Social Capital as a Building Block of a Developed Economy
Evidence from the United States

Sharon Raszap Skorbiansky

Selected Paper prepared for presentation at the Agricultural & Applied Economics Associations 2011 AAEA & NAREA Joint Annual Meeting, Pittsburgh, Pennsylvania, July 24-26, 2011

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Sharon Raszap Skorbiansky †

Abstract

We determine the effect of individual social capital on income in the United States. We use data from the General Social Survey and separate individuals into three different occupation groups: occupations who require continual usage of social capital, such as carpenters and plumbers; occupations with one time usage of social capital, such as desk jobs where connections are useful in finding the job; and farming jobs. We find that social capital has a positive effect on all types of incomes, though only find significant results for "desk jobs", with a 20% effect of social capital on income. This number is consistent with findings for other countries with different types of social capital mechanisms.

† Graduate Student, Department of Agricultural Economics, Purdue University, 403 West State Street, West Lafayette, IN 47907 USA; email sraszaps@purdue.edu

1 Introduction

Building social capital is considered to be beneficial due to its relationship with economic activity. "Social capital, while not all things to all people, is many things to many people". (Narayan and Pritchett, 1999) In our paper, social capital is defined as a function of linkages or connections, between individuals or groups and the associated norms. The connections between individuals allow for communication between parties, thus enabling the formation and dispersion of norms. Norms are specific expectations shared communally, such as not littering or returning a lost wallet.

Because in this paper we use individual data without the city and state specified[1] we can only observe individual level social capital and not the spillovers that occur in towns and cities. One way we can think of spillovers from social capital are from trust-sensitive transactions, those which would require future payments and are hard to monitor. With trust and norms present, individuals must spend less to protect themselves from being exploited. Diminishing the fear of being cheated encourages innovation of new products and ideas (reducing uncertainty regarding the transaction) thus inducing creativity and allowing for human and physical capital to increase. We argue that while trust and norms act as a shift in overall economic activity, but do not affect an individual's income, that is, if an individual finds himself in a community with high levels of social capital (norms and trust) it is possible that his/her income might not be higher . For example, Knack and Keefer (1997) study the effect of social capital on growth in a sample of seventeen OECD member countries. They supply evidence that trust and civic cooperation have significant impacts on aggregate economic activity. But our question is: within such an economy, what propels one individual forward?

Using data from the GSS, we determine the effect of social capital on personal income in the United States. The GSS contains statistics on demographic, behavior and attitudinal questions from 1972 to 2006. It includes household level characteristics provided by the individual answering the questionnaire. We define social capital as made up by the connections that an individual has to others, and the norms and trust that are formed by these linkages. However, because we believe that trust and norms will not affect individual's incomes, we will particularly look at memberships. Responses that are of use in our analysis include membership to different types of groups such as

[1] Zip code data is trust-sensitive and is available through the General Social Surveys (GSS). Future papers will try to incorporate this into the research.

political, sports, youth or religious (linkages); and beliefs and expectations regarding the general population such as likelihood of people being fair or helpful on average. We use trust as an instrument variable since it is highly correlated with our measure of social capital but not with income. The GSS contains data on respondent's trust on different individuals or groups, such as family, strangers, or the government.

To my knowledge, there are no similarly detailed studies for the United States, an economy that differs drastically from developing countries where this type of study has been mostly conducted. A study with similar objectives was conducted by (Narayan and Pritchett, 1999) in Tanzania. Rural Tanzania, however, is a very poor area where average annual consumption expenditures reported was $180 per person for the survey year of 1993-1994. In addition, most of the population is employed in traditional agricultural with a substantial component of subsistence. On the other hand, the (GSS, our data of choice, reports a mean respondent income between $15,000 to 24,999$ for the United States in 1994. Our sample will also have greater heterogeneity in labor choice, as a contrast to Tanzania's rural population. Furthermore, little work has been done to advance the theoretical background of social capital in relation to economic indicators. As a policy tool, social capital has been evoked by many organizations, including the World Bank (for example, see Woolcock and Narayan (2000)) under their Social Development group. While social capital has mostly been looked upon as a tool for community development in developing countries it could also be of use for the poorest in the United States, and developed countries generally.

