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**COMMUNITY ORGANIZATIONS, NEIGHBORHOOD INTERACTIONS, AND  
ENTREPRENEURIAL SOCIAL CAPITAL: EFFECTS ON FEMALE  
SELF-EMPLOYMENT EARNINGS**

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## **COMMUNITY ORGANIZATIONS, NEIGHBORHOOD INTERACTIONS, AND ENTREPRENEURIAL SOCIAL CAPITAL: EFFECTS ON FEMALE SELF-EMPLOYMENT EARNINGS**

Few attempts have been made to study entrepreneurs' social networks in local communities. This study empirically explores the relationships between self-employed workers' involvement in local communities and their earnings. Examining whether their weak ties with community members and strong ties with their neighbors work differently, we hypothesize that while the former yields positive returns, a high involvement in their neighborhoods limits self-employed workers' access to extra-community contacts, causes free-rider problems, and produces leveling pressures. Our findings suggest that participating in local community organizations significantly raises self-employment earnings. Alternatively, self-employed workers strongly connected with their neighbors receive significantly lower earnings.

While there is a growing body of entrepreneurial studies focusing on the link between entrepreneurs and their social capital (Bosma et al., 2004; Brüderl and Preisendörfer, 1996), little research has been conducted on entrepreneurial social capital in local communities. In this study, we assessed the manner in which local communities and the social networks therein affect the earnings of self-employed workers.

Putnam (2000) made rapid developments in social capital theory, providing one of the popular definitions of social capital: "social capital refers to connections among

individuals—social networks and the norms of reciprocity and trustworthiness that arise from them... A society of many virtuous but isolated individuals is not necessarily rich in social capital” (p. 19). As can be observed, social capital is characterized by three factors: social networks, the norms of reciprocity, and trustworthiness. The introduction of the social capital theory enabled the extension of the economic research area to as far as sociological disciplines (Baron et al., 2001).

Since spatial proximity affects the cost of social capital investment (Glaeser et al., 2002), the role of communities with local branches that facilitate members’ social contacts might be significant. For the self-employed in particular, residential mobility tends to be lower than that of employees (Blanchflower, 2000), implying self-employed workers’ high involvement in local communities. For these reasons, local communities appear to be an important field in the social interactions of the self-employed. To our knowledge, Killkenny et al. (1999) is the first attempt to answer abovementioned research question; this study found that the business owners in small towns who make non-market contributions to their community and who are reciprocated by community support were more likely to regard their businesses as successful.

Nevertheless, entrepreneurial studies, such as Burt (2000) in his review of the literature,

reveal nothing about the ways in which network structure affects entrepreneurship. Further development would be possible by shedding light on the network forms of social capital. By utilizing a rich data set from Taiwan, this study focused on the structure of local social networks that connect female self-employed workers.

As Granovetter (1973, 1983) propose, one defining aspect of the social network structure is the strength of the ties. Social networks constitute strong and weak ties; these two types of ties work quite differently. In the entrepreneurial literature, Brüderl and Preisdörfer (1996) test the effects of network support from strong ties (defined as business partners, acquaintances, former employers, or former coworkers) and weak ties (defined as spouse/life-partners, parents, friends, or relatives) separately in the start-up period of new businesses, reporting that the support from strong ties increases the survival chances of new businesses, although their focus is not on geographical locality. We incorporated this measure—the strength of ties—into the assessment of social networks in local communities. Our empirical investigation examined which form of ties, weak or strong, raises self-employment earnings.

This paper is organized as follows. In the subsequent section, we introduced theories and proposed hypotheses. Then, the methods employed in this study and our measures of

social capital are presented. Our findings suggested that the existence of weak ties in local communities raised self-employment earnings. On the other hand, strong ties between self-employed workers and their neighbors significantly decreased their earnings. We also discussed the robustness of these findings. The final section concludes our study.

## **THEORY AND HYPOTHESES**

### **Weak and Strong Ties**

Granovetter's findings (1973, 1983) in economic sociology have led to major developments not only in this field but also in many other related research areas. According to Granovetter (1973, p. 1361), the strength of ties is measured by four factors: the amount of time invested in a social relationship, emotional intensity, intimacy (mutual confiding), and reciprocal services. In stronger ties, people are more likely to allocate sufficient time, interact emotionally, confide personal secrets, and have reciprocal duties; whereas in weaker ties, they are less likely to do so.

Figure 1 describes a simplified structural form of social networks. Each node represents an actor, and each tie describes a social tie. A solid tie represents a strong tie, and a dotted tie a weak tie. Actor A is connected with actors B and C by strong ties. The triangle

constituted by these three individuals is the prevalent and minimal unit of social networks (Simmelian Triad). When two relationships in a triad are strong, the third relationship tends to be strong as well. If actor B is a close friend of actor A and so is actor C, then individuals B and C are more likely to know each other well and also be connected by strong ties. In this triad, members make frequent social contacts, sympathize with each other, pool information, and have reciprocal duties. On the other hand, actor D who is connected with actor A by a weak tie does not belong to the triad constituted of actors A, B, and C, but to another triad. Actors A and D are less likely to make frequent contact because the social tie between them is weak. However, since actor D belongs to another triad, he/she is able to provide actor A with information from a distant part of the economic system. If actor A did not process this tie, his/her source of information would be confined to being the provincial news and views of his/her close friends, namely actors B and C.

