

Institution as looting apparatus: impact of gender equality and institutions on female entrepreneurship

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Received: 9 October 2013 / Revised: 27 December 2013 / Accepted: 2 February 2014 /
Published online: 23 October 2014
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Abstract Do all institutions have similar impact on female entrepreneurs? While most papers consider female entrepreneurship to be influenced by a single factor, the novel approach of this paper is to suggest that interaction of national level institutions and attitude toward to female labor freedom influence female entrepreneurship. This paper examines the factors that influence different types of entrepreneurial activity, paying particular attention to gender differences. We find that countries that have large number of female participate in the labor market and have higher level of education experience more entrepreneurial activity than their counterpart. Higher level of entrepreneurship is also evident in countries with lower level of corrupt when female participate in the economic activity.

Keywords Institutions · Female entrepreneurship · Human capital regulations · Corruption

1 Introduction

Entrepreneurial activity involves personal characteristics, cultural and contextual factors, but the contribution to national and local economy by generating employment, innovation, and development is consistent across all countries (Acs and Audretsch 1988; Hirschman 1958; Baumol 1990; Acs 2006; Djankov et al.

We would like to thank the Editors for the opportunity and reviewers for the comments and the participants at the Association of Global Management Studies Annual Conference 2013.

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2002; Klapper et al. 2006).¹ However, the level of entrepreneurial activity varies significantly across countries and studies have found that the variation remains steady over time (Uhlener and Thurik 2007; Van Stel et al. 2005). Female entrepreneurs can explain some of this country level variations since the numbers of female entrepreneurs are considerably less than male entrepreneurs across countries (Carter and Marlow 2003; Henry and Kennedy 2003; McElwee and Al-Riyami 2003; Reynolds et al. 2002).

Extant of literature examined personal characteristics of entrepreneurs that have been attributed for the entrepreneurial activity (Busenitz et al. 2003; Davidsson and Wiklund 2001; Shane and Venkataraman 2000). Minniti and Naude (2010) found that income, wealth, age, and work status has less impact on female entrepreneurs' decision to enter into entrepreneurial activity rather personal characteristics such as self-confidence, fear of failure, and opportunity have greater impact (Minniti and Naude 2010). Using 11 countries, Elam and Terjesen (2010) considered cultural factors that influence entrepreneurial activity and found that business leadership, gender wage inequality, and public expenditures on childcare influence entrepreneurs decision to start a business. Other studies have determined that personal dissatisfaction, wage gap, economic development, unemployment, and family responsibility have influenced individuals' decision to engage in entrepreneurial activity (Minniti and Nardone 2007; Verheul et al. 2006; Budig 2006). While cultural and personal characteristics have impact on entrepreneurial activity, the process by which female labor equality and specific regulatory and institutional factors influence female entrepreneurship is critical. Cultural and personal characteristics have impact on entrepreneurial activity, the process by which female labor equality and specific regulatory and institutional factors influence female entrepreneurship is critical to understand in order to facilitate policies for generating female entrepreneurial activity. Drawing on institutional theory, this study examines the interaction affect of labor market participation with higher education, minimum capital required to start a business, and corruption on female entrepreneurial activity. This study integrates institutional aspects such as minimum capital required for starting a business, corruption, and human capital factors with existing research in order to argue that the full advantage of gender equality for generating female entrepreneurial is influenced by the interaction of institutions, resources, and female labor force participation (Fig. 1). To test our hypothesis, we compiled data from several sources—World Bank, Doing business, and Economic Freedom Index.

This study makes two important contributions. First, it contributes to the research about influence of institutional determinants on entrepreneurial activity by linking support for female labor activity to institutional factors. Second, it answers calls for incorporating institutional theory to better understand the impact of macro environment on female entrepreneurial activity (Terjesen et al. 2011).

The paper is organized in the following way—in the following section we discuss the effect of institutions—regulatory environment, corruption as well as higher

¹ Entrepreneurial activity is also important for firms' performance, survival, and industry evolution (Altindag et al. 2011; Santarelli and Vivarelli 2007; Cefis and Marsili 1995, 2006; Mata et al. 1995).

