FEMALE NECESSITY AND OPPORTUNITY ENTREPRENEURSHIP:
A STUDY OF INCOME LEVEL AND SOCIAL PROGRESS

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Abstract

The number of female owned enterprises is gradually increasing as more and more women are starting their own businesses. This has encouraged governments, policy makers, and scholars to focus on unearthing different individual, social, and economic factors, which can promote female entrepreneurial activities. However, a majority of the studies concerning female entrepreneurial activities have focused on their overall level of business start-ups. These studies have failed to delineate between necessity based and opportunity driven entrepreneurship. Moreover, little empirical work is done to investigate how different economic, social, and cultural factors shape women’s entrepreneurial initiatives. This study aims to fill the gap in the extant literature by investigating the impact of economic development and social progress on necessity based and opportunity driven entrepreneurship among females. For this purpose, data regarding different types of female entrepreneurship was collected from the Global Entrepreneurship Monitor, while Gross National Income, the Social Progress Index, and the Human Capital Index were used as measures to capture economic and social factors. Regression Analysis using the Ordinary Least Square method was used for hypothesis testing. Results of this study indicate that GNI per capita, social progress and human development are positively related with opportunity driven female entrepreneurship, while the same predictors are negatively associated with necessity-based entrepreneurship among women. Moreover, GNI per capita, social progress and human development have a U-shaped relationship with overall female entrepreneurship implying that at the left side of the curve, necessity-based entrepreneurship is more prominent, while on the other side opportunity-driven entrepreneurship dominates. This finding shows that distinguishing between different types of entrepreneurship can provide more nuanced
explanations regarding effects of different social and economic initiatives to foster entrepreneurial activities among women.

**Keywords**

Female entrepreneurship, income level, social progress, human development

**Introduction**

The increasing engagement of women in entrepreneurship worldwide, and particularly in the slow-developing economies, has attracted academic scholars' attention. Studies attribute a variety of factors for this increase. A combination of various pull and push factors often motivate women to make the best use of opportunities that come their way (Goby & Erogul, 2011). The pull factors give rise to opportunity-driven entrepreneurship while the push factors force women to participate in entrepreneurial activities. Different pull factors such as independence, flexibility and control over one’s career, recognition, self-actualization, and personal growth are associated with opportunity entrepreneurship among women. Women regard flexibility and childcare obligations to be strong motivators to become entrepreneurs (McGowan et al., 2012). This opportunity-based female entrepreneurship makes women more financially independent. On the other hand, women are pushed more into entrepreneurship as compared to males because they have fewer occupational alternatives due to low education, limited experience and frequent career interruptions (Jennings & Brush, 2013). When women feel that they are earning less income than they desired or anticipated, or the working conditions are poor, they tend to start their own businesses (Noguera et al., 2015). Hence, income and economic necessity, often in cases of being a single mother, pushes women into entrepreneurship (Jennings & Brush, 2013).

Among a number of different factors for business start-ups by women, one significant one is the national income level, which plays a critical role in deciding whether female entrepreneurship is necessity-driven or opportunity-based. It is significant to note that the level of entrepreneurship in low and medium level countries varies with the Gross Domestic Product (Terjesen & Amorós, 2010). Women of less developed countries may be pushed into entrepreneurship due to economic necessities, survival needs, health requirements and family education; whereas women from more developed countries may set up their own businesses due to frustration in career advancement (Jennings & Brush, 2013).

Similarly, different social factors such as gender equality in access to health, education and business play a significant role in women’s decision to start and remain
engaged in entrepreneurial activities. For example, cultural and social values shape women's decisions to enter into business (Aidis et al., 2007). As most societies historically regard women as inferior to men, hence women’s plans and projects to enter mainstream business sectors get little recognition (Foss et al., 2013). Frustration caused due to lack of opportunities and gender discrimination forces women towards self-employment. Cultural and social barriers, however, force women to work in low-growth sectors, making them more vulnerable to a variety of social and economic exploitations. All such factors create uneasiness among females and force them to start their own businesses in order to support their families and children.

Previous research has established a positive relationship between human capital and entrepreneurship. In female entrepreneurship, social recognition and education play an important role in sustaining entrepreneurial spirit and management (Perez & Hernandez, 2016). Gender inequality in education, health, and wages results in poor development of women. Such gender inequality undermines the human capital of women by restricting their participation in education and economic activities, which have a detrimental effect on their economic condition (Klasen & Lamanna, 2009) and participation in business initiatives.

Although the phenomenon of female entrepreneurship is present in all countries, there is a considerable variation among different countries (Estrin & Mickiewicz, 2011). For example, Wennekers et al. (2010) found a U-Shaped relationship between overall entrepreneurship and economic development. A study by Maniyalath and Narendran (2016), investigating the effect of gross national income and human capital on female business start-ups has not differentiated between opportunity-driven and necessity-based entrepreneurship. This paper proposes that opportunity based entrepreneurship among females will be positively associated with national income level, social progress and human capital; while necessity-driven entrepreneurship will have a negative relationship with these predictors.

