SOCIAL NETWORKS AND ENTREPRENEURSHIP

Arent Greve*

The Norwegian School of Economics and Business Administration,
Department of Strategy and Management
Breiviksveien 40, 5045 Bergen, NORWAY
Tel. + 47 55 959 453
Fax: + 47 55 959 780
E-mail: Arent.Greve@nhh.no

Janet W. Salaff
Department of sociology, The University of Toronto,
725 Spadina ave., Toronto, Ontario, M5S 2J4
Salaff@chass.utoronto.ca


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Abstract

We study network activities of entrepreneurs through three phases of establishing a firm in four countries. Entrepreneurs access people in their networks to discuss aspects of establishing and running a business. We find that entrepreneurs build networks that systematically vary by the phase of entrepreneurship, analyzing number of their discussion partners, and the time spent networking. Entrepreneurs talk with more people during the planning than other phases. Family members are present in their networks in all phases, particularly among those who took over an existing firm. However, women use their kin to a larger extent than men, and even more than men when they take over an existing firm. Experienced entrepreneurs have the same networking patterns as novices. Moreover, these networking patterns are the same in all countries. However, there are country differences in size of discussion networks and time spent networking.

INTRODUCTION

Students of entrepreneurship increasingly recognize that entrepreneurs embed their business decisions in social structures (Borch, 1994; Hansen, 1995; Larson & Starr, 1993; Reynolds, 1991;
Starr & MacMillan, 1990). We use a structural approach to study how entrepreneurs use social relations to get advice and resources to launch a business (Granovetter, 1985, 1992). We note that establishing a business requires different contacts and resources in different phases. The structural approach further implies that entrepreneurs in diverse cultural settings access their social relations in similar ways to get these resources.

In this paper, we study the use of social relations in the business establishment process. We describe how entrepreneurs develop and maintain social contacts during three early phases of establishing a business in four countries. Our comparative focus on structural features of entrepreneurship enables us to understand how entrepreneurs in similar phases of establishment use their contacts to acquire resources. Some structural analysts find that social networks have similar properties in different countries (Wellman, 1999). Therefore, we look for common features and what may distinguish the entrepreneur’s networks in diverse cultures. We identify how entrepreneurs draw on social networks to discuss aspects of establishing and running a business in the initial phases of entrepreneurship.

An entrepreneur is commonly defined as one who owns, launches, manages, and assumes the risks of an economic venture. This definition also includes people who take over an existing business. We distinguish entrepreneurship from a corporate or intrapreneurial effort (Gartner, Shaver, Gatewood, & Katz, 1994).

The social network approach. Focusing on social network analysis turns attention to relationships between entrepreneurs and others that provide the resources that are important in establishing a
business (Johannisson, 1988; Larson, 1991). Entrepreneurs have ideas to test, and some knowledge and competence to run the business, but they also need complementary resources to produce and deliver their goods or services (Teece, 1987). They get support, knowledge, and access to distribution channels through their social networks. Entrepreneurs are also linked to people and organizations that interact among themselves, and these contacts can widen the availability of resources that sustain a new firm (Hansen, 1995).

Social networks are not fixed; they are the social context of businesses and can be activated according to different needs (Granovetter, 1985; Burt, 1992). To fit their enterprise needs, entrepreneurs bring both those that are closer and distant to them into their business decisions. Family members can play a critical part. As they entertain, plan for, and actually set up a firm, entrepreneurs call on their family and others in their networks for different kinds of help and support (Rosenblatt, de Mik, Anderson, & Johnson, 1985).

To analyze entrepreneurial networks, we draw on cross-sectional surveys that query entrepreneurs from four countries on their discussions with others about establishing and running a business. We compare entrepreneurs in three phases of the establishment of a firm (Aldrich, et al. 1991). To develop our arguments, we first discuss features of social networks, then go on to a description of entrepreneurial phases. Our main hypotheses relate network activities to establishment phase. If the phase of establishing the enterprise requires particular combinations of resources, entrepreneurs will organize those they know in ways that will help them get these resources. We also entertain other factors that may influence network activities, such as entrepreneurial experience,
as seen in differences between novice and multiple entrepreneurs, and having family members with entrepreneurial experience. Finally, we compare network structures across four nations.

THEORY: ENTREPRENEURS AND NETWORK ACTIVITIES

Social Capital and Social Networks

Entrepreneurs require information, capital, skills, and labor to start business activities. While they hold some of these resources themselves, they often complement their resources by accessing their contacts (Aldrich & Zimmer, 1986; Aldrich, et al., 1991; Cooper, Folta, & Woo, 1995; Hansen, 1995). The contacts that lead to successful outcomes are their social capital and they are a key component of entrepreneurial networks (Burt, 1992). Gabbay & Leenders (1999) define social capital as the set of tangible or virtual resources that accrue to actors through the social structure, facilitating the attainment of the actors’ goals (Lin, 1999; Portes, 1999). By this they include contacts that help them getting things done. These are people the actor knows, or who are known by others that the actor knows. When the entrepreneurs’ contacts contribute to their entrepreneurial goals, these social contacts are their social capital (Burt, 1992). The contacts are often informal work and non-work connections. These relations may extend across professional networks, reaching friends, and colleagues from earlier jobs. Entrepreneurial networks span relations to organizations, clusters of firms, as well as to other people that help them set up the firm (Hansen, 1995).
Networks have several useful properties for entrepreneurs. The first is size. Entrepreneurs can enlarge their networks to get crucial information and other resources from knowledgeable others. The next is positioning. Entrepreneurs position themselves within a social network to shorten the path to knowledgeable others to get what they need (Blau, 1977; Burt, 1992; Granovetter, 1973). Finally is relationship structure. Social contacts may be related to the entrepreneur or to each other through several types of relations or interactions. In single stranded relations, each person performs only one activity with the entrepreneur and is related to that person through only one type of relation. Multiplex ties, in contrast, have several layers of different content or types of relationships (Scott, 1991). They may play numerous roles in the entrepreneur’s support group. Researchers pay special attention to the contribution of multiplex ties to entrepreneurship. They especially note that social network members can contact and organize themselves, expanding the opportunities they make available to the entrepreneur (Burt, 1992; Hansen, 2001).