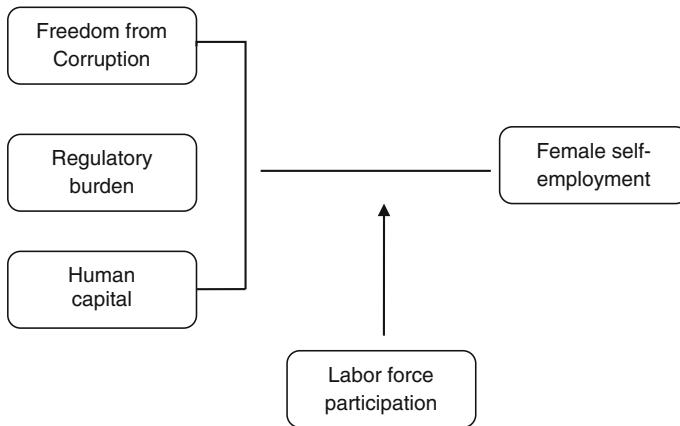


Fig. 1 Modeling of hypothesis

education on female entrepreneurs’ decision to undertake entrepreneurial activity. The third section presents data used in this article and the statistical procedure used in this article is presented in section four. Results and discussion are presented in the fifth and sixth section of the paper respectively.

2 Institutional framework and entrepreneurship

Theoretical basis of this paper is based on North’s institutional perspective. North (1990:3) defined institutions as “rules of game”, more formally defined as “the humanly devised constraints that structure human interaction”. North divides institutions in two categories—formal and informal institutions. Formal institutions are the visible ‘rules of game’ such as regulations and laws etc. while informal institutions are invisible ‘rules of game’ such as norms, values etc. Entrepreneurs’ adapt to the institutional environment by forming their strategies based on the institutional framework since they take on significant risk by engaging in the activity and expect a return on this investment. Countries with weak institutional framework are less likely to reduce uncertainty for entrepreneurs. Weak institutional framework also includes extensive bureaucratic requirement, extensive corruption etc.

2.1 Starting capital requirement and entrepreneurship

Access to capital is a constraint for entrepreneur everywhere.² Female entrepreneurs’ are at a disadvantage given they have limited access to personal assets, stereotyping, discrimination, and credit record (Riding and Swift 1990; Buttner and Rosen 1989; Hisrich and Brush 1986; Hisrich and Brush 1984). Horrell and Krishnan (2007) reported that households headed by female have less opportunity to engage in diverse

² Lian, Sepehri and Foley (2011) presented how firms’ investment and cash holding decisions are influenced during financial crisis and financial constraints.

economic activity; therefore they are less likely to have appropriate income and assets to pursue or exploit an opportunity. For women in developing countries access to finance from formal financial institutions is even greater problem than women in developed countries. In this case women might rely on informal funding which can be more expansive³ (Demirgüç-Kunt et al. 2008; Rose 1992; Richardson et al. 2004). Additionally, minimum capital requirement for starting a business can also be used by the incumbent firms as entry barriers. Minimum capital required to start a business can be a barrier for female entrepreneurs since women have limited access to capital. Klapper et al. (2006) study included 34 Western and East European countries and found that countries with higher entry cost tend to have low level of new business entry. Evans and Jovanovic (1989) found that wealthy individuals are more likely to undertake entrepreneurial activity. Based on this we hypothesize that:

Hypothesis 1: Countries with high level of business regulations are likely to have lower rates of female entrepreneurial activity.