It is also important to note that a gap between levels of female entrepreneurship exists in countries having the same level of income. These gaps cannot be explained by economic factors alone (Elam & Terjesen, 2010). In such situations, social and cultural elements can provide a better explanation. Less attention, however, is given to assessing the connection between female entrepreneurship and the role of social values in their new business ventures (Terrell & Troilo, 2010). As Hala Hattab (2012) points out, in her study of entrepreneurship activities of Middle Eastern women, although they have remained engaged for a long time in these activities, much has not been studied about the characteristics of their enterprises. Therefore, instead of relying solely on economic factors,
this paper has considered social, cultural, and human development elements as significant factors in shaping new business initiatives by women.

Tracing its recent history, female entrepreneurship rose to prominence in the 1970s (Berger & Kuckertz, 2016) when researchers started to recognize that “entrepreneurship is a gendered phenomenon” (Jennings & Brush, 2013). Once considered a male-dominated field, entrepreneurship among females began gaining attention from researchers, policy makers and the general public alike (Ramadani et al., 2015). Astonishingly, female entrepreneurial initiatives are developing more rapidly, especially in low-level income countries (Nguyen, Frederick & Nguyen, 2014). As some recent studies have estimated, around one-third of new businesses are owned by female entrepreneurs, while they also run around one-fourth of all established businesses (Terjesen, Bosma & Stam, 2016). However, in several countries, the absolute number of women owned businesses are fewer as compared to male entrepreneurship (Minniti, 2010; Shinnar, Giacomin & Janssen, 2012; Terrell & Troilo, 2010). This number might be because females continue to suffer either direct gender discrimination (like preference based discrimination) or indirect (such as a glass ceiling) (Cavalcanti & Tavares, 2016). Therefore, it is imperative, particularly for the governments and policy makers, to distinguish between types of entrepreneurship among females and how these could be affected by different economic, social, and cultural factors. Amine and Staub (2009), in their study of women entrepreneurs in sub-Saharan Africa, stress the roles that factors, which they term a ‘daunting array of challenges’ and which consist of socio-cultural, economic, legal, political and technical environments, play in women’s entrepreneurship.

Recently there has been a shift in the study of female entrepreneurship. Initially, studies focused on financing female-owned enterprises. However, now softer issues such as balance between work and family life, motivation, self-efficacy and non-financial definition of success are gaining more attention from scholars (Brush & Cooper, 2012). However, in all these studies need-based entrepreneurship is somewhat neglected as compared to opportunity driven aspects of entrepreneurship. This disparity necessitates more investigation, as necessity-based entrepreneurship is more prevalent in low and medium level income countries because entrepreneurship offers an important source of employment for women in these countries (Agbir, Ayatse & Oriarewo, 2013). Indeed self-employment of women can act as a practical solution to reduce poverty in under-developed countries (Sarfaraz, Faghih & Majd, 2014).

Several studies have highlighted the benefits that both developed and under-developed countries can receive from female entrepreneurship (Rubio-Bañón & Esteban-Lloret, 2016) as well as from job creation for women (Hatta, 2012; Maniyalath & Narendran, 2016; Okah-Efogo & Timba, 2015). It is argued that an increase in the rate of
female entrepreneurial endeavors would result in better economic conditions and social well-being of a country (Adom & Asare-Yeboa, 2016; Agbim, Ayatse & Oriarewo, 2013). Similarly, countries that neglect the human capital of women by limiting the participation of highly educated women in the labour market, pay through low economic growth (Klasen & Lamanna, 2009). However, to benefit from participation of women in entrepreneurial activities, it is pertinent to understand the underlying reason for their business start-ups. Therefore, instead of relying on an overall level of female business ventures, it is better to distinguish between necessity-driven and opportunity-based entrepreneurship.

Shapero and Sokol (1982) were the first to distinguish between necessity-driven and opportunity-based entrepreneurship among females (Jennings & Brush, 2013). Acs (2006) defines necessity entrepreneurship as “having to become an entrepreneur because you have no better option” whereas opportunity entrepreneurship is “an active choice to start a new enterprise based on the perception that an unexploited or underexploited business opportunity exists”. Both forms of entrepreneurialships exist in all countries with some degree of variation. While necessity-driven entrepreneurship is prevalent in underdeveloped countries, opportunity based entrepreneurial initiatives are prominent in developed countries (Goltz, Buche & Pathak, 2015). However, the extant literature agrees that more women enter into entrepreneurship due to necessity rather than pursuit of opportunity (Adom & Asare-Yeboa, 2016).