Of importance is that social capital is likely to affect income differently depending on personal occupation. Some individuals are likely to only be influenced by social capital sporadically, perhaps when looking for a new job (i.e. obtaining a referral from an acquaintance). On the other hand, some jobs are very likely to be affected daily by social capital. Jobs that require word-of-mouth to amplify the number of customers, such as doctors or carpenters will rely on their social capital for new customers. The social capital component in these types of jobs can enter in several ways. For example, an acquaintance will likely request the individual's business because their linkage provides the element of trust. Furthermore, this customer is likely to in turn recommend their network to use his friend's services.

To elicit the impacts of social capital on income, we use a modified Mincer equation (Mincer, 1974) by regressing income on our social capital measures and a set of control

variables. Much like when estimating the effects of human capital on earnings, there is a problem with endogeneity in social capital. Our assumption is that economic outcomes, such as income, are functions of social capital. In turn, social capital is potentially a function of economic characteristics, suggesting a two-way causality between social capital and income. To mitigate the resulting bias of OLS estimators, we turn to an instrumental variable estimation framework. Fortunately, the survey contains a cache of data available as viable instruments for both the human capital and social capital. In addition, there is endogeneity in the model arising from omitted variables. For this reason, we include individual characteristics that are correlated with both social capital and income, including gender and religion as covariates.

Our contribution to the literature is as follows: we lay a theoretical background for social capital and its relation to income; provide empirical evidence about the contribution of social capital to income in the United States; explore ways in which social capital may affect different regions and groups specifically different occupations, thus identifying its validity as a policy objective; we compare and contrast the different roles that social capital plays in a developing country and a developed country.

This study should appeal to researchers and policy makers interested in community development, and aid to underdeveloped areas or close-knit communities within developed economies.

2 Background

Narayan and Pritchett (1999) observe the consumption of the Tanzanian economy in a sample of Tanzanian villages using the Social Capital and Poverty Survey (SCPS) which asks individuals questions on three dimensions of social capital. Tanzania is a very poor country, where most of the population is employed in agriculture and where the imputed value of production for own consumption accounts for about half of consumption expenditures. We find that it is more appropriate to regard individuals as units as opposed to households because the dynamics of American life is different to those of developing countries. The survey employed questions on the three main subgroups of social capital. Regarding membership, the response includes information on whether groups are inclusive or exclusive. Their assumption is that inclusive groups contribute more to social capital than membership to exclusive groups.

Within a sample of Tanzanian villages, (Narayan and Pritchett, 1999) find that

higher levels of associational memberships are related to higher incomes. The model used includes dummy variables for six agroclimatic regions of Tanzania to control partially for economic and agroclimatic diversity in the country. The results of the OLS regression show that as social capital increases, consumption expenditure increases. Social capital would also increase with income if instead of capital it were a normal good. To prove otherwise, they use trust as an instrumental variable for social capital, since they believe that trust is the least likely to be influenced by income. The authors find: (a) that social capital is an exogenous determinant of income, and that it does in fact have spillover effects, that is, the income of those households interviewed were affected by the social capital of other households in their villages as well as by their own; (b) an increase in village social capital increases the income of all households in the village substantially; (c) a one standard-deviation increase in the village social capital index is associated with at least 20% higher expenditures per person in each household in the village. They also explore various channels in which social capital works to affect household income such as social capital and village-level cooperation and innovation diffusion.

As mentioned, the United States has a different economic and demographic structure than Tanzania. De Tocqueville (2003) noted with regards to the United States that

> "The political associations which exist in the United States are only a single feature in the midst of the immense assemblage of associations in that country. Americans of all ages, all conditions, and all dispositions, constantly form associations. They have not only commercial and manufacturing companies, in which all take part, but associations of a thousand other kinds–religious, moral, serious, futile, extensive or restricted, enormous or diminutive. The Americans make associations to give entertainments, to found establishments for education, to build inns, to construct churches, to diffuse books, to send missionaries to the antipodes; and in this manner they found hospitals, prisons, and schools."

