

ECONOMICS

Sociology

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Received: April, 2016
1st Revision: July, 2016
Accepted: October, 2016

DOI: 10.14254/2071-789X.2016/9-4/19

JEL Classification: C70, C72

Keywords: experimental game theory, generalized trust, social capital, Poland, middle-income trap.

THE ASSOCIATION BETWEEN SOCIAL CAPITAL AND MEMBERSHIP OF ORGANISATIONS AMONGST POLISH STUDENTS

ABSTRACT. Social capital plays a key role in the capacity of a society to cooperate, innovate and grow economically. Although the level of social capital in Poland is low, over the past 25 years Poland has achieved impressive economic growth. However, unless its economy becomes more innovative, Poland may be caught in the middle-income trap. This article analyses the relationship of organisation membership to social capital among Polish students based on a questionnaire and three experimental games: “Ultimatum”, “Trust” and “Public Goods”. The results give some hope that Poland will be able to escape the middle-income trap, but a higher priority should be placed on promoting innovation. One approach to this would be a greater emphasis on cooperation and group work at all levels of education.

Introduction

Over the last 25 years, Poland has achieved the greatest economic growth among the post-communist countries of Central and Eastern Europe. It has been argued (Gomułka, 2014) that Poland’s economic growth has resulted from investment in foreign technology and human capital and unless Poland becomes more innovative, it will fall into the middle-income trap. In order to become more innovative, Poland needs to both invest in research and develop an atmosphere promoting innovation, i.e. in the language of economics and sociology raise the level of social capital. However, studies indicate that the level of social capital in Poland is very low, e.g. Poles express a very low level of trust in the political system and media, as well as not being socially active (Herrmann, 2014).

This project¹ is aimed at describing social capital among Polish students, which will give an indication of the challenges and opportunities facing the Polish economy in the short- and medium-term. It may be problematic that these students are not representative of the Polish population as a whole. However, today’s students are likely to be the motors of Poland’s economic growth in the relatively near future. This article aims to analyse the relationship of organisation membership to social capital amongst Polish students based on a

¹ This work is funded by the National Science Centre of Poland on the basis of decision no. DEC-2012/07/B/H55/03954.

questionnaire, which looked at various components of social capital, and three experimental games: “Ultimatum” (Güth *et al.*, 1982), “Trust” (Berg *et al.*, 1995) and “Public Goods” (Isaac and Walker, 1988). These games were designed to illustrate norms of cooperation and trust, as well as reciprocity, both negative (“an eye for an eye and a tooth for a tooth”) and positive (“you scratch my back and I’ll scratch yours”). Based on the results of the questionnaire and the games, we highlight aspects of social capital which are common to various types of organisation and describe how the type of an organisation modulates the relationship between social capital and membership.

In terms of previous research in this field, Migheli (2012) carried out a similar study on the relationship between social capital and behaviour in the Trust Game using students from Italy, Belgium and Norway. Although a large number of experimental studies using these games have been used in many countries, he stated that as far as he knew it was the first such large scale study. We use the same version of the Trust Game as Migheli (2012). Cardenas *et al.* (2009) carried out such a large scale study in Latin America. However, they used a different version of the trust game and hence our results are not directly comparable.

A review of the literature on social capital and organisation membership is given in Section 1. Section 2 outlines the study procedure and questionnaire. The statistical analysis used is described in Section 3. Section 4 presents the games. Section 5 describes the relationship of organisation membership to social capital based on the answers to the questionnaire. The relationship of organisation membership to social capital on the basis on the decisions made in the games is presented in Section 6. The final section gives some conclusions, comparisons to the results of Migheli (2012) and directions for future research.

1. Background and Literature Review

Social capital can be interpreted in its wide sense as the informal and formal structures, e.g. laws, public and voluntary institutions, personal and professional relationships, which together determine the behavioural norms of a society (Platje, 2004). Hence, social capital is a multi-dimensional concept. Generalized trust is seen to be a key component of social capital, promoting co-operation in the workplace and via that innovation (Fukayama, 1995). An atmosphere of trust allows people to strive to achieve goals, rather than to ensure security. Over the past 20 years, Poland has exhibited consistent economic growth. On the other hand, the expressed level of generalized trust in Poland is very low. Klimczuk (2009) argues that Poland's recent experience of war, authoritarian regimes and the hierarchical structure of its society have led to mistrust and unwillingness to innovate.

Czapiński (2008) and Gomulka (2014) argue that Poland's economic growth has come from adopting foreign technology and investing in human capital. However, Poland's lack of both innovation and social capital means that there is a real threat of it falling into the middle-income trap. Many Latin American and some Asian countries, after rapid growth based on low wages and adopting foreign technology, have fallen into stagnation, as wages are not low enough to compete with less developed countries and the level of innovation is too low to compete with highly-developed countries (Kharas and Kohli, 2011). Some Asian countries avoided this trap by investing in research and development. Breaking up the Chaebol oligarchy at the end of the last century was also key to promoting growth in South Korea.

