnic group. Horizontal organizations, such as guilds, unions, and clubs are formed less easily and strong hierarchies tend to emerge. Consequently, it is argued that hierarchical religions, like the Catholic Church, have historically hampered spontaneous economic sociability and integration.

For Bourdieu (1997) social capital is linked to the building of durable networks of relationships for elites for their mutual advantage. In this regard social capital is linked directly to the accumulation of economic and cultural capital, that is the economic, knowledge and skill resources possessed by individuals respectively. Coleman (1994) by contrast does not view social capital as something that helps to reproduce an elite but, rather, the family and community relationships and organisation that affect the ability of individuals to develop their human capital. Resonating with Bourdieu's cultural capital, this is identified with the education, employment skills and expertise possessed by individuals.



Putnam (1993, 2000) conceptualises social capital as the property of aggregate structures, such as communities, cities or regions, which are held together by networks. Like Fukuyama (1995), Putnam (1993, 2000) emphasises how trust, developed through social capital, helps to make communities and societies more efficient by reducing the need for formal forms of transaction such as contracts, or formal exchange of ideas, information and resources, but at the same time enables the collective pursuit of objectives. In this respect, Putnam places more emphasis on organised social groups than, say Bordieu (1997) or Coleman (1994). Further, it is maintained that varieties of organisations may affect social capital differently and that a distinction between bonding and bridging capital should be made. The former promotes homogeneity between those of similar characteristics and familiarity. In contrast, bridging capital links heterogeneous groups and individuals. This echoes Fukuyama's distinction between horizontal and vertical association. What is distinct about Putnam (1993, 2000) is that it is recognised that there can be tension between the impacts of these forms of social capital formation. For example, Putnam (2000) argues that a decline in social capital can be charted by examining the decline in organised US league bowling, and the growth of commercial recreational bowling and organisation. The decline in social capital is as a result of *both* the reduction of the regularity and sustained meeting of acquaintances, but also through that associated with acquaintances of a *diverse* character. In this respect it might be expected that associations that reinforce similarity may raise bonding social capital and trust, but may reduce bridging capital and trust. It is, of course, the latter characteristic of voluntary associations that is implicitly emphasised by Olson (1982).

Collectively such literature suggests that different types of association may affect social capital and trust differently because of the nature of the relationships that it engenders and the boundaries of those relationships. It is in this respect that this paper examines the impact of both informal activities such as meeting with family and friends, as well as more formal association connected with participation in cultural, political, civic, sports and religious organisations. To borrow Putnam's terminology the literature suggests that if views of the trustworthiness of others reduce through associative activity then division is encouraged and, at best, bonding capital might dominate bridging capital. In

contrast, if an individual's view of the trustworthiness of others increases through associative activities then they are promoting bridging capital and, also bonding capital.

As discussed earlier, as well as the game theoretic analysis of trust, an empirical literature has developed analysing trust as measured on surveys such as the General Social Survey, or the World Values Survey through an ordered scale. On the scale respondents indicate whether or not they can trust other people or indicate degrees by which 'they can't be too careful in dealing with them'. This is also the case in the current research as discussed in Section 3. The main direction of this literature, however, as noted in the introduction, has been to examine the impacts of trust on economic performance, with some literature examining the determinants of trust.

For example, trust has been shown to provide a positive impact on government effectiveness, civic and organisational performance and social efficiency, linked to factors such as infrastructure quality, high school completions and infant mortality, by La Porta *et al* (1997), for a sample of 40 countries. Helliwell and Putnam (1995) show that more developed civic communities in Italian regions had higher growth rates, whilst Knack and Keefer (1997) show that both trust and civic cooperation had large effects on growth for a sample of 29 countries. Temple and Johnson (1998) identify that trust has a positive effect on the growth of a sample of 74 developing countries. Finally, Zak and Knack (2001) analyse a sample of 41 countries for a series of cross sections for 1981 - 1984, 1990 - 1993 and 1995 - 1997 (of the World values Survey) and identify that trust is positively associated with growth and investment.