Over time, entrepreneurs accumulate social capital, which is crucial for starting a new business (Hansen, 2001). Census data from the US find that entrepreneurs are older and slightly more educated than employed workers. Immigrant entrepreneurs have lived a long time in their new country before starting an enterprise (Portes & Zhou, 1996, 1999). Age and length of residence help them accumulate social capital for new firms.

**Discussion networks: The dependent variable**

The total network size refers to all first order contacts, regardless of type of interaction. We refer to a subset of this network as discussion network size, defined as the number of people that the
entrepreneurs turn to when they discuss aspects of establishing and running a business (Renzulli, Aldrich, & Moody, 2000). To establish a firm, potential entrepreneurs look for relations on the basis of common interest or experience in establishing and running a business (Nohria, 1992). Discussing their new enterprise with a number of persons gives them leads to where to obtain resources such as information, property, capital, and credit. Here, we explore variations in the number of network participants that discusses the start-up.

By limiting our focus to discussion partners, we describe only one aspect, albeit an important strand, of social capital. Our concept differs from the total number of people to whom entrepreneurs turn for a wide range of business related matters. Thus, the discussion network may not include the whole entrepreneurial action set (Hansen, 1995, 2001). Nor do we have data on how the members of the discussion network are related to the entrepreneur. Some members of the discussion network may have only that single relation to the entrepreneur. Others with whom the entrepreneurs discuss their firms may become providers of further resources as well.

**Entrepreneurial Phase: The independent variable**

Wilken (1979), one of the first to recognize regular phases in the establishment of enterprises, identified three phases: 1) In the *motivation phase*, entrepreneurs discuss the initial idea and develop their business concept. 2) In the *planning phase*, entrepreneurs prepare to set up a firm. Getting the necessary knowledge and resources in this phase entails quite diverse activities (Carter, Gartner, & Reynolds, 1996; Zhao & Aram, 1995). 3) In the *establishment phase*, when entrepreneurs establish and run a firm, they focus more narrowly on daily activities, or exchanges,
and on problem solving. However, we noted that there are two means of establishment, which we term Phase 3a and 3b. Entrepreneurs in Phase 3a start a firm themselves. Phase 3b respondents take over an existing firm.

The phase concept of entrepreneurship has gained acceptance (Katz & Gartner, 1988), however, researchers set different boundaries around the process to suit the focus of their studies. Kamm and Nurick (1993) note that the phases school assumes that organizations develop in an evolutionary manner, in a recognizable sequence. McCarthy, Krueger, and Schoenecker (1990) find that entrepreneurs devote different amounts of time for communicating with business relations and employees in each phase. Chu (1996) finds that network activities vary by each phase. Reynolds and Miller (1992) examine four key events during the establishment of a firm, 1) intentionality or commitment, 2) financing, 3) hiring, and 4) sales. Hansen (2001), who sees these as an indication of entrepreneurial progress, gives each event equal weight, without regard to sequence. While distinguishing important features of entrepreneurs’ behavior according to the phase, most warn us against reifying phases. Phases are not equivalent, and establishment (or entrepreneurship) may not progress through each phase at the same rate. The borders from one phase to the next may be more blurred than discrete. Furthermore, the transition between phases is not automatic (Bhave, 1994). However, two studies that used a panel design to test the transition found that most of those that intended to start a business actually carried through their plans (Alsos & Kolvereid, 1998; Renzulli, et al., 2000).
We use Wilken’s (1979) three-phase model to identify critical social network activities and characteristics of entrepreneurial firms as the most general and parsimonious. While we developed the phases from the literature, we note that our respondents also recognized these phases.

**Phase 1: Motivation.** Social information processing theory suggests that people avoid committing themselves too early (Salancik & Pfeffer, 1978; Staw & Ross, 1987). We expect that entrepreneurs first explore the possibilities of starting their own business within a small circle of close contacts. They carefully select people with whom to discuss their ideas. Because they may not want to commit themselves publicly to any particular choice, they may limit their network to close friends and family. If they were to expand their network, their intentions would become public, making it hard to withdraw from a losing course of action (Birley, 1985).

**Phase 2: Planning.** Once they start preparing for the new venture and acquiring information, new skills, resources, and business relations, entrepreneurs need to mobilize a larger social network. During the planning phase, entrepreneurs may not know who can help them; they contact a large set of people that they may need in the future. Most of this network is likely to figure in the establishment phase.

**Phase 3a: Establishment.** Once the business is running, entrepreneurs are inclined to concentrate their network to the key persons who are able to provide resources and commitment (Chu, 1996; Hansen, 1995). Networks are apt to contract.
Phase 3b: Taking over a firm. Instead of starting a firm from scratch, entrepreneurs may, through inheritance or purchase, take over an existing firm, including its assets, social capital, and business relations (Gabbay & Leenders, 1999). It should be easier for an entrepreneur to maintain and develop a discussion network with people already connected to the firm. Taking over an existing firm entails a transfer of social capital, hence less uncertainty. Therefore, we expect entrepreneurs that have taken over firms will have smaller discussion networks than those that start a firm from scratch.

Hypothesis 1: The size of entrepreneurs’ discussion networks changes across entrepreneurial phases. Entrepreneurs in Phase 1 (motivation) have a small network, Phase 2 (planning) entrepreneurs have the largest network, which decreases during Phase 3a (starting a new firm), and even smaller in Phase 3b (taking over an existing firm). Hence: Discussion network size: Phase 1 < Phase 2 > Phase 3a > Phase 3b.

The use of time. Entrepreneurs put considerable time in both developing and maintaining their social relations to get information and resources for a successful business. They develop new contacts with resource persons, and reestablish or maintain relations with people with whom they have not been recently in contact (Granovetter, 1973; Nardi, Whittaker, & Schwarz, 1999). Since the larger the network, the more time spent contacting others, the use of time is linked with discussion network size. In order to build a network of reliable and useful relations, entrepreneurs will spend time with people to learn who will be good contacts for their business. The phase with highest uncertainty, the planning phase, requires the most time for searching and establishing relations to create an initial entrepreneurial action set (Hansen, 1995).
Phase 1: Motivation. Entrepreneurs contact others primarily to test business ideas and get support (Kamm & Nurick, 1993). Since they may spend most of the time with their closest contacts so as not to commit themselves too early, they neither use much time for developing new contacts nor for maintaining them.