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Insert figure 1 about here.  
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## **Community Organization and Neighborhood**

The social action occurs within *social locales*, thus having a socially situated nature (Pattison and Robins, 2002). According to Pattison and Robins, the “social locale is a complex relational entity that links the geographical, social, cultural, and psychological aspects of the context for social action” (p. 304). Our approach to social locales focused on the geographical aspects of social interactions.

The main function of the local community organization is to address certain problems that neither individuals acting alone nor markets and governments are capable of solving. (Bowles and Gintis, 2002). These problems occur in the form of market or state failures, namely, insufficient provision of local public goods such as neighborhood amenities, the lack of insurance and other risk-sharing mechanisms, the exclusion of financially vulnerable people from credit markets, and inefficiency in monitoring work effort. In addressing these problems collectively, community members obtain information on other members’ behaviors, capacities, and needs.

Since physical distance plays an important role in deterring social connections (Glaeser et al., 2002), close spatial proximity increases interactions, which results in the formation of strong ties in neighborhoods. Communities tend to be partitioned into neighborhood cliques, which are bridged by weak ties (Caplow and Forman, 1950; Granovetter, 1973). The



members of local communities are more likely to have stronger ties with their neighbors, whereas they are more likely to have weaker ties with other local community members than with their neighbors.

### **Entrepreneurship-facilitating Social Capital**

Westlund and Bolton (2003) theoretically conceptualize two types of local social capital that entrepreneurs face: entrepreneurship-facilitating social capital (EFSC) and entrepreneurship-inhibiting social capital (EISC). With regard to EFSC, three mechanisms in which networks improve entrepreneurial success are commonly identified: (1) Social networks are important channels for gaining access to information. (2) Network contacts give access to customers and suppliers. (3) Network contacts raise the possibility of broadening financial bases (Brüderl and Preisendörfer, 1996). In particular, social networks in local communities produce the reputation effect, which increases the number of loyal customers and “free advertisement” or promotion (Kilkenny et al. 1999). It also reduces transaction costs in the form of the reduced risk of fraudulent behaviors.

### **Entrepreneurship-inhibiting Social Capital**

On the other hand, Westlund and Bolton (2003) also propose another type of social capital that negatively impacts entrepreneurship. With regard to social capital investment, there exist two different hypotheses. One is the rational-choice or undersocialization perspective (Brass et al. 1998; Bowles and Gintis, 2002; Glaeser et al., 2003), and the other the social embeddedness of economic activity or oversocialization perspective (Portes and Sensenbrenner, 1993). The former assumes economically rational investment in social capital. This perspective is mainly based on the folk theorem in repeated games. In these circumstances, a community is maintained by preventing members' deviations from the expectations shared among community members, primarily through intense surveillance and triggered punishment. Although community members act in order to maximize their economic gains, their relationship is maintained even when other potential contacts would be able to offer much better options.

The oversocialization perspective, on the other hand, discards the assumption of economic rationality, introducing the concept of embeddedness. In this perspective, community members participate in community activities not because they are based on economic expectations, but rather because they desire to be favorably perceived by other community members. They participate in community activities regardless of their economic

expectations because of the influences exerted by certain social forces.

Both the above hypotheses have common features. First, the relationships within communities are maintained even when they are suboptimal solutions. It excludes better options situated outside the communities. Second, the governance of communities is derived by members' expectations, irrespective of whether social capital investment is based on economic rationality or embeddedness.

Portes and Sensenbrenner (1993), who review the research on immigrant communities, state that in the case of entrepreneurship in ethnic communities, these features mainly result in three outcomes. First, a strong unification among community members increases community solidarity. This bounded solidification imposes a limitation on the access to extra-community contacts.

Second, in communities with high solidarity, strong community controls place demands on successful entrepreneurs based on the interests of other community members. This leads to a free-riding problem by less successful members. For example, they might ask the self-employed workers to employ their relatives or friends even when there is no labor demand.

Finally, in communities characterized by solidarity, community members face leveling

pressures to equalize their behaviors and attitudes within communities. As compared to employees, self-employed workers are more likely to be entitled to play the entrepreneurial role in Schumpeter's sense (1934); this role would combine productive factors in new ways, seeking "new combinations" of resources. However, when this leveling pressure exists and the community exhibits an intolerant attitude toward the potentially innovative ways that violate community members' expectations, the local social capital inhibits the emergence of innovation initiated by self-employed workers.

As noted by Portes and Sensenbrenner (1993), the immigrant community exemplifies the embeddedness of local communities at its best; this is because they have a more distinct community boundary mainly due to outside discriminations and autonomous cultures. Nevertheless, as they argue, any community is characterized by such embeddedness, although it is less obvious than in immigrant communities. Therefore, many of the suggestions derived from their exemplification are also applicable to more general settings.

### **The Strength of Ties and EFSC/EISC**

Figure 2 summarizes the above discussion. The horizontal line represents the strength of ties within communities, and the vertical line EFSC/EISC. In the first quadrant, the social

ties are strong and the effect of social capital is positive. As Granovetter (1973; 1978) points out, although strong ties are unable to provide access to novel information in many cases, they allow for the flow of the information better suited to the specific demands of individuals because of the high frequency of contacts. Further, by means of high trust, strong ties in the neighborhood might reduce the transaction costs more substantially than weak ties would.