The literature on female entrepreneurship suggests different pull and push factors that encourage participation of women in entrepreneurship. According to Pines, Lerner & Schwartz (2010) “push factors force people to become entrepreneurs, while pull factors attract them to entrepreneurship”. Certain pull factors such as independence, autonomy, loss of job, dissatisfaction with current job, low career growth, more income, and lack of positive environment lead women towards self-employment. On the contrary, women are pushed into entrepreneurship due to family and domestic responsibilities (Jennings & Brush, 2013). Many women start their own businesses in order to achieve a balance between their work and familial responsibilities, and earn a respectable living for their family (McGowan et al., 2012). Women regard self-employment as a mean to balance their work and childcare duties (Jennings & Brush, 2013; Poggesi, Mari & De Vita, 2016). In their exploratory research on female entrepreneurs in Kosovo, Ramadan et al (2015) have found that 15% of female respondents regarded balance between their work and house as a major problem faced in development of their business.

Opportunity driven entrepreneurship in females

Shane and Venkatamaran (2000) define entrepreneurship as “the scholarly examination of how, by whom, and with what effects opportunities to create future goods and services are
discovered, evaluated, and exploited.” This definition emphasizes the exploration and exploitation of opportunity by an individual to achieve benefit (Terjesen, Bosma & Stam, 2016). It is important to note that ‘positive opportunities’ are emphasized in the aforementioned definition because there are many initiatives of entrepreneurs which are restricted to personal gains (Gries & Naude, 2011). It means that the process of entrepreneurship includes creating and expanding an organization, and exploiting opportunities to obtain long-term gains (Okah-Efogo & Timba, 2015). Hence, entrepreneurship is not synonymous with moneymaking; rather it is pursuit of an opportunity for economic gains.

Liberal feminists hold women to be equal to men in rational capacity (Poggesi, Mari & De Vita, 2016). Just like their male counterparts, many females start entrepreneurship in order to achieve financial gain and independence (McGowan et al., 2012). According to Teo (1996), women start their own businesses to pursue a business opportunity, utilize their knowledge and skills in a better way, attain financial freedom and flexibility, and achieve recognition and individual growth. Self-employed females are cognizant of the fact that they can earn more through their own businesses as compared to women working in traditional wage and salary employment (Elam & Terjesen, 2010).

Women’s motivation in launching business ventures depends upon the level of their self-assessment of their abilities and knowledge (Hattab, 2012). The level of self-efficacy also has a profound impact on the entrepreneurial intention, as it is the starting point in the creation of new business ventures. These intentions provide a sense of direction and a pathway towards achieving specific goals (Agbim, Ayate & Oriarewo, 2013). Thus, self-belief provides intrinsic motivation for women to enter into entrepreneurship.

Self-actualization suffers when women face barriers in their professional advancement and attaining top position in an organization. Despite similar employment rates, women are underrepresented in managerial positions as compared to their male counterparts (Elam & Terjesen, 2010) due to discriminating practices, such as a glass ceiling, glass wall, sticky floor, and tokenism. Such practices mean that very few women will make their way to top positions (Sawicka & Lagoda, 2015). This restrictive nature of the labour market forces females to move from the formal sector of economy to the informal sector (Lock & Smith, 2016). Ultimately, this vertical segregation of jobs prompts females to start their own businesses (Baugn, Chua, & Neupert, 2006; Noguera et al., 2015).

Lack of recognition is another factor, which encourages women towards self-employment. McClelland (1986) believes that need of achievement and demand for power drive people towards entrepreneurship, and women are no exception (Yetim, 2008).
Seldom acknowledged for their performance in an organization, women usually work in a restrictive environment and feel that their true potential is not fully utilized. This lack of recognition, coupled with a need for achievement, pushes women to start up their own businesses (Goby & Erogul, 2011; Ramadani et al, 2015). Becoming their own bosses not only gives them greater flexibility in utilization of time but it also allows self-fulfilment and achievement of professional goals. Research confirms this line of argument as Terrell & Troilo (2010) have found a positive effect for the value of achievement on female entrepreneurship.

Necessity based entrepreneurship in women

As a majority of women’s business initiatives are driven by their necessity rather than opportunity (Adom & Asare-Yeboa, 2016), more women are pushed into entrepreneurship due to their necessity as compared to their male counterpart (Jennings & Brush, 2013). As in many countries women have little opportunity to make decisions related to their career development (Sarfaraz, Faghih & Majd, 2014), social and economic challenges force them to become self-employed. This is especially true for women living in poor countries who are motivated toward self-employment mostly due to push factors (Pines, Lerner & Schwartz, 2010). Women enter into entrepreneurship due to different factors such as survival, unemployment, discouraging situation in previous job and economic recession (Poggesi, Mari & De Vita, 2016).

Additionally, women are expected to bear the burden of domestic responsibilities (Terrell & Troilo, 2010). Family and childcare responsibilities fall disproportionately on women. However, the situation becomes adverse if women have longer working hours (Baughn, Chua, & Neupert, 2006). Because of their domestic obligations, women are required to spend more time for home and child rearing, and they cannot work continuously. Therefore, women belonging to a lower level of income launch their own businesses to support their families and children.

