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Rafael Gomez and Eric Santor

MEMBERSHIP HAS ITS PRIVILEGES: THE EFFECT OF SOCIAL CAPITAL AND NEIGHBOURHOOD CHARACTERISTICS ON THE EARNINGS OF MICROFINANCE BORROWERS

By

Rafael Gomez*
London School of Economics
r.gomez@lse.ac.uk

and

Eric Santor*
University of Toronto
esantor@chass.utoronto.ca

ABSTRACT: This paper examines the determinants of self-employment success for microcredit borrowers. Theories of social capital and neighbourhood effects are integrated in an attempt to account for earnings differentials amongst a unique sample of microfinance borrowers. The paper posits that social capital - social relations that facilitate individual action – is essential for microentrepreneurial success. Based on a survey and data collected by the authors, this study demonstrates that social capital is a positive determinant of self-employment earnings. It also highlights the role that neighbourhoods play in fostering social capital and improving microentrepreneurial performance.

1. Introduction

The promotion of small-scale entrepreneurship, as a means to alleviate poverty, has recently received increased attention given the rapid spread of microfinance institutions throughout the developing world. By extending credit to those who lack access to formal financial markets, organizations such as the Grameen Bank in Bangladesh, BancoSol in Bolivia and Bank Rayat in Indonesia have demonstrated how the innovative use of group lending with joint liability can be used to promote small-scale entrepreneurship (Morduch, 1999; Pitt and Khandker, 1998). The success of these programs relies heavily on the notion that borrowers can utilize their social capital to overcome many of the problems associated with asymmetric information in credit markets (e.g., adverse selection, moral hazard, state verification and contract enforcement).

While microfinance has its roots in Bangladesh and elsewhere, its application has not been restricted solely to the developing world (OECD, 1995). In North America, microfinance has received widespread support from rather disparate constituencies as a tool for lifting individuals out of poverty and addressing deprivation in economically depressed urban areas and aboriginal communities.[1] Individually targeted microfinance schemes such as Working Capital in Boston and Calmeadow in Toronto have been operative for close to a decade. Other approaches, such as those of the South Shore Bank in Chicago and the Good Faith Fund in Arkansas have sought to (re)establish financial intermediaries in communities abandoned by traditional banking institutions. Yet, despite the widespread implementation of such microcredit schemes throughout the continent, there is surprisingly little empirical work that accurately assesses their impact on either individual borrowers or communities. Consequently, beliefs in the effectiveness of microcredit are often based on unfounded expectations about the viability of small-scale self-employment[2] for the unemployed or those on social assistance. According to Morduch (1999) "While strong claims are made for the ability of microfinance to reduce poverty, only a handful of studies use sizeable samples and appropriate treatment/control frameworks to answer the question."

Given the dearth of both available data and theoretical models of the social and economic processes that affect the performance of entrepreneurs who access microfinance institutions, there is an

increasing need for studies that: (1) estimate the effect of microfinance programs on earnings; (2) analyze the functioning of the group lending process; and more generally, (3) examine the determinants of microborrower success. These three issues, while appearing simple, have received only limited empirical confirmation in the academic literature.[3]

The present paper attempts to fill part of the void in the microfinance literature by examining the third question listed above. A unique cross-sectional data set is used to explore and describe the outcomes of microfinance programs (something which we know little about) and to estimate the economic returns to social capital accumulation. The data are drawn from a survey designed and administered by the authors, in combination with administrative files for small-scale self-employed individuals who accessed credit from Calmeadow Metrofund, which is Canada's largest non-profit microlending institution. Empirically, we demonstrate that social capital, as proxied by membership in civil society, contributes positively to the self-employment earnings of microfinance borrowers. This suggests that otherwise similar individuals (e.g., individuals with the same levels of human capital and other observable characteristics) do not 'profit' equally from the provision of microcredit. This is an important finding for two reasons. First, our results establish a microeconomic foundation for the effect of social capital on improved economic performance, something that until recently had been neglected in much of the mainstream social capital literature. Second, this result has positive implications for microfinance institutions that rely heavily on the idea that individual social capital can overcome a borrower's lack of financial collateral.

The paper is structured as follows: section 2 presents the model to be tested and then establishes a theoretical framework that first operationalizes the contentious issue of social capital and then explores the links between social capital, neighbourhood effects and small-scale self-employment success. Section 3 describes the survey and data. A discussion of the measurement and methodological issues surrounding social capital and its effect on earnings follows. Section 4 specifies the empirical approach and key explanatory measures while section 5 presents and discusses the results. Finally, section 6 provides concluding comments and suggests avenues for further research.

2. Model Specifications and Theoretical Framework

The Model

A lengthy literature has examined the determinants of self-employment earnings, with particular attention paid to estimating the returns to human capital. [4]   However, this modeling strategy may not be appropriate for assessing the returns to self-employment for microfinance borrowers since human capital rarely plays a critical role in the process by which microfinance institutions extend credit. Rather, due to the group lending process – which involves the dispensing of loans to applicants who enter into a contract to monitor and support each member of the borrower group -- microfinance institutions place a higher premium on an individual's social capital. Likewise, given the nature of small-scale employment activity -- which is often rooted in home-based local entrepreneurship -- neighbourhood characteristics also matter greatly. Therefore, to assess the returns to the microfinance-supported self-employed, a conventional reduced-form human capital earnings equation can be augmented to include social capital measures and neighbourhood characteristics:

$$y = \alpha + \beta_1 H + \beta_2 S + \beta_3 N + \beta_4 X + \varepsilon \qquad (1)$$

where y is log net earnings, H is a vector of human capital measures, S is a vector of social capital measures, N is a vector of neighbourhood characteristics and X is a vector of standard individual, demographic and business characteristics. If social capital matters then all elements of β_2 should be positive and significant in any empirical estimations of this model. The following section will address two questions with respect to social capital: (1) what is it and (2) how does it affect the outcomes of the small-scale self-employed?   The way in which neighbourhood characteristics can influence the accumulation and returns to social capital will then be analysed.