2.2 Level of corruption and entrepreneurship

Studies have made distinction between various types of corruption. Susan Rose-Ackerman (1975, 1978) defined corruption as bribery to change rules in favor of the payers. Rodriguez et al. (2006) defined corruption as use of public office or authority for personal benefit. Shleifer and Vishny (1993) differentiated between organized and efficient corruption. Some researchers argue corruption is desirable since it is embedded in the social norm, in some cases the expectation is well established, therefore, both sides are well aware of the expectation and can induce a more efficient process by bypassing burdensome regulations (Leff 1964; Huntington 1968; Acemoglu and Verdier 2000). The level of corruption can be an indicator of institutional quality since corruption is embedded in the social norm for many of the developing countries. The effect of corruption on entrepreneurial activity has not been concretely established and regardless of the characteristics of the corruption can have significant negative impact on entrepreneurial activity because entrepreneurs are often credit constrained (Murphy et al. 1993). This is especially burdensome on female entrepreneurs since have limited access to credit to begin with. Based on this, we hypothesize that:

Hypothesis 2: Countries with lower level of corruption will have higher rates of female entrepreneurial activity.

2.3 Attainment of higher education and entrepreneurship

Human capital can be an important resource for female entrepreneurs developed through formal training (Coleman 1988). Studies have differentiated by various types of knowledge—tacit and explicit (Polanyi 1967). Formal education helps entrepreneurs accumulate their explicit knowledge and can be particularly important for female entrepreneurs (Bates 1995). Tacit knowledge includes experience,

³ Carpenter and Petersen (2002) found that internal financing is a cheaper source for financing than external financing.

practical learning, and non-formal education. By attaining formal education, female entrepreneurs can gain access to certain labor market as well as access to certain social networks. Gaining access to labor market can create opportunity for female entrepreneurs to increase their tacit knowledge such as financial management and other general business skills. Studies have found that entrepreneurs with higher level of education are more successful in the entrepreneurial activity than their counterpart (Van der Sluis et al. 2005; Bates 1990). In a knowledge based economy, education can allow women to search for opportunity in the knowledge intensive sector. Based on this, we hypothesize that

Hypothesis 3: Countries with high level of female human capital will have higher rates of female entrepreneurial activity.

2.4 Gender equality

Female involvement in the labor market varies significantly across countries. The literature regarding economic development gender equality is well established. Female participation in the labor market is influenced by the social culture, fertility structure, and unemployment status. Countries with high fertility rate, female has less time to invest in the formal workforce since they need to invest time in providing childcare (Bloom et al. 2009).⁴ As female participation rate increases in the labor market, the supply of female workers in the labor market increases. Thus some women are expected to search for entrepreneurial opportunity. Entrepreneurial activity also offers flexibility and independence that entices more females to entrepreneurial activity (Taylor 1996). Thus, we expect the following:

Hypothesis 4: Countries with larger share of female labor force participants are more likely to have higher rates of female entrepreneurial activity.

2.5 Gender equality, regulatory environment, and entrepreneurship

Female participation in the formal labor force varies significantly. Singh et al. (1986) indicated that women in developing countries tend to engage in the farm work at a lower wage and due to limited opportunity to work outside. As the opportunity changes and female labor force participation increases, women are more likely to engage in the formal sector employment than entrepreneurial activity (Uhlaner et al. 2002; Acs et al. 1994). The regulatory environment of a country influences a woman's perspective on entrepreneurial opportunity. Regulatory environment is commonly viewed as an important factor for economic activity by creating a stable environment for social behavior (Scott 1995). Regulations can "two sided sword", while regulations can impede economic activity by creating barriers between entrepreneurs and political leaders or bureaucrats since not everyone is equally able to access government officials to lobby for their interest. On the other hand regulations can act as a cure for market failure by distributing resources efficiently and effectively which free-market fails to do. In the context of entrepreneurial activity, previous research has shown that rigid and unfriendly

⁴ See Caliendo and Kritikos (2010) for the impact of government subsidies on self-employment.

business environment tend to have negative influence on entrepreneurial activity (Klapper et al. 2006; Djankov et al. 2002; Geroski 1995). Ciccone and Papaioannou (2009) show that countries with extensive regulatory environment can delay introduction of new products, therefore entrepreneurs are less likely to start a new venture. Men tend to have longer experience in the labor market than women, since they are employed in the labor force before they become involved in the entrepreneurial ventures (Welsch and Young 1984). Getting the head start allows men to gain more experience in dealing with regulators and establish necessary network to overcome regulatory barriers in place. Therefore, extensive regulatory barriers increase burden on female entrepreneurs, because they are less experienced deal with regulators (Kalleberg and Leicht 1991; Fischer et al. 1993). This extra burden pushes female workers away from entrepreneurial activity and toward wage employment to avoid regulatory barriers. Based on this we hypothesize that:

Hypothesis 5: The positive relationship between gender labor equality and female entrepreneurial activity will be more positive for countries with business friendly environment than for countries with business unfriendly environment.