Significantly, Knack and Keefer (1997) and Temple and Johnson (1998) distinguish between associations that might help to develop bonding rather than bridging social capital, as argued by Olson (1982), and those that might also bridge different groups as argued by Putnam (1993). *A priori*, it is argued that associations which may reduce trust - Olson-type associations - include trade unions, political parties and professional organisations. In contrast it is argued that Putnam-type associations, which may raise trust, include youth, religious and education, arts and cultural associations. The papers

find support for the differential effects on growth that these forms of association entail.<sup>6</sup> The differential impact of trust on growth has been more recently addressed by Roth (2009). Also examining 41 countries over a series of waves of the World Values Survey and Eurobarometer data, it is identified that for countries starting with low initial levels of trust, increases in trust add to economic growth. This is not the case for countries with high initial levels of trust. Other research, such as Bergh and Bjørnskov (2011) show that for a cross-section sample of countries in 2008, it is levels of trust that can be associated with the provision of a larger welfare state. This is explained by trust helping to overcome free-rider problems.

As part of this literature, some attempt has also been made to measure the determinants of trust. As well as exploring the impact of trust on economic growth, Knack and Keefer (1997) identify that Olson-type associations reduce trust, whereas Putnam-type associations raise trust. Likewise, Zak and Knack (2001) identify that property rights, contract enforceability, corruption perceptions, investor rights, as measures of formal institutions; together with Gini coefficient measurements of income and land ownership inequalities, and ethnic homogeneity, as measures of 'social distance' in the population, are significant determinants of trust. The emphasis in this research was more on formal institutional determinants of trust as indicated by Putnam (2000) and Newton (1997).

The fact that different analyses of trust draw upon different forms of interaction between agents raises the important question of what is actually measured in such surveys. The literature above distinguishes between the 'thick' trust that is associated with family networks. It is argued that other interpersonal relationships, or generalised trust, are generated by looser secondary social relations. Finally, it is argued that systemic or institutional trust is captured in legal arrangements (Roth, 2009). Clearly dimensions of each of these aspects of trust might be captured in a survey question, and consequently indicated by significant statistical relationships between trust and some specific measures of the factors that are theorised to determine it.

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<sup>6</sup> Temple and Johnson (1998) also find strong impacts of a multidimensional social development index on economic growth. Olson-type groups have no significant impact on growth for Knack and Keefer (1997), rather than a negative effect.

Yet more fundamental empirical issues are at stake in considering what is captured by questions about trust. One of these occurs in recognition of insights from the *structure* of the trust game that postulates two different aspects of trust – trusting connected with the self, and trustworthiness connected with views of others – are potentially evident in reciprocity. In a comprehensive study of survey measurements, Glaeser *et al* (2000) argues that trustworthiness, rather than trusting, as defined earlier, is captured by typical survey questions and it is upon this strict basis that such questions measure an ingredient of social capital from the perspective of the individual. However, and of most significance to this paper, trust, *experienced* through *interactions*, as emphasised in the neoclassical approach, is distinct from deeper elements of trust which, as argued by Uslaner (2002, 2008a,b) have a *moralistic* foundation. Such moralistic trust would be developed, for example, through childhood socialisation, and consequently remain relatively stable over the lifetime. He writes that,

“Most economists – and many political scientists – believe that trust is a summary of people’s experiences and is very fragile, including, of course, the most common one where trust reflects experience...‘moralistic trust’ ...is a value that we learn early in life and that is largely resistant to bad experiences or good ones...the standard survey question reflects moralistic trust rather than experience-based faith in others.” (Uslaner, 2008b, p290).