Social Capital and Self-employment Success

Social capital can be defined at several levels: country, community and the individual (Glaeser et al, 2000). At the country level, social capital is viewed as the degree of trust in government or other societal institutions (Fukuyama, 1995). This includes the willingness to participate in civil society, obey the law and a general efficacy in the workings of civil administration. At the community level, Jacobs

(1961) posits that social capital exists as "neighbourhood networks", or as Putnam (1995) suggests, it signifies "features of social life – networks, norms, and trusts – that enable participants to act together more effectively to pursue shared objectives." That is, social capital could be thought of as the extent and quality of connections within communities. Lastly, social capital can be attributed to the individual level. As Glaesar et al (2000) note, "…an individual's social capital is that individual's social characteristics – including charisma, status and access to networks – that enable that person to extract private returns from interactions with others." The central thrust of these definitions of social capital is that, apart from the social returns, there are private returns to its possession. That is, higher levels of social capital should lead to better levels of economic performance for the individual.

Sanders and Nee (1996) outline three mechanisms by which social relations (the most important facet of social capital) positively affect self-employment success. Social relations can offer or provide (1) instrumental support; (2) productive information; and (3) psychological aid. Instrumental support drawn from social relations can directly affect performance by providing, for example, such things as start up capital and non-interest bearing loans to a credit-constrained entrepreneur. Instrumental support also involves the provision of "free" labour, as in the case of a small business where family members or close family friends provide their services at below market clearing wages.

Social relations can also disseminate productive information and therefore act as an indirect channel in improving the earnings of the self-employed. Useful information includes the transfer of business acumen from one person to another and the transfer of knowledge about local competitors and trusted local suppliers. That is, a greater number of social ties within a neighbourhood increase a microentrepreneur's sensitivity to local supply and demand conditions, especially if that microenterprise operates out of the home – as is the case with a majority of small-scale operators. Social relations can also produce valuable customer referrals since advertising and "getting the word out" about a particular product or service is difficult for many small-scale enterprises (Holzer, 1988).

Finally, social relations provide psychological aid and are sources of behavior emulation for a small-scale entrepreneur. Individuals lacking close personal connections are more prone to depression and

suffer longer and more numerous unemployment spells (Darity and Goldsmith, 1996). Maintaining social relations can therefore prevent business dissolution caused by personal problems and can ensure that effort and motivation are not seriously impaired during times of emotional stress. In Maslow's hierarchy-of-needs framework, satisfying internal requirements for emotional attachment is a prerequisite needed to make someone motivated enough to achieve business success.[5] Whether it is through the channel of instrumental, informative or psychological support, social capital can be thought of as an input in the production function of the small-scaled self-employed.

Neighbourhood Effects and Self-Employment Success

Neighbourhood effects are defined as any neighbourhood characteristic that can affect the returns (or the outcomes) of an individual's economic behaviour. Neighbourhood characteristics are typically defined at the city and/or community level and are intended to capture the nature and quality of the community in which an individual resides.[6] Common measures include average income, education, ethnic composition and home ownership. Neighbourhood characteristics can also be qualitative in nature, such as urban design and community spirit.

The physical and socioeconomic characteristics of a neighbourhood affect the returns to self-employment either directly through their impact on local demand conditions, or indirectly through their role in facilitating the accumulation of social capital. The physical characteristics of a neighbourhood (e.g. its urban design) can affect the performance of self-employed individuals in a number of ways. For instance, the social capital required to succeed in a small business is more easily formed within more highly populous, highly integrated and economically clustered urban areas. The reason may be as simple as the fact that the chance of interacting and meeting peers who share complimentary business products, services, skills, or interests is greater in these areas. Greater proximity also promotes clusters of spin-off service enterprises, offers valuable opportunities for interaction and acts as a catalyst to small-scale innovation and the sharing of information.[7] Likewise, neighbourhoods with higher population densities and greater levels of commercial concentration generate higher levels of demand for the services of the small-scaled self-employed (Ciccone and Hall, 1996).

In North America, neighbourhoods constructed before the 1960s contain a compact gathering of houses, apartment buildings, corner groceries, main street shops and offices, all within walking distance (Jacobs, 1961). This type of urban design facilitates the individual or personal harnessing of social capital. Where population density is higher and urban design favours pedestrian traffic, information is more easily spread and transportation costs are lower, both of which make it easier for small-scale owners to inform and retain local customers.

Socioeconomic characteristics of a neighbourhood may exert positive spillover effects for self-employed individuals. Home ownership encourages investment in local amenities and social capital by giving individuals an incentive to improve their community and by reducing the likelihood of outward mobility (DiPasquale and Glaeser, 1999). To paraphrase Hirschman (1970), in the absence of an easy "exit" option, "voice" becomes the predominant means of improving local conditions. Using a standard spillover argument, the greater the proportion of individuals within a neighbourhood who own homes the more likely it is that self-employed individuals working and/or living in that neighbourhood will be able to interact with and grow to know their neighbors. This, in turn, allows a micro-enterprise to expand and maintain a trusted and loyal customer base.

General levels of human capital within a neighbourhood exert similar effects on the performance of the small-scale self-employed. Glaeser, Scheinkman, and Shleifer (1993) and Glaeser et al (1993) provide models that confirm the importance of a generally well-educated labour force, as opposed to highly skilled elite, in improving local economic performance. Though these models have been used to account for differences in economic growth rates across cities, a similar mechanism can be applied to the case of a small home-based entrepreneur. A community that shares a similar level of skill and education would presumably transfer productive information across individuals more easily. Likewise, higher average levels of education are also related to higher levels of income, and hence better market demand conditions for the goods and services provided by the small-scaled self-employed. For these and other reasons, neighbourhood characteristics (operating through urban design and socio-economic channels) can significantly affect how well a self-employed business performs.

Individual Heterogeneity as a Cause of Self-Employment Success

Obviously there are many other factors that affect self-employment earnings (e.g., individual work ethic, intelligence, gender, and technology). The foregoing presentation has instead focused on social capital and neighbourhood characteristics, which are of particular relevance to small-scale entrepreneurs and microcredit institutions, but have been rarely discussed in formal econometric expositions. Moreover, as is shown in the discussion of data below, the sample that will be used in this study accounts for much of the typical observed and unobserved heterogeneity that could affect self-employment success.