In the second quadrant, the social ties are strong and exert a negative influence on self-employment earnings. As discussed earlier, community social capital is maintained by means of surveillance and the reputation effect. As the community in which members are strongly united tends to have greater bounded solidarity, the access to extra-community contacts might decrease as the unification of members and the strength of ties increases. Moreover, the intensity of surveillance and reputation rises with the strength of ties (Brass et al., 1998). When people deviate from the expectations shared by members, then the stronger the ties by which they are connected, the greater would the reputation loss be. Therefore, the strength of the ties might have a positive association with all the restrictions due to the lack of outside contact, the free-riding problem, and leveling pressures. This leads to strong neighborhood ties operating as EISC.

In the third quadrant, weak ties operate as EISC. However, we presumed that this is unlikely because one of the important functions of entrepreneurs is building bridges across different social groups, exploiting opportunities by brokerage (Burt 2000). For the self-employed, it appears that the returns from weak ties are always positive.

In the fourth quadrant, weak ties have a positive impact on entrepreneurship. As Granovetter argues, the individual having weak ties is able to obtain novel information, which is unavailable from his/her close neighbors. According to Burt (2000), if weak ties are the only means to bridge two different social groups, they allow for the brokerage of information by controlling information flows, and monopolize the opportunities created by brokerage. In the community context, community members other than neighbors tend to be in another neighborhood cluster. Local community organizations work as a catalyst for social interactions by means of weak ties, capable of providing novel information and economic resources rarely available in a single neighborhood cluster.

Overall, as can be viewed from the left-hand side of the figure, weak ties with community members have a positive influence on self-employment earnings.

*Hypothesis 1. Self-employed worker connected with community members by*

*weak ties receive higher earnings, other things being constant.*

With regard to strong ties, although they are able to facilitate the operations of self-employment businesses, neighborhood interactions are mainly characterized by geographical proximity. Geographical proximity increases the frequency of social contacts. Given that the total amount of time that an individual could invest in social capital is limited, high involvement in neighborhood networks might crowd out the potential opportunities achieved by the information obtained from extra-neighborhood networks. In this case, the opportunity costs of being strongly connected with neighborhoods are quite high, making information channels and opportunities spatially bounded. Further, geographical proximity increases the intensity of surveillance and reputation. This increased community control might amplify the EISC effect caused by free-riding problems and leveling pressures.

Thus, in the case of strong ties with neighbors, the impact of the EISC might be greater than that of the EFSC effect in absolute terms.

*Hypothesis 2. Self-employed workers connected with their neighbors by strong*

*ties receive lower earnings, other things being constant.*

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Insert figure 1 about here.  
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The negative impact of strong ties in local communities has been implied by several theories proposed previously by works such as Westlund and Bolton (2003) and Portes and Sensenbrenner (1993). Nevertheless, to our knowledge, no empirical test of the proposition has been conducted. This paper investigates this research question by means of hypothesis 2.

## **METHOD**

### **Data**

The data used for this study was derived from the Taiwan Women and Family Survey (TWFS). This survey was conducted in 1989 by the National Taiwan University in cooperation with the Institute of Economics of the Academia Sinica, the Department of Statistics of the Ministry of the Interior, and the University of Chicago. It covers 3,803 female participants aged between 25 and 59 years.



Through retrospective interviews, this survey obtained a vast amount of information on the participants, such as their social welfare activities, their current and past occupational status, employment history from the age of 15 to the time of the survey, and family backgrounds. This wealth of data could compensate for the fact that the survey did not include contemporary data.

The subjects of this survey were selected randomly at the nationwide level. The survey first randomly sampled from the geographical administrative units with which the interviews of the Income and Expenditure Survey (IES) had been conducted in 1988. The 1988 IES was conducted by the Taiwanese government covering over 16,434 households belonging to 1,478 administrative units. After selecting 25 percent of these administrative units (501 units inclusive of those for reservations), the TWFS selected any female member between 25 and 59 years of age from all the households in each unit. If a household had more than one female member, then one member was selected randomly. In this manner, 4,328 females were interviewed from March to May 1989, of which 3,803 were effective responses. As can be observed, the respondents of this survey are representative of all females of employable age in Taiwan. See Yu (1996) for the introduction on the TWFS.

From these observations, we obtained 455 self-employed workers. The status of

self-employment was unable to capture genuine entrepreneurs in Schumpeter's sense (1934)—entrepreneurs who combine productive factors in new ways, seeking “new combinations” of resources. However, in the entrepreneurial literature, especially in empirical labor economics, self-employed workers have approximated for entrepreneurs (Blanchflower and Oswald, 1998; Dunn and Holtz-Eakin, 2000; Evans and Jovanovic, 1989; Evans and Leighton, 1989; Hamilton, 2000; Holtz-Eakin et al., 1994a, 1994b).

### **Dependent Variable**

Data on self-employed business earnings were obtained from the IES by merging the TWFS with the IES. The IES provided data on the yearly entrepreneurial earnings received by self-employed workers during the year 1988, which only includes the earnings obtained from their businesses, thereby excluding any income obtained from other sources such as property investments. We employed the logarithmic form of these yearly earnings as our dependent variable.

Nevertheless, for all TWFS observations, we were unable to obtain business earnings from the IES. Of the 455 self-employed workers in the TWFS, 275 observations reported no information with respect to business earnings, which reduced the sample size to 180. In

addition, 44 observations had missing values on the variables defined later and were thus eliminated. Consequently, 136 observations were available for our analyses.