2.6 Importance of human capital with gender equality

Human capital is an important factor for entrepreneurs. Entrepreneurs need to have wide range of skills and knowledge in order to be successful (Lazear 2004). However, institutional context where the entrepreneurs are embedded the availability of human capital can vary significantly because there might not be a higher education in the region or within the reasonable distance where an individual is situated in. Therefore, an entrepreneur might not have access to appropriate level of knowledge or skills. Baptista et al. (2011) presented the two way relationship between existence of a higher institution and regional development; presence of a university attracts educated people in the area who can have access to the knowledge who then in turn can contribute to the local economy.

In this context we don't differentiate between formal and informal education. Male and female tend to have different level, quality, and type of education (Birley et al. 1987). In many of the developing countries male child is given preferential treatment over female. Human capital increases an individual's cognitive abilities, allows an individual to be more adaptive to a new and changing situations and attain skills necessary for exploiting entrepreneurial opportunity and tends to have significant influence on an individuals' decision to enter into entrepreneurial activity and eventual success (Luber et al. 2000; Schultz 1959; Becker 1964; Mincer 1974; Verheul et al. 2002). Formal education found to be particularly important for female entrepreneurs (Bates 1995). Increase in education level is also accompanied by the increase in desire to participate in the labor market as well as to become economically independent (Koper 1993). Previous studies have found that women lacks relevant business knowledge and experience, by participating in the labor market women can fill the knowledge gap (Carter et al. 2003; Menzies et al. 2004) Despite the established literature regarding the importance of human capital studies have shown that female entrepreneurs in general have less access to human capital (Bates 1995). Based on this, we expect;

Hypothesis 6: The positive relationship between gender labor equality and female entrepreneurial activity will be more positive for countries with highly educated female entrepreneurs than for countries with less educated female entrepreneurs.

2.7 Corruption free environment as an incentive

Corruption is a major problem for many of the developing countries but in many instances entrepreneurs take corruption as a norm since they have very little to no trust on public officials. Prior studies have shown that higher levels of corruption have negative consequences on economic productivity (Sachs and Warner 1995). On the other hand, lower levels of corruption and greater trust in public officials have positive impact on entrepreneurial activity (Knack and Keefer 1995; La Porta et al. 1999). High level of corruption can be additional cost on entrepreneurs since it is difficult for entrepreneurs to take into account the exact cost of corruption. The cost is especially burdensome for female entrepreneurs since they have access to limited access to start-up capital and limited income availability (Verheul and Thurik 2001). Female entrepreneurs are less likely to have enough personal wealth because they have limited time in the formal sector employment. Therefore, entrepreneurs who don't have the additional resources to pay for the cost, they are less likely to start entrepreneurial activity. High level of corruption also creates a risky, unpredictable and unstable environment for entrepreneurs. Therefore, entrepreneurs who don't have the additional resources to pay for the cost, they are less likely to start entrepreneurial activity. Based on this, we conjecture that countries with less corruption will see more entrepreneurial activity.

Hypothesis 7: The positive relationship between gender labor equality and female entrepreneurial activity will be more positive for countries with less corruption than for countries with more corruption.

3 Data and methodology

We collected data from various sources: Doing Business dataset (2009–2010), World Development Indicator (WDI) (2009–2010), and Economic Freedom Index (2010). Our sample size includes 40 countries. The dependent variable included in the study in from the year 2010 and independent variables are collected from the year 2009 in order to account for the lagged effect. Table 1 reports the list of countries included in this study.