However, Putnam (2001a)'s book on civic societies shows that there has been a decrease in American associational life. Yet, while on decline, associational life is still an important component of American life, and potentially important for income formation. Social capital though, is very tricky to measure as there is no market price to record unlike many other types of capital. Putnam (2001a)'s approached social capital by examining the quantity of associational membership and activity as shown by the survey, and without using empirical testing.

2.1 Social Capital Effects on Earnings

In what ways may social capital enter the utility function for an individual living in the United States? A well-researched path involved the impact of social networks on the probability of finding a job, and even more so, the probability that this job will be a better alternative than a job found without the help of a contact. However, it is of debate whether the impact of social networks may be found on earnings or rather on non-monetary components of utility such as search time, and closeness between job requirements and field of education (i.e. that the individual's education will be applicable to the job).

Granovetter (1995) explores the issue of job seekers finding job opportunities by utilizing their social connections. His book discusses different benefits of social networks on earnings, some widely accepted and some having met some controversy. It has been shown that people find work through social networks and not only through formal channels, such as submitting an application or resume[2]. Another argument from Granovetter (1995) is that social networks allow job seekers to better understand the availability of jobs and their characteristics, thus enabling them to find a better match for themselves, leading to higher wages and job satisfaction. According to his book, weak ties are better for generating information about labor markets due to the redundancy of information in close ties. However, this point has been controversial and many studies have failed to provide evidence that there exist wage bonuses and monetary benefits of social networks[3]. For example, Franzen and Hangartner (2006) finds that social capital does not have a monetary effect, but they do find presence of non-monetary effects from social networks, which they claim are more beneficial than jobs not obtained through a social network.

In general, there is not consistent evidence that the use of networking is associated with higher wages. However, it has been found that applicants that were employed with referrals had a higher chance of getting hired (Fernandez and Weinberg (1997)) . This is a bit perplexing, since even if a referred job gives the worker the same amount as a non-referred job, if it causes the job seeker to obtain job faster with a referral, he is in fact earning more money than if he were unemployed or receiving his reservation

[2]For similar studies see (Mouw, 2003) who looks at the effect of social capital on finding a job, comparing those with and without connections to the job.

[3]For reviews refer also to Granovetter (1995), Marsden and Gorman (2001), Lin (1999), and Bartus (2001)

wage. Especially at a time of economic hardship, being able to find a job quicker is very important for someone unemployed, and if contacts can help to make the search faster, then the overall income is then higher (versus more time with zero income or unemployment benefits).

3 Theory

How do the United States differ from developing countries regarding social capital? The theoretical background of social capital for income leans heavily on the assumption that households rely on production to generate wages.

For example, theory shown in Isham et al. (2002), the utility maximization for a household that is optimizing over a range of utilities is $U_{it} = U(Z_{it}(X_{it}, T_{it}, W_{it}))$ for a household i at time t, where Z is a vector of commodities, X is the vector of market good allocation, T is the vector of time allocation and W is a fixed input which includes physical capital, environmental conditions and social capital [4]. Social capital can act as a "lubricant" for agricultural production in communities, facilitating management of shared resources and improving the household's access to commodities such as water or sanitation.

However, farming in the United States is very different from households in developing countries that concentrate on farming. Income in rural farms in the United States for 2008 was $\$31,108$ and $\$41,953$ in urban farms. The poverty rate was 16.6% and 13.9%, comparatively. This shows that the majority of farmers in the United States are not living in poverty (Economic Research Service. The Economics of Food and America. (2010)).

Furthermore, the majority of the poor of the United States are not heavily employed in farming, therefore consideration for industry jobs becomes a necessity. While social capital may be an important factor which enters utility and affect people's lives, it is not just through production decisions. Still, when we create private bonds with people they are likely to have spillovers into our professional lives (the bond may help in different ways, such as finding a new job, or a job for a son or nephew).