### **The Measure of Social Capital**

*Participation in community service organizations.* In the TWFS, the respondents were asked whether they “have ever participated in any service organization within the community, such as, for example, community committees and rotating credit associations.”

The community committee is responsible for providing local public goods to its members. The rotating credit association provides its members with two types of financial services: lending and saving. Money is collected from all the participants, pooled, and made available for lending. The order of borrowing is determined by the members’ auction of borrowing amounts, while members other than the one selected as the borrower can earn interest on the loan. Borrowers are assigned in rotation, and this process is repeated until all members have completed borrowing. Under the leadership of a chairperson, the association collectively manages the financial resources and services. These two organizations cooperatively administrate the local public goods and services that governments and markets are not sufficiently capable of providing.

The survey questions provide information on the self-employed worker's degree of involvement in community service organizations. However, it was unclear as to what sort of "community service organization" they have participated in. This raised a serious concern with regard to network characteristics, such as the collective purpose of these organizations, members' incentives to participate, the composition of members, and the manner in which they socialize. On the other hand, it could at least function as an integrative indicator of the relationship between self-employed workers and local communities. This variable was coded as one if a self-employed worker responded to the question in the affirmative, and zero otherwise.

*Neighborhood interactions.* Another question that respondents were asked pertained to whether they "have ever either nursed their neighbors' children; cared for neighbors who are aged, indisposed, or physically disabled; or assisted poor neighbors financially." As can be seen, this question pertained not to trusting attitudes but rather to past trusting behavior. In measuring trust, it is found that the measures of past trusting behavior are more accurate than abstract attitudinal questions (Glaeser et al., 2000). The behaviors indicated by this question embodied extremely strong interactions in the neighborhood, since child-nursing is usually based on a high level of trust, and the provision of assistance for

socially vulnerable people in neighboring households implies considerably intimate and emotional relationships. The measure constructed based on this question represented very strong ties with neighbors. This variable was coded as one if a self-employed worker responded in the affirmative, and zero otherwise.

### **Control Variables**

Our econometric specification was consistent with those commonly employed in previous studies on self-employment earnings. First, log weekly working hours were employed. To control for human and social capital, the years devoted to the current business were employed. With the increase in the number of years in the self-employment business, experience and social networks increase. To capture the depreciation of human and social capital, a quadratic functional form was assumed. The years in wage employment capture the cumulative effect of human and social capital acquired in wage employment. Further, to capture the depreciation, a quadratic form was assumed. This was not measured in potential years (age minus the years of education, minus six), but rather in terms of the actual length of wage employment, which was available from our data, due to the empirical concern caused by the participants' decisions on labor force participation.

To control for general human capital, we controlled for education by introducing a dummy variable coded as one if the self-employed workers graduated from either junior college or university. The human and social capital variable was finally intergenerational transfers of entrepreneurship-specific human and social capital, represented by the dummy variable coded as one if the participant's father is/was self-employed.

To control for financial capital, we employed the log yearly household property income derived from the IES. Financial capital is commonly found to be the primary resource in entrepreneurial activities, and personal assets are the major source of financing (Blanchflower and Oswald, 1998; Dunn and Holtz-Eakin, 2000; Evans and Jovonovic, 1989; Evans and Leighton, 1989; Holtz-Eakin et al., 1994a, 1994b). This measure not only included the income from formal investments but also contained the gain from informal financial investments such as that in rotating financial associations. By utilizing this variable, we were able to hold constant the financial gains obtained from the participation in rotating financial associations. In addition, as Durlauf (2002) shows, reverse causality is a serious concern in empirical social capital studies. This implies that in this study, the self-employed workers belonging to households with high asset levels hold many stocks of social capital. Nevertheless, by holding the household property income constant, this

variable was able to remedy the reverse causality problem.

As for the factor specific to female entrepreneurship, we introduced the aspect of husband's assistance with housework. Many entrepreneurial studies treat the spouse's emotional support to entrepreneurship as social capital or strong ties (Brüderl and Preisendörfer, 1996; Bosma et al., 2002). This emotional support to entrepreneurship might affect the division of household labor. It was coded as one if the husband helped the respondent with housework "considerably" or "to some extent" and zero if the response was "none."

Since our neighborhood interaction variable was partly defined by child-nursing and assistance for elderly people, this might raise a concern as to asymmetric emotional relationships. In other words, if a respondent has no children or elderly members but their neighbors do, then the neighborhood interactions defined in this study only carry the burden on the respondent's side. To eliminate this possibility of a relationship that lacks reciprocity, we considered the number of children under the age of 18 and the number of both the parents and parents-in-law aged 70 years old or above who were co-residing in households. The number of children (parents) also controlled for the burden on female entrepreneurship associated with taking care of children (parents).

To control for the regional disparity, our model included three dummies—the city, town, and village—with the city as the reference. This variable not only controlled for regional dissimilarity in self-employment earnings but also captures the geographical heterogeneity in social networks. Nevertheless, as discussed earlier, data constraints imposed a limitation on fully controlling for community characteristics.

Following Evans and Leighton (1998), the professional self-employment was captured by defining a dummy variable, since professionals receive distinctively higher earnings than non-professionals. Finally, three industrial controls—on manufacturing, commerce, and service—were utilized in our model.

