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Gender Diversity and Innovation: The Role of Women's Economic Opportunity in Developing Countries

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Abstract

This research examines how gender diversity interacts with women's economic opportunity, such as prevailing laws, practices and attitudes in a country allowing women to participate in the workforce under similar conditions like men, to explain innovation in developing countries. We suggest that the level of women's economic opportunity in the country, within which firms operate, moderates the effect of gender diversity on a firms' likelihood to innovate. We examine the proposed moderating effect in a cross-country study using firm level data of the World Bank Enterprise Survey for 15,157 firms in 15 developing countries in South Asia, the Middle East and Africa. We test our hypotheses using a hierarchical binary logistic regression. Our findings support the relevance of women's economic opportunity for gender diversity in the firm ownership structure and its workforce. We find that gender diversity increases the likelihood to innovate for firms operating in countries with rising levels of women's economic opportunity on the one hand and decreases the innovation likelihood for firms operating in countries that are at the low end of providing women's economic opportunity on the other hand. Furthermore, we find a direct positive effect of gender diversity on firms' likelihood to innovate at all levels in the organization as well as a positive effect of having a female top manager.

Keywords: Gender diversity, women's economic opportunity, gender equality, innovation, developing countries, hierarchical binary logistic model

1. Introduction

Gender diversity has been frequently found to have a positive effect on innovation (Miller and del Carmen Triana, 2009; Østergaard et al., 2011; Pitcher and Smith, 2001; Teruel et al., 2013; Torchia et al., 2011). It is defined as the balance between the two genders (Østergaard et al., 2011) and is associated with diversity in knowledge, experiences and skills (Singh et al., 2008). Diverse knowledge and experiences can complement each other and with that foster development and innovation (Quintana-García and Benavides-Velasco, 2008).

Given the importance of innovation for developing countries (OECD, 2012) and the increasing availability of systematically collected data, studies have progressively shed light on innovation in emerging countries (Ayyagari et al., 2011; Bradley et al., 2012; Goedhuys, 2007; Goedhuys et al., 2014). Yet, gender diversity as a means to foster innovation in developing countries has, to our knowledge, received no attention in the research literature. While studies conducted in developed countries extensively find gender diversity to have a positive impact on innovation (Miller and del Carmen Triana, 2009; Østergaard et al., 2011; Torchia et al., 2011), these findings may not be applicable for developing countries in Africa, the Middle East and South Asia: Women's economic opportunity (Women's Economic Opportunity Index, WEOI), defined "as a set of laws, regulations, practices, customs and attitudes that allow women to participate in the workforce under conditions roughly equal to those of men" (Economist Intelligence Unit, 2012, p.5), differs drastically between countries and is generally lower in developing compared to developed nations (Economist Intelligence Unit, 2012). We expect the differences in women's economic opportunity to influence the effect of gender diversity on innovation.

Two differences regarding women's economic opportunity between developed and developing countries as well as between the emerging nations participating in our research are especially relevant in this context: First, education levels of women vary across countries, with high levels being prevalent in many high-income countries compared to remarkably lower levels in many low and lower-middle income countries in the Middle East, South Asia and Africa (The World Bank, 2016a). Second, the perception and status women are associated with differs between developed and developing nations in the above listed regions (Economist Intelligence Unit, 2012). Gender is one of

the observable attributes related to status beliefs that are powerful in organizing the patterns of respect and influence among individuals as they interact (Ridgeway, 2002). Even though the perception of women is very diverse between countries, there is a trend indicating lower levels of legal and social status associated with women in emerging countries in Africa, the Middle East and South Asia compared to most high-income countries (Economist Intelligence Unit, 2012).

Given the aforementioned differences in women's economic opportunity between developing and developed nations as well as among the developing countries themselves, it is vital to not only assess the effect of gender diversity on innovation in developing countries, but also if different levels of women's economic opportunity affect the extent to which firms can leverage the benefits of gender diversity for innovation. By conducting a cross-country study including 15 low and lower-middle income countries in Africa, the Middle East and South Asia and by taking a country's level of women's economic opportunity into account, our study contributes to innovation, gender diversity and development research in three ways: First, this study enriches innovation research by shedding light on the relation between gender diversity and innovation in developing countries. This area of study has thus far not received any attention in innovation literature. Second, this study enriches the research field of gender diversity: by the means of a cross-country analysis, it deepens the understanding of how women's economic opportunity on a country level interacts with gender diversity on a firm level to explain firms' likelihood to innovate. Third, our study expands knowledge within the field of development studies, as it assesses whether gender diversity can be viewed upon as a driving factor for innovation at the firm-level in developing countries.

The remainder of this article is structured as follows: we first provide an overview of the theoretical background and develop our hypotheses. Next, the empirical data and research methodology are presented. Subsequently, we describe the analysis conducted, followed by a summary of the results. Finally, we discuss our findings and provide closing remarks and conclusions.