One reason for the recent change of government in Poland was the view that Poland's transformation benefited the former communist oligarchy and their descendants more than the general population. This has led to Polish society and, in particular, the media being very polarized (Ziółkowski, 2014). According to a survey by the CBOS (The Public Opinion Research Center) in 2013 (Herrmann, 2014), a clear majority of young Polish adults had a negative view of the direction in which Poland was heading, distrust of politicians and society

in general, and were dissatisfied with Polish democracy.

Brzezińska and Czub (2013) note that Polish schoolchildren have very low levels of social capital (in terms of e.g. stating that they had at least 3 friends and feeling that their class mates were generally friendly and helpful). Based on a comparison with the Finnish education system, they argue that the Polish system places too much stress on the transfer of knowledge and should concentrate more on developing the ability to interact and cooperate. Geryk (2012) states that universities should take an important role in developing the social capital of Polish students. Voluntary and student organisations have a part to play in this process.

Putnam *et al.* (1994) see organisation membership as a key component of social capital in developing generalized trust. Roszkowska (2014) notes that 32% of those surveyed were organisation members, which is low compared to the USA and Western Europe (Foreman and Retallick, 2013; d'Hombres *et al.*, 2010). Growiec (2011) considers social capital in the form of social relationships. Such capital can be split into two forms: bonding capital, based particularly on family ties, and bridging capital, based on more informal friendships. Bonding capital provides security, but can be a barrier to innovation. Bridging capital can be used e.g. as a basis for professional cooperation and thus promote innovation. Paxton (2007) studies the relationship of various types of organisation to generalized trust. She describes organisations as either isolated (members of such groups do not tend to belong to other groups) or connected (members of such groups tend to belong to other groups). Religious and sports societies and trade unions tend to be isolated, often leading to a distinction between “us” and “them”, which has a negative effect on the level of generalized trust. Human rights and social action groups tend to be more connected. Paxton notes that membership of isolated organisations shares many common features with bonding capital and membership of connected organisations shares many common features with bridging capital.

Holzweiss *et al.* (2007) note that students join non-academic societies for social reasons and out of personal interest, while student/academic organisations are seen to be helpful in ones studies and developing a career. One question is to what degree do students join societies since they have a high level of social capital and to what degree does membership develop their social capital? Based on a longitudinal analysis, Foubert and Urbanski (2006) found that leadership in organisations is associated with the development of the abilities to plan and to work in a team, although this is probably a form of feedback rather than a cause-effect relationship. Claibourn and Martin (2000) find that organisation membership influences an individual's level of generalized trust rather than vice versa. Brehm and Rahn (1997) find that an individual's level of generalized trust leads to an individual being more likely to join an organisation, although being an organisation member has a greater effect on generalized trust. This article looks at the association of organisation membership with other components of social capital and behaviour, as observed in three experimental games. From the above arguments, these associations should not be interpreted as a description how organisation membership affects other components of social capital, since feedback occurs between all these components. However, when seen in this light, these associations do indicate what the benefits of organisation membership to society might be.

2. How the Study was Conducted

The study took place at state universities in a capital of each of the 16 Polish regions between 16/4/2014 and 12/6/2014 by a team from “EU-CONSULT” Ltd., observed by Dr. Urszula Markowska-Przybyła and Ewa Starczewska from the Faculty of Economics, Management and Tourism of Wrocław University of Economics, based in Jelenia Góra, where both authors supervised a pilot study with 32 participants on 11/3/2014. In total, 1540 students took part, with between 88 and 100 students at each site, split into at most four

consecutive sessions, each lasting about an hour. Each participant obtained a payoff according to the results of the games (mean 45PLN, approx. €11). All the decisions and questionnaires were written on forms coded to identify players and their “opponents”. Participants in a session were split into two groups at random (with no knowledge of which group other students were in). They first took their decision in the Public Goods Game and the decision of Player 1 in the game appropriate to their group (the Ultimatum Game or the Trust Game). Each participant then obtained instructions for the game they had not yet played, as well as the decision of their randomly chosen “opponent”. This procedure was designed so that students treated the games independently (when making a decision, they had no information on the results of other games). Before each decision, students were given time to read the instructions and ask questions. The students then completed the questionnaire (required to obtain their payoff), while the payoffs were calculated, which lasted about 20 minutes.

The questionnaire covered the following topics (see Markowska-Przybyła and Ramsey, 2015a for a full description of the questionnaire):