Table 1 reports the descriptive statistics and correlations of the variables defined above. The average of the logarithm of the weekly working hours was approximately 4. The average years in the current business was approximately 12 years. Average length of wage employment was approximately 4 years. University or junior college graduates accounted for 5 percent of the total number of observations. Over six in ten self-employed workers had fathers who were/had been self-employed. The average log yearly household property income was approximately 7.8. As for social capital measures, one in ten self-employed workers had participated in community service organizations, whereas over four in ten had



maintained frequent neighborhood interactions. The average number of children under the age of six was approximately 0.24, and the average number of parents or parents-in-law aged 60 years or older who were co-residing in the household was approximately 0.13. The most frequent location of self-employment business was the city area, and the most frequent industry was commerce.

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Insert table 1 about here.  
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To verify the validity of our data source, in table 2, we compared our TWFS sample statistics with the governmental statistics on labor force obtained through the 1989 Manpower Utilization Survey (MUS); this survey is conducted annually on a nationwide level through stratified random sampling. The MUS data presented in the table is that of female self-employed workers; however, the geographical variables consider both the sexes.

As for the demographical composition, our sample contained more observations aged between 35 and 44 years and less of those aged between 25 and 34 years than MUS data did. The distribution of education in the TWFS is skewed toward secondary education, as

compared to the MUS. In addition, the share of self-employment businesses operating in the commerce industry is higher than those in the MUS.

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Insert table 2 about here.  
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## RESULTS

### Findings

Table 3 shows the coefficient estimates in the self-employment earnings functions. Model 1 provides coefficient estimates by means of ordinary least squares (OLS). As can be observed, the log weekly working hours had a significant and positive impact on earnings. Education significantly increased yearly business earnings. The effect of household property income was significant and positive. Further, the husband's assistance with housework significantly raised earnings.

As for social capital variables, the participation in community organizations increases business earnings significantly at the 10 percent level. This finding empirically confirmed hypothesis 1. Participation in community organizations facilitates the establishment of weak ties through the collective governance process of local public goods. On the other

hand, neighborhood interactions decrease earnings significantly at the 5 percent level, implying that self-employed workers having strong ties with their neighbors were receiving considerably lower earnings than those without such ties. Therefore, hypothesis 2 was also confirmed. Strong ties in neighborhoods lead to the increased frequency of social contacts intensifying surveillance and reputation, thus resulting in limited access to outside contacts, high leveling pressures, and serious free-rider problems.

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Insert table 3 about here.  
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## **DISCUSSION**

### **Complementary Effect**

Although we have found the negative effect of strong ties in neighborhoods, one might argue several alternative interpretations. First, there might be a complementary effect between strong ties in neighborhoods and weak ties in communities. In other words, the marginal return of strong ties might change proportionally to that of weak ties; this is because the possession of both within- and between-neighborhood networks creates new opportunities by brokering information between different neighborhood clusters (Burt,

2000). To explicitly distinguish the direct effects of networks from this complementary effect, in model 2 of table 3, we introduced the interaction term defined by multiplying the community organization and neighborhood interaction. As can be observed, the coefficient estimates showed that the interaction effect was not significantly different from zero. On the other hand, for the direct impact of the community organization, the statistical significance increased from the 10 to 1 percent significance levels, whereas no change in significance was observed for the neighborhood interaction. Empirical support for hypothesis 2 was still robust, even though we took into account the returns from the opportunities created by brokerage.

### **Female Labor Force Participation**

By employing weekly working hours as a control variable, we held constant the time allocated to self-employment activities to some extent. Nevertheless, when the working hours of females are endogenously determined by their propensity to participate in labor force, the correlation with the disturbance makes ordinary least squares estimators inconsistent, undermining the effectiveness of the control for working hours.

To increase the effectiveness of the control for the time devoted to self-employment

activities, in model 3, we employed the two-stage least squares (2SLS) estimation. The instrumental variable attached to working hours comprised the following: (1) The economic necessity of personal earnings for respondents' families. The survey contained the item "If you were unemployed, how would your family's economic situation be?" To this, the respondents had chosen from three options—affluent, moderate, and tight. The variable representing economic necessity was coded as minus one for "affluent," zero for "moderate," and one for "tight." (2) workplace-residence separation: If the self-employed females worked at home, the allocation of their time to their business operations might be facilitated.

The coefficient estimates of the econometric model are presented in model 3. As can be observed, even when working hours were instrumented, the coefficient estimate of neighborhood interactions remained both negative and significant. This result implies that self-employed female workers' time allocation to the operation of their businesses has little association with the returns from socializing with their neighbors.

### **Social Capital Investment Decision**

To evaluate the outcome of the individual's decision pertaining precisely to

participation in some memberships, it is not sufficient to contrast a participant group with a non-participant one since the participants were those with a stronger propensity to decide in favor of participating. According to the rational-choice perspective of social capital, social capital is a resource accumulated by individuals to serve their own interests (Glaeser et al. 2002). Thus, the network variable was subject to each observation's social capital investment decisions. This selectivity bias can be remedied by the treatment effect model; this model endogenizes the dummy regressor concerning the participation decision (Maddala, 1986).