In this article we use female self-employment as a measure for entrepreneurship. Female entrepreneurship data was collected from the WDI for countries spanning a broad spectrum of levels of economic development. The female entrepreneurship is defined as the percentage of female working age population are engaged in the self-employment is defined as those workers who, working on their own account or with one or a few partners or in cooperative, hold the type of jobs defined as a self-employment job. Table 1 presents the average rate of female self-employment in the each country included in the study.

Table 1 Average female self-employment rate across countries

| Country | Female Self-employment | Country | Female Self-employment |
|--------------------|------------------------|----------------|------------------------|
| Austria | 11.3 | Korea | 30.8 |
| Belgium | 10.8 | Latvia | 8.5 |
| Colombia | 52 | Lebanon | 13.5 |
| Costa Rica | 24.25 | Macedonia, FYR | 24.1 |
| Croatia | 21.9 | Mexico | 34.9 |
| Denmark | 5.3 | Morocco | 65.8 |
| Dominican Republic | 32.7 | Netherlands | 10.5 |
| Ecuador | 53.7 | Norway | 4.9 |
| Egypt | 52.1 | Pakistan | 52.57 |
| Finland | 9 | Panama | 33 |
| France | 7.6 | Peru | 40.2 |
| Germany | 8.4 | Portugal | 21.2 |
| Ghana | 31 | Romania | 32.5 |
| Greece | 30.9 | Russia | 15.67 |
| Guatemala | 31.3 | Serbia | 27.65 |
| Hong Kong | 6.15 | Slovenia | 12.8 |
| Hungary | 9.1 | South Africa | 8.1 |
| Iceland | 7.4 | Spain | 12.8 |
| India | 8.4 | Sweden | 6.2 |
| Iran | 55.1 | Switzerland | 12.8 |
| Ireland | 7.5 | Syria | 21.7 |
| Israel | 7.93 | Thailand | 56.5 |
| Italy | 18.5 | Turkey | 48.9 |
| Jamaica | 27.63 | UAE | 25.15 |
| Japan | 12.75 | UK | 8.6 |
| Jordan | 5.1 | US | 6.83 |
| Kazakhstan | 35.45 | Uruguay | 30 |
| | | Vanuatu | 75.5 |

Freedom from corruption data was gathered from the Economic Freedom Index. The Economic Freedom Index measures the institutional qualities of the countries. Each component of the index is assigned a grade using a scale from 0 to 100. The data for freedom from corruption is derived from Transparency International's Corruption Perceptions Index (CPI) that measures the perceived level of public sector corruption in 180 countries. A score of 100 represents very little corruption (McMullen et al. 2008). Business regulation is measured by minimum capital required to start a business (Djankov et al. 2002). Higher education is measured by the percent of female enrolled in tertiary education (Verheul et al. 2006). Labor force participation is measured by percent of female participate in the labor force. Additional data- list of all the variables, definitions and sources are included in Table 2.

Table 2 List and definition of variables and sources

| Variables | Definition |
|---------------------------------------|---|
| Self-employment | “Self-employed workers are those workers who, working on their own account or with one or a few partners or in cooperative, hold the type of jobs defined as a self-employment job”. Source: World Bank API |
| Business regulation | Starting a business: paid-in capital (% of income per capita) Source: Doing Business |
| Economic development (GNI) | GNI per capita is gross national income divided by midyear population. GNI (formerly GNP) is the sum of value added by all resident producers plus any product taxes (less subsidies) not included in the valuation of output plus net receipts of primary income (compensation of employees and property income) from abroad. Data are in constant 2000 U.S. dollars. Source: World Bank API |
| Human capital | Gross enrolment ratio. Tertiary (ISCED 5 and 6). Female human capital is the total female enrollment in tertiary education (ISCED 5 and 6), regardless of age, expressed as a percentage of the total female population of the five-year age group following on from secondary school leaving. Source: World Bank API |
| Access to credit | Private bureau coverage (% of adults)-getting credit. Source: Doing Business |
| Government spending | Level of government expenditure (% of GDP). Source: Economic Freedom Index |
| Corruption free | Freedom from corruption. Source: Economic Freedom Index |
| Female labor force participation rate | Labor force participation rate is the proportion of the population ages 15 and older that is economically active: all people who supply labor for the production of goods and services during a specified period (% of female population). Source: World Bank API |