2. Theoretical Background

Innovation is an important driver for increasing firm performance (Calantone et al., 2002; Hult et al., 2004), enhancing competitive advantage (Hitt et al., 1996) and expanding market share (Franko, 1989).

In this study we focus on product innovation, which is defined as the introduction of new goods or services as well as the significant improvement of existing products with regards to their characteristics and intended use (Ayyagari et al., 2011; Organisation for Economic Co-operation and Development, 2005; Østergaard et al., 2011). Gender diversity is frequently found to positively impact innovation (Díaz-García et al., 2013; Miller and del Carmen Triana, 2009; Østergaard et al., 2011; Pitcher and Smith, 2001; Teruel et al., 2013; Torchia et al., 2011). We discuss four benefits of gender diversity for innovation, which stem "either from each member's unique attributes which bring different perspectives to the group or from relational and motivational processes that occur in diverse groups" (Díaz-García et al., 2013, p. 149).

First, different attributes, perspectives and knowledge of male and female employees in gender-diverse firms are expected to be positively related to innovation: Given their different experiences and career trajectories, men and women have a distinct human and social capital background (Lin, 2000; Singh et al., 2008). Consequently, men and women diversify a firm's internal knowledge base and bring different experiences and skills to the talent pool. A diversified knowledge base increases the innovation levels within a firm (Quintana-García and Benavides-Velasco, 2008), as diverse knowledge can be complementary (Quintana-García and Benavides-Velasco, 2011), enables new combinations of knowledge and ultimately the creation of new ideas and products (van der Vegt and Janssen, 2003).

Second, the increased and diversified knowledge pool outside the firm, to which gender diversity provides access, contributes to innovation. Diversity allows for contacts to different networks, which means firms can leverage insights from a richer pool of external information as a baseline for their innovative activities (Milliken and Martins, 1996). Even more so, gender diversity allows for better identification with diverse customer needs and market trends, which fosters a firm's ability to develop new and innovative products for different target groups (Teruel et al., 2013).

Third, the "dynamics that are created in a mixed team" (Díaz-García et al., 2013, p. 153) are beneficial for innovation. Next to divergent thought, innovation requires well-founded decisions on which innovative ideas to drop and which to turn into tangible innovative outputs (de Dreu and West, 2001). According to Østergaard and colleagues (2011), gender diversity can benefit innovation as it is

linked with improved problem solving and decision making. In uncertain situations or when facing complex problems, cognitive conflict and expression of diverse viewpoints stemming from men's and women's inherently different perceptions and experiences (Lin, 2000; Singh et al., 2008) can circumvent premature consensus and thus increase the quality of decisions (Priem et al., 1995) as a driver for innovation.

Fourth, women, more so than men, emphasize the importance of on an open and flexible work atmosphere including open channeled communication and focus on interpersonal relationships to foster the sharing of ideas and knowledge (Sandberg, 2003), which benefits innovation due to its interactive nature thriving from communication and exchange (Østergaard et al., 2011). This focus on open communication also becomes obvious in the leadership style of female managers, who - more so than their male counterparts - are found to exhibit a transformational leadership style (Eagly and Carli, 2003). Transformational leadership entails characteristics such as inspirational motivation, intellectual stimulation and individualized consideration and is suggested to benefit innovation (Gumusluoglu and Ilsev, 2009; Jung et al., 2008, 2003).

3. Hypothesis

As indicated in the foregoing discussions, gender diversity can have several advantages for innovation on a firm level and we argue that the level of women's economic opportunity within a country impacts the extent to which a firm can extract value from gender diversity for innovation. Following this line of thought, we hypothesize that operating in a country with higher levels of women's economic opportunity enhances a firm's ability to reap the benefits of gender diversity among the firm owners and the workforce for innovation. Moreover, we expect women's economic opportunity to impact the relationship between having a female top manager and innovation. We elaborate on the three proposed interaction effects in the following sections.

3. 1 Gender diversity among the firm ownership

The owners of a firm, namely single individuals, a group of individuals or a board of directors representing shareholders (Choi et al., 2012), play a significant role for innovation: they steer crucial

strategic decisions (Nielsen and Huse, 2010), such as decisions on investment in R&D or the introduction of new products and thus directly influence innovation (Hoskisson et al., 2002). In small to medium-sized firms, which are the predominant organizational form in the developing countries participating in our study, the impact firm owners have on innovation is viewed to be stronger compared to large firms, as owners in small firms are more directly "engaged in all production and process decision" (de Mel et al., 2009, p. 15) as well as highly involved in all innovative activities (de Mel et al., 2009).