Phase 2: Planning. Procuring the necessary knowledge and resources to set up a business implies making connections with new actors (Carter, et al., 1996). Since they spread a wide net in case some of their contacts do not prove useful, entrepreneurs spend more time developing contacts in this phase than any other phase. They also spend more time maintaining networks than in Phase 1.

Phase 3a: Establishment. Once the social network is in place, Phase 3 entrepreneurs will focus on daily business activities. They spend most of their time on the most useful external contacts to get information quickly (McCarthy, et al., 1990). We expect entrepreneurs to use the same amount of time maintaining their contacts as in developing them.

Phase 3b: Taking over a firm. Networks often follow a firm (Gabbay & Leenders, 1999). Those that take over a firm face less uncertainty since they will take over the business relations of the previous owner; they do not need to search for and try new relations. Therefore, we expect that respondents in Phase 3b will spend less time developing and maintaining relations than Phase 3a respondents. This leads to the following expectations:
Hypothesis 2a: Developing ties. Entrepreneurs will spend the most time developing discussion networks during the planning phase (Phase 2) of the entrepreneurship process and the least time in Phase 1 (motivation). Phase 3a (newly started firms) will require less time than Phase 2 for developing relations. Phase 3b entrepreneurs (taken over an existing business) require less time than Phase 3a entrepreneurs. Hence: Time Developing ties: Phase 1 < Phase 2 > Phase 3a > Phase 3b

Hypothesis 2b: Maintaining ties. In Phase 1, entrepreneurs will spend less time maintaining social relations than in Phase 2 or 3. Entrepreneurs will spend about the same amount of time maintaining relations in Phases 2 and 3a, but Phase 3b entrepreneurs will spend less time than Phase 3a entrepreneurs. Hence Time Maintaining ties: Phase 1 < Phase 2 = Phase 3a > Phase 3b.

**Multiple entrepreneurship**

Entrepreneurs often set up more than one firm. Although there is a high failure rate for new businesses (Nystrom & Starbuck, 1981), many entrepreneurs will set up a new firm when a firm fails or if they sell a firm; these are serial entrepreneurs. Other entrepreneurs establish new firms while they are running other firms, these are parallel entrepreneurs (Alsos & Kolvereid, 1998; Renzulli et al., 2000). In this study, we refer to those that are running or have previously run a business as experienced entrepreneurs. We explore whether experienced entrepreneurs use networks differently than novice entrepreneurs. We ask whether those that establish more than one business change the patterns of mobilizing their discussion partners and amount of time spent networking? Do experienced entrepreneurs spend less time with network members? Or, are networking pat-
terns so tightly connected to the phases of establishment that experienced entrepreneurs will follow the same phase dependent pattern as novice entrepreneurs?

To answer these queries, we distinguish those in their first business venture from those with experiences in establishing and running businesses. To explore if there are differences between novices and multiple entrepreneurs, we use the number of years a respondent has run a business as a control variable in our analyses. Cooper et al. (1995) find only marginal variations in the information search between experienced and novice entrepreneurs. Hence, we do not expect that prior experience in establishing and running a business will influence the way entrepreneurs use discussion networks.

The family’s role in the network

People draw on different social networks for different tasks. They use weak ties to pass on information they would not get from their close ties (Granovetter, 1973). People use family and other strong ties for getting resources or support (Krackhardt, 1992). But few researchers have studied the role of family in the networks of those starting businesses. This is surprising, because entrepreneurship runs in the family (Rosenblatt, et al., 1985). Indeed, despite the numerous family firms in the economy (Westhead & Cowling, 1998), there is little research into family businesses (Litz, 1997). Here, we shall explore how the family of entrepreneurs enters into their discussion networks.
Entrepreneurs draw on kin and nonkin to different degrees. Entrepreneurs are more likely than the average population to have parents that also run small businesses (Rosenblatt, et al., 1985). New entrepreneurs are likely to take advantage of this distinct pool of knowledge when they develop a business of their own (Dyer & Handler, 1994). We suggest that family members are especially helpful at particular points in starting a business, when they may even outnumber nonkin. For instance, entrepreneurs can relatively easily tap kin for initial feedback and input about a business idea (Rosenblatt, et al., 1985; Aldrich, Reese, & Dubini, 1990). At the same time, dependence on family members may restrict the network from which the entrepreneur seeks a wide range of complementary resources when planning and establishing or acquiring a business. Researchers stress the importance of weak ties for wide ranging information because entrepreneurs that continue to depend primarily on family members may overly limit their circles (Birley, 1985; Renzulli, et al. 2000). One rarely finds a banker, a marketing specialist and a manufacturing engineer all in one family. For this reason, a network of loosely coupled acquaintances offering skills, knowledge, and insights will reduce the importance of family members (Renzulli, et al., 2000). Thus, a phase based approach to entrepreneurial networks should note the role of kin during establishment. Moreover, we are likely to turn up varied participation of kin at different establishment phases.

Entrepreneurial parents offer unique skills to their children’s business and are an easily accessible resource. On the one hand, strong ties make it easier for their children to get the information without spending as much time searching. On the other, although entrepreneurs are more likely than the average population to have parents that also run a business, not all follow their parents’ line of work. However, we expect children of self-employed parents to include them in their discussion networks.
Hypothesis 3a: Children of self-employed parents are more likely than children of nonentrepreneurial parents to turn to these kin for help.

Setting up an enterprise requires a certain mix of relations and time to establish and maintain relations. Family members are bounded into strong delimited networks that have different sorts of resources than nonfamily members. As such, strong ties provide an important source of discussion in early phases, but may lose their advantages and may not be part of the social support group in the later phases of the entrepreneurship process.

Hypothesis 3b: Entrepreneurs will draw on a larger proportion of family members during the first phase than in later phases of their business startup.