3. Data and Sample Characteristics

This unique data set consists of borrowers who accessed loans from Calmeadow Metrofund -- Canada's largest non-profit microfinance organization -- between 1994 and 1998 and covers the entire population of clients as of July 1998.[8] The sampling frame used in the survey included 612 <u>group borrowers</u> and 52 <u>individual borrowers</u>. Individual borrowers were those receiving credit without having to access social ties for collateral, whereas group borrowers were asked to form a peer group as a condition of credit extension. Typically, peer group clients had smaller businesses and were more likely to be first time loan applicants.

Because of our exclusive access, the data were drawn from both confidential client file application forms and a survey designed and administered by the authors. Despite its limitations, there is no other data set of its kind available in North America with as rich a source of information about microcredit borrowers.

Advantages of the Data Set

The use of this data set confers several advantages. First, the data are drawn from a sample of self-employed individuals receiving microcredit in the form of peer group loans. Consequently, our measurement of self-employment earnings will be more accurate than those contained in standard surveys because the earnings measures reported by individuals on their loan application are subject to a strict screening process and are verified by the loan manager and the fellow peer group members.[9] The use of

microfinance loan recipients also provides a useful forum for exploring the importance of social capital since the group lending process places a large premium on social relations.

A second advantage conferred by this data set is that by personally designing and administering the survey, we were able to employ a number of questions to measure both social capital and the importance of neighbourhood effects. Because this data set can account for the multiple dimensions of social capital, it is a direct improvement over much of the literature that often uses singular measures to test the link between social capital and some observable outcome. Linking postal codes with each individual borrower and then matching them to census data equally facilitated the estimation of neighbourhood effects.

Finally, apart from the standard demographic, household and business characteristics for each borrower, the data set also contains a section that includes information on conventionally unobserved personal characteristics such as motivational predisposition and adherence to moral codes. This section was added to the survey in order to account for unobserved heterogeneity that is typically controlled for in panel data sets by the use of first-difference techniques and/or fixed-effects estimators.

Sample Issues

The original sampling frame consisted of 664 individuals. From this base, a telephone survey was designed by the authors in order to contact every borrower from this initial subset. Unfortunately, 20 percent of the individuals no longer resided at the address and telephone numbers supplied in the sampling frame, and thus were not contacted by the surveyors.[10] However, of those individuals that were contacted, the survey response rate was very high (82 percent). In our empirical estimations we excluded observations with missing data on the dependent variable – average monthly net-business revenues – thereby reducing the eventual sample size to 430 observations.

Characteristics of Calmeadow's Borrowers

Calmeadow's clients are demographically representative of the population of Toronto. Approximately 55% of all clients are female and over half are immigrants, 40% are Caucasian and most major ethnic groups are present (Table 1). However, the sample is more heavily weighted in favour of

African Canadians while East and South Asian Canadians are underrepresented.[11] The average borrower is single, 42 years old (normally distributed) and has more education than the general population (since over 60% have a community college diploma or better).

The household characteristics reveal that the average Calmeadow client is poor (Table 2). Average monthly household income is $1600 (median $1300) and net assets are only $6800 (median $4500).[12] Many borrowers (40%) rely on their self-employment activity as the "major" or "only" source of income. The majority of clients, while obviously credit constrained, have other sources of credit (primarily in the form of credit cards).[13] However, 40% rely solely on Calmeadow for their funds.

The average business operated by a Calmeadow client is very small with revenues of only $2680 per month (median $1500) and profits of $1250 per month (median $600) (Table 2). The vast majority of clients run sole proprietorships located in their home. Over 30% are startups (less than 1 year old) and existing businesses have been operating for an average of two years. The businesses cover a wide range of activity but most provide some form of personal, business or retail service. A small but significant minority of businesses manufacture small items (artisanry or jewellery manufacturing for example) or own construction/landscaping businesses. Apart from this last category, most businesses are similar in size and composition.

The survey data reveal that roughly half of all the respondents belonged to a community club, association or organisation (Table 3). Typically, Calmeadow clients were members of organisations such as ethnic community groups, churches, volunteer organisations and sports clubs. They tended to know their neighbours and generally found their business connections to be helpful.

4. Measuring the Returns to Social Capital and Neighbourhood Characteristics

Naïve Empirical Specification

A standard human capital regression model augmented with social capital and neighbourhood effects was initially specified:

$$\text{Model 1:} \qquad y_i = \alpha + \beta_1 H_i + \beta_2 S_i + \beta_3 N_i + \beta_4 X_i + \ \varepsilon_i \qquad\qquad (2)$$

where y_i is log monthly net average earnings, H is a set of human capital variables, S social capital variables, N neighbourhood characteristics and X other personal and business characteristics. The subscript i denotes the self-employed individual.

Three measures of human capital S were employed: categorical educational attainment variables; a dummy variable coded 1 if individuals had taken a technical course related to their business, 0 otherwise; and a dummy variable coded 1 if the individual had knowledge of computers, 0 otherwise. The vector N included three principal indicators of neighbourhood quality[14]: the proportion of residential/commercial construction built before 1960; the proportion of individuals with less than 13-15 years of education; and the proportion of home ownership. A lengthy list of personal and business characteristics X were also added as controls and are clearly labeled in the regression tables.

Measures of Social Capital

To account for social capital's multiple dimensions, three measures of social capital were employed.[15] First, membership in a community organization that met regularly was used as a proxy for the instrumental and informative benefits arising from a greater <u>quantity</u> of social ties. More generally, this measure was intended to capture the returns gained from participation in civil society. Second, asking survey participants to rate their social contacts in terms of how helpful they were to business success assessed the <u>quality</u> of such social connections. Lastly, how well an individual knew their neighbor was measured through a survey question and multiplied with a home-based business dummy in order to create an interaction term. The knowledge-of-neighbour variable and its interaction term were employed in order to control for the effect of <u>weak</u> and <u>strong</u> social ties on self-employment earnings.[16] The concept of <u>weak-ties</u> has been used extensively amongst economic sociologists to describe relationships among people who do not necessarily maintain regular communication or who do not live in close proximity with each other, but who nevertheless derive benefits from the maintenance of such social relations. <u>Strong-ties</u>, on the other hand, are those forged largely among family and close-knit friends (Granovetter, 1973). Weak ties are potentially very important for low-income entrepreneurs living and/or operating

their businesses within a neighbourhood because they can provide access to valuable outside resources and information about external customers and suppliers.