In models 4-1 and 4-2, we evaluated the effect of the neighborhood interaction, the neighborhood interaction being endogenized by means of the maximum likelihood estimation. Model 4-1 analyzed the determinants of the decision to participate in neighborhood networks. We added the indicator of the respondent's altruism to the set of control variables utilized in previous models as an instrumental variable. The dummy variable was coded as one if the observation responded affirmatively to the question "Have you ever donated cash/material to governmental or private organizations"; this is presumably correlated with motivations to provide assistance to neighbors, that is, the neighborhood interactions defined in this paper.

As can be observed, such donations were significantly and positively correlated with neighborhood interaction. The coefficient estimate of self-employed fathers was significant and positive, reflecting that self-employed workers whose fathers were/had been self-employed as well showed a higher propensity to socialize with their neighbors. This might partly be because of the intergenerational linkage of social networks and social skills. Husband's help with housework increased the neighborhood interaction significantly, implying that the division of labor within the household affects self-employed workers' work/leisure choices, thereby increasing their social interactions in neighborhoods.

As can be observed in model 4-2, the result pertaining to neighborhood interactions were largely unchanged even when we remedied the self-selection bias. The empirical evidence on hypothesis 2 was still quite robust, even in the light of the rational-choice perspective pertaining to social capital investment.

## **CONCLUSION**

### **Summary**

This study presented the link between local communities and self-employment activities. Our data showed that participation in local community organizations significantly raises

self-employment earnings. This finding suggests a positive association between the weak ties of self-employed workers in local communities and their success in self-employment.

On the other hand, strong ties in their neighborhoods significantly decreased earnings. This is partly because high involvements in neighborhoods result in their social contacts being spatially confined. Moreover, it is likely that free-riding on the basis of community bonds inhibit the optimization of business decisions, and leveling pressures restrict the initiation of innovations in business operations. The paper also presented that these findings were still quite robust even when the econometric models took into account the complementarity between within- and between-neighborhoods ties, the endogeneity caused by the female self-employed workers' decision on labor force participation, and self-selectivity pertaining to participation in networks.

The finding that participation in the local community raises self-employed workers' business earnings is comparable to Kilkenney et al. (1998), who find that the reciprocated support between small town businesses and local communities leads to the higher likelihood of success in these businesses. Further, by incorporating the concept of the strength of ties into the analysis of local communities, we found that strong ties in neighborhoods negatively influence business earnings.



In the research on entrepreneurial networks, Brüderl and Preisendörfer (1996) reveal that the network support increases the performances of newly established businesses. Although our observations were not newly established businesses but rather self-employed female workers, this study suggested the significant role of local communities in entrepreneurial networks, to which scant attention has been paid.

The theoretical literature on social networks, mainly in economic sociology, has pointed out the possibility that entrepreneurs' strong ties with local community members have a negative effect on entrepreneurship. To our knowledge, this suggestion made by studies such as Westlund and Bolton (2003) and Portes and Sensenbrenner (1993) has never been empirically explored. In this study, we empirically verified their proposition.

### **Implications**

The results obtained suggest that local community organizations could be a catalyst in members' social interactions. On the other hand, self-employment earnings are decreased when the self-employed are strongly embedded in social networks within neighborhoods.

Therefore, communities that are partitioned into cliques will experience fewer developments in self-employment businesses because fragmentation into small

neighborhood clusters inhibits the formation of weak ties bridging across cliques. It is commonly found that communities abundant with such bridging ties are more likely to achieve more rapid developments through the facilitated formation of collective actions (Granovetter, 1973). Our results indicated that such communities will reap another harvest: entrepreneurship. The development of cohesive communities appears to be not only supported by the ease of collective leadership but also accelerated by the faster growth of local self-employment businesses.