**International comparisons**

While the cross cultural literature on the role of network structures in entrepreneurship is undeveloped, a brief review of the major themes may be useful. Cultural arguments prevail in comparing entrepreneurs across nations. Many apply Hofstede’s (1980) cultural distinction of individualism and collectivism. Entrepreneurs from a wide range of countries are described as individualists, and more like each other than nonentrepreneurs (McGrath, MacMillan, & Scheinberg, 1992; McGrath & MacMillan, 1992). Tiessen (1997) characterizes individualistic entrepreneurs as innovative. He finds that collectivistic entrepreneurs are good at mobilizing resources to get enterprises running. Looked at this way, the individualistic-collectivistic characteristics are
complementary, not extremes of a continuum. This suggests that underlying structural dimensions may elicit these behaviors when establishing a business.

The size of discussion networks and time devoted to their development and maintenance may not be identical across nations. Although we found few cross national studies on network size, we can discern similarities in network characteristics from research on single countries. Caulkins (1980) distinguishes the network clustering of voluntary organizations of the nonelite and the elite in a Western Norwegian village. The community was divided into two main structures. One structure consists of clusters of nonelite organizations, with strong ties within them, and only a few weak ties bridging the cliques. The other structure contains interlocked elite networks. Applying these findings to our setting, if nonelite Norwegian entrepreneurs participate in dense cliques, we expect that they have small and transparent networks. Research on Italian business networks and labor markets finds similar closure to outsiders. Access is guaranteed mainly through references, in which family and kin play a major role (Barbieri, 1997; Chiarello, 1983). Access to a transparent network is relatively easy, whereas access to networks based on referrals is more difficult. This suggests that Italian entrepreneurs must use a lot of time broadening these networks, particularly if they lack the easy entrance through family and kin.

There are also country studies on how firms value trust and obligations (Larson, 1992; Uzzi, 1997). Some compare resource acquisition in different nations, albeit without distinguishing the phases of the establishment process. Kolvereid and Obloj (1994) find that entrepreneurs in Poland, England, and Norway face similar resource constraints and get comparable help from other actors. Comparative studies of post-communist societies conclude that entrepreneurs’
access to state resource networks enhances enterprise building (Wank, 1999). Leonard-Barton (1984) finds that entrepreneurs in the Boston area use more local, informal contacts than their Swedish counterparts, who rely more on formal channels such as written information.

Studies of other network variables offer insights into comparative network structures. Freeman and Ruan (1997) reveal a number of similar patterns of interpersonal behavior and role relationships in social support networks in Australia, the United States, and six European nations. Their work suggests that we can usefully compare across several nations on entrepreneurship network variables, despite differences in single country means of the network variables.

This study, which compares mobilization of networks during the establishment of a business in four nations, aims to look at the mobilization of discussion networks in each of the countries considered. To test our hypothesis that network structure changes when establishing enterprises, we compare the entrepreneurs’ networks in the three phases of enterprise establishment in Italy, Norway, Sweden, and the USA. If network structure is as important to the establishment of firms as we claim, then entrepreneurs in these distinct cultures will mobilize contacts in similar ways, depending primarily on establishment phase. For our argument we do not expect that the size of discussion networks and time devoted to their development and maintenance need to be identical in all nations. However, we do expect that all nations follow the same hypothesized patterns.
METHODS

Design and subjects

This research project is part of a larger international study of the structural underpinnings of entrepreneurship. We have joined with a number of researchers, using similar sampling strategies and a core set of questions. While we explore somewhat different issues, the pooled data enable us to compare entrepreneurs across several nations. Aldrich et al. (1991) are among the few that analyze the entire data set.

Two main sampling strategies identify the different phases of entrepreneurs’ ventures in Italy, Norway, Sweden, and the United States. Lists of applicants to training programs for nascent entrepreneurs give access to people who had not yet started their firms. Membership lists of associations of newly formed businesses provide names of business owners.

Data for the United States are obtained from a survey of members and associates of the Research Triangle Council for Entrepreneurial Development (CED) of Durham, North Carolina. We use 213 U.S. respondents (response rate = 35%). Data for Italy are acquired from a sample of persons in the Milan area attending entrepreneurship courses at the Bocconi University’s business school. There are 52 Italian respondents (response rate = 34%). More details of the U.S. and Italian samples are found in Aldrich, Reese, and Dubini (1989).

The Swedish respondents are sampled from membership lists of an association of small businesses, with branches in diverse urban communities, and from organizations offering courses in entrepreneurship. There are 261 Swedish respondents (response rate = 48%) (Johannisson &
Johnsson, 1988). The Norwegian respondents are selected from lists of applicants to courses on entrepreneurship in and around two West Norwegian cities. There are 62 Norwegian respondents (response rate= 55%) (Greve, 1995).

This research uses a cross-sectional design to compare entrepreneurs in different phases. Ideally, a longitudinal design would have followed the same set of entrepreneurs through all phases (Carter, et al., 1996). However, the cross-sectional approach is the only practicable method for this sizable sample drawn from different nations and analyzed by different researchers.

Representativeness of the sample. There are few national samples of entrepreneurship with which to compare the representativeness of this sample. In representative studies in the United States (University of Michigan, 1993; Reynolds & White, 1993) around the same time, the proportion of Phase 1 and Phase 2 entrepreneurs is close to ours. The distribution by gender, age, and education of these studies also matches fairly well. The Swedish sample is selected from representative communities. However, it is more difficult to test the representativeness of the other national samples. We do not think this is a problem, since the regression results are similar across nations.

Data gathering. Researchers used a network questionnaire to gather data from entrepreneurs in the four countries, translating the questions to their respective languages. The questionnaire was tested on a number of entrepreneurs. In some cases, phone calls followed to get more details. All the network questions pertained to the previous six months of business establishment activities, and were prefaced by the phrase, “looking back over the past six months…” For this paper we
analyze similar sections of the questionnaires from the Italian, Norwegian, Swedish, and USA projects.

_Egocentered Network Analysis._ This research uses an egocentered method to collect and analyze network data (Knoke & Kuklinski, 1982; Wasserman & Faust, 1994). Egocentered network analysis explores the relations around each sampled person, not the total network of which individuals are members. In egocentered network studies respondents describe their networks, activities, and their relations with network members (Burt & Minor, 1983; Knoke & Kuklinski, 1982; Suitor, Wellman, & Morgan, 1997). This form of analysis is especially appropriate for collecting network data from a target population that is a small percentage of a population, and whose relations are not concentrated in a single social structure. Entrepreneurs are one such group.