- a) The region a student comes from, year of study and the size of his/her home town. When students had moved to another region to study, they were asked whether they felt more attached to their home region, the region in which they studied or neither. Lewicka (2013) notes that how people bond to the place in which they live is related to their character. The size of a student’s home town was categorised (by the student) using a four point scale (1: up to 5 thousand inhabitants, 2: from 5 to 20 thousand inhabitants, 3: from 20 to 100 thousand inhabitants, 4: above 100 thousand inhabitants). The population of the city they studied in was taken from the Central Statistical Office (Główny Urząd Statystyczny, 2015). When appropriate, the year of study was obtained by adding three when the student stated that they were studying for a master's degree and adding five when the student stated that they were doing a doctorate.
- b) Generalised trust, organisation membership and frequency of social contacts with the three following groups: relatives, close friends and acquaintances. Social contact is measured on a seven-point scale, 1: never, 2: less than once a month, 3: once a month, 4: two/three times a month, 5: once a week, 6: several times a week, 7: daily. The expressed level of generalized trust is the answer to the question: “Can the majority of people be trusted?” The possible answers form a five-point scale, 1: no, 2: rather not, 3: I do not know, 4: rather, 5: yes. Membership was assessed based on the following questions with binary (yes/no) answers: “Have you worked as a volunteer in the last year?” and “Are you an active member of an organisation?” Students were also asked whether they were members of the following types of organisations: charity, sport/recreational, artistic/musical, political, religious, local interest or “another type” (yes/no). In the case that a student belonged to “another type” of organisation, they were asked to state specifically what type of organisation. Based on these answers, the class of “student/academic” organisations was added.
- c) Interest in current affairs at the following levels: national, regional and local (measured on a scale from one, not at all interested, to five, very interested).
- d) General values (relative importance of ethical and legal norms, reciprocation, aversion to inequality). The relative importance of ethical and legal norms was assessed by the question “In situations of conflict between legal and moral norms, which are the most important to you?” on a three point scale, 1: legal norms, 2: ethical norms, when the punishment for breaking legal norms is not too harsh, 3: ethical norms. Readiness to exhibit negative reciprocation in public matters was assessed by the question “How often do you react when you see someone

damaging public property? (e.g. call the police)” on a four-point scale, 1: never, 2: very rarely, 3: sometimes, 4: usually. Readiness to exhibit negative reciprocation in personal matters was assessed by the question “If somebody acts unfairly to you, how do you react?” on a four-point scale, 1: I do not react, 2: I react if it does not cost me anything, 3: I react only if there is a small cost, 4: I react, even if it involves changing plans and significant costs. A student's aversion to inequality was assessed by the question “What do you think about wage differences in society?” on a three-point scale, 1: inequality results from the free market and is thus just, 2: inequality is inevitable and, to some degree, good, but should be controlled by the government, 3: the government should minimize inequality.

- e) The type of strategy seen to be most likely to bring success and students' willingness to follow such a strategy. The first question was “Which of the following types of strategy gives the greatest probability of success?”. There were four possible answers given by the possible combinations of the legal dimension: a) acting in line with the law, b) acting on the borderline of the law, and the social dimension: a) individual effort, b) cooperation with others. The willingness to follow such a strategy was assessed by the question “Do you intend to follow the type of strategy given above?” on a five-point scale: 1 – no, 2 – rather not, 3 – I do not know, 4 – rather, 5 – yes. These answers result from the interaction between a student's view of the world, particularly the behaviour of others, their own personal views and the level of conflict between these viewpoints (Markowska-Przybyła and Ramsey, 2015b).

3. Statistical Analysis

Due to the large sample size, in order to analyse any associations between the decisions of the players in the experimental games (quantitative variables) and membership in a given type of organisation (a binary variable), we used the Student t-test without assuming equality of variance. When a nominal variable (i.e. one that is not ordered according to some scale) took more than two values, since the variance may not be uniform, we applied the corresponding non-parametric analysis of variance (ANOVA) test (the Kruskal-Wallis test). To analyse the associations between the decisions of the players and an ordinal variable (i.e. a categorical variable ordered with respect to a scale), we used Spearman's test of correlation.

In order to analyse the association between organisation membership and a binary or nominal variable from the questionnaire, we used Fisher's exact test for independence, or the chi-squared test when the number of categories was too large for the calculations. To analyse the association between organisation membership and ordinal variables, we used the Mann-Whitney test. For more information on the tests used, see Field (2013).

Since many tests are carried out, we would expect a number of associations to be significant at the 5% level, even if no real association existed. Hence, we consider the following three cases: a) associations significant at the 5% level ($p < 0.05$), this is very weak evidence and should be corroborated by other research, b) associations significant at the 1% level ($p < 0.01$), this is reasonably strong evidence that an association exists, c) associations significant at the 0.1% level ($p < 0.001$), this is strong evidence that an association exists. Calculations were carried out in the SPSS package. For greater accuracy in calculating p-values below 0.01, the R package was used. The ordering of the significance of results was based on these p-values (the lower the p-value, the more significant the result). We give the appropriate significance levels and, when appropriate, Spearman's correlation coefficient, r .

4. The Experimental Games Played and their Relation to Social Capital

The study used three games: “Ultimatum” (Güth *et al.*, 1982), “Trust” (Berg *et al.*, 1995) and “Public Goods” (Isaac and Walker, 1988), which are analysed in Markowska-Przybyła and Ramsey (2014). In the first two games described below, for convenience the initiator is referred to as “she” and the respondent as “he”.

a. The Ultimatum Game

First, Player 1 (the initiator) suggests how 20PLN (about €5) should be split between two players. The amount she offers to Player 2 (the respondent) is denoted by x . This proposal must be a multiple of 1PLN. The respondent then decides whether to accept this proposal. If he accepts it, then the payoff vector is $(20-x, x)$. If he rejects it, then the payoff vector is $(0, 0)$.