The gender perspective maintains that females are discouraged from entering into employment as it is considered to contradict the roles assigned by society. Such women face severe impediments to their entry into the formal sector and they have no other alternative than to self-employ themselves (Moreno, 2016). In many countries, the restrictive nature of institutions and lack of opportunities force women into self-employment (Baughn, Chua, & Neupert, 2006). For these women, entrepreneurship is not a path of self-actualization; rather it is a means of survival.
Income level and female entrepreneurship

As discussed above, necessity-based entrepreneurship prevails in women of low and medium-level income countries (Terjesen & Amorós, 2010) where considerable wages differences exist between women and men doing the same job (Elam & Terjesen, 2010). Therefore, women at low-income levels may be pushed towards necessity-based entrepreneurship as a substitute for traditional wages/salary employment (Maniyalath & Narendran, 2016). Moreover, the fragile economic system of low-income countries, causing more unemployment, low wages, and high job insecurity, urges women to start their own businesses to escape such problems (Nicolás & Rubio, 2016).

The negative relation between national income level and entrepreneurial activities is evident from previous research. For example, Bregger (1996) has proposed an inverse relation between national income and entrepreneurial activities, implying that with a rise in the national income, wages of the people increase to such a level that they find starting their own businesses irrelevant. Baughn, Chua and Neupert (2006) hypothesize that female entrepreneurship is negatively associated with level of economic development. Similarly, Maniyalath & Narendran (2016) have proposed that entrepreneurial activities in women are negatively related to national income level. However, it is believed that these studies are referring to necessity-driven entrepreneurship among females, which is indeed negatively related to economic development. However, opportunity-driven entrepreneurship is not considered in this research. Thus, while necessity-driven entrepreneurship is negatively associated with national income level, opportunity-driven entrepreneurship might be positively associated with income level since the latter provides more opportunities for females to engage in entrepreneurial activities. On the other hand, females in developed countries may be motivated to enter into entrepreneurship because of their need for achievement, autonomy, self-efficacy, and self-reliance.

Moreover, a number of researchers have proposed a U-shaped relationship between income level and overall female entrepreneurship levels (Minniti & Nardone, 2007; Minniti, 2010). At lower levels of income, entrepreneurship results in the creation of new markets and new technologies (Minniti, 2010). As a good national income level is achieved, the rate of female entrepreneurship decreases due to better job opportunities and better wages (Sarfaraz, Faghih & Majd, 2014). However, when the national income crosses a threshold value, the benefits of starting one's own business outweigh traditional jobs, and females resort to starting their own businesses. In such situations, the entrepreneurial sector starts to flourish again in order to exploit more advantages from such opportunities (Minniti & Nardone, 2007).
Social progress and female entrepreneurship

It is evident that social factors play an important role in the promotion of entrepreneurial spirit in a society. As gender is constructed by the society (Owo, 2016; Sawicka & Lagoda, 2015), women and men are ascribed different roles based upon history, cultural, economic development, and even religion. The role differentials based on biology and not ability can substantially affect entrepreneurial activities. In the past, most societies viewed women's attainment of independence and wealth negatively (Antai & Anam, 2016). However, as more women are getting education, political empowerment and economic freedoms (McGowan et al., 2012), this hackneyed perspective is changing and subsequently more women are engaging in entrepreneurship, which is resulting in eradication of poverty (Lock & Smith, 2016). These changes provide an internal drive to expand the list of career options (Kobeissi, 2010), allowing women to either enter into employment or initiate their own businesses (Lock & Smith, 2016).

One important result of this change is that societies are embracing entrepreneurial culture even for females. With freedom, albeit limited, to choose their own careers, women now seek financial independence to engage in opportunity-based entrepreneurship. This trend has in turn led to more entrepreneurial initiatives from women who believe that they can earn more from their own businesses as compared to traditional wages/salary employment.

Human development and female entrepreneurship

According to Human Capital Theory, knowledge results in better cognitive skills, making individuals more proficient and productive (Davidsson & Honig, 2003). Thus, if any opportunity is presented to such an individual, he/she can exploit it more productively. Human capital factors such as level of education, technical training, and work-related experience are important determinants for females to engage in entrepreneurship, and have been extensively used to predict female propensity towards entrepreneurship.

Among these different factors, education is regarded as the most important one for female entrepreneurs (Davidsson & Honig, 2003). Recent research has shown a positive relationship between education and business creation (Noguera et al., 2015; Davidsson & Honig, 2003). As Wilson, Kickul, and Marlino (2007) rightly describe, “entrepreneurship education can be positioned as an equalizer, possibly reducing the limiting effects of low self-efficacy and ultimately increasing the chances for successful venture creation by women.” On the contrary, a number of countries, characterized by low level of human development, ignore the human capital of their nationals, especially of females. Due to poor education facilities, women tend to have low technical, vocational and managerial
education as compared to men in these countries, which have a negative effect on women’s ability to start a business. However, to support their families, especially children, women in these countries enter into self-employment simply because they have no job opportunities.