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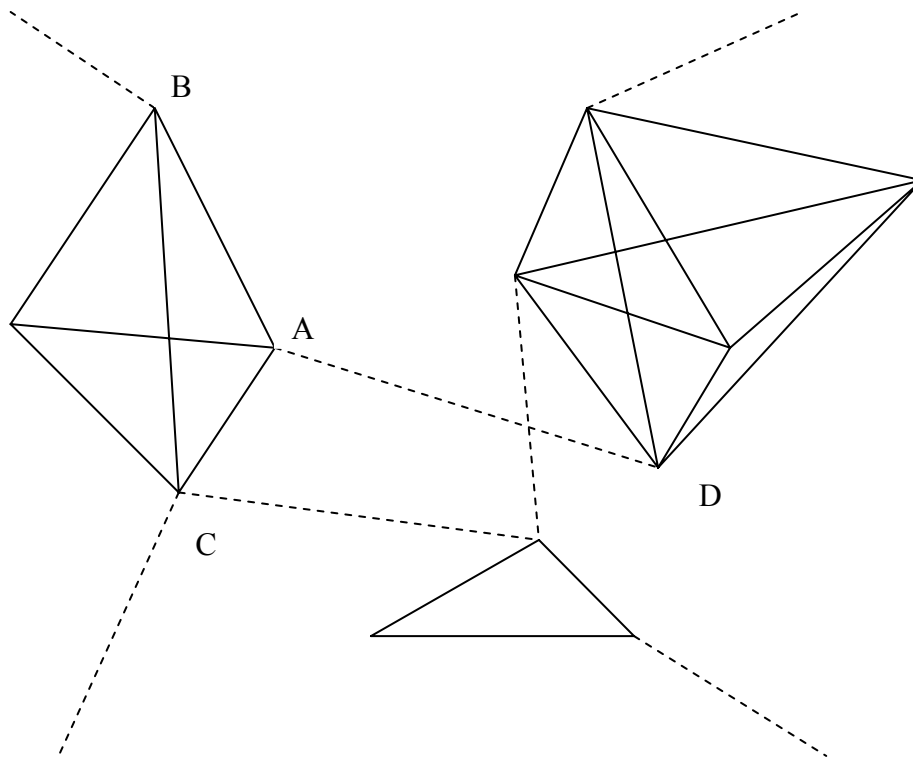
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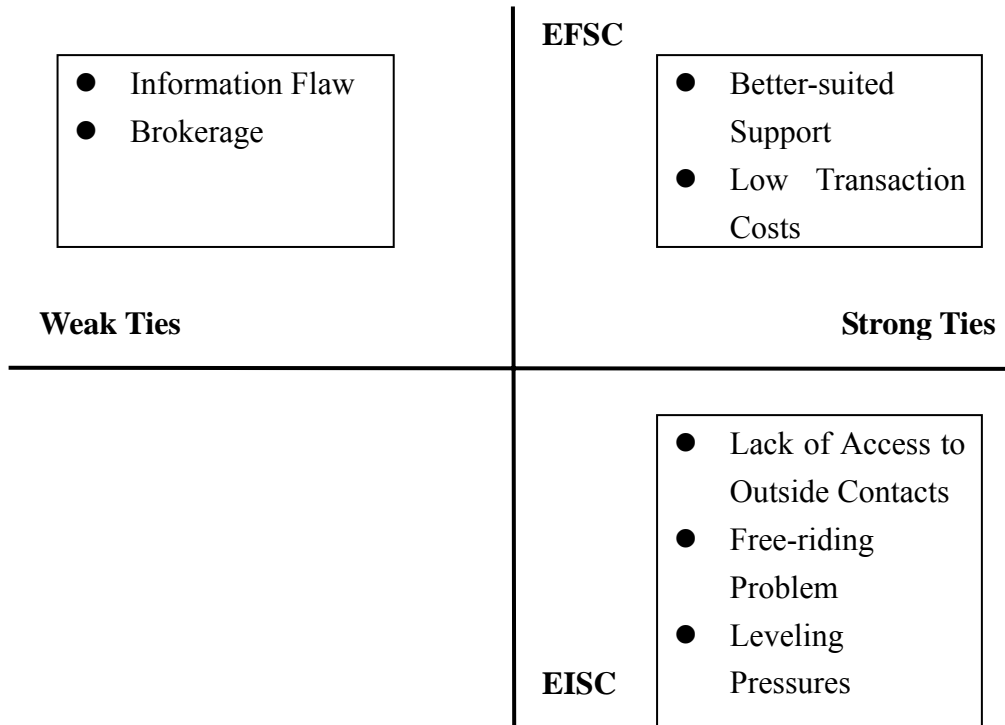
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**FIGURE 1**  
**The Structure of Social Networks**



**FIGURE 2**  
**The Strength of Ties and EFSC/EISC**





**TABLE 1**  
**Profile of the Self-employed:**  
**Taiwan Women and Family Survey and Manpower Utilization Survey**

	<b>Taiwan Women and Family Survey (percent)</b>	<b>Manpower Utilization Survey 1989 (percent)</b>
Aged 25-34	19.57	27.82
Aged 35-44	44.20	38.03
Aged 45-54	27.54	25.70
Aged 55-59	8.70	8.45
Junior high school	18.12	13.79
High school	7.25	15.05
Junior college/University	5.07	4.70
Manufacturing	5.80	5.96
Commerce	64.49	48.28
Service	18.84	20.69
City	55.07	65.29
Town	23.19	9.62
Village	21.74	25.04

**TABLE 2**  
**Descriptive Statistics and Correlations**

Variables	Mean	s.d.	1	2	3	4	5
1. Log working hours	3.98	0.62					
2. Years in current business	11.79	9.11	-.15				
3. (Years in current business) <sup>2</sup> /100	2.22	3.07	-.13	.95			
4. Years in wage employment	4.36	5.31	.19	-.37	-.32		
5. (Years in wage employment) <sup>2</sup> /100	0.47	0.91	.14	-.28	-.24	.92	
6. Junior college/University	0.05	0.22	-.21	-.06	-.09	-.09	-.10
7. Father self-employed	0.65	0.48	.07	.10	.11	.03	.07
8. Log property income	7.82	3.30	.00	.02	.03	-.03	.01
9. Community organization	0.10	0.31	-.04	-.09	-.09	.01	.02
10. Neighborhood interaction	0.40	0.49	-.03	.02	.01	.07	.05
11. Husband's help	0.57	0.50	.10	-.05	-.03	.13	.13
12. Number of children	0.24	0.61	-.08	-.16	-.14	.12	.07
13. Number of parents	0.13	0.41	.08	.23	.20	.03	.04
14. Town	0.24	0.43	.03	-.22	-.20	.02	-.02
15. Village	0.22	0.42	-.05	.32	.32	-.09	.00
16. Professional	0.02	0.15	-.38	-.05	-.06	-.05	-.06
17. Manufacturing	0.06	0.24	-.13	.23	.19	-.06	-.06
18. Commerce	0.64	0.48	.30	-.31	-.31	.04	.03
19. Service	0.19	0.39	-.11	-.03	-.04	.02	.01

TABLE 2 (CONT.)