Reflecting such an idea, much of the literature, argues that different nationalities might exhibit persistently different levels of trust, such as is observed in the Scandinavian countries, or ethnic groups within countries (Bergh and Bjørnrskov, 2011). Another important feature of Uslaner’s work is that it argues that (moralistic) trust involves more than just belonging to a civic, religious or educational group but the undertaking of good deeds such as charitable giving and volunteering when engaging with people who are different. There are strong echoes with the concept that trust requires investment in bridging social capital, as with Putnam. Of more profound significance for this paper is that it implies that joining voluntary organisations are a *means* to express trusts rather than a necessary determinant of it.

In the context of the current research, from an empirical perspective, this means that if one observes variances in the valuation of trust according to specific associational

experiences then this would be indicative of *experienced* trust and the neoclassical perspective. If, on the other hand trust measurements appeared to be independent of specific experiences then the opposite perspective would have support. Indeed a deeper sense of moral commitment to society represented as trust would be the source of activity in associations rather than the latter 'causing' the former. Drawing upon this literature, therefore, this paper seeks to analyse if statements about trust are generated by family networks and forms of more informal and non-contractual association, and their consequent formation of social capital, for a cross-section of countries according to the frequency of association. Crucially, by accounting for the potential endogeneity between trust and associational activity, because of deeper generalised sentiments, a test of the neoclassical perspective on the determinants of social capital can be offered using instrumental variables.

### **3. Data**

The data employed in this analysis draw on the International Social Survey Programme (ISSP), which is a collaborative survey programme that currently comprises 46 member countries. Data are collected on a variety of social, economic and environmental themes. Data from 2007 are employed because in this year sports and leisure activities were investigated through a Leisure Time and Sports module. As sports often comprise the greatest level of voluntary and associative behaviour, this provided the best opportunity to assess the widest possible range of associative activities (Downward *et al*, 2009). In the current research, therefore, a sample size of 30,922 is obtained from 30 of the 36 participant countries accounting for missing values and data availability.<sup>7</sup>

In this data, the variable describing generalized trust in society is employed as a dependent variable for social capital. The variable is measured on a 4-point scale (4=*people can always be trusted* to 1=*people cannot be trusted at all*).<sup>8</sup> It is assumed, that interpersonal differences in this variable might be explained due to differences in the engagement in relational activities, such as various groups and associations.

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<sup>7</sup> At the time of writing data from Denmark and the Netherlands was not available.

<sup>8</sup> The order of the dependent variable, and all other scaled independent variables, as reported are reversed relative to the actual raw data in order to make the interpretation of the regression results more intuitive, where a higher number indicates higher trust etc.

Consequently, a series of covariates measure participation in cultural, civic, church, sport and political groups and associations, to explore the affects of these activities on the creation of social capital. These variables are measured on a 5-point scale (*5=at least once a week, 4=at least once a month, 3 = several times a year, 2= once or twice a year, and 1= never*). Getting together with family and friends are also included as explanatory variables because of the obvious pleasure that might be enjoyed while undertaking these more informal relational activities, and as discussed above, it is identified that they are potentially an important feature of deeper trusting relationships. These are measured on a similar scale (*5=daily, 4=several times a week, 3=several times a month, 2=several times a year and, 1=never*).

To control for other variations in both life experiences as well as economic circumstances, socio-demographic characteristics of individuals are also included as explanatory variables. These include *age* in years, gender (*sex*: 1=male, 0 = female), household size (*hsize*), years of education (*eduyear*), marital status (*couple, divorced, separated, widowed*, reference category: *single*), income, as well as employment status (full time employment: *ftemp*, part time employment: *ptemp*, *retired*, housewife or man: *keephouse*, *unemployed*, reference category- other employment: *otheremp*).<sup>9</sup> Variable definitions and descriptive statistics are given in Table 1. The table also indicates the variables that were used as instruments and those that were instrumented for in the control for endogeneity.