The above discussion shows that as human capital is an important factor in predicting the entry of a new entrepreneur (Davidsson & Honig, 2003), women from countries with high levels of human development have a greater share of opportunity-based entrepreneurship (Terjesen & Amorós, 2010). On the other hand, women in countries where human development is ignored are forced to enter into self-employment out of necessity. Following the latter line of reasoning, Maniyalath and Narendran (2016) have found a negative relationship between HDI and overall female entrepreneurship. However, in this paper as we are delineating between necessity-driven and opportunity-based entrepreneurship, we suggest that the former is negatively associated with HDI and the latter has a positive association. Thus, the overall level of female entrepreneurship has a U-Shaped relationship with human development, implying that the level of female entrepreneurship decreases as the level of human development increases because women find it easier to hold jobs rather than start their own businesses.

Data and Research Methodology

This study investigates the impact of income level, social progress and human development on the level of necessity based and opportunity driven entrepreneurship among women. For this purpose, data at the level of countries were obtained from different sources. All the variables were measured at the level of countries because “the literature regarding international comparisons of entrepreneurship practices remains limited” (Kobeissi, 2010). Hence, this study examines the impact of national income, social progress, and human capital in predicting variations in the levels of necessity-based and opportunity-driven female entrepreneurship between developed, and developing countries. This broad context will help in asserting the reliability and generalization of findings (Kobeissi, 2010) because instead of individual traits, country-specific factors are more reliable for understanding variations in entrepreneurship levels (Goltz, Buche & Pathak, 2015).

The Global Entrepreneurship Monitor (GEM) Report was used to collect data regarding different types of entrepreneurial activities. This data source has been used by previous researchers such as Maniyalath and Narendran (2016); Peroni, Riillo, and Sarracino (2016); Tsyganova and Shirokova (2010); Wennekers et al. (2010); Wong, Ho, and Autio (2005). The GEM report is the largest survey-based study which captures different types of entrepreneurial activities for both females and males in more than 60 countries around the world (Tsyganova & Shirokova, 2010). This report uses the Total Early Stage Entrepreneurial Activity (TEA) index to measure entrepreneurship level in a given country,
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as it is a more important measure of entrepreneurship (Wennekers et al., 2010). The TEA approximates female entrepreneurial activities by considering the number of business start-ups and new ventures that are less than 3.5 years old (Hattab, 2012; Adom & Asare-Yeboa, 2016). Different types of entrepreneurship, such as high growth potential TEA, necessity-based TEA, opportunity driven TEA, and overall level TEA, are measured in this report (Wong, Ho, & Autio, 2005). For the purpose of this study, data regarding necessity-based TEA, opportunity driven TEA, and overall level TEA for 60 countries was obtained from Global Entrepreneurship Monitor Report 2016-17.

Gross National Income per capita represents variations in the income level of a country. Data for social progress and human development is taken from the Social Progress Imperative and Human Development Report, respectively. The SPI calculates the social progress index of a country based on 54 indicators on a scale from zero to 100, where zero indicates worst performance and 100 shows the highest score. Similarly, the Human Development Index is computed based on four main indicators such as life expectancy, income per capita, average number of years studying & number of years of education.

In order to test the research hypothesis, regression analysis using Ordinary Least Square (OLS) method is employed as this approach was used in the researches carried out by Maniyalath and Narendran (2016), and Tsyganova and Shirokova (2010). As we are using cross sectional data analysis, OLS is the most appropriate measure, as it is not biased by internal limitation of the model. Okah-Efogo and Timba (2015) claim that the relationship between entrepreneurship and economic growth is intuitive; therefore, simple statistical analysis is sufficient for this purpose.

Results

Table No. 1 below shows the results of descriptive statistics of the variables involved in the study along with the sources of data. These figures show that the overall level of new business initiatives by women is low. In most of the countries involved in the study, opportunity driven entrepreneurship is more prevalent while very few women are engaged in entrepreneurial activities due to necessity. Likewise, there is considerable difference in gross national income between the countries considered for this study.
Table 1:
Descriptive Statistics of Variables

<table>
<thead>
<tr>
<th>Name of variable</th>
<th>Data Source</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall level of female entrepreneurship</td>
<td>Global Entrepreneurship Monitor 2016</td>
<td>10.33</td>
<td>7.01</td>
</tr>
<tr>
<td>Opportunity-driven female entrepreneurship</td>
<td>Global Entrepreneurship Monitor 2016</td>
<td>70.65</td>
<td>12.47</td>
</tr>
<tr>
<td>Necessity-based female entrepreneurship</td>
<td>Global Entrepreneurship Monitor 2016</td>
<td>26.19</td>
<td>12.34</td>
</tr>
<tr>
<td>Gross national income (GNI) per capita</td>
<td>World Bank 2016</td>
<td>24232.85</td>
<td>15393.02</td>
</tr>
<tr>
<td>Social progress imperative (SPI) score</td>
<td>Social Progress Imperative Report 2016</td>
<td>74.26</td>
<td>10.73</td>
</tr>
<tr>
<td>Human development index (HDI) score</td>
<td>Human Development Report 2016</td>
<td>0.79</td>
<td>0.11</td>
</tr>
</tbody>
</table>