Problems in Estimating the Returns to Social Capital and Neighbourhood Characteristics

There are three main issues that complicate the estimation of the returns to social capital and neighbourhood characteristics captured in Model 1: (i) identification, (ii) endogeneity and (iii) unobserved heterogeneity all confound our naïve empirical specification. Identification error is a potential problem given the multifaceted nature of our three neighbourhood quality variables. In particular, our hypothesis that general education levels within a neighbourhood influence individual earnings may simply be picking up local demand conditions rather than the influence of social interactions with educated people.

A second problem is endogeneity since greater earnings could be linked to being an active member of a social organization. Hence, the causality could run both ways. One mechanism may be that club membership leads to higher earnings (due to more business contacts), which simultaneously leads to a greater propensity to join and become a more active member. If this is the case, then the coefficient on club membership will be biased upwards. Another mechanism may be that struggling entrepreneurs spend more time trying to keep their microbusinesses solvent and therefore have a lower probability of actively participating in social organizations.[17]

Finally, any positive social capital effects may be due to unobserved heterogeneity. Individuals who already have extensive social connections are also those who are more likely to join a club and may also possess some unobservable characteristic (such as entrepreneurial ability or being a "go-getter") that leads to higher returns in their self-employment activity. Unless one can find enough information on a client's background and attitudinal disposition, or suitable instruments for predicting club membership, then the interpretation on this coefficient should be considered carefully since it will be positively biased.[18]   Each of the three problems highlighted above is examined in turn with suggested modeling strategies and empirical specifications included.

Problem 1: Disaggregating the 'Social' and 'Demand' Effects of Neighbourhood Quality

Even if a significant correlation between neighbourhood quality and self-employment earnings were to emerge from equation (2), it would be difficult to specify the mechanism at work. The question of whether neighbourhood quality measures are capturing the ability of the small-scale self-employed to more easily accumulate social capital, or whether they are simply measuring a demand effect, would still remain. Consequently, controlling for both average neighbourhood income <u>levels</u> and <u>changes</u> in average income would help identify which neighbourhood mechanism is at work. If general levels of education, home ownership and traditional urban design operate through social channels, then these neighbourhood effects should persist even after controlling for local demand conditions. The naïve empirical specification should therefore be augmented in order to incorporate the following two neighbourhood demand effects:

$$\text{Model 2:} \qquad y_i = \alpha + \beta_1 H_i + \beta_2 S_i + \beta_3 N_i + \beta_4 X_i + \beta_5 L_i + \beta_6 \triangle L_i + \varepsilon_i \qquad (3)$$

where L is the average neighbourhood income level in 1996 and where $\triangle L = L_{1996} - L_{1991}$ is the change in average neighbourhood income between 1991 and 1996 (these years represent the latest available Canadian Census data).

Problem 2: The Simultaneity and Endogeneity of Club Membership and Earnings

If active participation in civil society is endogenous, then any estimate of organizational membership will be biased upwards. That is, if membership requires some upfront cost then this would leave only the "already successful" in our membership category. However, an examination of the types of clubs that were reported in the survey suggests that endogeneity based on budget constraints is not problematic. For example, frequently listed associations were churches, sports clubs or teams, women's groups, cultural and ethnic associations, hospice societies, senior's groups and various small business associations. Typically, these types of clubs/groups/associations do not require any substantive monetary contribution to participate. Indeed, individuals belonged to groups whose activities required time and social commitment, but no substantial membership dues.

However, even if financial resources are not a binding constraint on membership, the time needed to join a group often is. It may be that struggling microborrowers spend more time on rescuing their failing businesses, than they do participating actively in civil society. Consequently, one would need to control for "time-spent" at the self-employment activity.[19] Since we lack such a specific variable, we employ as a proxy, a dummy variable coded 1 if the respondent's self-employment earnings only "supplement" household income, 0 otherwise. This is done under the assumption that individuals who supplement their income from self-employment are typically employed full or part time or have minor dependents.

Lastly, there may be a tendency for membership to be based on more than just sufficient time or money. Belonging to a club or organization may be linked to some measure of social status, and one clear measure of social status is business success. In this instance, even if membership involves a negligible monetary cost and few time constraints, the possibility exists that only the most successful individuals tend to be active members of civil society.

The simultaneity problem based on unobservable social costs or predilections to join an organization can be solved by the use of instrumental variables, provided of course that valid instruments exist. Proper instruments in this case need to be significant predictors of group membership but unrelated to earnings. As instruments in our first stage IV estimate, we use three attitudinal variables that are unobservable to lenders but that indicate some latent tendency to participate in civil society. These latent variables are (i) did the microborrower value membership in a club or organization highly, (ii) did he/she value living in a neighbourhood where one knows neighbours very well, and (iii) did he/she denote a willingness to be patient when working with others.

$$\text{Model 3:} \qquad y_i = \alpha + \beta_1 H_i + \beta_{IV} S_i + \beta_3 N_i + \beta_4 X_i + \varepsilon_i \tag{4}$$

While complete checks of our IV estimates are found in table 5, an illustrative example demonstrates that attitudinal predispositions to club membership are weak predictors of earnings performance for microborrowers, as compared to actual group membership. Row 1 in Table 4 indicates that mean and median earnings are not significantly different among group members irrespective of how they felt about

group membership. What is striking, however, are the differences one notices looking at columns (1) and (2.) Mean and median earnings increase markedly based on club membership irrespective of the hard-to-observe attitudinal predisposition to join. That is, club membership is a better correlate of earnings than some underlying predilection towards group membership. Naturally, these results only suggest that organizational membership has a positive effect independent of a certain measure of unobserved heterogeneity. They do not tell us whether other motivational predispositions are at work, which is why the IV estimates were conducted using three instruments and not one.