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<sup>9</sup> The treatment of income in the current research required some manipulation because the data on income refer to either months or annual values. Further, different countries either collected income data gross of tax or net of tax. To cope with this complexity all country-specific incomes were transformed into net annual US dollar purchasing power equivalent income estimates. This involved three sets of calculations. The first entailed dividing all income estimates by the country-specific purchasing power parity exchange rate (PPP), which is given with local currency units per international dollar and obtained from the United Nations' webpage. In the second step, monthly income was multiplied by 12 to obtain annual income for all countries but Australia, Great Britain, Ireland, Japan, Norway, New Zealand, Slovakia and the United States of America in which annual income was already presented. Finally, for some countries the income estimates had to be transformed from gross into net values. Using data from national statistics offices' home pages, and identifying the gross domestic product (GDP) as gross income in an economy, a tax rate 't' was calculated as the ratio of a countries' annual income tax revenues to their GDP. Net incomes were generated by multiplying gross incomes from the actual data by a factor calculated as '1' minus the implied tax rate, 't'. This generated a net annual US dollar purchasing power equivalent income estimate.

**Table1: Variable Definition and Measurement**

Variable	Description	Mean
<i>Dependent</i> Trust	(4=people can almost always be trusted to 1=you almost always can't be too careful in dealing with people)	2.29933
<i>Independent</i> sex	Dummy (1=male, 0=female)	0.45175
age	Age in years	45.43762
hholdsize	Metric (size of household)	3.31790
Marital status:	<i>Reference category: single</i>	
Couple	Dummy (1=partnership, 0=else)	0.58140
Widow	Dummy (1=divorced, 0=else)	0.07131
Divorced	Dummy (1=separated, 0=else)	0.06720
Separated	Dummy (1=widowed, 0=else)	0.02836
Work status:	<i>Reference category: unemployed</i>	
FTemp	Dummy (1=full time employment, 0=else)	0.49311
PTemp	Dummy (1=part time employment, 0=else)	0.11623
Educ	Dummy (1=currently in education, 0=else)	0.02616
Retired	Dummy (1=retired, 0=else)	0.15526
Keepous	Dummy (1=housewife or man, 0=else)	0.09857
illnotwork	Dummy (1=unemployed, 0=else)	0.01326
Otheremp	Dummy (1=other employment, 0=else)	0.02286
Income	Metric (net income per person)	22,097.69
educyears	Metric (years of education)	11.99175
<i>Instrumented</i> friends	(5=daily to 1=Never)	3.16202
relatives	(5=Daily to 1=Never)	2.87071
Sportgroup	(5=At least once a week to 1=Never)	1.736628
culturalgroup	(5=At least once a week to 1=Never)	4.49208
churchgroup	(5=At least once a week to 1=Never)	1.87158
civicgroup	(5=At least once a week to 1=Never)	1.56552
politicalgroup	(5=At least once a week to 1=Never)	1.19785
<i>Instruments</i> More family	(5=Much more time to Much less time)	3.83125
Friend	(5=Great amount of enjoyment to 1=No enjoyment)	4.00977
sportevents	(5=daily to 1=Never)	1.74426
Cultevents	(5=daily to 1=Never)	1.77330
relig	(1 = Has a denomination, 0=no religion)	0.79490
Takecare	(4=Very much to 1=not at all)	3.31049
Politicalint	(4=Very interested to 1=not at all)	2.75742
Health	(5=Excellent to 1=poor)	3.30205
n = 30,922		

#### 4. Estimators

As currently measured the dependent variable in the analysis, trust, plus the key covariates measuring associative activities are measured on truncated scales with unequal intervals. Theoretically, one might argue, that an ordered or censored estimator be used to regress trust upon binary covariates measuring the different values of the ordered covariates. However, much of the subjective well-being literature, which also faces the same issue, has shown that the choice of estimator between linear and non-linear/discrete choice models is not of significance to the findings of the research (Ferrer-i-Carbonell and Frijters, 2004). Linear estimators were thus adopted. There are other advantages in using linear estimators too. The first is that the interpretation of the coefficients is much more straightforward. Further, any likely heteroscedasticity from 'lumpy' variation can be controlled for by correction of the standard errors. Finally, and more importantly, estimators to control for endogeneity are much more well developed; and it is this issue that is of most significance for the paper.<sup>10</sup>