This game illustrates norms of equality and negative reciprocation. Under the assumption of economic rationality, i.e. that players maximize their expected payoff, the respondent should accept any positive amount. The initiator should thus not offer more than 1PLN. However, Falk and Fischbacher (2006) observed that most offers were between 40% and 50% of the available sum. Offers below 20% were often rejected. If respondents thought that offers were generated by a computer, then they behaved according to economic rationality. Hence, a respondent may display negative reciprocation when the offer is small, i.e. punish somebody who has acted unfairly. Henrich (2000) notes that an initiator may instinctively suggest an equal split, since she feels this is fair, or after some time, since she realises that reciprocation is possible. This is confirmed by Markowska-Przybyła and Ramsey (2015b), who note that initiators stating that the strategy most likely to bring success involves cooperation and/or observing the law offer on average more than players stating that the strategy most likely to bring success involves both being individualistic and acting on the borders of the law. Hence, we assume that an even split is seen as fair and initiators offering a fair split either act by personal choice, i.e. an internalized norm (Gintis, 2003), or conform to a socially recognized norm.

There is a negative correlation between the size of the city in which a student studies and the amount offered to the respondent (Spearman’s correlation coefficient, $r = -0.116$, $p < 0.01$). Of the three games considered, the Ultimatum Game seems the most likely to be interpreted as a competition. This is due to the fact that the pool of money is fixed. In general, as one player gains, the other loses. We expect that competitive individuals will offer less as the initiator in this game. For example, those studying in Warsaw on average offered the least to the respondent (8PLN). Students who are ambitious or competitive are likely to be attracted to Warsaw, due to the reputation of the university and the possibilities of making a career afterwards. The largest offers on average were observed in cities which may be described as either provincial or unattractive (Zielona Góra, Katowice and Opole, 10,38PLN, 9,58PLN and 9,38PLN, respectively), i.e. it is expected that the students at these universities will be less competitive. There is a positive correlation between the amount offered to the respondent and the initiator’s expressed level of aversion to inequality (Spearman’s correlation coefficient, $r = 0.088$, $p < 0.05$).

b. The Trust Game

Player 1 (the initiator) is given 10PLN and can transfer an integer number x of PLN to Player 2 (the respondent), which is multiplied by a factor of 3. The respondent then returns y to the initiator. The payoffs resulting from the decisions x and y are

$$v_1(x, y) = 10 - x + y; \quad v_2(x, y) = 3x - y, \quad (1)$$

where $x \in \{0, 1, 2, \dots, 10\}$, $y \in \{0, 1, 2, \dots, 3x\}$.

The Trust Game illustrates trust and norms of positive reciprocation, i.e. responding positively when someone acts generously. Under the assumptions of economic rationality, the respondent should not return any money, as this reduces his payoff. Thus the initiator should not transfer any money. However, the egalitarian solution maximizing the players' payoffs involves the initiator transferring all her money and the respondent returning half of the sum received. In this case, both players obtain 15PLN, i.e. they both profit when the initiator exhibits trust and the respondent reciprocates. This is the formulation used by Migheli (2012) in his study on the social capital of students from Italy, Belgium and Norway. The behaviour observed in his study was very similar to the behaviour in our study. Cardenas *et al.* (2009) carried out a similar study in Latin America. However, the initiator only had two choices, transfer nothing or transfer everything, thus the results are not directly comparable to ours.

Putnam *et al.* (1994) understand an individual's level of generalized trust as the degree to which he/she expects positive reciprocation from unknown people. Thus trust is intrinsically linked to risk, as by exhibiting trust one is exposed to the risk of another person not reciprocating. Dunning *et al.* (2012) note that even when this game is described in neutral terms, participants recognize trust and risk as key factors. Migheli (2012) notes that norms of equality also play a role and categorized initiators into four groups: 1) initiators not transferring any money, i.e. the economically rational action, indicating that they neither trust that the respondent will reciprocate, nor have they internalized the norm of equality [the respondent cannot react when no money is transferred], 2) initiators transfer either 2 or 3PLN, ensuring that the players have similar amounts of money after the initial transfer. This indicates that the initiator does not trust, but is averse to inequality, 3) initiators who transfer around 5PLN, i.e. show some trust, 4) initiators who transfer all 10PLN, this indicates a high level of trust.

Markowska-Przybyła and Ramsey (2016) note that males more often either i) transfer all 10PLN (agreeing with males being less averse to risk, e.g. Borghans *et al.*, 2009) or ii) transfer nothing (agreeing with males being more individualistic, Markowska-Przybyła and Ramsey, 2015a). Since the proportion returned by the respondent is increasing in the value of the transfer, we looked for associations with the difference between the actual percentage returned and the percentage predicted by the following regression model (Markowska-Przybyła and Ramsey, 2016):

$$Y = 24.113 + 1.729X, \quad (2)$$

where Y is the percentage returned and X the initial transfer, where $X > 0$. Some studies find that expressions of generalized trust are signals of someone being trustworthy rather than trusting (e.g. Glaeser *et al.*, 2000). Our study found that Polish students' expressions of trust are positively correlated to the amount transferred, but not to the percentage returned, i.e. these expressions measure trust and not trustworthiness (Spearman's correlation coefficient, $r = 0.126$, $p < 0.001$ and $r = 0.041$, $p = 0.285$, respectively). Analysis suggests that respondents often use one of four norms (in order of increasing level of reciprocation for medium to large transfers): 1) never return anything, the economically rational rule, 2) return a third of the money obtained, ensuring that the initiator does not lose by transferring, 3) equalization, if after the initial transfer the respondent has more money than the initiator, then he equalizes the payoffs, otherwise nothing is returned, 4) return 50%, ensuring that both players gain from the transfer. In certain situations, two norms can correspond to the same behaviour.

