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# Social Capital and Financial Credit Markets: Credit Demand in Mexico, 2010

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**Abstract**

In the presence of market failures, people need to find acceptable mechanisms to reduce uncertainty and maximize potential benefits. Because the principal failure is the asymmetry of information available, people resort to channels that transmit information to compensate for these drawbacks. These channels are networks of social relationships. This phenomenon is referred to as Social Capital, the network of people that an individual possesses, and whose use could bring about benefits. In the case of the financial market (especially the credit market), people make use of Social Capital when making decisions within the market. Through a series of linear models, drawing on data from wvs-2010 and enigh-2010, it was found that credit demand responds to a few variables that indicate individuals' perceptions of their environment (information).

**Keywords:** social capital, credit, financial markets, financial services, linear models.

## INTRODUCTION

In Mexico, the number of people that use financial services is rather low compared with the group that could potentially use them. Less than 1/5 of Mexico's population with the capacity for savings (based on income) actually has a bank savings account (18.0% of the population) or credit (14.0%). This is an extremely underdeveloped market with various obstacles to access.

Even so, the need for financing and saving is fundamental in peoples' lives and, as far as is known, this need can be satisfied. However, this demand is not being met by way of formal instruments, as a vast swath of the population (75.0%) prefers to turn to relatives and friends, where there is greater trust and comfort, even if this is not the economically optimal choice.

Some of the reasons underlying this situation include the failings of the financial market, such as: the lack of acceptable information (Stiglitz, 1989), low confidence in banks, and the anonymity of agents in the market (DiGiannatale *et al.,*2008). However, people still manage to obtain credit. Lenders or family members transfer some of their savings to those who request it from them, in exchange for interest payments or some other type of payment, either in kind or in labor. In other words, people draw on their networks of interpersonal connections and, through this exchange of

information, access opportunities that bring them tangible benefits. In other words, people make use of Social Capital (SC).

SC is a complex concept that, by its very nature, is difficult to define, measure, or prove. However, it is a tangible force in the daily life of society and even in the market. Despite this, the power of social capital is outside of the economic system, as it serves as a means of correcting the information that people have and therefore is a reference for making decisions in real life. It also reflects the lack of confidence people feel towards formal financing mechanisms.

In Mexico, in 2010, it was difficult to measure SC by traditional means, but its influence could be directly observed with strategic variables in econometric models. In this way, the lack of confidence in the banks, or the preference for informal systems, were the principal variables that explained the structure of credit demand and the internal dynamics of the overall Mexican financial system.

## JUSTIFICATION

Changes in market structures always follow societal changes, in other words, peoples' behavior (and vice versa). In the economy, decisions are made based on peoples' expectations, and people depend on the information within their reach to engage in rational processes before decision-making. For this reason, SC can help explain some socioeconomic relationships, as well as how they have evolved. Because the financial market affects productive sectors, studying it is strategic for the economic planning of nations; especially the primary sector and, therefore, the producers that directly use natural resources.

## DESCRIPTION OF THE PROBLEM

Because credit is a gear in the economic motor, understanding its distortions is essential to putting the system on the path to economic development. Moreover, it can help diagnose the health of the overall financial system. In Mexico, credit is not a universally distributed service, according to the official numbers. To understand how people decide whether to resort to the market or not, it is necessary to understand some of the factors upon which they base their decisions and study how these factors affect their choices in the market. SC is a tool not only to describe the behavior of individuals, but also to help people make optimal decisions in specific circumstances. Briefly, SC refers to the network of human relations of a specific agent, and the flow of useful information that maintaining this network affords.

In the financial system, SC can be used to understand the degree of institutional formality that people prefer, as well as the level of risk they are willing to assume. The first step is to examine the nature of SC relationships and the internal dynamics of the financial services, and specifically the credit, market.