In this regard, as well as running an OLS estimator on trust, controlling for cluster sampling across countries and robust standard errors to control for non-spherical disturbances, a two-step generalised method of moments estimator (GMM) is employed in which a series of variables are used as instruments which, whilst not modelled specifically themselves, help to identify the equation for trust. The instrumental variables are detailed in Table 1. In the presence of heteroscedasticity, which is likely given cross-sectional nature of the data and measurement of covariates then GMM estimator is more efficient than the simple instrumental variable (IV) or Two-stage least squares (2SLS) estimator, but no worse if there is no heteroscedasticity. Both produce consistent estimates. For an exactly-identified model, the GMM and IV/2SLS estimators coincide. With homoscedasticity the GMM and IV/2SLS estimators coincide (Hayashi, 2000; Baum, et al, 2003).

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<sup>10</sup> As a robustness check ordered probit estimates of the effects of the covariates on trust, clustering standard errors on countries produced very similar answers to the OLS estimates reported in the paper. They are available on request from the authors.



## 5. Results

Results from the OLS and the GMM estimates are given in Table 2. The first 2 columns present the coefficients and *t*-statistics for an OLS regression on trust, with robust standard errors, clustered on countries of observations. The second two columns present the GMM estimates, in which the instruments noted at the foot of that table were employed to control for endogeneity.

Of particular significance for the analysis are the results for the Kleibergen rk LM statistic, and the Hansen J statistic. These results show that the null hypotheses of underidentification of the model can be rejected at 10% and very nearly 5%, and the joint null hypothesis that the instruments are valid, i.e. uncorrelated with the error term, cannot be rejected. This suggests that the GMM model is appropriate for examining the endogeneity between associativity and trust.

This is important because examination of the OLS model suggests that participation in sports and civic organizations promote trust, whilst cultural and church organizations reduce it. These might be indicative of Putnam and Olsen's organizations, though understanding the signs of the variables suggest caution. One might make a case for sports and civic association promoting links across individuals. One might also argue that religious organizations divide individuals along sectarian lines. However, it seems difficult to explain why cultural group participation would divide individuals.

**Table 2 Regression Results**

Independent Variables	Linear regression		2-step GMM with country clusters	
	coeffs	t-stats	coeffs	t-stats
Relatives	0.0335	2.34**	2.1996	1.69*
Friends	0.0233	1.28	-0.1479	-0.47
Sportgroup	0.0310	4.17***	-0.4505	-1.68*
Culturalgroup	-0.0452	-5.01***	0.2430	0.52
Churchgroup	-0.0241	-3.26***	-0.4903	-1.69*
Civicgroup	0.0327	4.92***	0.2099	0.19
Politicalgroup	-0.0033	-0.32	0.3919	0.77
Sex	0.0029	0.19	0.2706	1.33
Age	0.0033	3.58***	0.0149	1.81*
Hholdsize	-0.0259	-4.08***	0.0484	1.18
Couple	-0.0051	-0.2	-0.3443	-1.43
Widow	-0.0848	-2.47**	-0.3865	-1.85*
Divorced	-0.0534	-1.53	-0.2738	-1.56
Separated	-0.0635	-1.36	-0.1864	-1.04
FTemp	0.0765	2.19**	-0.0565	-0.31
PTemp	0.1022	2.19**	-0.0156	-0.07
Educ	0.1850	2.21**	0.8937	2.07**
Educyears	0.0322	7.59***	0.0404	1.8*
Retired	0.0440	1.30	-0.4473	-1.38
Keephous	0.0193	0.38	0.0145	0.07
Illnetwork	0.0408	0.55	-0.1283	-0.39
Otheremp	0.0631	1.14	-0.0289	-0.11
Income	0.0000	4.02***	0.0000	2.38**
Constant	1.7057	15.03***	-5.0231	-1.36
Kleibergen rk LM statistic			5.7320 (p=0.0569)	
Hansen J statistic			1.2800 (p=0.2578)	
R <sup>2</sup>	0.0785			
Centred R <sup>2</sup>			-7.1306	
Uncentred R <sup>2</sup>			0.0687	
Root MSE	0.7942		2.3580	
Observations	30922		30922	
** p < 0.05				
*p<0.10				
Instruments		Morefamily, friend, sportevents, cultevents, relig, takecare, politicalint, health		