Of those who moved to a different region to study, those who feel more attached to their home region transferred more than those who did not feel more attached to either their

home region or the region in which they study (Kruskal-Wallis test, $p < 0.05$). Based on the analysis of Lewicka (2013), individuals not feeling more attached to either region are classified as placeless or alienated. These two groups have average and low levels of social capital, respectively. The percentage returned is positively correlated to expressed aversion to inequality and level of contact with acquaintances (Spearman's correlation coefficient, $r = 0.118$, $p < 0.01$ and $r = 0.087$, $p < 0.05$, respectively). Those intending to follow the strategy assumed most likely to bring success return a larger percentage (Spearman's correlation coefficient $r = 0.112$, $p < 0.01$). Such students are least likely to feel cognitive dissonance between their own (internalized) norms and how they see others achieving success.

c. The Public Goods Game

Each player receives 20PLN and individually decides how much to pay into a pool. The money in the pool is multiplied by 1.6 and then split evenly among the players. At the Nash equilibrium, nothing is paid into the pool and each receives a payoff of 20PLN. However, the sum of money obtained is maximized when each pays 20PLN into the pool, so each individual obtains 32PLN. The more paid into the pool, the greater the mean payoff, but the player paying the least into the pool obtains the biggest payoff. As players cannot respond to others' actions, this game reflects players' willingness to cooperate without any external compulsion. This interpretation agrees with the results of Markowska-Przybyła and Ramsey (2015b). Firstly, students stating that the type of strategy most likely to bring success involves cooperation pay more into the pool than those stating that such a strategy involves individual effort. Secondly, there is no significant difference between the amounts paid into the pool by students stating that the type of strategy most likely to bring success involves observing the law and by those stating that such a strategy involves acting on the border of legality.

There is a significant, but weak, association between expressed generalized trust and the amount paid into the pool (Spearman's correlation coefficient $r = 0.063$, $p < 0.05$). Gächter *et al.* (2004) observed a similar association based on a study in Russia with subjects from the general population. This suggests that individuals who express a high degree of trust will show a greater propensity to act to the benefit of the group or society as a whole, rather than seeking purely personal gain. As Platje (2004) argues, when the level of trust and cooperation is high in society as a whole, cooperation can be achieved while incurring lower control costs. In economic terms, such societies are very efficient. The relationship between generalized trust and organisation membership will be considered in the following section.

5. The Relation of Organisation Membership to Expressed Social Capital

This section describes the relationship of membership to social capital based on the questionnaire. *Table 1* presents the number of members of various types of organisations.

Table 1. Number of students taking part in various types of organisation

Any organisation	Charity	Sport/ Recreation	Artistic/ Musical	Political	Religious	Local Interest	Student/ Academic
555 (36.0%)	211 (13.7%)	129 (8.4%)	113 (7.3%)	45 (2.9%)	66 (4.3%)	79 (5.1%)	83 (5.4%)

Source: Authors' survey.

Table 2. Association between voluntary work and membership in an organisation (the figures in brackets give expected numbers under the hypothesis of no association)

	Member	Not a member
Volunteer	409 (247.5)	276 (437.5)
Did not volunteer	142 (303.5)	698 (536.5)

Source: Authors' survey.

Nearly 45% of students stated that they had done voluntary work in the previous year (685 of 1540). There is a clear association between organisation membership and voluntary work (Fisher's exact test, $p < 0.001$, see *Table 2* based on the 1525 individuals who answered both questions). Compared to the USA and Western Europe, the percentage of students active in an organisation is low (Foreman and Retallick, 2013; d'Hombres *et al.*, 2010). From Roszkowska (2014), some of the reasons Polish youths are not members of organisations are as follows: the Facebook culture, laziness, a lack of organisations, youths do not want to take responsibility, wish to do their own thing and organisations are seen as being irrelevant. Some of this is a legacy of the communist era when organisation membership was often obligatory and tended to be superficial, rather than active. Levels of membership fell rapidly at the beginning of the transformation and have not grown significantly since (Pacut, 2007). Also, Lenart (2014) notes that the proportion of Polish students working in some form of paid employment (around 40%) is one of the highest in Europe. Some students work in the field of their studies, in order to gain experience. However, many finance their studies by working in service jobs, which is likely to be a barrier to building an individual's social capital.