## OBJECTIVES AND HYPOTHESES

The main objective of this research was to understand how and in what ways SC impacted the dynamics of the financial services and credit markets in Mexico in 2010, in order to come up with recommendations useful to public policymakers. Another specific objective was to understand the concept of SC and its relationship with the financial system in order to define a quantitative model to measure the phenomenon. Using a group of 11 models, the drivers of SC were studied, in theoretical contrast with the data officially reported by INEGI.[2]

The hypotheses proposed revolved around the idea that SC is a concept that can explain the failings of the financial market, and which in fact is closely related to credit demand. It was also believed that the functional distribution of information could help correct the market. Based on these results, we can discuss and analyze public policy options to take into account peoples' perceptions as an indicator for corrections in making economic decisions.

## THEORETICAL DISCUSSION

Social networks consist of the linkages that exist between members of a group, or societies that maintain a relationship with one another with mutual knowledge. Networks constitute the patchwork of interactions among people, as well as the conditions and obligations of living alongside one another, as these relationships are far from trivial. SC allows for an approach to this idea, because it can be used to measure the impact on socioeconomic phenomena (Alarcón *et al.,*2003; DiGiannatale *et al.,* 2008; Mitchell *et al.,* 1997).

SC is a resource that individuals use to access opportunities that are strategic for them. SC is created, accumulated, and reinforced through historically slow processes. It is also periodically built, destroyed, and renewed, and tied to habits and experiences, generating relationships. Applied to the economy, SC reduces the costs of transaction and information. SC is also multifaceted, cognoscitive, and structural, and depends on socioeconomic and civic variables (Boix and Posner, 1996; Bourdieu, 1985; Espinoza and Rabi, 2009; Neira, 2002; De la Torre *et al.,* 2011).

Neira (2002) proposed the following:

Table 1. Basic Definitions of Social Capital Over Time

| *Author* | *Drivers* | *Consequences* |
|---|---|---|
| Bourdieu (1985) | Permanent networks and belonging to a group. | That ensure a set of current or potential resources to its members. |
| Coleman (1988) | Aspects of the social structure. | That facilitate certain common actions from the agents within the structure. |
| Putnam (1993) | Aspects of social organizations, such as networks, norms, and trust. | That permit action and cooperation for mutual benefit. |
| World Bank (1998) | Institutions and norms. | That make up the quality and quantity of social interactions of a society. |
| OECD (2001) | Networks, as well as shared norms, values, and opinions. | That facilitate cooperation within and between groups. |
| SCGI* (1998) | Potential benefits, advantages, and preferential treatment resulting from comparison and a person's sense of obligation towards another person or group. | SC also includes the potential benefits, advantages, and preferential treatment derived from a person's compassion and sense of obligation towards his or her own idealization. |
| ECLAC (2001) | SC is the set of norms, institutions, and organizations. | That promote trust and cooperation among people, communities, and society as a whole. |

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Source: Neira (2002).

Putnam[3] (1993) offers another vision, in which SC represents the opportunity for a social group to attain specific benefits, although this approach has come under harsh criticism. Territorial development is a systemic and complex phenomenon, in which trust and social relations are key (Boisier, 2003). Likewise, territorial development requires a context of institutional decentralization. Coleman (1988) stated that SC naturally resides in institutions and, as such, in all institutions, and therefore affects them, within rationality. The more unequal a society, the weaker the SC is. Another problem is horizontal relative force, due to local interests, or to taking on stronger moral obligations. SC can be integrated with economic theory because it helps elucidate the structure of individual

expectations, as well as the criteria on which people draw when making decisions, which are normally not taken into account in the narrow view of rationality in formal economic theory.[4] Minimizing the transaction cost depends on legal and formal rules, a guarantee of private property, and social norms (Alarcón *et al.,* Alex Alarcón *et al.,* 2003; Barro, 1996; Boix and Posner, 1996; Espinoza and Rabi, 2009; Figueroa and Cázarez, 1999).

The stakeholders[5] act outside of formal institutions and are agents who make decisions in informal markets, increasing the transaction cost of all social activities. But these costs can be absorbed by formal institutions, because the cost of a market flaw is higher than integration. Any defects of SC act as multipliers of transaction costs, but their benefits counteract them; whether speaking of public or private goods, and even with distortions, such as when there are free riders (Boix and Posner, 1996; Jones and Hill, 1988).