Social capital will affect individuals differently depending on their occupation. This is because of the nature of the occupation that a person is involved with. That is,

[4] Deaton and Muelbauer (1980) and Betancourt (1996) show how social capital is a part of household production.

some occupations such as construction or carpentry rely on word of mouth and repeat custumers for future income. For this type of occupation, reputation becomes a very important commodity. On the other hand, many desk jobs are only influenced by social capital in obtaining the job, and once that the job is obtained, social capital does not have any further monetary benefits. An example of this would be a secretary job, where once that job is obtained social capital is still important for other aspects of life but not for the current income.

In terms of a reputation-heavy job, we can model the income in period one and two for a two-period scenario, where in the first period the income y is $y_1 = p_i q$ and in the second period $y_2 = z_{1i} p_z + n p_n + r p_r$,where p is a vector of prices indexed by consumers of period 1 (i), and q is the quantity provided for each consumer (this allows for different prices to be presented to each consumer, as is typical in these type of jobs which allow for some bargaining). In period 2, $z_1 i$ corresponds to the number of referrals from a consumer in period 1, p_z is the price vector for consumers referred, n is the number of new consumers for period 2 (which do not have a referral) and r is the number of returning custumers, with p_n and p_r referring to the price vectors of new and returning custumers, respectively. [5] The more memberships that an individual is exposed to, the more connections that are available to add to a network of possible clients.

For theory on the influence of connections on search time, which would be applicable both to the type of occupation that is social capital intensive and the type that only requires one-time use of social capital, refer to references given in Section 2.

4 Data

Using data from the (GSS, we determine the effect of social capital on personal income in the United States. The GSS contains statistics on demographic, behavior and attitudinal questions from 1972 to 2006. It includes household-level characteristics provided by the individual answering the questionnaire. We define social capital as made up by the connections that an individual has to others, and the trust and norms that are formed by these linkages. Responses that are of use in our analysis include membership to different types of groups, such as political, sports, youth or religious (linkages); trust held on different individuals or groups, such as family, the government (trust); and

[5] Alternatively, it could be modeled as $E(y) = Pr(\text{in} - \text{networkneedsservicethisperiod}) * p + Rp + Np$ where E(y) is the expected income for a specific period, R are referred customers that were previously outside of network and N are new customers that were previously outside of network.

Table 1: Percentage of Group Membership

	Memberships	Number of Members	Most Important For Respondent
Total	1.76	-	-
Church or Religious	35.5%	7430	32.8%
Farm	19.2%	791	1.7%
Fraternal	9.7 %	1993	5.1%
School Fraternity	4.8 %	985	1.7 %
Hobby	9.6 %	1984	4.3 %
Literary or Art	9.2	1891	1.9%
Nationality	3.3 %	687	1.0 %
Other	10.2 %	2048	4.9 %
Political	4.2 %	859	1.6 %
Professional	14.7 %	3035	6.9%
School Service	13.7	2823	7.7 %
Service	9.8 %	2033	4.5 %
Sport	19.2	3968	15.8%
Labor Unions	13.5 %	2776	3.3%
Veteran	7.1 %	1468	2.6%
Youth	9.8 %	2014	4.2 %

beliefs and expectations regarding the general population, such as likelihood of returning a lost wallet if found (norms). Unfortunately, not all annual surveys ask the same questions, thus we break up the study into different years depending on availability of questions.

Starting in 1975, the GSS has used full-probability sampling of households designed to give every household the equal probability of being included in the survey. However, only one adult per household is interviewed (Davis and Smith, 1992). Household-level variables are self-weighting, but we are utilizing individual-level data and in large households each individual has a lower probability of being chosen to respond. Therefore, to compensate we weight our statistical results in proportion to the number of persons over 18 in the household.

Questions on membership were asked in the years 1974-75, 1977-78, 1980, 1983-84, 1986-91, 1993-94, and 2004. Responses for membership are shown in Table 1. On average, people belong to one or two groups. About 35% of people belong to a church organization, with the highest number of members in this sample.

Column (3) of Table 1 was collected by asking "Which one of these groups or organizations [from those memberships that the respondent answers yes] are you most active in?", and was only collected for 1987.

5 Methodology

To elicit the impacts of social capital on income, we use a modified Mincer equation (Mincer, 1974) by regressing income on our social capital measures and a set of control variables.