Table 3. General traits of members of organisations (in decreasing order of significance)

Variable	Association	p-value	Test
Trust	Members express a higher level of generalized trust	$p < 0.001$	MW
Public	Members express stronger reaction to the damage of public property	$p < 0.001$	MW
Local	Members express a greater interest in local matters	$p < 0.001$	MW
Regional	Members express a greater interest in regional matters	$p < 0.001$	MW
City Population	Those studying in large cities are more often members	$p < 0.01$	MW
Gender	Males are more often members	$p < 0.01$	Fisher's
Private	Members are less likely to react to personal injury	$p < 0.01$	MW
Intention	Members state a higher readiness to follow the strategy seen to be the most likely to bring success	$p < 0.05$	MW
National	Members express a greater interest in national matters	$p < 0.05$	MW
Cooperative	Members more likely to state that the strategy most likely to bring success involves cooperation	$p < 0.05$	Fisher's
Inequality	Members are more accepting of inequality	$p < 0.05$	MW

Fisher's – Fisher's exact test, MW – Mann-Whitney test.

Source: Authors' own research.

Table 3 indicates a positive relationship between organisation membership and various aspects of social capital. In agreement with Putnam *et al.* (1994), there is a clear positive association between organisation membership and generalized trust. Due to the strong association between volunteering and organisation membership, the relationship between social capital and volunteering shows a very similar pattern and is thus omitted. Organisation

members express higher readiness to react when public property is being damaged, but lower readiness to react to personal injury, indicating that they place a relatively high importance on group success compared to individual success. They are also generally interested in current affairs at all levels, particularly local and regional, but also at national level.

Members of organisations are more likely to believe that the strategy most likely to bring success involves cooperation and express a higher level of intention to follow such a strategy. This indicates that they feel both a willingness to cooperate and a lower level of cognitive dissonance between their personal worldview and their view of how success is achieved (Markowska-Przybyła and Ramsey, 2015b).

Organisation membership is positively associated with the size of the city in which a student studies. Universities in the largest cities are most attractive to ambitious students from other regions (Markowska-Przybyła and Ramsey, 2015a). Hence, there are probably several reasons for such an association: more organisations are available in large cities, building social capital in a new environment (Growiec, 2011), membership in student organisations is a means to develop ones career (Milner *et al.*, 2016).

Organisation members are more often male and accepting of inequality, but as we describe below the association of gender and aversion to inequality with membership varies according to the type of organisation.

Some aspects of social capital show the same relationship to organisation membership regardless of the type of organisation, e.g. organisation members generally express greater trust than non-members. However, some differences can be seen according to the type of organisation. This is illustrated in *Table 4*. Based on Paxton's (2007) classification, charities and local interest organisations are the most connected. Religious, sports/recreational and political societies are the most isolated, while student/academic societies are intermediate. Both political and sports/recreational societies are male dominated and members do not show a lower readiness to react to personal injury, probably due to the competitiveness of sport and politics. Members of sports/recreational organisations, however, express a very high readiness to react when public property is being damaged, which is probably linked to the team spirit often present in sport (Artinger, 2006). Members of political societies are particularly interested in national and regional matters and are generally less averse to inequality. They more often state that the strategy most likely to bring success involves acting on the border of the law. This may be related to the "soft" transformation which started in 1989 and enabled the communist oligarchy to retain economic power and influence (Ziółkowski, 2014). Religious organisations exhibit exclusivity in a different form. More importance is placed on internal/spiritual experiences. They express very low readiness to react to personal injury and have contact with close friends relatively seldom. They express a strong intention to follow the strategy felt to be the most likely to bring success, which indicates a clear worldview. Members of religious societies also express a very high level of generalized trust.

Membership of student/academic groups is often associated with being career-orientated (Milner *et al.*, 2016). This is compatible with the facts that membership of such groups is highest in large cities, members express a lower readiness to react when public property is being damaged and are less interested in regional and local matters.

Members of charities are often female and more averse to inequality than members of other, although they are not more averse to inequality than students who do not belong to any society. The facts that members of charities tend to come from small towns, study in smaller cities and state that the strategy most likely to bring success involves acting in accordance to the law seem to indicate that such students are not highly career-orientated.

Members of artistic/musical societies tend to study in large cities. As they tend to be in the earlier stages of their studies, one may infer that, rather than membership being used as a road to a career, cultural life is richer in these cities. Members of such societies have a

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particularly low level of aversion to inequality and show less interest in national matters than members of other groups, but a similar level to those who do not belong to any organisation.

Members of local interest groups show a particularly high level of interest in regional and local matters and express a very high readiness to react when public property is being damaged (presumably since they care about the local environment). Members of such groups are also more likely to say that the strategy most likely to bring success involves cooperation.