Problem 3: Controlling For Unobserved Heterogeneity Amongst Borrowers

Any interpretation of the coefficient for actively participating in civil society *S* obtained from equation (2) is also dependent on the nature of the residual ε_i. If observable measures of human capital and ability do not fully capture some latent tendency to be active in all endeavors (both social and business related) then even after controlling for a host of other factors, earnings differentials may still reflect unobserved work ethic and entrepreneurial ability. The error term in any estimation of (2) would therefore be composed of two components:

$$\varepsilon_i = \lambda_i + \mu_i \tag{5}$$

where λ is fixed or inherent entrepreneurial ability and where μ is the random component which is orthogonal to group membership. With panel data one could employ fixed-effect and first difference estimators to control for the unobserved ability. In the absence of such data, we instead exploit the rich assortment of background information on clients collected by our borrower survey. These variables can be added to equation (2) in an effort to control for unobserved characteristics. We have identified four time invariant components of unobserved heterogeneity λ: (i) a vector of attitudes towards social cohesion; (ii) a vector of preferences and motivation for self-employment work; (iii) a vector of perceived benefits of social ties (both weak and strong); and (iv) a vector of work-ethic variables based on social attitudes to group work and attitudes towards individual risk taking.[20] By identifying these hard-to-observe variables one can compare equation (2) with our <u>pseudo fixed effect</u> estimation below:

Model 4: $\qquad y_i = \alpha + \beta_1 H_i + \beta_2 S_i + \beta_3 N_i + \beta_4 X_i + \beta_5 \lambda_i + \mu_i \tag{6}$

where λ is our four-component vector of fixed effects. The expectation is that after controlling for previously unobservable characteristics the coefficient on our principal social capital variable (club membership) should fall and perhaps drop in significance when compared to Model 2. If the effect of participating in civil society is significant then the positive association between membership and earnings should persist.

5. Results

OLS estimates of equation (2) are presented in Table 5 where the dependent variable is log monthly net earnings (revenues minus costs). Column 1 (Model 1a) presents OLS estimates for a simple human capital specification of equation (2) without social capital and neighbourhood effects. Middle aged, married, male and Canadian-born individuals earn more from their self-employment activities.[21] Surprisingly, higher levels of education are not correlated with higher earnings, a finding that contradicts the standard results found in most human capital studies. However, the positive result often associated with human capital generally applies to the formal labour market, where issues of credentialing and signaling may matter more. In the environment of small scale self-employment, it is very likely that the skills associated with running a small business are quite different from the more formal skills attained from schooling. This would also explain why technical training is not significantly related to higher self-employment earnings. However, individuals with a greater knowledge of computers earned more. This variable may be a proxy for other traits such as adaptability or the capacity to learn new skills, which are correlated with business success.

Home based businesses, which are typically smaller, earned less, while being a startup did not affect earnings. Likewise, having paid workers was positively correlated with higher earnings but was not significant (results not shown). The type of business (e.g., its industrial classification) was also entered as a control to account for industry heterogeneity, but the effects were not significant (results not shown). The effect of being in a peer group was negative and significant. This result can be attributed to the simple fact that self-employed individuals who received an individual loan tended to run larger operations, as required by the application process. Consequently, one should not draw any firm

conclusions regarding the effect of being in a peer group, in terms of its instrumental, informational or psychological effects, since the peer group dummy variable is actually picking up the simple fact that peer group borrowers run considerably smaller businesses. Lastly, self-employed individuals who had outside sources of income earned less than individuals who relied more heavily on their self-employment earnings.

Does Social Capital Affect Self-Employment Earnings?

Table 5, column (2) presents OLS estimates for Model 1b. Being a member of a club, team, association or organization that meets fairly regularly was significantly and positively associated with business success. On average, members earned more than non-members. Individuals who stated that connections or contacts were useful earned more than those who believed that contacts or connections were not useful. While both coefficients may be positively biased, the second measure of social capital is particularly problematic. It may simply be the case that those individuals who do better report their business connections as being useful, and hence the result is biased owing to simultaneity. Lastly, knowing neighbors well was associated with lower monthly net-earnings, albeit the effect was insignificant. However, for home-based businesses, the interaction with knowledge of neighbors was positively related to earnings (again insignificant). This suggests that weak, rather than strong locally rooted ties, are more important for non-home based businesses. The net effect of knowing your neighbors well was marginally positive for homeowners.

Do Neighbourhood Characteristics Affect Self-Employment Earnings?

Individuals, who reside and/or work in neighbourhoods where there is a greater proportion of people with education levels beyond a high school diploma, earned significantly more than otherwise similar individuals. Traditional urban neighbourhoods (those built before 1960) also had positive effects on net-earnings, as did the greater proportion of residents owning homes or apartments.[22]

While it is clear that there is a correlation between neighbourhood effects and self-employment earnings, it is difficult to identify which mechanism is at work. Are neighbourhood measures such as education and traditional urban environment picking up the ability to more easily accumulate social

capital? Or, are they simply measuring a demand effect? To this end, column (3) presents the estimation results for Model 2. The inclusion of log average neighbourhood income and its change does not remove the significance of the education variable. However, it is clear from the results that neighbourhood education and income are highly collinear, and consequently, the neighbourhood effects should still be interpreted with care.

Is the Club Membership Coefficient Biased?

As discussed, attributing cause and effect of our social capital measures on earnings is difficult given problems of endogeneity and unobserved individual level heterogeneity. Each is addressed in turn. First, the results of estimating Model 3 with instrumental variables are presented in Table 5, column 4. Three measures of attitudes towards social connections are used as instruments for club membership in the first stage regression (results not shown). The validity of the instruments is partially confirmed by the over identification test statistic: one cannot reject the null hypothesis that the instruments are uncorrelated with the error term. (Davidson and Mackinnon, 1993). The coefficient for club membership is now larger than its OLS counterpart but insignificant. The increase in the magnitude of the club membership coefficient suggests that club membership is exogenous since one would expect the coefficient to fall if simultaneity were present (Narayan and Pritchett, 1997). However, the results suggest that the instruments are weak, at best, given the considerable increase in the magnitude of the standard error for club membership coefficient. The issue of unobserved heterogeneity is addressed by estimating Model 4 (our pseudo-fixed effects regression) and the results are presented in Table 6 (see Table 7 for the list of attitudinal measures). In each case, inclusion of a lengthy set of hard-to-observe attitudinal dummy variables did not dramatically alter the magnitude nor the significance of the social capital variables.