Using egocentered networks requires that individuals identify their relations. Because of recall problems, these questions are often limited to only the five most important connections, as in the data set we analyze. These, Burt and Ronchi (1994) found, are fairly accurately recalled. Five connections are adequate for analyzing the role of kin in the establishment process. On the other hand, nominating five network members is often seen as too restrictive for a wider range of relations (Hansen, 1995).

_Dependent variables._ 1) Discussion network size. We asked an open ended question of the numbers of people they talked with, during the previous six months: “With how many people would you estimate you have discussed aspects of starting or running your own business?” The question limits the number of people in the network to those with whom they discussed aspects of starting
and running a business, and in this way restricts the reported network size. Networks are multi-
plex, in any dyad there are more than one relation; we only tapped the knowledge transfer part of
networks. Entrepreneurs may also interact with each of their contacts in diverse ways, such as
contract negotiating, supplier or vendor relations, and financial relations. These are part of an
action set (Hansen, 1995). The question we asked may have excluded network partners who were
not involved in information exchanges regarding setting up a firm. Therefore, the respondents’
actual network size exceeds that enumerated here. However, since many relations are multiplex,
and the same people who discuss establishing a business also do other business activities with the
respondent, people holding several roles are included.

2) The time they spent developing their relations (Hours develop relations) and 3) the time they
spent maintaining their relations (Hours maintain relations). We asked the respondents “How
many **hours** per week do you spend **developing / maintaining** contacts with persons with whom
you can discuss business matters (either starting a new business or operating your current one)?”

The distributions of some of the dependent variables are skewed. Since parametric statistics
require normal distributions, we use logged values for these variables (natural logarithm + 1 to
avoid missing values for respondents that report 0 on any of the logged variables), thus approxi-
mating a normal distribution. We label these lnDiscussion network size, lnHours develop, and
lnHours maintain. Table 1 reports distributions, scale means, standard deviations, and the correla-
tion matrix.
Independent variables. The main independent variable is the entrepreneur’s Phase in enterprise establishment. The questionnaire define the phases by key entrepreneurial activities. Interviews with many of the respondents indicate that they understood the concept of phase and could readily identify the entrepreneurial phase they were in.

We divided the phase question into five categories. The respondents were asked about “their current business situation.” Respondents who did not intend to start their own firm (22%) were deleted from the sample, leaving a sample size of 588. The total N for the various regressions may not equal 588 due to missing observations on other variables. Respondents were asked to agree with one of the following questions: Phase 1 “I am thinking about starting a business within the next year or two:” 117 (19.9%). Phase 2 “I am currently in the process of starting a business, but I have not yet started operations:” 68 (11.6%). Phase 3a “I currently run a business that I started:” 355 (60.4%). Phase 3b “I have taken over an ongoing business:” 48 (8.2%).

Deciding when a business is established is not always straight forward. Lists of businesses are not comprehensive, and there are few common characteristics of a new firm. Firm establishment does not require a specific firm size, number of employees, or even registration. There are several useful indications. Although the registration of a business is often seen as the key concrete event, some firms begin operation without registering, while other registered firms are not yet in operation (sleeping firms). It might also be useful to define the point at which a venture begins operations. Some start companies without having sales for a few years, while others hire no staff (very common), and some run their companies part time. Nevertheless, most entrepreneurs have a clear opinion of when their company started operation—for example: they usually get a phone, company
stationary, and they work there. As a result, we draw on the respondents’ self definition of the phases they were in, including the length of time they run their business. They were asked if they were running a business, and they defined the answer (Aldrich, Kalleberg, Marsden & Cassell, 1989; Birley, Muzyka, Dove, & Rossell, 1995).

The only time-related measurement in our study is the length of time they had run a business. Since it is difficult to assess the time respondents spent preparing or setting up their enterprise, we did not ask how long the entrepreneurs were in phases 1 or 2. Some respondents may have spent less than six months in Phase 2, and therefore their responses to the networking questions may reflect Phase 1 activities. This would suppress the averages of the networking measures, reducing the differences between Phase 1 and 2 less than they are.

“Percent family in network” is used as an independent variable in one regression, and as a dependent variable in another. We asked about the type of relation for the five most important network members. We use this information to analyze the ratio of kin to others in the discussion network to whom the entrepreneurs turn for information in each phase. Although 56% of the respondents mentioned family members, in only four cases are all of the five most important connections identified as family members. We thus feel assured that we have overlooked very few key kin by limiting the number to five. Therefore, studying the ratio of family to the whole network should be a good measure of family involvement in entrepreneurial networks. We define a variable called “Pct. family in network” as the number of family members divided by the number of people in their discussion network.
Other questions. 46% of the sample have one or both parents that are self-employed. Therefore, we include as an indicator “Parent self-employed” as an independent variable to test if having self-employed parents affects their networking (Hypothesis 3a).

Some respondents had run or were currently running other businesses during the establishment of a new business, thereby giving them considerable entrepreneurial experience. Altogether 99 respondents in Phase 1 or 2 (of 192) had run a business one year or more. There were 56 respondents in Phase 1 and 2, and 81 (of 397) respondents in Phase 3 that had run a business more than 5 years. It is possible that having relatively more entrepreneurial experience may result in different network behavior. To test this, we deleted all respondents that had run a firm more than five years and analyzed the reduced sample. The analysis showed no differences between the full and the reduced sample, and we report the full sample results in this paper. Tests of an indicator variable for earlier business experience (0 = novice, 1 = more than 1 year experience running a business) showed that this had neither direct nor interaction effects on the hypotheses tests, and it is excluded from the analysis. We do explore the effects of the number of years the respondents have run a business (Years business), although we do not expect previous establishment experience to affect the hypotheses (Birley & Westhead, 1993).

We include a set of two control variables in all regressions: Respondent’s Age (years) and Gender (0= male, 1= female). Because the model is general across gender and age we do not expect these control variables to affect the hypotheses.
Comparing Countries. There are significant differences in the proportion of females in our country samples. The Italian and Norwegian samples have the greatest proportion of females. Age differs as well. The Italian and the Norwegian samples are relatively younger than the other samples. The Norwegian sample has the fewest years of business experience. However, the explained variance of these three control variables is low. Our analysis suggests that despite the various sampling methods, there are more similarities than differences by country.