Table 4. How the type of organisation modulates social capital (in decreasing order of significance)

Type of Organisation/ Variable	Comparison with members of other groups	Comparison to non-members	p-values	Test
Charities				
Gender	Females more likely to be members of charities	Females more likely to be members*	p<0.001 p<0.001	Fisher's
Inequality	Members of charities more averse to inequality	No significant difference	p<0.001 p>0.05	MW
Population of home town	Those from small towns more likely to be members of charities	No significant difference	p<0.01 p>0.05	MW
City Population	Students in smaller cities more likely to be members of charities	No significant difference	p<0.05 p>0.05	MW
Legal	Members of charities stated that the strategy most likely to bring success involves acting in line with the law	No significant difference	p<0.05 p>0.05	Fisher's
Artistic/ Musical				
Inequality	Members of artistic/musical organisations are more accepting of inequality	Members are more accepting of inequality	p<0.05 p<0.01	MW
City population	Students in large cities are more likely to members of artistic/musical organisations	Students in large cities are more likely to members	p<0.05 p<0.01	MW
National	Members of artistic/musical organisations are less interested in national matters	No significant difference	p<0.05 p>0.05	MW
Year of study	Younger students are more likely to be members of artistic/musical organisations	No significant difference	p<0.05 p>0.05	MW
Religious				
Personal	Members of religious organisations react less strongly to personal injury	Members react less strongly to personal injury	p<0.01 p<0.001	MW
Intention	Members of religious organisations express greater readiness to follow the strategy most likely to bring success	Members express greater readiness to follow the strategy most likely to bring success	p<0.05 p<0.01	MW
Trust	Members of religious organisations express a higher level of generalized trust	Members express a higher level of generalized trust	p<0.05 p<0.001	MW
Friends	Members of religious organisations meet close friends less regularly	Members meet close friends less regularly	p<0.05 p<0.01	MW

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Table 4. ctd.

City Population	Students in large cities are more likely to belong to religious organisations	Students in large cities are more likely to be members	p<0.05 p<0.01	MW
Sports/ Recreational				
Gender	Males more likely to be members of sport/recreational organisations	Males more likely to be members	p<0.001 p<0.001	Fisher's
Personal	Members of sports/recreational organisations more likely to react to personal injury	No significant difference	p<0.001 p>0.05	MW
Public	Members of sports/recreational organisations more likely to react when public property is damaged	Members more likely to react when public property is damaged	p<0.001 p<0.001	MW
Political				
National	Members of political organisations more interested in national matters	Members more interested in national matters	p<0.001 p<0.001	MW
Gender	Males more likely to be members of political organisations	Males more likely to be members	p<0.001 p<0.001	Fisher's
Inequality	Members of political organisations more accepting of inequality	Members more accepting of inequality	p<0.001 p<0.001	MW
Regional	Members of political organisations more interested in regional matters	Members more interested in regional matters	p<0.001 p<0.001	MW
Legal	Members of political organisations more likely to state that the strategy most likely to bring success involves acting on the boundaries of the law	Members more likely to state that the strategy most likely to bring success involves acting on the boundaries of the law	p<0.05 p<0.05	Fisher's
Personal	Members of political organisations react more strongly to personal injury	No significant difference	p<0.05 p>0.05	MW
Local interest				
Regional	Members of local interest groups are more interested in regional matters	Members are more interested in regional matters	p<0.001 p<0.001	MW
Public	Members of local interest groups more likely to react when public property is damaged	Members more likely to react when public property is damaged	p<0.001 p<0.001	MW
Local	Members of local interest groups are more interested in local matters	Members are more interested in local matters	p<0.001 p<0.001	MW
Cooperative	Members of local interest groups more often state that the strategy most likely to bring success involves cooperation	Members more often state that the strategy most likely to bring success involves cooperation	p<0.05 p<0.01	Fisher's
Student/ Academic				
City population	Students in larger cities more likely to be members of student organisations	Students in larger cities more likely to be members	p<0.001 p<0.001	MW

Table 4. ctd.

Regional	Members of student organisations less interested in regional matters	No significant difference	p<0.01 p>0.05	MW
Public	Members of student organisations less likely to react when public property is damaged	No significant difference	p<0.05 p>0.05	MW
Local	Members of student organisations less interested in local matters	No significant difference	p<0.05 p>0.05	MW

Fisher's – Fisher's exact test, MW – Mann-Whitney test, *- association is diametrically opposite to the general comparison between members and non-members. The first p-value corresponds to the comparison with members of other groups, the second p-value corresponds to the comparison with non-members.

Source: Authors' own research.

6. The Relation Between Membership and Behaviour in the Experimental Games

The relationship of membership to behaviour in the experimental games is weak. The few significant results that exist suggest that volunteers and organisation members are more cooperative than non-members, except for one case indicating the tendency of members of sports/recreational organisations to compete. The significant results are given in *Table 5*.

The only significant association of behaviour with organisation membership in the Ultimatum Game is that members of sports/recreational groups offer less (mean 8.08) than either members of other organisations (mean 9.01) or non-members (mean 9.16). This game is the most likely to be interpreted as a competition. Obtaining a share of more than 50% can be interpreted as “winning”, which would give additional utility to competitive individuals.

Volunteers tend to return more as the respondent in the Trust Game than non-volunteers. On average, the percentage returned by volunteers is 1.985 more than predicted by Equation (2) and the percentage returned by volunteers is 1.519 less than predicted.

Organisation members and volunteers pay more into the pool in the Public Goods Game (means 12.33 and 12.26, respectively) than non-members and non-volunteers (means 11.76 and 11.71, respectively). Members of artistic/musical organisations pay more into the pool in the Public Goods Game (mean 12.58) than those who do not belong to any organisation (mean 11.76) and, in addition, transfer more to the respondent in the Trust Game (mean 5.69) than those who do not belong to any organisation (mean 4.66).