6.   Conclusion

The present study has made a dual contribution to our understanding of microfinance borrowing within highly industrialized settings. First, it explored and described the outcomes of small-scaled self-employed individuals who accessed loans from Canada's largest non-profit lending organization, something which heretofore we knew very little about. Second, by estimating an earnings function for a

sample of self-employed microfinance borrowers, the paper answered one of the three critical questions facing the microfinance literature: namely, what accounts for microborrower success? As demonstrated in the empirical analysis, it appears that otherwise similar individuals (e.g., individuals with the same observable levels of education) do not profit equally from the provision of microcredit. Social capital and other factors that are less observable to lenders – community wide levels of general education and knowledge of computing – all contribute to self-employment success.

Modeling and estimating the factors that contribute to the viability and economic success of these small-scale entrepreneurs is one way for microfinance institutions to design efficient credit screening policies. The present study has shown that individuals with little or no financial collateral may benefit from increased levels of social capital. There are also strong theoretical reasons and some empirical confirmation that demonstrates that only certain urban environments are amenable to small-scale self-employment success and that neighbourhood characteristics influence individual labour market performance.

The importance of these findings is also heightened by the fact that small-scale self-employment has accounted for a large portion of private sector employment growth throughout the 1990s. Whether this turns out to be a permanent feature of the labour market is still subject to debate (Roy, 1997). However, the fact that microfinance institutions like Calmeadow-Metrofund - which have been common in low-income economies for several decades - are now operating within urban centres lends indirect support to the notion put forth by several writers who link the rise in small-scale self-employment to the emergence of a new tertiary economy and a fundamental change in the overall occupational structure in which the self-employed workforce takes on greater importance as compared to wage earners.

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Table 1: Characteristics of Clients (% unless otherwise noted)

	All Clients	Group Clients	Individual Clients
Demographic			
Male	44.4	45.3	32.6
Female	55.6	54.7	67.4
Caucasian	41.2	43.2	28.6
E. Europe	1.0	1.0	0.0
W. Europe	0.8	0.9	0.0
Arabic	0.6	0.5	2.4
African	30.8	28.9	57.1
Caribbean	6.0	6.3	2.4
East Asian	2.7	2.9	0.0
South Asian	3.3	2.5	0.0
Hispanics	12.3	12.5	9.5
Other	1.3	1.4	0.0
Immigrant	52.8	52.3	60.0
Native-born	47.2	47.7	40.0
Single	52.3	52.1	54.8
Married	32.1	31.8	35.7
Divorced	8.4	8.3	4.5
Other	7.4	7.9	5.0
Average Age (years)	41.8	41.7	43.0
Average Number of dependents	1.8	1.8	1.4
Human Capital			
University	31.6	30.7	48.0
College	31.6	32.0	24.0
High School	32.5	33.2	20.0
Less than high school	4.3	4.1	8.0
Has Skills Training in Business Activity	36.1	35.5	45.2
Knowledge of Computers (seven point scale)	5.4	5.4	5.6

Table 2: Household and Business Characteristics (% unless otherwise noted)

	All Clients	Group Clients	Individual Clients
Household Wealth (dollars)			
Monthly Income	1635	1565	2464
Assets	13509	12769	21722
Liabilities	7521	6719	16623
Net Worth	6778	6116	5482
Importance of Business Income			
Only source	24.4	24.6	23.1
Major source	15.0	14.6	19.2
Supplement	60.6	60.9	57.7
Sources of Credit			
None	40.0	39.9	41.5
Bank	2.7	2.7	2.4
Credit Cards	44.9	44.7	46.3
Family/Friends	5.6	6.1	0.0
Other	1.2	1.3	0.0
Multiple Sources	5.6	5.3	9.8
Business Statistics (dollars / monthly)			
Revenues	2682	2429	5862
Costs	1847	1625	4807
Profits	1258	1256	1289
Ownership Type			
Sole Proprietorship	89.5	89.7	87.5
Partnership	4.5	4.6	5.0
Incorporated	4.4	4.0	7.5
Other	1.4	1.7	0.0
Startup Business	31.9	33.1	15.0
Age of business (months)	24.9	24.0	38.4
Business Location			
Home	74.0	75.2	62.5
Store/Shop	11.0	10.5	17.5
Other	15.0	14.3	20.0

Table 3: Survey Data: (% unless otherwise noted)

	All Clients	Group Clients	Individual Clients
Are you a member of team, club, association or organisation			
Yes	48.7	48.8	48.0
No	51.3	51.2	52.0
How well do you know your neighbours?			
Very well	20.9	20.9	20.8
Well	25.1	23.3	45.8
Slightly	30.6	30.6	29.2
Not very well	23.5	25.1	4.2
How helpful are your business connections?			
Very important	66.1	66.4	62.5
Somewhat important	25.2	24.2	37.5
Somewhat unimportant	6.7	7.3	0.0
Not important	1.9	2.1	0.0

Table 4: Club Membership, Attitudes and Self-Employment Earnings*

Borrower has Club Membership	Borrower Thinks Club Membership is Important	
	Yes	No
Yes	1104.95 (643.00)	1118.69 (650.00)
No	636.41 (462.00)	867.03 (470.00)

* Numbers represent means (parentheses indicate median) of net monthly earnings.