The distributions in each country of respondents in the different phases have some differences, which do not affect hypothesis testing. Table 1 shows the total sample distributions. There are relatively more Norwegians in Phase 1, 37%, than in the other countries. There are relatively more Italians in Phase 2, 21%. More Swedes have established a firm, Phase 3 (74%). The U.S. sample is close to the sample average.

Analyses

We estimate three OLS regression models to test the hypotheses using InDiscussion network size (H1), InHours develop relations (H2a), and InHours maintain relations (H2b) as dependent variables.

In addition to the regressions we also made separate ANOVA analyses for each category of Phase and Country by analyzing contrasts[1]. The hypotheses state non-linear relations for separate cat-
categories of the nominally scaled independent variables. We have recoded Phase and Country as
dichotomous variables (0, 1) for each category. The highest categories, Phase 3b and Sweden for
country, are coded (0, −1) and used as the comparison categories.

RESULTS
Access to networks provides information and knowledge which complement that of entrepreneurs
and help them establish a firm. We hypothesize that the search for these resources is phase depen-
dent. Further, discussion network size and time spent networking vary by the phase they are in.
Our analysis found that although there are country differences in averages of the size of network
discussion partners in each country, these do not affect the hypotheses tests. Since there are no
significant interactions between phase and country[2], the relations between the dependent and
independent variables have a similar linear form in all countries. These results support the role of
networks in entrepreneurship.

Discussion network size. Hypothesis 1 asserts that Phase 1 entrepreneurs (motivated to establish a
business) have the smallest networks of discussion partners (i), the largest network in Phase 2
(planning the business), and a somewhat smaller network in Phase 3a (establishing a firm) or
Phase 3b (taking over an existing firm). The data indicate that entrepreneurs in Phase 1 have the
smallest network, i = 8. Entrepreneurs in Phase 2 have the largest network, i = 14.7. The discus-
sion network size in Phase 3a is: i = 12, and in Phase 3b i = 12.3. The main effect of Phase is sig-
nificant at p < 0.01 (two-tailed test). The regressions use Phase 3b (taking over a firm) as a
comparison category. There is a significant difference between Phases 1 and 3b. Analyzing con-
trasts between phases shows that the differences in discussion network size between Phases 1 and
2, and between Phases 1 and 3a are significant. However, the difference between Phases 2 and 3 (3a and 3b) is not significant. The number of relations is smaller, but not significantly smaller, thus giving partial support to Hypothesis 1. Table 2 shows the regression results.

There are significant country differences in discussion network size. Contrast analysis shows that U.S. respondents have the largest network, followed by the Swedish and Italian respondents; the Norwegians have the smallest network. These differences are significant. There is no significant difference in discussion network size between Norwegian and Italian entrepreneurs, which conforms to our expectations based on previous findings of closed clique-like structures (Barbieri, 1997; Caulkins, 1980; Chiarello, 1983).

The number of years the respondents have run a business and their age do not affect the size of the network. However, there is a significant gender difference: Females have more contacts than males, 13.3 persons vs. 11.1. We do not find a difference in size of discussion networks between respondents who have self-employed parents and those that do not. But the discussion networks with a large percentage of family members are significantly smaller. We did not find any interaction effects among the control variables (gender, parents self-employed, and percent family in network).

*Developing relations.* Hypothesis 2a proposed that the entrepreneurs would spend most time developing networks during Phase 2. Table 2 shows that Phase 1 respondents spend the least amount of time developing social networks; Phase 2 respondents spend the most time developing
networks, and Phases 3a and 3b averages fall between Phase 1 and Phase 2 respondents. Entrepreneurs that took over a firm used about the same time developing networks as entrepreneurs that started from scratch. Table 2 demonstrates that the main effect of phase is significant, thus supporting hypothesis 2a. Analyzing contrasts (pairwise comparisons) revealed significant differences between all phases, except between Phase 3a and 3b.

Among the control variables, only “Percent of family in the discussion network” had a significant negative relationship with the time spent on developing contacts. There are no significant interaction effects.

We also find significant differences in time developing networks between the countries (main effect). The Italian entrepreneurs spend the most time. The Swedish sample spends more time than the US sample.

*Maintaining relations.* Hypothesis 2b stated that entrepreneurs in Phase 1 spend less time maintaining social relations than entrepreneurs in Phase 2 or Phase 3, whereas Phases 2 and 3 (3a and 3b) respondents will spend the same amount of time maintaining relations. Table 2 shows that the main effect of phase is not significant. Contrast analyses show that the difference between Phase 1 and Phases 2 and 3 is significant ($p < 0.05$ one-tailed test), but the difference between Phases 2 and 3 is not significant. We argued that entrepreneurs would spend the same time maintaining relations in phase 2 and 3. In Phase 3, the entrepreneurs are maintaining activities with well known relations. Therefore, Hypothesis 2b is supported.
A comparison of the number of hours spent maintaining discussion networks by country shows a significant main effect of country differences. The Italians spend significantly more and the Norwegians significantly less time developing and maintaining relations than the Swedish and the U.S. respondents. The Swedish respondents spend marginally (p= 0.0515, two-tailed) more time than their U.S. counterparts maintaining their networks. Communication in dense cliques is efficient, which, together with their smaller networks, explains why Norwegians use less time than the other nations. The closed character of Italian networks explains their use of time in networking. People with a high percentage of family in their networks spend significantly less time maintaining their contacts than others. No other control variables are significant for the amount of time spent developing and maintaining network relations.

*The role of family in the discussion networks.* A regression analysis with Percent of family members as a dependent variable is displayed in Table 3.

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Insert Table 3 about here
---

Hypothesis 3 is not supported. It stated: Entrepreneurs will use a larger proportion of family members during the first phase than in later phases of their business startup. The table shows that in contrast to the hypothesis there is a significant main effect of Phase in the other direction. This is caused by those that took over a firm (Phase 3b), who have 35% kin in their network. In comparison, those in Phases 1, 2, and 3a, have around 14-15% kin in their network.

Age and years running a business are not related to percent family members in the discussion networks. However, females have marginally more family in their networks than males (p= 0.09 one-
tailed test). Further, there is a strong and significant interaction effect between gender and parents running their own firm. Female entrepreneurs with one or both self-employed parents have 28% family members in their networks, compared to about 16% of their male counterparts.