There are three basic levels of social relationships: bonding, bridging, and linking, although two more could be added: synergetic and economic. These represent the ways in which people interact, the degree of closeness and utility, and the mutual impacts on each other. Each level is a degree of interconnectivity that generates different levels of welfare, or thresholds, maximizing certain opportunities. It is understood that SC is considered to be a form of capital. Although these levels may be coercive, their internal rationality offers them various extraordinary possibilities to the commons. There are also potential problems, such as exclusion, corruption, criminal ties, authoritarianism, etc., as well as interests contrary to the social good, that may arise (Alex Alarcón *et al.,* 2003; Boix and Posner, 1996; Dobruck Lowe, 2012; Espinoza and Rabi, 2009; DiGiannatale *et al.,* 2008; Neira, 2002; Mitchell *et al.,* 1997; De la Torre *et al.,* 2001).

Market failings are disturbances that affect how the markets function. Most of these disturbances happen at the higher levels, because failings are not limited to the realm of market access, distribution of quality information, and the organization of agents, but rather are also affected by the capacities of human capital. Financial market failings are related to information, institutional strength, and the capacity of agents to confront the market. Other disturbances touch on price levels, imperfect competition, corruption, the information geography, peoples' learning capacity, market equilibrium, hysteresis, economic dynamics, and externalities, to name a few.

In Mexico, the lack of education is a crucial aspect, in the sense that the rationality of agents is affected by their educational threshold. Imperfect information causes adverse selection (portfolio quality), moral hazard (deviation from the purpose of credit), and the imposition of credit obligations. As such, agents are cautious with their decisions, trying to fill the holes in information by any means possible (DiGiannatale *et al.,* 2008; Sokol, 2007; Stiglitz, 1989).

Anonymity, a characteristic of developed markets, refers to when the agents in the market are not known to one another; their relationship is limited to the market. The advantage is that agents partake only in their own interest, and not by the intervention of other agents. Anonymity is a condition of infinity in the market, where people are guided by information, and where interests do not affect the processes of efficient markets. This generates a certain sense of mistrust or misgivings among some agents. In the presence of, or expectation of, a lack of transparency, or legal protection, agents delay issuing their judgments and making decisions. The lack of transparency in markets, processes, laws, regulations, agents, etc. fosters wariness, which pushes individuals to resort to less formal financial institutions, but which may be more known to them, and are either clearly or relatively less costly (DiGiannatale *et al.,* 2008), at least from their perspective.

One concept that is frequently set aside in studying SC is that of freedom. Freedom is the capacity of individuals to choose and act, subject to norms, as well as to be the center of development for society, in other words, the institutional system. Violation guarantees punishment. In economics, the concept is similar. Some of the features of this freedom are reflected in the capacity to access or provide economic services. That is why the GDP[6] or income per capita can be measured and used to expand the freedom of society (choice, production, and consumption), by understanding how they fit into public policy, but they are not determinants if they are not taken into account through the rationality of people. In the case of the financial markets, the level of free access to financial services and products, and the relative cost of a transaction or exclusion, are all barriers to this freedom. If agents do not have access to formal financial services, they do not have economic freedom. As such, the economic system does not develop properly, and generates failings, which are typically costly to society itself and the market. Deficient access to credit undermines productivity and consumption, which is harmful to society. Moreover, when conditioned by factors that begin with social relations, SC is explanatory of the nature of individual acts. The SC structure models the nature of economic relations among agents, which are defined by the degree and type of freedom they possess (Sen, 2000; Mill, 1859).

Financial inclusion is closely tied to financial stability, market integrity, and the consumer capacity of individuals. This means that developing the “formality” of the market is strategic for the development of the transactions being carried out, as well as for the good of society (CNBV, 2012).

The existence of informality in the credit markets is a serious problem for the development of activities in the financial market, especially due to the existence of faults or external rules that generate distortions. Informality operates outside of the legal institutions or normative systems of regulation, where agents enter into private agreements. The principal flaws include: *a*) higher risk and volatility; *b)* the existence of usury;[7] *c*) the exploitation of borrowers by lenders; *d*) financial and legal negligence in the use and consumption of the instruments; and *e*) low financial education among people. Moreover, informality feeds the cycle of power and corruption in local areas, where

agents with a certain degree of power tend to generate inefficient markets, monopolies, and semi-feudal taxation systems.