Government spending is defined as the level of government expenditures as a percentage of GDP including consumption and transfers (McMullen et al. 2008). We also control for the economic development as well as access to financial resources. Economic development is measured by the Gross National Income per capita at the country level (Wennekers et al. 2005; Carree et al. 2002; Acs et al. 1994). Access to credit is defined as the number of individuals and firms listed by a private credit bureau with information on their borrowing history from the past 5 years. The number is expressed as a percentage of the adult population. A private credit bureau is defined as a private firm or nonprofit organization that maintains a database on the creditworthiness of borrowers (individuals or firms) in the financial system and facilitates the exchange of credit information among creditors (Djankov et al. 2007).

Table 3 provide the mean, standard deviation, and bivariate correlations for variables used in the regression analyses.

4 Statistical procedures

We used hierarchical regression analysis to test our hypothesis. The hierarchical regression allows examining multilevel relationship as well as inclusion of interaction terms for comparison across different models (Klein and Kozlowski 2000; Jaccard and Turrisi 2003). Multicollinearity is a major concern in institutional analysis. We have utilized variance inflation factor (VIF) to detect any issues related to multicollinearity. None of the variables included in the models have VIF score above 10, with maximum VIF of 6.15 (Kutner et al. 2004). Given all VIFs are below the accepted level of 10, we conclude that multicollinearity is not a significant factor and unlikely to have biased the results.

5 Results

Table 4 presents regression results. The first step in the regression (Model 1) includes the control variables included in this article. Of the three variables included in the model, only two of the variables register as significant. Government spending presents positive and significant ($p < 0.05$) impact on female self-employment but economic development show negative and significant relationship ($p < 0.1$). In the second step we include main effect variables in the model (Model 2) to test the main effect hypothesis. Two out of four of the variables show significant relationship. Minimum capital required to start a business show negative relationship with female self-employment ($\beta = -0.20$, $p < 0.05$). The result supports our hypothesis 1 regarding the negative effect of high regulative environment on entrepreneurship.

Freedom from corruption and higher education shows negative and non-significant impact on entrepreneurship. Our hypothesis 2 and 3 are not supported by the result. The result regarding corruption suggests that corruption can be used as a benefit for the entrepreneurs'. Since in many of the developing countries 'corruption' is almost a cultural element people might already be accustomed to

Table 3 Means, standard deviations, and correlations of two variables

| Variables | N | Mean | SD | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|----|--------|--------|--------|-------|-------|-------|-------|-------|------|
| 1. Female self-employment | 55 | 24.09 | 17.90 | | | | | | | |
| 2. Economic development | 59 | 12,276 | 12,303 | -0.63* | | | | | | |
| 3. Government spending | 66 | 61.94 | 22.76 | 0.58 | -0.49 | | | | | |
| 4. Access to credit | 66 | 41.50 | 37.63 | -0.24 | 0.43 | -0.14 | | | | |
| 5. Freedom from corruption | 66 | 50.48 | 23.23 | -0.68* | 0.88* | -0.55 | 0.42 | | | |
| 6. Minimum capital required to start a business | 66 | 28.36 | 126.25 | -0.08 | -0.12 | 0.04 | -0.17 | -0.12 | | |
| 7. Female higher education | 54 | 60.12 | 25.71 | 0.15 | -0.18 | 0.09 | -0.17 | -0.16 | -0.14 | |
| 8. Female labor force participation | 66 | 47.98 | 14.38 | -0.21 | 0.46 | -0.15 | 0.32 | 0.38 | -0.34 | 0.01 |

* 5 % significance level

the corrupt environment, so they already take the cost associated with bribing a government official in the cost structure. In this case, corruption increases efficiency by speeding up the various administrative processes. The result conforms to the ‘grease the wheel’ literature. With regards to the hypothesis, that was not supported, suggests engaging in the entrepreneurial activity may have higher opportunity cost than the wage employment. In addition to the opportunity cost, lack of skills and resources might also be additional concern for women. Even though women and men can be employed in the same employed, the wage paid for the same job can be extensive across countries (Charles and Grusky 2004; Charles and Bradley 2009).