There is also a significant main effect of country on percent family in the discussion networks. The largest difference is between the American respondents (7%) and those from the other countries (22-25%). Contrast analysis reveals this as a significant difference.

We control for interactions between Phase and Country. Table 3 indicates that the interaction effect is significant. The American respondents have a lower percentage of kin in their discussion networks than those of other nations in all phases. The Swedish respondents have more kin among their contacts than those in the other nations in Phase 1 and 2. Norwegian and Italian respondents that took over a firm have a very high percentage of family members in their discussion networks. They have 50% and 57% kin in their discussion networks, compared to 28% in the Swedish and 6% in the American networks. The closed nature of Italian and Norwegian networks can explain this. However, we need more research into the role of family in other nations.

DISCUSSION AND CONCLUSION

Social relations play an important role in establishing a firm. Entrepreneurs use their social capital to access resources in each phase of the establishment process. By emphasizing the social embeddedness of economic activities, and departing from the trait, culture, and personality perspectives, our study offers a structural approach to understanding entrepreneurship. We explore how each phase of establishing a business requires a different emphasis on networking. As a result entrepre-
neurs in diverse cultural settings access their social relations in similar ways to discuss aspects of establishing a business. Since entrepreneurs who consider starting a firm want a protected environment to discuss their ideas, we found that in Phase 1 entrepreneurs limit their discussions to their closest relations. Their increased number of activities in Phase 2, the planning phase, enlarges the discussion network. At that crucial point, efforts at building and maintaining contacts are highest, requiring most time. In Phase 3, our respondent entrepreneurs reduce the size of their social networks to important, helpful members, and spend less time networking.

The respondents’ age, gender, and having a self-employed parent do not affect discussion network size or the time entrepreneurs spend discussing their enterprise with others. We find a high proportion of family members in their networks, and those with the highest proportion rely less on outsiders. Females with self-employed parents to a larger extent than males draw on kin in their discussions of establishing and running a business. This may be caused by less opportunity for females to expand their networks into male dominated business circles (Renzulli, et al. 2000). Since one or both of their parents are self-employed, these kin become important discussion partners. From the literature we see that both Norwegian and Italian networks are closed and clique-based (Caulkins, 1980; Chiarello, 1983). This is also reflected in our data on discussion network size. It seems that once these nationals take over an existing business, their kin plays a more important role in the discussion networks than in the other nations.

The striking structural similarities in the effect of phase on the number of people with whom entrepreneurs talk business justifies our structural approach. We found that entrepreneurs need to build social networks, and that cultural differences do not play a major role in networking. By
using a social network perspective, we could generalize across nations. While the averages of the variables measuring network activities differ by nation, the hypotheses tests do not vary by country. Discussion network size and time spent developing and maintaining relations depend on establishment phase in all countries. In this manner, the social network approach advances cross-cultural research on general social structures and processes.

Implications and future directions

It is clear that all our respondents work at developing and maintaining their relations. Moreover, this work bore similarities by phase of business formation. Our cross-sectional study reveals the typical network profile of those with whom entrepreneurs hold discussions in each phase. This study shows that there are some interesting differences between males and females in the way they relate to their family while establishing a firm. Future research should also focus on the role of family and gender and how entrepreneurship tends to run in the family.

If networks make a difference in starting a firm, we need to learn more about the network composition of female and male entrepreneurs. We found no gender differences in discussion network size or in developing and maintaining networks. However, we did find that for those who had self-employed parents, female respondents had more kin in their discussion networks than males. We want to learn more about how women and men develop and use their networks, and the composition of the networks of those with different family backgrounds (Renzulli, et al., 2000).
In many ways a cross-sectional study poses limitations to understanding the process of entrepreneurship. A cross-sectional study loses the dynamic aspects of business establishment and the development of social contacts. Nor can it capture the dynamics of changes within and between each phase. We cannot be sure that entrepreneurs progress through all of the phases in the same manner (Carter, et al., 1996). Some within each group surely have a higher or lower probability of going from one phase to another, and they concentrate on different types of activities. Successful transition appears to depend on the ability to develop their network and on the initial network position. Both conditions seem to explain entrepreneurship and should be explored further (Jenssen, 1999).

A longitudinal study may also estimate transition probabilities and contingencies for transition to another phase or dropping out of the establishment process. Further, we would want longitudinal network data on successful and unsuccessful entrepreneurs, and the conditions forcing entrepreneurs to drop out of the establishment process. We need more research to describe the development and composition of efficient social structures that are conducive to entrepreneurship and running of businesses.


University of Michigan Survey of Consumers, October and November 1993, Ann Arbor, MI


TABLE 1

Distributions of the variables.