Informal markets emerge through social networks, where individuals meet other agents that have the potential to satisfy their needs, with transaction costs that they believe to be reasonable, given the circumstances. Informality is a problem derived from market failings, so the cost to the market and society is much higher than it would be from correcting these problems through public policy.

Formal financial markets operate in a regulated system with oversight, and offer financial service users a broad range of credit, savings, and investment options. Access to this market comes with the advantage of being able to soften individual consumption over time, as well as offer better opportunities for development through investment. In the formal market, there are market relationships that do not depend on the SC that agents have, but rather on trust and the attractive power of institutions pursuant to specific forms of offering financial products. This guarantees better results for the users of the services, who commit to a single payment for the cost of the services received. For credit, it is valid to say that formal and informal credits are imperfect substitutes for each other, because both satisfy the same need, but are not of the same quality (CNBV,[8] 2012: DiGiannatale *et al.,* 2008).

The credit market is part of the financial market, and it is an inter-temporal negotiated good, where market flaws also exist. In Mexico, the dynamics of this market also display various distortions that have exacerbated these flaws and affected the demand for these services among a significant portion of the population.[9] Its function is to redistribute income, so those who have savings can finance those who do not. The credit market offers a service in which money is lent in exchange for the return of the loan, plus compensation. As a physical commodity, it is subject to supply and demand. There are institutions that oversee these transactions, to prevent abuse (formality). Lenders are made of up two classes of agents: *a*) consolidated financial institutions (formal and anonymous) and *b*) capitalized private agents (informal and known, likely). Each of these providers is associated with a certain level of risk, trust, and accessibility. The idea is that SC can be used to study them (DiGiannatale *et al.,* 2008; Dornbusch, *et al.,* 2009; Stiglitz, 1989).

In this way, SC becomes a relevant tool in analyzing the phenomenon of financial markets, where people have to sort through the information within their reach through relationships with other agents, and there may be direct windows of opportunity, or rather, channels that transmit pieces of information, unavailable to them.

**METHODOLOGY**

This paper constructed two groups of linear models to test the sensitivity of credit demand (CD) to multiple variables related to SC. Two groups of models were constructed. In the first part, five models were used that analyzed the internal dynamics of the financial services markets, measuring: spending on financial services (M1), bank savings rate (M2), growth rate of bank credit (M2), spending on financial services per capita (M4), and bank credit per capita (M5). The second group of models focused on studying the magnitude with which the credit demand (CDw) and credit demand per capita (CDpcw) models changed, after adding in SC variables. The basic models are expressed in formal socioeconomic variables, treated directly with the values in their records.

The database was built using official data from INEGI, Banxico,[10] ENIGH-2010,[11] and WVS-2010.[12] The data was standardized to the baseline year of 2003, expressed in thousands of pesos, in real terms. The SC variables were treated as state averages, so they represent populational proportions of behavior.

**Assumptions**

The assumptions made in this research are as follows: (a) individuals are aware of the existence of information asymmetries, and (b) they are able to solve problems using the information they obtain from other people.

**Models**

The M1-M5[13] models (1 to 5) are reconstructions of Carvallo's (2013) paper, which sought to find the degree of impact of SC on financial markets. There are five models (model M3 was run twice) that try to determine how the results of the model vary with the scaled addition of variables.

The second part of the models aimed to establish a direct relationship between the results of the original models (CD and CDpc) and their expanded versions with the SC variables (CDw and CDpcw). The models measured the expansion of the demand equations to include SC variables (Alarcón *et al.,* 2003).

Some papers have estimated SC, and its effect (De la Torre *et al.,* 2011), based on income distribution (De la Torre, 2011; Neira, 2002; Alarcón and Bosch, 2003). Income allows people to engage in activities where they meet and relate to others (see Putnam, 1993; cited by Boix and Posner, 1996), so this means that SC entails a cost in and of itself. One possible approach is seen

in Carvallo (2013), evaluating the individual effect of a few variables chosen within a system of models that describe the principal dynamics of the financial system.