Female labor force participation show significant negative relationship with female self-employment ($\beta = -16.60$, $p < 0.05$). The result does not support our hypothesis 4. Women face ‘glass ceiling’ and industrial segregation once they are in the labor market. Female workers tend to be employed in the service sector since these jobs have been identified as ‘feminine’ jobs (Elam and Terjesen 2010). So they fail to gain the managerial and other tacit knowledge/experience necessary for the entrepreneurial activity.

In step 3, in the regression (Model 3) I include two-way interaction terms in the model in order to test the hypothesized moderating effect of female labor force participation. The model significantly explains variance in the model. The model represents a significant increase over the main effect model ($R^2 = 0.79$) Table 4.

Hypothesis (5) posited that business friendly environment with high female labor force participation will have positive impact on female entrepreneurial activity. The interaction term is significant ($\beta = 0.013$, $p < 0.05$), thus our hypothesis is not supported by the result. The result is consistent with the Van der Sluis et al. (2005) study.⁵ The result suggests that female workers’ rather stay in a wage paying job which has less uncertainty and risk rather than taking on the risk of engaging in the entrepreneurial activity. Additionally childcare expenses can also be a concern for the female entrepreneurs since government support for female worker varies significantly across countries. Countries low level of government support for childcare facility and subsidy puts extra burden on the female headed households. Female entrepreneurs may consider saving the earnings for the purpose of meeting the basic family needs and remain in the stable wage paying job. Therefore increased cost of business start-up may negate the motivation for entrepreneurial activity.

Next, hypothesis (6) posited that the relationship between entrepreneurial activity and labor force participation will be positive when women have higher level of education (Fig. 2). The results show that the interaction term is significant ($\beta = 0.02$, $p < 0.05$), thus the hypothesis (6) is supported. The result suggests that higher level of human capital increases confidence of female entrepreneurs to engage in entrepreneurial activity.

Finally, hypothesis (7), which predicted that increase in female labor force participation with corruption free environment will have positive impact on female entrepreneurial activity, the interaction term is significant ($\beta = 0.017$, $p < 0.05$),

⁵ Van der Sluis et al. (2005) study found that higher education is negatively related to the nonfarm self-employment.

Table 4 Results of study using hierarchical regression

| Variables | Model 1 | Model 2 | Model 3 |
|---|---------|----------|-----------|
| Economic development (ln) | -8.10** | -6.41 | -8.49* |
| Government spending | 0.17* | 0.11 | 0.09 |
| Access to finance (ln) | 0.087 | -2.12 | -0.75 |
| Minimum capital required to start a business | | -0.20** | -0.70** |
| Freedom from corruption | | -0.07 | -0.96* |
| Female higher education | | -0.13 | -1.08** |
| Female labor force participation | | -16.60** | -107.9*** |
| Female labor force participation × minimum capital required to start a business | | | 0.013*** |
| Female labor force participation × female higher education | | | 0.02** |
| Female labor force participation × freedom from corruption | | | 0.017** |
| R^2 | 0.55 | 0.67 | 0.79 |
| Adj R^2 | 0.51 | 0.59 | 0.70 |
| ΔR^2 | | 0.12 | 0.12 |
| N | 41 | 34 | 34 |