Table 5. Association between membership, volunteering and behaviour in the experimental games based on the t-test

Game	Association	p-value
Ultimatum	Those in sports/recreational organisations offer less as initiators than those from other organisations (and non-members)	p<0.05 (p<0.01)
Trust	Volunteers return a greater proportion as respondents than non-volunteers	p<0.05
	Members of artistic/musical organisations transfer more as initiators in the trust game than those who are not members of any organisation	p<0.05
Public Goods	Members of organisations pay more into the pool than those who are not members of any organisation	p<0.05
	Volunteers pay more into the pool than non-volunteers	p<0.05
	Members of artistic/musical organisations pay more into the pool than those who are not members of any organisation	p<0.05

Source: Authors' own research.

Although these associations are weak, they indicate that organisation members are more ready to trust and reciprocate than non-members when negative reciprocation is impossible (for example, in the Public Goods Game). However, organisation membership is more strongly associated with social capital as expressed in the questionnaire. This may be connected to the gap between intention and actual behaviour (Kaiser *et al.*, 2010).

Conclusion

This paper has considered the relationship of organisation membership to social capital according to both the answers given in a questionnaire and the behaviour observed in three experimental games: “Ultimatum”, “Trust” and “Public Goods”. Many of the results obtained support Putnam *et al.*'s (1994) ideas about organisation membership as a component of social capital. Compared with non-members, members generally express a higher level of generalized trust, more interest in national, regional and local affairs and a lower readiness to react to personal injury, while expressing a greater willingness to react in the case of damage to public property. This social capital is somewhat modulated by the type of organisation, e.g. among members of organisations, members of political or sports/recreational societies express a greater willingness to compete (as measured by the expressed readiness to react to personal injury). The relationship between behaviour in the experimental games and membership of organisations is generally weak, but suggests that volunteers and members of organisations are more willing to cooperate in situations where negative reciprocation is not a factor. This suggests that the norms for cooperative behaviour are more highly internalized among members of organisations than among non-members.

The fact that members of sports/recreational organisations offer less in the Ultimatum Game suggests that framing (Kahneman, 2011) has a significant effect on behaviour. The Ultimatum Game is the simplest of the games to analyse and interpret in terms of “winning” a game, i.e. obtaining a large payoff than the other player. Members of such organisations are the most likely to place such a frame on this game and obtain utility by “winning” this game.

Comparing the results from our study with the results of the study of Migheli (2012) indicate that the behaviour of Polish students does not differ greatly from the behaviour of students in Western European countries. However, there are some subtle differences. Migheli found that active members of political and religious organisations transferred more in the trust game. We did not find such associations in our study, although members of religious societies express a high level of generalized trust. This might be due to the relatively small number of members of political and religious societies. However, there are some indications that the opinions of members of political organisations regarding the type of strategy judged to be most likely to bring success reflect the polarization of the political scene in Poland (see Nowicka, 2015, for one aspect of this divide and its relation to media discourse). Since members of such societies relatively often stated that such a strategy involved acting on the borders of the law, this suggests that many members of political societies have a tendency to distinguish between “us” (those who fight for what is right) and “them” (who do not simply have different opinions, but exhibit ill will). On the other hand, in our study members of artistic/musical societies showed the highest level of cooperation in the Public Goods Game and Trust Game. This may well be due to the fact that artistic undertakings often require a high level of collaboration, without any division between “us” and “them”.

In general, the fact that in the experimental games Polish students exhibit similar levels of cooperation and trust to students in Western Europe gives hope that Poland can escape the middle-income trap. However, the polarization of society is worrying from this point of view. This research, together with previous work on the nature of the feedback between social capital and organisation membership, suggests that promoting group activities

will have a positive effect on the level of social capital in Poland. This supports the postulates of Brzezińska and Czub (2013) that all levels of the Polish education system should place greater stress on developing cooperation and group work.

One weakness of the survey is that the sample, which is made up almost entirely of full-time students from state universities, is not representative of the Polish population, or even the student population as a whole. It would be interesting to carry out such research among a wider spectrum of the Polish population. Also, the opinions expressed in the survey are highly qualitative and the behaviour observed in the games seems to exhibit a high level of noise. On the other hand, in comparison to other studies, the sample size is very large, which means that the power to detect real associations is high. Also, today's students will to a large degree be a major motor behind economic growth in Poland in the medium- and long-term and thus are an interesting group to study.

One thing that seems surprising is that organisation members are generally more accepting of inequality than non-members, although they are more willing to cooperate. This is most apparent among members of artistic/musical organisations. This may result from the nature of many artistic and musical undertakings. The structures of orchestras and theatre groups often have clear hierarchies, each member uses their own individual talents, but a large degree of cooperation is required to achieve a goal. Participants in such groups often feel that the effects of such cooperation transcend the effects that they can achieve individually (Marotto, 2007). Somech and Drach-Zahavy (2013) note that the heterogeneity of talents within a group promote innovation in a similar way. This phenomenon seems to be an interesting area for future research.

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