Alarcón *et al.* (2003) used WVS data in Chile to demonstrate that the impact of public policy on society could be measured using SC equations, composed of *a)* civism (pc), *b*) institutional confidence (ci), *c*) political participation (pp), and *d*) socioeconomic variables (vse). The structure they proposed was:

$$CS=g_n(x)=(vse, pc, pp, ci)$$

For the CD, ordinary assumptions about potential variables associated with capital (credit) demand, such as income, GDP,[14] and other distributors of wealth were used, or drivers of capital formation. The CD equation was:

$$DC=f(x)=f(\delta, \vartheta, \varepsilon, \mu, \varepsilon_j)$$

Where:

δ: economic variables; ϑ: economic liberalization; μ: social variables; and ε: error.

Thus, the expanded model would be as follows:

$$DC_\omega(f(x)\wedge g_n(x))=DC+CS+E$$

Where $DC_w$ is the Credit Demand expanded for the determinants of SC, and $\varepsilon$ is a statistical error factor. As such, the general model was:

$$DC_\omega=\beta_0+\beta_i(DC+CS)+\varepsilon_z$$

## RESULTS AND DISCUSSION

### Values in Mexico

Analyzing values was useful in order to understand what the population thinks of itself; what it expects of others, and of itself. These are the value systems in place before making a decision on an action, and they influence the economy, altering its rationality. In this case, these values also measure trust or confidence in one's surroundings, and what is expected of others. In this sense,

this approach to SC allows for the formulation of hypotheses about how others will behave in advance, creating a profile of their analysis of risk, cost-benefit analysis, and capacity to access services in which they are interested. In economic terms, it helps to define rational expectations both within and outside of the market.

(See Figure 1)

When examining usage of the banking system, we look at the degree of trust placed in financial institutions and the level of service usage. The data show that levels are quite low among Mexican states, as Banamex[15] -UNAM[16] (2008) found. See Table 2.

Table 2. Bank Savings in Mexico by State

| Sonora | Coahuila | Baja California | Sinaloa | Colima | Chihuahua | Querétaro | B. C. Sur |
|---|---|---|---|---|---|---|---|
| 44.5% | 33.5% | 29.6% | 28.8% | 25.5% | 25.3% | 24.5% | 23.8% |
| Nuevo León | Mexico City | Tabasco | Yucatán | Veracruz | Nayarit | Tamaulipas | Durango |
| 23.6% | 22.4% | 22.3% | 22.0% | 21.6% | 21.3% | 20.8% | 18.3% |
| Aguascalientes | Jalisco | San Luis Potosí | Guerrero | Quintana Roo | Campeche | Guanajuato | Zacatecas |
| 17.4% | 15.3% | 14.5% | 14.2% | 14.2% | 14.0% | 13.6% | 12.3% |
| Chiapas | México | Oaxaca | Morelos | Michoacán | Hidalgo | Puebla | Tlaxcala |
| 11.9% | 11.7% | 10.6% | 10.5% | 9.5% | 9.0% | 6.4% | 5.8% |

Averages of responses given by the population of each state in the year 2010 (n=15,910), compared against Banamex-UNAM (2008) data.
Source: Created by the authors based on data from Carvallo (2013) and the WVS-2010 survey.

For credit demand, the behavior is similar to what is seen for savings, although strikingly lower. Although it is not possible to calculate the demand for informal credit (loan sharks, local financial entities, etc.), due to lack of control and the scarcity of information, intuition points to it being higher. See Table 3 and Figure 2.