We start with a typical mincer equation,

$$y*_i = \alpha + \beta_{1i}\text{memnum}_i + \beta_{2i}\text{X}_i \tag{1}$$

,where $y*$ is the natural logarithm of income for an individual i and X is a matrix of other individual characteristics included.

These variables are included to isolate the effect of social capital on income, by controlling for the other factors that are known to affect it. The covariates included are age, age squared, highest degree attained (the respondent can choose between less than high school, high school, associate/junior college, bachelor's and graduate), gender, race, religion, region (New England, Middle Atlantic, East North Central, West North Central, South Atlantic, East South central, West South Central, Mountain, and Pacific) size (population to the nearest 1,000 of the smallest civil division listed by the U.S. Census) and year of interview. Age squared is included to account for the nonlinearity in the effect of age on earnings.

A challenge when using the GSS data, comes from the fact that the income is recorded in brackets. Because of this, we observe the certain interval on a continuous scale for which the income belongs to, but never directly observing the real income of the respondent. The data are also censored in the way that both end intervals are open-ended. The problem is that we are trying to estimate the effect that social capital has on income, without knowing the actual level of income. There are several ways to confront the issue of income brackets. We choose to assign an income level to each individual by using the GSS-created variable *conrinc*. It has been shown that imputed income estimators usually suffer estimation problems. Drawbacks from ad hoc Least Square Estimators are summarized in Berg and Lien (2002) and (Hsiao, 1983). However, the main problem is that the standard errors will overstate the precision of estimation since within-bracket variation is suppressed and the error is not taken into account, potentially causing the effects of the regression to appear significant even when they are not. Plainly, the standard errors will be larger than if we were to use a more efficient estimator, say probit or other maximum likelihood estimator. Using an EM-algorithm as Berg and Lien (2002) would increase the efficiency, but if we obtain good estimates

using OLS then we know that our estimates using maximum likelihood would be even better.

As discussed, the income variable, y, is not continuous, instead it is reported in income brackets. The observed income variable y_i is discrete and defined as

$$y_i = j, \quad \text{if} a_{j-1} < y_i^* < a_j, \quad for \quad j \in 1, 2, ..., n \tag{2}$$

,where n is the number of bracket divisions in the income variable. The income-bracket thresholds $(a_j)_{j=1}^J$ are part of the GSS design and partition the real line into different partitions, depending on the year, in the following manner: $-\inf = a_0 < a_1 ... < a_j = \inf$. As explained, this is overcome by using a GSS-created variable *conrinc*, which records income variables *income*72, *income*, *income*77, *income*82, *income*86 and *income*91 into six-digit numbers and converts them to 2000 constant dollars.

Much like when estimating the effects of human capital on earnings, there is a problem with endogeneity in social capital. Our assumption is that economic outcomes, such as income, are functions of social capital. In turn, social capital is potentially a function of economic characteristics, suggesting a two-way causality between social capital and income. To mitigate the resulting bias of OLS estimators, we turn to an instrumental variable estimation framework. Fortunately, the survey contains a cache of data available as viable instruments for both the human capital and social capital.

6 Results

Our regression covers the years 1974-75, 1977-78, 1980, 1983-84, 1986-91, 1993-94, and 2004, since these are the years we have membership data for. The variables *memnum* is the main component of social capital, though we run initial regressions with *trust* and *norms* but found that their results were not significantly different from zero. One of our variable for norms was composed by combining two different questions from the GSS, $helpful$ and $fair$. The questions for these variables are, "Would you say that most of the time people try to be helpful, or that they are mostly just looking out for themselves?" with answers helpful, lookout for self, depends, and "Do you think most people would try to take advantage of you if they got a chance, or would they try to be fair?" with answers fair, take advantage, depends, respectively. We use a polychoric principal component analysis to find an aggregate vector of norms. The polychoric correlation of two ordinal variables (in our case we use the answers for helpful and fair)

is calculated assuming that each of the ordinal variables was obtained by categorizing a normally distributed underlying variable, and those two unobserved variables follow a bivariate normal distribution. The maximum likelihood estimate of that correlation is the polychoric correlation Kolenikov and Angeles (2005). Alternatively, we also used the variable $selfirst$ which states "You have to take care of yourself first, and if you have any energy left over, then help other people." with answers "strongly agree", "agree", "neither agree nor disagree" and "strongly disagree". The variable $memnum$ aggregates all memberships that the individual has (including fraternities, sports clubs, and churches).