Table 5: Regression Coefficients (Standard Errors): Dependent Variable Log Net Monthly Earnings

Variable	Model (1a) OLS	Model (1b) OLS	Model (2) OLS	Model (3) IV
Demographic				
[Age <30]				
Age 31-40	0.3278*	0.2438	0.2386	0.2180
	(0.1838)	(0.1855)	(0.1844)	(0.2425)
Age 41-50	0.3362*	0.2921	0.2911*	0.2680
	(0.1789)	(0.1818)	(0.1811)	(0.2324)
Age 51-60	0.5246**	0.5048**	0.5225**	0.4936**
	(0.2120)	(0.2137)	(0.2146)	(0.2275)
Age 61+	-0.6110*	-0.6601**	-0.6274**	-0.6886*
	(0.3161)	(0.2980)	(0.3001)	(0.3413)
Married	0.2049*	0.1996	0.1897	0.1970
	(0.1231)	(0.1245)	(0.1249)	(0.1238)
Male	0.3653**	0.3530**	0.3540**	0.3472**
	(0.1280)	(0.1259)	(0.1260)	(0.1327)
Immigrant	-0.3609**	-0.3341**	-0.3455**	-0.3167**
	(0.1196)	(0.1195)	(0.1209)	(0.1518)
Human Capital				
[<high school]				
University	-0.2342	-0.2920	-0.2875	-0.3088
	(0.1813)	(0.1809)	(0.1818)	(0.2047)
College	-0.0817	-0.1140	-0.1242	-0.1115
	(0.1811)	(0.1770)	(0.1761)	(0.1771)
High School	-0.2005	-0.2028	-0.1955	-0.1938
	(0.1776)	(0.1774)	(0.1780)	(0.1838)
Technical Training	0.0686	0.0588	0.0471	0.0294
	(0.1234)	(0.1221)	(0.1227)	(0.1892)
Knowledge of Computers	0.1261**	0.1271**	0.1312**	0.1283**
	(0.0517)	(0.0522)	(0.0524)	(0.0536)
Business Characteristics				
Home-based	-0.4384**	-0.3975**	-0.3987**	-0.4193*
	(0.1530)	(0.1817)	(0.1818)	(0.2095)
Startup	0.0322	0.0445	0.0408	0.0603
	(0.1387)	(0.1400)	(0.1400)	(0.1633)
Peer Loan	-1.0421**	-0.9512**	-1.0264**	-0.9427**
	(0.4662)	(0.4520)	(0.4491)	(0.4412)
Loan Size	-0.0463	-0.0316	-0.0372	-0.0253
	(0.0582)	(0.0619)	(0.0618)	(0.0693)
Outside Employment	-0.2547*	-0.2621**	-0.2667**	-0.2780*
	(0.1309)	(0.1306)	(0.1304)	(0.1545)

Huber\White\sandwich estimators of the variance are utilized. ** Significant at 5 percent level.
 * Significant at 10 percent level.

Table 5: Regression Coefficients (Std. Err.): Dependent Variable Log Net Monthly Earnings

Variable	Model (1a) OLS	Model (1b) OLS	Model (2) OLS	Model (3) IV
Neighbourhood Effects				
Traditional Neighbourhood		0.0297	0.0640	0.0301
		(0.1204)	(0.1309)	(0.1205)
Proportion pop w/ less than high school		-1.3208**	-2.5533**	-1.3169**
		(0.5383)	(0.9927)	(0.5408)
Proportion home ownership		0.1554	0.1778	0.1355
		(0.4035)	(0.4103)	(0.4249)
Log average neighbourhood household income			-0.6707	
			(0.4979)	
Δ log average neighbourhood household income			-0.0512	
			(0.6716)	
Social Capital				
Member of Group/Club/ Association		0.3571**	0.3671**	0.6579
		(0.1633)	(0.1638)	(1.5374)
Business Contacts Useful		0.4364*	0.4663**	0.3880
		(0.2336)	(0.2368)	(0.3391)
Knows Neighbours Well		-0.3573	-0.3267	-0.3563
		(0.2786)	(0.2792)	(0.2725)
Knows Neighbours Well * home-based		0.3051	0.2864	-0.3303
		(0.3275)	(0.3296)	(0.3547)
Constant	7.1300**	6.7835**	14.6053**	6.7171**
	(0.6338)	(0.6869)	(5.8092)	(0.7329)
R^2	0.1423	0.1766	0.1803	0.1694
F-stat	3.97	4.27	4.09	3.96
Prob > F	0.0000	0.0000	0.0000	0.0000
Instrument Test (P-value)				0.71
n	430	430	430	430

Huber\White\sandwich estimators of the variance are utilized. ** Significant at 5 percent level.
* Significant at 10 percent level. Instruments include did the microborrower value membership in a club or organization highly, value living in a neighbourhood where one knows neighbours very well, and did the microborrower denote a willingness to be patient when working with others.

Table 6: Regression Coefficients (Std. Errs): Dependent Variable Log Net Monthly Earnings

	Model (4a)	Model (4b)	Model (4c)	Model (4d)
Neighbourhood Effects				
Traditional Neighbourhood	0.0313	0.0458	0.0307	0.0660
	(0.1212)	(0.1216)	(0.1202)	(0.1252)
Proportion pop w/ less	-1.3517**	-1.2218**	-1.3388**	-1.3597**
than high school	(0.5299)	(0.5543)	(0.5409)	(0.5456)
Proportion home	0.0940	0.1465	0.1593	0.2069
ownership	(0.4160)	(0.4059)	(0.4039)	(0.4023)
Social Capital				
Member of Group/	0.3539**	0.3779**	0.3539**	0.3367**
Club/Association	(0.1658)	(0.1657)	(0.1621)	(0.1595)
Business Contacts	0.4926**	0.4181*	0.4432*	0.4608*
Useful	(0.2365)	(0.2433)	(0.2378)	(0.2457)
Knows Neighbours	-0.3422	-0.3516	-0.3423	-0.3250
Well	(0.2813)	(0.2821)	(0.2855)	(0.2808)
Knows Neighbours	0.3200	0.3266	0.3064	0.2756
Well* home-based	(0.3370)	(0.3310)	(0.3365)	(0.3376)

Huber\White\sandwich estimators of the variance are utilized. ** Significant at 5 percent level.
* Significant at 10 percent level. Model specifications listed below

Table 7: Fixed Effect Characteristics

Model	Categorical Variables
Model (4a) Attitudes towards social capital:	Being a member of a group is important Living in a neighbourhood where you know a lot of people is important. Trust in group Feel obligation to peer group
Model (4b) Attitudes towards self-employment:	How important was need to be own boss I would rather be employed full time I am confident of business success Lack of paid employment opportunities
Model (4c) Attitudes towards social connections:	How helpful are your business contacts I can count on my friends and family Business connections are important
Model (4d) Attitudes towards work (the following are important for business success)	Hard Work Willingness to take risks Patience in working with others Self-reliance Willingness to ask for advice Enjoy challenges

[1] In Canada alone there are at least 43 microfinance institutions (Calmeadow, 1999).