Table 3. Credit Demand in Mexico

| Yucatán | Veracruz | Coahuila | Guerrero | Campeche | Nuevo León | Colima | Baja C. Sur |
|---|---|---|---|---|---|---|---|
| 24.3% | 23.6% | 21.3% | 19.2% | 19.0% | 18.8% | 18.0% | 17.8% |
| Sinaloa | San Luis Potosí | Guanajuato | Mexico City | Baja California | Tamaulipas | Nayarit | Chihuahua |
| 17.0% | 16.3% | 16.2% | 15.9% | 15.8% | 15.5% | 15.3% | 15.1% |
| Quintana Roo | Querétaro | Hidalgo | Chiapas | Zacatecas | Sonora | Oaxaca | Tabasco |
| 14.7% | 14.3% | 13.8% | 13.3% | 13.3% | 13.0% | 12.0% | 11.3% |
| Jalisco | Tlaxcala | Aguascalientes | México | Durango | Morelos | Puebla | Michoacán |
| 10.0% | 10.0% | 9.2% | 8.8% | 8.5% | 8.2% | 7.2% | 7.1% |

Averages of responses given by the population of each state in the year 2010 (n=15,910), compared against Banamex-UNAM (2008) data.
Source: Created by the authors based on data from Carvallo (2013) and the WVS-2010 survey.

(See Figure 2)

Delving further into the perception of values among Mexicans, there are certain patterns in the WVS[17] where the perception about the direction of the country, and especially about other relevant actors, are on average negative.[18] In the majority of the states, people hold the perception that the country is not on the right path, and display marked mistrust towards the police and the judicial system, as well as banking institutions.

This information shows that there is a lack of confidence in Mexico, which contributes to a climate of uncertainty and insecurity among agents. On the level of individual choices, it is likely that people do not trust the formal system because it cannot guarantee the security of private property, or the ethical integrity of the other agents (seen as corrupt or negligent). All of this underpins the hypothesis of the strength of informal institutions, which in Mexico may seem more trustworthy or reliable, because there is such a high degree of volatility. It may seem preferable to run the risk of the informal markets rather than that of formal institutions, because the former are seen as less problematic and dangerous, giving people the illusion of well-being (even when there is no real basis for it beyond perception[19] ).

The high values for corruption were alarming. Added to the trends of the rest of the information studied, these values show a highly contaminated and insecure market in which agents do not trust each other. This type of condition in Mexico allows us to intuit the reasons why agents prefer to act through non-institutional channels, and in the case of the national financial system, provides a stronger (informal) social context, meaning that the development of tools and results is poor and deficient. The analysis of these values is relevant because it reveals why people make decisions that seem irrational within the market, but seen in light of the general context in which they occur, display justified rationality (external to the market).

**Models**

Eleven models were built to analyze the phenomenon of credit demand in Mexico and in this way study the behavior of financial dynamics in general. The models were simple linear econometric regressions, run in the programs IBM, SSPS Statics Ver. 19, and STATA/IC Ver. 12.

The results obtained for the models run are shown in Table 4.

(See Table 4)

From this table, it is possible to conclude that the majority of the models in which the SC variables were introduced recorded a visible increase in estimated representativeness (fit). It should be mentioned that continuous addition, above the point at which peak value was reached, began to produce slight decreases.

In M1, the results showed that adding SC variables did indeed have a major effect in Spending on Financial Services, as this variable went from a minor significance of 30.0% to 62.0%, and up to 93.0% in the per capita category. However, for financial services and insurance, the effect was null, as the fit of the R-squared was low and saw a change in the sign of the coefficients. For M2, the change was from 27.0% to 58.0%, when adding in SC variables, leading to the conclusion that values do affect the way in which people save.

For the M3 models, the original model M3-a was not satisfactory, because its fit level hovered around (-) 19.0%. In this case, the choice was made to reformulate the terms of the equation, substituting the variables for the family units with capital indicators. This raised the fit of the R-squared for M3-b to 61.2%. For M4, the results showed that SC does affect the fit level, but it was very tied to income. For M5, bank credit per capita was studied because it showed a notable response to SC, going from 50.0% to 87.0% with the inclusion of the variables.

For the rest of the models, the adjusted R-squareds and their adjusted values were: CD (76.0%), CDpc (85.9%), CDw (80.2%), and CDpcw (85.4%). This showed that for CD, when the values variables were taken into account, the representativeness of the model increased by nearly 10 percentage units. For the same model in per capita, the addition of the variables maintained the representativeness at around 85.0%, with slight variation. However, these variables certainly did not reduce the fit, nor did they affect the coefficients too strongly, which allows for the conclusion that SC is indeed important, even though the relationship could not clearly be established.