	5	6	7	8	9	10	11	12	13	14	15	16	17	18
5.														
6.	-.10													
7.	.07	.10												
8.	.01	.10	-.08											
9.	.02	-.08	-.01	.03										
10.	.05	.01	.16	-.01	.31									
11.	.13	.07	-.01	.13	.00	.24								
12.	.07	-.09	-.04	.02	-.02	-.06	.06							
13.	.04	-.07	.00	.04	-.04	-.07	-.02	.05						
14.	-.02	-.13	-.07	-.26	.04	.04	.03	-.05	-.13					
15.	.00	-.12	.20	-.04	.05	-.08	-.18	-.12	.36	-.30				
16.	-.06	.64	.00	.14	-.05	-.02	.13	-.06	-.05	-.08	-.08			
17.	-.06	-.06	.05	-.01	.12	.05	-.10	-.05	.00	-.14	.09	-.04		
18.	.03	-.10	-.09	-.04	-.05	-.07	-.01	-.15	-.14	.16	-.15	-.20	-.33	
19.	.01	-.03	-.08	.07	.02	.06	.05	.17	-.10	.04	-.21	-.07	-.12	-.65

**TABLE 3**  
**Estimated Models of Female Self-employment Earnings<sup>a</sup>**

Variables	Model 1	Model 2	Model 3	Model 4-1	Model 4-2
	Dependent Variable				
	Earnings	Earnings	Earnings	Neighbor -hood Interaction	Earnings
	OLS	OLS	2SLS	Treatment Effect Model	
Log working hours	0.33 *** (0.11)	0.33 *** (0.11)	0.20 (0.85)	-0.15 (0.21)	0.21 (0.14)
Years in current business	0.02 (0.03)	0.02 (0.03)	0.02 (0.03)	0.07 (0.04)	0.03 (0.03)
(Years in current business) <sup>2</sup> /100	-0.01 (0.06)	-0.01 (0.06)	-0.01 (0.06)	-0.16 (0.11)	-0.05 (0.07)
Years in wage employment	-0.01 (0.03)	-0.01 (0.03)	0.00 (0.05)	0.06 (0.05)	0.02 (0.04)
(Years in wage employment) <sup>2</sup> /100	0.15 (0.15)	0.15 (0.15)	0.12 (0.24)	-0.22 (0.29)	0.03 (0.20)
Junior college/university	0.75 *** (0.22)	0.74 *** (0.22)	0.76 *** (0.23)	-0.02 (0.53)	0.80 ** (0.36)
Father self-employed	-0.14 (0.16)	-0.13 (0.16)	-0.12 (0.18)	0.49 * (0.27)	0.07 (0.17)
Log property income	0.03 * (0.02)	0.03 (0.02)	0.03 (0.02)	0.02 (0.03)	0.03 (0.02)
Community organization	0.32 * (0.18)	0.65 *** (0.24)	0.32 * (0.19)		0.37 ** (0.17)
Neighborhood interaction	-0.30 ** (0.13)	-0.29 ** (0.14)	-0.32 ** (0.15)		-1.51 *** (0.28)

<sup>a</sup> The figures within parentheses are heteroskedastic consistent standard errors.

\*  $p < .10$

\*\*  $p < .05$

\*\*\*  $p < .01$

**TABLE 3 (CONT.)**<sup>a</sup>

Husband's help	0.27 *	0.27 **	0.29	0.61 ***	0.57 ***
	(0.14)	(0.14)	(0.20)	(0.22)	(0.19)
Number of children	0.03	0.03	0.01	-0.24	-0.08
	(0.10)	(0.10)	(0.16)	(0.21)	(0.13)
Number of old parents	-0.06	-0.06	-0.04	-0.07	-0.13
	(0.16)	(0.16)	(0.25)	(0.27)	(0.19)
Town	-0.11	-0.12	-0.12	0.12	-0.08
	(0.21)	(0.21)	(0.21)	(0.32)	(0.23)
Village	-0.25	-0.26	-0.26	-0.32	-0.37
	(0.20)	(0.20)	(0.21)	(0.35)	(0.23)
Professional	0.28	0.27	0.04	-1.00	-0.36
	(0.45)	(0.45)	(1.62)	(1.11)	(0.72)
Manufacturing	0.83 ***	0.84 ***	0.80 **	-0.15	0.81 *
	(0.30)	(0.31)	(0.35)	(0.64)	(0.47)
Commerce	0.62 **	0.62 **	0.64 **	-0.35	0.47
	(0.24)	(0.24)	(0.27)	(0.51)	(0.36)
Service	0.74 ***	0.74 ***	0.73 **	-0.24	0.65 *
	(0.27)	(0.27)	(0.28)	(0.57)	(0.39)
Community organization × Neighborhood interaction		-0.39			
		(0.29)			
Donation				0.36 **	
				(0.18)	
Constant	9.41 ***	9.41 ***	9.89 ***	-0.92	10.07 ***
	(0.64)	(0.65)	(3.15)	(1.13)	(0.79)
ρ					1.25 ***
ln σ					-0.13
Number of Observations	136	136	136	136	
R <sup>2</sup>	0.29	0.29	0.28		
Log-likelihood	-142.17	-141.93		-219.34	

<sup>a</sup>The figures within parentheses are heteroskedastic consistent standard errors.

\*  $p < .10$

\*\*  $p < .05$

\*\*\*  $p < .01$