[2] The term 'small-scale self-employment' primarily captures own-account incorporated/unincorporated self-employed workers, but also encompasses very small employers with less than two paid employees. The term small-scale self-employed is used synonymously in the text with other terms such as micro-entrepreneur, micro-enterprise and the low income self-employed.

[3] Pitt and Kandker (1998) and Signe-Mary McKernan (forthcoming) have examined the 'credit' and 'non-credit' effects of microlending on borrower profitability.

[4] See Evans and Leighton (1989) for a standard treatment.

[5] Darity and Goldsmith (1996) summarize the empirical and theoretical evidence demonstrating the positive relationship between psychological well-being and individual productivity.

[6] The relevant geographic scope of a "neighbourhood" is the area within which a neighbourhood characteristic effect operates, and thus depends on the externality under consideration.

[7] Indeed, the literature on neighbourhood effects emphasizes the positive (and sometimes negative) spillovers that can prevail as individuals cluster, both voluntarily and involuntarily, into particular neighbourhoods (Borjas, 1992).

[8] Calmeadow Metrofund serves the Metropolitan Toronto region, and lends money to self-employed individuals who have been traditionally neglected by banks and other mainstream financial institutions For example, 30 percent of Calmeadow's client base (see table 2) is composed of start-up businesses (defined as businesses with less than one year of operation). This is a group that traditionally would not be served by most banking institutions given "standard documentation requirements" which imply the need to supply 1-3 years of personal and business financial statements.

[9] For instance, borrowers often provide their receipts for revenues and expenses. Since most of the borrowers operate in the informal sector and are unregistered, there is less of a tendency to underestimate earnings, as compared to survey data that utilizes income tax filing data to measure self-employment earnings. Likewise, fellow group members also scrutinize a borrower's application – if the application form data are not satisfactory, the group can veto that particular borrower's application.

[10] The survey may have systematically missed those who had moved. It may be that "movers" are associated with a key independent variable such as lack of social ties and the sample would have misrepresented the "true" distribution of factors like social capital and biased upward the social capital co-efficient. However, a lack of social ties may also prevent mobility. This could be the case if the social ties are weak and located outside the community. If this is so, then alternative places to work and live are not available to those lacking social ties. Hence movers may have more, rather than fewer, social ties and thus our co-efficient on social capital would be biased downwards. Given this ambiguity, the bias on the social capital co-efficient is indeterminate.

[11] This may represent the fact that South and East Asians (in particular) have well-developed informal credit markets within their ethnic community and thus Calmeadow is not a source of credit.

[12] This figure is most likely biased upwards significantly. Anecdotal evidence suggests that, while liabilities are well reported (due to their verification), assets are overestimated systematically.

[13] Borrowers who posses credit cards are often "maxed out", that is, at their credit limit.

[14] Neighbourhoods are defined, for the purposes of this study, as Canadian federal electoral districts. In results not presented here, we originally included unrestricted neighbourhood fixed-effect dummies. These results were insignificant and were dropped from our reduced-form specification.

[15] Using multiple measures of social capital also reduces the problem of measurement error for our key independent variables. For instance, membership in a group or organization can be quantified by adding up the total number of club memberships. This is an imperfect proxy, however, as it is very difficult to know if individuals make a quantity-quality tradeoff with respect to social ties. Consequently, virtually any <u>single</u> quantification of social capital is a potential oversimplification of an otherwise complicated measure.

[16] More specifically, the idea behind the <u>knowledge of neighbor variable</u> is that individuals with strong ties inside their own locality are more isolated from weak tie relationships that are needed for business success. The contingency argument is that those businesses rooted in their local community and operating out of the home (the interaction term) should benefit from closer ties with neighbors. The coefficient for knowing neighbors well should be negative for the entire sample, but positive when interacted for those who are home based.

[17] We thank an anonymous referee for this suggestion.

[18] Self-selection may also be an issue. The borrowers contained in the Calmeadow data set represent a select group of micro-entrepreneurs, since these individuals, while credit-constrained, were nonetheless able to meet the borrowing requirements of the Calmeadow program. In this way, the borrowers in the data set are qualitatively different than the borrowers who were declined loans (or those who did not bother to apply at all). The relevant

question is whether this source of self-selection is correlated with the set of observables on the right-hand side, in particular, the measures of social capital that are of interest. One could argue that only those individuals with high levels of social capital could access loans and thus self-selection would bias any social capital coefficient upwards. Fortunately, Calmeadow does maintain records on those clients who are declined and there does not appear to be any obvious difference (in terms of the observables in the regression) between accepted and declined borrowers, since the basis for rejection is typically poor credit history (recent bankruptcy) or lack of an adequate business plan.

[19] Once again we thank an anonymous reviewer for this suggestion.

[20] A list of all the variables used in our pseudo fixed effect estimations can be found in Table 7.

[21] The negative coefficient for those over 60 years old may reflect life cycle behaviour.

[22] Although the signs of the coefficients all confirmed the theoretical expectations, only one of the three neighbourhood characteristics is significantly related to net earnings. The basic problem resides in the lack of variation in the data. The sample is too small to detect the spillover effects arising from average neighbourhood characteristics. In the above regressions there are 5 to 15 individual observations on earnings for each observation on neighbourhood characteristics. It may be that these variables are in fact capturing unobserved qualities of self-employed individuals who reside in a given neighbourhood.