However, the relevance of the GMM estimation casts doubt on these results. Importantly it suggests that sports and religious organization only (weakly) affect trust and negatively. Such results are consistent with Anderson *et al* (2010) who find little general support for the view that religious people exhibit greater ‘other regarding’ sentiment. Intuitively too, sport is an activity that can be inherently competitive, and

appeals to close knit communities often identifying strongly with specific sports. As Downward *et al* (2009) argues, it is often in specialised sports that formal club-based associations develop. The general point remains, however, that there is no strong support for the impact of such activities on trust and hence social capital. In contrast, the evidence identifies feedback between trust and such behaviour, which suggests that it is prior predispositions that affect the decision to engage in such activities. In this regard the evidence is that trust is not essentially an experienced property of such activities, but rather is more of a reflection of deeper moralistic sources, that is, 'experiences, but those early in life rather than as an adult, and trusting values formed early in life persist through adulthood' (Uslaner, 2008b, p291).

Consideration of the other covariates supports this case in which more robust results are identified across the specifications, that is where the endogeneity does not distort the results. For example, association with relatives, i.e. family, increasing age, being in education, or the years of education, and increasing income all affect trust positively. Trust or social capital is thus linked to family and education, and it persists through life supported by income. There is naturally no relationship with gender but, significantly it falls with widowhood, but not divorce or separation. This suggests that uncontrolled impacts on sentiments formed from long family relationships, rather than choices, are of most relevance in affecting trust. In contrast, it seems difficult to explain why household size reduces trust, and employment increases it from the OLS regressions. Intuitively, the former contrasts with both experienced and moralistic explanations, whilst work status *per se* would seem to have an instrumental emphasis. If a deeper sense of associativity is identified in the GMM estimates, then the lack of significance of these variables would support this interpretation.

## **6. Conclusions**

This paper has examined the impact that associational behaviour has on trust for a sample of 30 countries. Voluntary associational behaviour has been viewed as underpinning the development of social capital. The paper examines both informal activities such as meeting with family and friends, as well as more formal association connected with participation in cultural, political, civic, sport and religious groups. From a broadly neoclassical perspective, a positive influence of engagement with voluntary

associations on trust could be interpreted as deriving from experiences and support the idea that such institutional arrangements raise social capital as experienced trust. However, an alternative approach argues that trust is more 'moralistic' and formed in deeper and more long term socio-economic experiences. Significantly, this perspective suggests that trust might underpin associational behaviour, rather than be derived from it. Using a GMM estimator to control for the potential simultaneity between trust and associational behaviour this paper finds broad support for this case. This has implications for policy pronouncements that seek to draw on the promotion of social capital through voluntary behaviour. It suggests that such behaviour would need to be encouraged and developed through earlier experiences that are mediated through family and education networks and prevailing values and norms. Further it can be shown that to the extent that formal association can affect trust through experience, there is the distinct possibility that through the development of bonding relationships trust actually falls. In a sense these results are intuitive. Voluntarism by its nature has to be a free choice and inevitably carries with it an inherent tension once organisational and formal relationships tend to develop. Boundaries get drawn and constraints through regulation start to bite. This might be more pronounced in activities such as religion and sport in which sectarian membership and inherent competitiveness and sport-specific identity can prevail. It follows that policy recommendations need to be more nuanced than is often the case, particularly as much of the evidence does not address the issue of causality.

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