We start with a simple general OLS model to see the signs and significance of our different components of social capital. The dependent variable is the log of constant income in 2000 dollars created by the GSS based on categorical mid-points and imputations and all of our relevant covariates are included.

Table 6 shows promising results. First of all, most of our coefficients for social capital are statistically significant. In column (1) we run an OLS regression using an aggregate measure of linkages and the principal component of norms. The sign for the total number of memberships joined by an individual ($memnum$) is positive, showing that we expect membership to clubs to increase income, though it is quite small. In column (2) we look at an OLS regression where membership is differentiated by type, these being memberships to fraternal groups, service groups, veteran groups, political clubs, labor unions, sport clubs, youth groups, school service groups, hobby clubs, school fraternities, nationality groups, farm organizations, literary or art groups, professional societies, church or religious groups, and other groups not specifically mentioned. It is of interest that not all memberships show positive returns to income, these being religious memberships, literary or art groups, school service groups, veteran groups and youth groups [6].

In Table 6 we have used the polychoric principal component of fair and helpful as a proxy for norms. The coefficient on norms is positive though very small and not significant. Similar regressions ran with variables of norms and different factors showed that results for the effect of norms on income were extremely small.

Some results on the covariates which are omitted from Table 6 that we had expected

[6]There could be an issue of selection here. For example, someone that belongs to a veteran group has selected themselves into the military service.

VARIABLES	(1) lninc	(2) lninc
All Memberships	0.0231***	
	(0.00513)	
Church or Religious		-0.0450**
		(0.0217)
Farm		0.0236
		(0.0495)
Fraternal		0.0566*
		(0.0337)
School Fraternity		0.0724*
		(0.0430)
Hobby		-0.0185
		(0.0325)
Literary or Art		-0.153***
		(0.0346)
Nationality		0.0402
		(0.0515)
Other		-0.0612*
		(0.0313)
Political		0.0263
		(0.0468)
Professional		0.287***
		(0.0278)
School Service		-0.167***
		(0.0292)
Service		0.0569*
		(0.0328)
Sport		0.0854***
		(0.0233)
Labor Union		0.323***
		(0.0254)
Veteran		-0.0517
		(0.0385)
Youth		-0.0235
		(0.0326)
Norms	0.00598	0.00799
	(0.00974)	(0.00993)
Constant	6.891***	6.849***
	(0.107)	(0.112)
Observations	10,015	9,484
R-squared	0.300	0.324

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

to see are that females earn a lower income than males and that income increases with age but at a decreasing rate. We see some changes in income depending on region, religion and race.

Next, in order to establish causality and to deal with the endogeneity problem from social capital, we use instrument variables. In order for the instrument variables to be valid, they must be correlated with the specific component of social capital, but not with income through any other channel than social capital itself in order to estimate the effect of exogenous shifts in social capital on income. Finding a good instrument variable eliminates the possible simultaneity relationship between social capital and income.

(Narayan and Pritchett, 1999) uses the individual's levels of trust in various groups as an instrument variable for membership. The assumption is that the trust held by the individuals in strangers and institutions do not directly affect household income and are not affected by household income themselves, thus being a potential instrument variable. Furthermore, greater levels of trust do lead to higher social capital. La Porta et al. (1996) show that trust is an important component for the survival of large organizations and civic groups or associations where participation is mostly voluntary. They find a strong bivariate correlation between expressed degrees of trust and membership in associations. Trust is not included in all social capitalists as part of social capital, however, Putnam (2001b) finds that while social trust is not part of the definition, he believes it to at least be a close consequence, and therefore could be thought as a good proxy. He shows that there is a positive correlation between associational life and trust, as trust in strangers increases so does the number of memberships that are attended by individuals.