Next, bi-variate correlation between variables was determined using Pearson’s Correlation Method. The result of this analysis is shown in Table No. 2. All three independent variables were positively related with opportunity driven female entrepreneurship; whereas their relationship with necessity-based entrepreneurship was negative. Furthermore, all these relations were statistically significant. All three predictors have almost a similar value of Pearson’s Correlation with both forms of entrepreneurship.
Table 2: 
Correlation between variables

<table>
<thead>
<tr>
<th>Name of Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall level of female entrepreneurship</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Opportunity-driven female entrepreneurship</td>
<td>-0.056</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Necessity-based female entrepreneurship</td>
<td>0.037</td>
<td>0.975***</td>
<td>1</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Gross national income per capita</td>
<td>-0.393***</td>
<td>0.345***</td>
<td>-0.328**</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social progress imperative (SPI) score</td>
<td>-0.397***</td>
<td>0.380***</td>
<td>-0.362***</td>
<td>0.669***</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Human development index (HDI) score</td>
<td>-0.523***</td>
<td>0.399***</td>
<td>-0.383***</td>
<td>0.731***</td>
<td>0.879***</td>
<td>1</td>
</tr>
</tbody>
</table>

*** p<0.01, ** p<0.05, * p<0.1, †p<0.15

Regression analysis using OLS was used for hypothesis testing. Before performing the actual regression analysis, all the requisite conditions of regression were fulfilled. For ease of understanding, each outcome, i.e., necessity-based entrepreneurship, opportunity-driven entrepreneurship, and overall level of entrepreneurship, were tested separately with each predictor.

Table No. 3 shows the relationship of GNI per capita, social progress imperative score and human development index with opportunity-driven entrepreneurship among females. All three predictors were positively associated with the outcome. This shows that our hypotheses No 1(a), 2(a) and 3(a) are proved. Among all variables, the human development index has the highest value of un-standardized coefficient. However, the value of $R^2$ for all three models was very low indicating a very weak relationship between predictors and outcome. When two or more independent variables were combined to predict the opportunity-driven entrepreneurship among females, the value of $R^2$ increased slightly. The highest value of $R^2$ was found in Model No 7; wherein all three variables were considered simultaneously. In this model, log GNI had the highest value of standardized coefficient indicating that dependent variable is most sensitive to this predictor.
Interestingly, only GNI per capita was statistically significant in the model, that too at very low value (p<0.15); while both other variables were not significant.

**Table 3:**
*Relationship of opportunity driven entrepreneurship among females with different predictors*

<table>
<thead>
<tr>
<th>Name of Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
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<th>7</th>
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</thead>
<tbody>
<tr>
<td>Log GNI per Capita</td>
<td>13.532*** (4.332)</td>
<td>13.957*** (6.350)</td>
<td>9.109 (7.619)</td>
<td>13.808† (8.268)</td>
<td></td>
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</tr>
<tr>
<td>Social progress imperative (SPI) score</td>
<td>0.437*** (0.142)</td>
<td>0.060 (0.222)</td>
<td>0.065 (0.295)</td>
<td>0.053 (0.353)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Human development index (HDI) score</td>
<td>46.412*** (13.541)</td>
<td>18.279 (25.848)</td>
<td>42.209 (29.427)</td>
<td>1.265 (35.197)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>12.542 (18.555)</td>
<td>37.670*** (10.664)</td>
<td>33.578*** (11.07)</td>
<td>5.502 (18.645)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Value of $R^2$</td>
<td>0.153***</td>
<td>0.144***</td>
<td>0.159***</td>
<td>0.202***</td>
<td>0.161**</td>
<td>0.175***</td>
<td>0.202***</td>
</tr>
</tbody>
</table>

Note: Values represent un-standardized coefficients while those in parenthesis are standard deviation of un-standardized coefficients.

*** p<0.01, ** p<0.05, * p<0.1, † p<0.15

Similarly, Table No. 4 shows the results of regression analysis of all three antecedents on necessity based entrepreneurship among females. As predicted by the literature, necessity-based entrepreneurship is negatively related with GNI per capita, social progress imperative score and human development index. This means that our hypotheses 1(b), 2(b) and 3(b) are also proved. Just like the previous instance, the value of $R^2$ was very low but improved slightly after combination of variables. The highest value of $R^2$ was found in Model No 14, which included all three dependent variables. Even for this model, the value of $R^2$ was very low, and none of the predictors were statistically significant.
Table 4:  
Relationship of necessity based entrepreneurship among females with different predictors