As such, for the cases of interest, the variables related to income distribution (in per capita terms) seem to demonstrate that the hypothesis that SC is related to income is correct. And in fact, SC variables do influence the decision-making of individuals. Although the majority of the variables were characterized by a perception of confidence, they are strongly related in decision-making processes. For the rest of the cases, their importance can be inferred from the behavior of the models. See Table 5.

If this work is compared with that of other researchers, with regard to the relationship between SC and microfinance, it emerges that:

One of the results found that Carvallo's (2014) writings did indeed have a basis, even though the data were not treated properly. The models in that paper were a correct approximation, although scarce on the number of variables that could be used, and the relationship between them and market decisions. In other words, although SC affects the demand for financial services, there are other more sensitive variables, which also have theoretical justification (i.e., confidence in banks, understanding the means of saving [even if this is something controversial and debatable] that are more beneficial than formal channels). Thus, SC does indeed alter individuals' decisions.

Table 5. Evaluation of the Research Hypotheses

| *Hypothesis* | *Conclusion* |
|---|---|
| H1: SC is a concept that can explain market failings. | In light of the results of the mode, and the theoretical considerations, accepted. |
| H2: In Mexico, SC is significantly related to credit demand. | In light of the results of the model, and the theoretical considerations, considered acceptable, but not definitive. |
| H3: The states of Mexico respond to the theoretical model proposed that associates the degree of credit demand with SC. | In light of the results of the model, and the theoretical considerations, accepted. |
| H4: The nature of the relationship between SC and CD can be established. | In light of the results of the model, and the theoretical considerations, considered acceptable, but not definitive. |
| H5: The results of the model permit an analysis of public policy. | In light of the results of the model, and the theoretical considerations, accepted. |
| H6: It is possible to build SC equations for the states of the Mexican Republic. | Rejected. There is no parameter from which to build these models. However, an SC index could be constructed, or variables, such as expansions on the traditional models, could be used. |

Source: Created by the authors.

Just like in DiGiannatale *et al.* (2008), the results could be interpreted as proof positive that there is indeed a relationship between SC and the degree of financial development in Mexico, based on the behavior of many of the variables selected, principally those that reproduce the value that people allocated to confidence or trust (both for bank savings as well as in the banks themselves, in the law, etc.). The idea that people use their relationships to correct for information-based market flaws seems to be true, because the proportion of individuals that responded that they prefer to make use of informal means of credit and savings fits well with effective rates of savings, credit demand (people), and usage of financial systems. The response of the models, in terms of the possible influence of the variables, matches well with this idea. The idea of the market failure correction caused by bad information from Sokol (2007) would seem to make sense within the results of the models, because there is evidence that agents do indeed use SC to find acceptable solutions to problems within the market.

Although this paper did not build models like those that appear in Alarcón and Bosch (2003), which defined a specific equation for SC, it did find that it is possible to use variables that directly

approximate SC. The most suitable method would be to have an indicator as proposed in De la Torre *et al.* (2011) to contrast with the modeling method; however, a baseline value was missing to build this equation. In other words, it was not possible to do a reconstruction through regression, because there was no original measured data. Even so, the results obtained were considered to be acceptable. Occam's razor[20] was applied, as there is empirical evidence to believe the hypotheses of this research to be credible. If this is the case, then Espinoza and Rabi (2009) were right in saying that SC can be used to evaluate, or buttress an evaluation, of public policy, because by understanding the degree of impact, and the preferences in the social structure, existing or future programs for savings and funding cooperatives can be improved, both directly in the population and through agents recognized and trusted by the target group. All of this was congruent with Boix and Posner's (1996) defense of Putnam's (1993) work.

No profiles were used to specify the agents intervening in the market, but the results signal that agents have certain power over what happens in the market. To begin with, the majority of credits correspond to a very small sector of the population, because there is marked inequality (and therefore unequal access to the market). Secondly, the agents that do not participate in the market in fact display their own sort of power, because they distort the functioning of the market in a way that cannot be ignored; many of them do so simply out of apathy or lack of confidence in the system.