In the GSS, data about trust in strangers are collected by asking "Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people?" with answers "can trust", "can't trust" and "depends" [7].

From Table 2 we find even stronger results than from a simple OLS regression, memberships have an impact of 18.9 %. The same regression was run with norms included, and while the coefficient for norm was small, the coefficient for membership was even larger, at 36.3%. This implies that excluding norms may actually be underestimating

[7] I only use the answers "can trust" and "can't trust" as an instrument variable.

Table 2: 2SLS with Trust in Strangers as Instrument

VARIABLES	(1) lninc
memnum	0.189*
	(0.100)
Constant	7.777***
	(0.126)
Observations	9,317
R-squared	0.231

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

our estimates for the effect of linkages on income, perhaps stemming from local spillover effects.

Trust as an instrument performs very well statistically, with an F-statistic of 28.54. Because with trust as an instrument the regression is exactly identified and thus it is not possible to test for weak identification, we included extra instruments on the confidence held in different branches of the government, and trust in strangers was not rejected and does not fail the validity test.

Next, we start breaking down the model into different occupation types. The GSS started using the 1980's census code for occupations in 1988, and previously used 1970's census code, therefore we work with both classifications in our data. The GSS variable *occ*80 corresponds to the 1980 Census Occupational Category, which includes about 1000 different types of occupations, and *occ*70 to the 1970 Census Occupational Category which contains about the same number of occupations. We choose to break down the occupations into larger categories that are more relevant to our study, these being potentially social capital-intensive occupations (SCI) where continuous contracting is required, one-time social capital occupations (OTS) and farming occupations [8]. A farm

[8]The categories under the 1980's Census are: Executive, Administrate, and Managerial Occupations (Managerial); Professional Specialty Occupations (professional) which has the subsets of doctors, artists, and athletes which may behave differently in terms of social capital as other professionals such as statisticians and chemists; Technicians and Related Support Occupations (technical); Sales Occupations (Sales); Administrative Support Occupations (admin) which includes clerical work; Private Household Occupations (maid); Protective Service Occupations (protect), Armed Forces (armed); Service Occupations, Except Protective and Household (service); Farming, Forest, and Fishing Occupations (farm); Fishers, Hunters and Trappers (Hunters); Mechanics and Repairers (repair); Construction Trades (construct); Extractive Occupations (extract); Precision Production Occupations (production); Machine Operators, Assemblers, and Inspections (operators); Transportation and Material Moving Occupations (drivers); Handlers, Equipment cleaners, Helpers, and Laborers (helpers)

Table 3: Social Capital by Occupation

lninc	(1) OTS	(2) SCI	(3) FARM
memnum	0.192*	0.0735	0.606
	(0.105)	(0.117)	(0.511)
Observations	9,158	2,647	193
R-squared	0.224	0.327	-0.052

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

category is included to see the contrast between farmers in developed and developing countries and their usage of social capital.

It is interesting that we only find a large and significant effect of social capital for the type of occupation that is not social capital intensive. The effect of social capital on this type of occupation was 19.2% which is very close to the results found by Narayan and Pritchett (1999) (around 20 %). We find that the effect on social capital-intensive jobs is positive but small, at 7.35%, although not significant, and quite large for farming jobs although again not significant. We have the least observations for farming jobs (at 193) which could explain why we do not see relevant results.

7 Conclusions

In this preliminary investigation we use instrument variable methods to estimate the effect of membership on income in the United States. Our instrument of choice is trust in strangers because it has high correlation with associational life but it does not have a correlation with the unobservables in the income generating equation. We also explore the different ways in which social capital can enter an individual's income equation for three different types of occupations; social capital-intensive occupations, one-time usage social capital occupations, and farming occupations. We find positive effects of belonging to memberships for all types of occupations, although we only get significant results for one-time usage type of occupations with a result very similar to those found by Narayan and Pritchett (1999). In terms of farming jobs, we did not have enough observations to make any claims of the effect of social capital on farming incomes. Further advances in this research will include analysis of individuals at the lower end of the income distribution.

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