<table>
<thead>
<tr>
<th>Name of Variable</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log GNI per Capita</td>
<td>12.336***</td>
<td>12.434†</td>
<td>6.846</td>
<td>-11.456</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(3.991)</td>
<td>(7.531)</td>
<td>(7.624)</td>
<td>(8.242)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social progress imperative (SPI) score</td>
<td>-0.411***</td>
<td>-0.077</td>
<td>-0.042</td>
<td>-0.028</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.114)</td>
<td>(0.249)</td>
<td>(0.272)</td>
<td>(0.332)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Human development index (HDI) score</td>
<td>44.048***</td>
<td>-22.685</td>
<td>-41.890</td>
<td>-8.186</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(12.443)</td>
<td>(23.486)</td>
<td>(28.611)</td>
<td>(33.373)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>79.122***</td>
<td>57.269***</td>
<td>61.382***</td>
<td>86.008***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(16.970)</td>
<td>(8.507)</td>
<td>(10.067)</td>
<td>(18.994)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>73.741***</td>
<td>63.324***</td>
<td>84.733***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(19.781)</td>
<td>(10.637)</td>
<td>(20.074)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Value of R²</td>
<td>0.129***</td>
<td>0.131***</td>
<td>0.146***</td>
<td>0.176***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.141***</td>
<td>0.162***</td>
<td>0.177***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Values represent un-standardized coefficients while those in parenthesis are standard deviation of un-standardized coefficients.

*** p<0.01, ** p<0.05, * p<0.1, † p<0.15

Table No 5 shows the results of the U-shaped relationship of overall entrepreneurship level in women with GNI per capita, social progress imperative score and human development index. All three predictors were negatively related with outcome as un-standardized coefficients have negative signs in each instance. These results confirm the findings of Maniyalath and Narendran (2016) who have found a negative association between human development index score and overall level of female entrepreneurship. However, when the square term of each predictor is introduced in the regression equation, the un-standardized coefficient changes signs, confirming a U-Shaped relationship between both. This application confirms that a U-shaped relationship exists between overall entrepreneurship level among women and GNI per capita, social progress imperative score, and human development index. This in turn confirms the claim of Wennekers et al. (2010), who have proposed a U-Shaped relationship between economic development and entrepreneurship, claiming that necessity-based entrepreneurship dominates at the left side of the curve; while opportunity-based entrepreneurship is prevalent at the high spectrum of the curve. Results indicate that in the beginning the negative relationship between predictor and outcome dominates, explaining the negative part of the curve. However, after crossing the threshold value, the positive relationship between opportunity-driven entrepreneurship starts to
dominate and more women participate in entrepreneurial activities. These results are aligned with previous studies. Therefore, hypotheses 1(c), 2(c) and 3(c) are also proved.

Table 5: Relationship of overall female entrepreneurship level with different predictors

<table>
<thead>
<tr>
<th>Name of Variable</th>
<th>15</th>
<th>16</th>
<th>17</th>
<th>18</th>
<th>19</th>
<th>20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log GNI per Capita</td>
<td>-8.978**</td>
<td>118.052***</td>
<td>(3.744)</td>
<td>(34.605)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Log GNI per Captia Square</td>
<td>13.186***</td>
<td></td>
<td>(4.084)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social progress imperative (SPI) score</td>
<td>-0.219**</td>
<td>-2.593***</td>
<td>(0.101)</td>
<td>(1.079)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPI Square</td>
<td></td>
<td>0.016**</td>
<td>(0.007)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Human development index (HDI) score</td>
<td>-27.856**</td>
<td>-186.992***</td>
<td>(10.687)</td>
<td>(38.484)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HDI Square</td>
<td></td>
<td>108.204***</td>
<td>(26.558)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>47.968***</td>
<td>57.269***</td>
<td>25.542***</td>
<td>109.189***</td>
<td>31.566***</td>
<td>88.303***</td>
</tr>
<tr>
<td>Value of R²</td>
<td>0.273**</td>
<td>0.406***</td>
<td>0.179**</td>
<td>0.325**</td>
<td>0.291**</td>
<td>0.418***</td>
</tr>
</tbody>
</table>

Note: Values represent un-standardized coefficients while those in parenthesis are standard deviation of un-standardized coefficients.

*** p<0.01, ** p<0.05, * p<0.1, † p<0.15

Discussion and Implications

Scholars concur that women can improve the level of entrepreneurial activities in a country (Sarfaraz, Faghih & Majd, 2014). Literature predicts that income level, social progress and development of women can have a significant impact on female entrepreneurial activities. Furthermore, very few studies have distinguished between opportunity-driven and necessity-based female entrepreneurship. This bifurcation can provide a nuanced explanation of the effect of different social and economic variables on female business
ventures. With this aim in mind, this study attempts to investigate the effect of income level, social progress and human development of women in predicting both opportunity-driven and necessity-based entrepreneurship, as well as overall level of entrepreneurship among females.