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase 1: Motivated</td>
<td>117</td>
<td>19.9</td>
</tr>
<tr>
<td>Phase 2: Planning</td>
<td>68</td>
<td>11.6</td>
</tr>
<tr>
<td>Phase 3a: Running a business</td>
<td>355</td>
<td>60.4</td>
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<tr>
<td>Phase 3b: Taken over a firm</td>
<td>48</td>
<td>8.2</td>
</tr>
<tr>
<td><strong>n</strong></td>
<td>588</td>
<td>100.0</td>
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<table>
<thead>
<tr>
<th>Country</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>213</td>
<td>36.2</td>
</tr>
<tr>
<td>Italy</td>
<td>52</td>
<td>9.1</td>
</tr>
<tr>
<td>Norway</td>
<td>62</td>
<td>10.5</td>
</tr>
<tr>
<td>Sweden</td>
<td>261</td>
<td>44.2</td>
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<tr>
<td><strong>n</strong></td>
<td>588</td>
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</tr>
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<table>
<thead>
<tr>
<th>Gender</th>
<th>n</th>
<th>%</th>
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<tr>
<td>Female</td>
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<td>21.1</td>
</tr>
<tr>
<td>Male</td>
<td>464</td>
<td>78.9</td>
</tr>
<tr>
<td><strong>n</strong></td>
<td>588</td>
<td>100.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parent self-employed</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
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<tr>
<td>Yes</td>
<td>271</td>
<td>46.1</td>
</tr>
<tr>
<td>No</td>
<td>317</td>
<td>53.9</td>
</tr>
<tr>
<td><strong>n</strong></td>
<td>588</td>
<td>100.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Continuous Variables</th>
<th>Mean</th>
<th>SD</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discussion network size</td>
<td>11.56</td>
<td>14.65</td>
<td>554</td>
</tr>
<tr>
<td>lnDiscussion network size</td>
<td>2.10</td>
<td>0.89</td>
<td>554</td>
</tr>
<tr>
<td>Hours develop relations</td>
<td>6.15</td>
<td>8.03</td>
<td>543</td>
</tr>
<tr>
<td>lnHours develop relations</td>
<td>1.58</td>
<td>0.83</td>
<td>543</td>
</tr>
<tr>
<td>Hours maintain relations</td>
<td>6.13</td>
<td>8.74</td>
<td>543</td>
</tr>
<tr>
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<td>0.81</td>
<td>543</td>
</tr>
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<td>2</td>
<td>3</td>
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<td>--------------------------------</td>
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</tr>
<tr>
<td>lnDiscussion network size</td>
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<td></td>
</tr>
<tr>
<td>lnHours develop relations</td>
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<td>0.29</td>
<td></td>
</tr>
<tr>
<td>lnHours maintain relations</td>
<td></td>
<td>0.25</td>
<td>0.63</td>
</tr>
<tr>
<td>Years business</td>
<td></td>
<td>0.03</td>
<td>0.08</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td>0.04</td>
<td>-0.02</td>
</tr>
<tr>
<td>Parent self-employed</td>
<td></td>
<td>0.03</td>
<td>0.02</td>
</tr>
<tr>
<td>Percent family in network</td>
<td></td>
<td>-0.42</td>
<td>-0.05</td>
</tr>
</tbody>
</table>
TABLE 2

Regressions of relations among network variables and phases of entrepreneurship

Dependent variable: ln Discussion lnHours develop lnHours maintain network size

Independent variables:

<table>
<thead>
<tr>
<th></th>
<th>lnDiscussion</th>
<th>lnHours develop</th>
<th>lnHours maintain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>2.59**</td>
<td>1.58**</td>
<td>1.53**</td>
</tr>
<tr>
<td>Phase 1: Motivated - Phase 3b</td>
<td>-0.26**</td>
<td>-0.20**</td>
<td>-0.12†</td>
</tr>
<tr>
<td>Phase 2: Planning - Phase 3b</td>
<td>0.11</td>
<td>0.29**</td>
<td>0.10</td>
</tr>
<tr>
<td>Phase 3: Running - Phase 3b</td>
<td>-0.02</td>
<td>0.004</td>
<td>0.005</td>
</tr>
<tr>
<td>USA - Sweden</td>
<td>0.19**</td>
<td>-0.28*</td>
<td>-0.12†</td>
</tr>
<tr>
<td>Italy - Sweden</td>
<td>-0.11</td>
<td>0.69**</td>
<td>0.73**</td>
</tr>
<tr>
<td>Norway - Sweden</td>
<td>-0.21*</td>
<td>-0.39**</td>
<td>-0.59**</td>
</tr>
<tr>
<td>Years business</td>
<td>0.002</td>
<td>0.003</td>
<td>0.008</td>
</tr>
<tr>
<td>Age</td>
<td>-0.004</td>
<td>0.003</td>
<td>0.004</td>
</tr>
<tr>
<td>Gender: Male - Female</td>
<td>-0.004</td>
<td>0.03</td>
<td>-0.03</td>
</tr>
<tr>
<td>Parent self-employed</td>
<td>-0.03</td>
<td>-0.003</td>
<td>-0.01</td>
</tr>
<tr>
<td>Percent family in network</td>
<td>-0.02**</td>
<td>-0.003†</td>
<td>-0.005**</td>
</tr>
</tbody>
</table>

Model tests:

Main effects: Phase, F 4.23** 5.43** 1.19
Main effects: Country, F 4.56** 18.92** 21.00**
RSquare 0.23 0.16 0.16
F 11.32** 7.47** 11.70**
n 477 459 459

† p ≤ 0.10
* p ≤ 0.05
** p ≤ 0.01

All tests are two-tailed.
TABLE 3

Regressions of Percent family in the discussion network

Independent variables:

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>16.66**</td>
</tr>
<tr>
<td>Phase 1: Motivated - Phase 3b</td>
<td>-5.68**</td>
</tr>
<tr>
<td>Phase 2: Planning - Phase 3b</td>
<td>-4.84</td>
</tr>
<tr>
<td>Phase 3: Running - Phase 3b</td>
<td>-5.05*</td>
</tr>
<tr>
<td>USA - Sweden</td>
<td>-12.66**</td>
</tr>
<tr>
<td>Italy - Sweden</td>
<td>2.67</td>
</tr>
<tr>
<td>Norway - Sweden</td>
<td>5.26</td>
</tr>
<tr>
<td>Years business</td>
<td>-0.28</td>
</tr>
<tr>
<td>Age</td>
<td>0.11</td>
</tr>
<tr>
<td>Gender: Male - Female</td>
<td>-2.18†</td>
</tr>
<tr>
<td>Parent self-employed: No-Yes</td>
<td>-2.04†</td>
</tr>
<tr>
<td>Interaction: Gender*Parent self-employed</td>
<td>3.79**</td>
</tr>
</tbody>
</table>

Model tests:

<table>
<thead>
<tr>
<th>Effect</th>
<th>F Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main effects: Phase</td>
<td>5.28**</td>
</tr>
<tr>
<td>Main effects: Country</td>
<td>10.60**</td>
</tr>
<tr>
<td>Interaction main effect: Phase*Country</td>
<td>2.18*</td>
</tr>
<tr>
<td>RSquare</td>
<td>0.15</td>
</tr>
<tr>
<td>F</td>
<td>4.95**</td>
</tr>
</tbody>
</table>

| n | 477 |

† p ≤ 0.10
* p ≤ 0.05
** p ≤ 0.01

All tests are two-tailed.

The table do not show parameter estimates for Phase*Country (available in a pdf file)

Endnotes
Contrast analyses are not shown in the table, the authors can provide pdf files of the complete analyses.

Regressions with interactions are not shown, the authors can provide pdf files of tables with tests of interactions.