*** 1 % significance level, ** 5 % significance level, * 10 % significance level

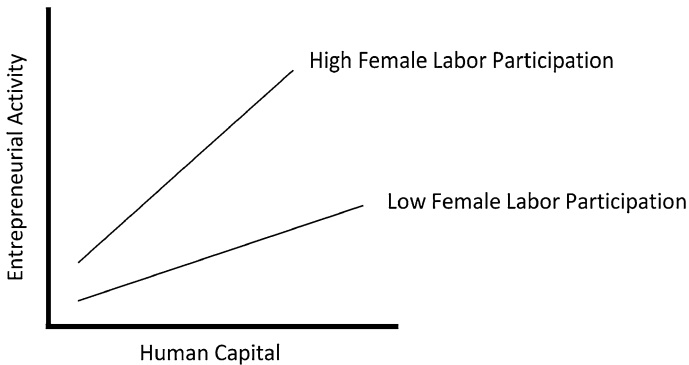


Fig. 2 Interaction of human capital and female labor force participation

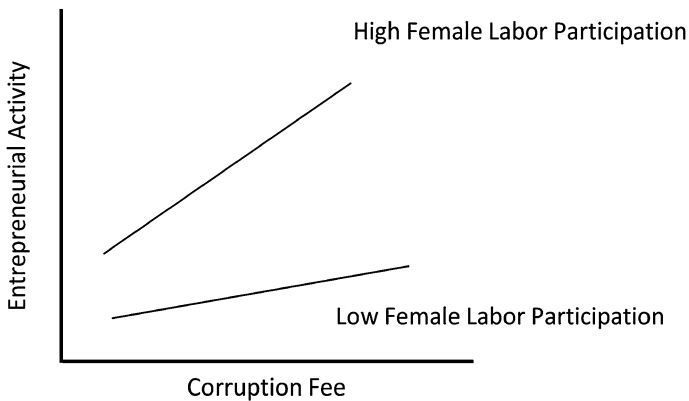


Fig. 3 Interaction of freedom from corruption and female labor force participation

therefore the hypothesis is supported (Fig. 3). The result suggests that low corruption with higher level of female labor participation creates an environment where women do not have to deal with the extra burden. Women generally face higher level of entry barriers in the formal labor force, and even after getting in the labor female workers have less role-model who can guide them through the various obstacles.

6 Conclusions and discussion

Policymakers' are increasingly searching for policies to promote female entrepreneurship and participation in the economic activity since women entrepreneurs are outnumbered by the male entrepreneurs (Estrin and Mickiewicz 2009). In this study, we assess the interactive relationship between females' opportunity to participate in the economic activity and greater institutional environment. The results of this

article suggest that macro environment is an important factor generating female entrepreneurial activity. In the case of high entry barriers in the formal sector, it might be optimal for women to engage in entrepreneurial activity in the informal sector.

Institution theory holds that formal and informal institutions influence organizations since social structures have imprints of these institutions (Scott 2008). The cultural attitude toward female involvement in economic activity is an important factor, but the factors that can influence the attitude toward female involvement in economic activity can take a long time to change since these are embedded in the cultural norms and values. Overall society's outlook toward female involvement in the economic activity is an important factor. In order for female entrepreneurs to take on entrepreneurial activity that involves risk and uncertainty, institutional environment can create an environment that encourages female entrepreneurial activity. This article makes three contributions. The results of this article show that female participation in the labor force contributes significantly to the entrepreneurial activity when women have higher level of education and corruption level is low.

On the other hand, interaction relationship between higher level of capital requirement to start a business and female labor force participation has positive relationship with entrepreneurial activity. As labor participation opportunity increases higher capital requirement becomes less of a concern for the female entrepreneurs.⁶ Informal finance is major source of finance for women entrepreneurs' in developing countries (Aidis et al. 2009). Therefore opportunity to earn income also creates an opportunity for saving and combination of saving and informal financing alleviate the access to formal financial resources.

Future research could examine the relationship between institutional and normative attitude in the collectivist society compared to individualistic society. In collectivist society there might be more support for female entrepreneurship since wellbeing of group is more important in collectivist society compared to individualistic society.

Policymakers should recognize the importance of adapting policies that create more opportunities for women to participate in the formal workforce other than the service and agricultural sector. Policy makers should also create programs such as flexible training programs⁷ and policies such as subsidized child care, access to female mentors/leaders that better prepare women to succeed if they decide to undertake an entrepreneurial venture.

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⁶ Maloney (2004) presented the benefit of increasing the formal sector in the economy.

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