Results of this study show that GNI per capita is positively related with opportunity-driven entrepreneurship among females and negative associated with necessity-based entrepreneurship. This finding shows that entrepreneurial activities, whether opportunity-driven or necessity-based, vary with the level of per capita income (Minniti & Nardone, 2007). Women in developing or low-income countries engage in necessity-based entrepreneurship; while those of high-income level countries enter into opportunity-driven entrepreneurship (Brush & Cooper, 2012; Hattab, 2012). In such countries, entrepreneurship can be used as a potent tool to eradicate poverty and unemployment. Similarly, higher income level countries offer more entrepreneurial opportunities to their residents. Women of these countries can benefit from strong institutions, along with easy access to human and monetary capital. Thus, economic development and opportunities boost female entrepreneurial initiatives.

A higher level of female entrepreneurial initiatives leads to higher national income, which in turn leads to more social progress. To achieve this goal, an entrepreneurial society is inevitable. An entrepreneurial society is one that acknowledges the role of entrepreneurship in social progress and economic growth. Such a society is crucial for fostering risk taking and entrepreneurial activities. Verheul, Stel and Thurik (2004) have found out that participation of females in entrepreneurship is prevalent in those countries, which have an overall higher level of entrepreneurial activities. Such progressive societies will encourage participation of females to start their own businesses and enhance opportunity-driven entrepreneurship. In addition, social progress results in equal distribution of wealth. Even the deprived sections of societies, such as minorities and women, have the same access to opportunities. Moreover, social progress reduces the need for necessity-based entrepreneurship as women have equal opportunities in employment as well as business start-ups. Therefore, an increase in the level of social progress will reduce necessity-based entrepreneurship and enhance opportunities for entrepreneurship.

Similar results are obtained regarding the development of women’s human capital, which resonates with the research of Marques (2017), who has found that education and entrepreneurial expertise are important factors in identifying opportunities and promoting entrepreneurship. This finding implies that equal access to education, health and income given to women increases their potential to initiate successful businesses. On the other hand, low human capital among women can thwart their participation in economic activities. Although women entrepreneurs are found in all sectors, but their participation is
limited to low growth and informal sectors (Morris et al., 2006). The sectors in which women owned firms yield less return and profitability than the technology intensive sectors traditionally occupied by men. This pattern is attributed to a low level of technical skills and managerial education. Therefore, governments should adopt policies to promote human capital in women by providing them with education and entrepreneurial training to increase their confidence.

Lastly, this study also proves the U-shaped relation of overall female entrepreneurship with GNI per capita, social progress imperative score and human development index. All three predictors are negatively related to overall levels of female entrepreneurship. However, when the square term of dependent variable was introduced in the model, the un-standardized coefficient of the square term had a positive sign, which means that the curve changes its direction. This implies that at one side, necessity-based entrepreneurship is more prominent, while on the other side opportunity-driven entrepreneurship dominates. This can also provide a plausible account why necessity-based entrepreneurship is more prevalent in low-income levels and developing countries. Since, these countries are characterized by low economic development, social progress and human development; necessity based entrepreneurship is more visible. On the contrary, citizens of developed countries enjoy higher income levels and social progress. This economic and social prosperity presents more opportunities to entrepreneurs, resulting in more opportunity-driven entrepreneurial activities.

**Conclusion**

The growth in the number of business start-ups by women has attracted the attention of policy makers and scholars. Resultantly, governments have devised different policies to encourage female participation in entrepreneurial activities. Similarly, scholars have attempted to unearth the effects of different economic factors in promoting female-owned enterprises. However, in these empirical works, the effect of different social and cultural factors has received less attention. Furthermore, researchers have focused on the overall female entrepreneurship level, and they have failed to take into consideration different motivations or reasons for females to start their own businesses.

This study investigates the impact of economic development and social progress in boosting female entrepreneurial activities. The important contribution of this paper is distinguishing between opportunity-based and necessity-driven entrepreneurship, which are expected to have opposite results given various economic and social factors. Findings of this study support this notion. It has been proved that national income level, social progress, and human development are positively related with opportunity-based entrepreneurship; while these predictors have a negative association with necessity-based
entrepreneurship. This result means that these factors have a two-way influence on female entrepreneurship. On one side, increase in these factors enhances opportunity-driven entrepreneurship in females, while on the other hand it reduces the need for necessity-based female entrepreneurship.

This study also takes the extant literature forward. Although a number of researchers have proposed a U-Shaped relationship between economic development and overall entrepreneurial activities, and this relationship has been proved in many studies, none of the studies have considered that social capital and human development have a similar relationship with the overall level of entrepreneurship in women. This study has proved the presence of such a relationship. This result shows that at the left side of the curve, a low level of social progress and human capital leads to necessity-based entrepreneurship, culminating in creation of new businesses. However, with an increase in the level of social progress and human development, entrepreneurial activities begin to diminish. At the right side of the curve, further increase in social progress and human capital presents more opportunities, which encourage entrepreneurs to move away from traditional employment and start their own businesses in order to reap more benefits.

References


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