It is a good time to point out that although the WVS was an important tool, it is not the most suitable. It is an overly general survey and its results may not be the most recommendable for usage in the models that can be constructed through regressions. However, the WVS was fine to use within other tools and still be significant. At the moment, there is no specific methodology to prove this, but it is possible that it can be used in models describing the behavior of agents.

## CONCLUSIONS

Even though the results of the models set forth were positive, we cannot ignore the fact that the data used display some compatibility issues, because the majority of the SC variables are expressed in percentages, as they are the averages recorded for each state in the country. For that reason, it is not possible to show that there is definitive proof of the hypotheses. Rather, the conclusions are inferences based on the apparent possibility of the effect they cause, which within this article is considered to be acceptable empirical evidence to move forward the debate about quantifying SC.

All of the hypotheses proposed were evaluated, based on the terms and considerations given. It was not possible to build equations for each and its specific SC because the necessary economic information was not available through official sources.

Based on this, it could be said that SC is a complex concept, but is a useful tool for economic analysis, especially in the gray areas where the market is not the central space for decision-making. People traffic in information, which helps them to obtain benefits through the relationships they have. It is valid to affirm that SC is a sort of “capital,” because it requires a certain degree of investment (activities, time, and costs). In Mexico, the percentage of people who use the financial system is rather low relative to the population that has the income and could use it. Moreover, financial education is lacking and nearly non-existent in rural areas, which exacerbates economic distortions and marginalization.

Generally speaking, it is highly probable that SC intercedes in the decisions of agents who resort to the markets, choosing between formality and the confidence they have in their own network of relationships. This happens in a space before the market, where some of the problems related to accessing means of financing and confidence in formal institutional services are resolved.

The SC demonstrated that in the results of the models there is enough evidence to affirm that the variables related to peoples’ value perceptions hold an important weight in the decision-making process. Perhaps it cannot be inferred that confidence in other agents and the preference for mechanisms, institutions, and people is definitive, or the sole cause of credit demand, but these certainly are factors that help explain the phenomenon; moreover, they create the context for social processes related to the markets, which normally cannot be detected with purely quantitative models.

SC is a multidirectional system, with nearly infinite nodes, in which information can flow from one point to another. For this reason, many of the distortions of information asymmetries in the market can be corrected. It is not possible to determine to what extent SC holds sway with precision, because its measurement or construction depends on theoretical considerations that must be made from the start. In this research, SC was a factor that helped agents to make decisions outside of the market, so it may not be necessary to measure it accurately, but rather to identify the weight and importance that agents give to these considerations, which are exogenous to the market itself.

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[3] Cited by Espinoza and Rabi, 2009.

[4] In other words, we can understand how people perceive other people in making decisions that may not be economically rational, if they find an optimal choice delimited by other costs that are not taken into account, such as institutional confidence, the perception of fairness, and trust in the products available both formally and informally.

[5] Analysis of stakeholders (Freeman, 1998; cited by Mitchell *et al.,* 1997). The stakeholders are the decision-makers in the markets.

[6] Gross Domestic Product.

[7] Although usury also exists in the formal market, it is considered a crime that is tracked institutionally. However, in the informal markets, although it continues to be a crime, it is perceived as an additional “acceptable” cost.

[8] National Banking and Securities Commission.

[9] Leaving aside major commercial groups, companies, and other agents with greater capacity to negotiate and take on the high costs of financial services in Mexico.

[10] Banco de México.

[11] National Household Income and Spending Survey, 2010. INEGI, 2013.

[12] World Values Survey, 2010.

[13] Adding in variables for comparative analysis.

[14] Gross Domestic Product.

[15] Banco Nacional de México.

[16] National Autonomous University of Mexico.

[17] By the ITAM researcher Alejandro Moreno.

[18] Very low.

[19] Principally fed by the fear of legal processes, and the onslaught of news about corrupt and immoral behavior; acquired in the news and from third parties.

[20] Principle that dictates that the simplest solution should be prioritized.