Previous research in developed countries found a positive effect of gender diversity among board members, the most frequently assessed form of ownership, and a firm's innovation level (Miller and del Carmen Triana, 2009; Torchia et al., 2011). Improved problem solving and enhanced decision making as a result of gender diversity (Østergaard, Timmermans, & Kristinsson, 2011) can be viewed upon as a vital benefit of a gender diverse ownership structure for innovation: Board members "with different backgrounds and bases of expertise offer different experiences and can make a valuable contribution to board decisions by providing unique perspectives on strategic issues" (van der Walt and Ingley, 2003, p. 222). Gender diversity among boards of directors allows to prevent premature consensus, increases the quality of decisions (Priem et al., 1995) and with that fosters innovation (de Dreu and West, 2001). In line with the afore discussed studies conducted in developed countries, we expect gender diversity in the ownership structure of a firm to have a positive effect on its likelihood to innovate in the developing countries participating in our study.

Furthermore, we expect the extent to which firms can reap the benefits from a gender diverse ownership structure for their likelihood to innovate to be moderated by women's economic opportunity, which includes the legal and social status associated with women. As previously elaborated on, gender related status beliefs determine patterns of respect and influence among individuals as they interact with each other and take decisions (Ridgeway, 2002). We therefore expect low levels of women's economic opportunity, including low legal and social status of women, to limit the extent to which firms can render the benefits from a gender diverse ownership structure: "when women are perceived as less valuable board members they are less likely to contribute to board decision-making [… and] the potential contributions of women stemming from their different values

are likely to be disregarded when women are not perceived as equal board members" (Nielsen and Huse, 2010, p. 27). However, with increasing levels of women's economic opportunity, we expect that the opinions, knowledge and experiences of both men and women are taken into consideration in the decision making process, allowing firms' innovativeness to benefit from the enhanced decision quality of a gender diverse ownership structure. Hence, we suppose that the positive effect of gender diversity among a firm's ownership structure on innovation will be higher in countries scoring high compared to countries scoring low on women's economic opportunity and we hypothesize the following:

Hypothesis 1: The effect of gender diversity in a firm's ownership structure on its likelihood to innovate is positively moderated by women's economic opportunity in a country.

3. 2 Gender of the Top Manager

Studies on the impact a firm's top manager can have on innovation have been primarily conducted in developed countries and have focused on CEOs (Chief Executive Officers) as the highest ranking management individual in large organizations (Ruiz-Jiménez and del Mar Fuentes-Fuentes, 2015; Yadav et al., 2007). CEOs are found to have a "long-term impact on innovation outcomes in firms" (Yadav et al., 2007, p. 96) given that they as top managers "set up the organizational structure, processes, and culture that support innovation" (Elenkov and Manev, 2005, p. 385).

Studies assessing the effect of a CEO's gender on innovation are scarce, given the relatively small number of female led firms to date – a number which has only lately started to increase (Smith et al., 2006). In a recent study, Ruiz-Jiménez and Fuentes-Fuentes (2015) controlled for the effect of a CEO's gender on innovation. They did not find consistent results across the different models in their regression analysis, ranging from a non-significant effect to a significant positive effect of a male CEO on product innovation.

In this study, we extend the limited insights into how a top manager's gender impacts innovation and additionally posit a moderating role of women's economic opportunity. As previously elaborated on, women, more so than men, tend to employ a transformational leadership style (Eagly and Carli, 2003), which is found to benefit innovation (Gumusluoglu and Ilsev, 2009; Jung et al.,

2003; Reuvers et al., 2008). We expect the level of women's economic opportunity including their legal and social status to impact the extent to which firms can render the aforementioned potential benefits of having a female top manager. A study by Wolfram and colleagues (Wolfram et al., 2007) gives a first indication that the gender of managers and the therewith associated status can play an important role in the interaction with their followers: their findings suggest that male followers respect female leaders less than male leaders if they believe in traditional gender roles. This lack of respect can limit the innovativeness in an organization as a good relationship and quality exchange between leaders and their followers can be a driver for innovative behavior (Basu and Green, 1997). Thus, we suppose women's economic opportunity to moderate the relationship between a top manager's gender and firm's likelihood to innovate and hypothesize:

> **Hypothesis 2:** The effect of the top manager's gender on a firm's likelihood to innovate is positively moderated by women's economic opportunity in a country.

3. 3 Gender diversity in the workforce

Frequently, innovation is initiated and driven by the employees of a firm (Leonard and Sensiper, 1998). Gender diversity among a firm's employee base has been found to positively impact innovation in developed countries: Østergaard and colleagues (2011) attested a moderate degree of gender diversity among the overall workforce to have a significant positive effect on product innovation. Moreover, a study by Díaz-García and colleagues (2013) assessed the impact of gender diversity on the degree of radicalness of innovation: they demonstrated that gender diversity within R&D teams results in high levels of radical innovation, especially in technology intensive industries. Furthermore, Fernandes (2015) analyzed whether the positive effect of gender diversity on innovation depends on the type of innovative output. They found that product and process innovation on the one hand are affected by gender diversity in an inverted u-shape whereas there is a positive linear relationship between gender diversity and service innovation on the other hand. Moreover, Teruel and colleagues (2013) conducted a study to assess the impact of gender diversity on innovation whilst taking the effect of team size into account. They demonstrated that "gender-diverse teams increase the probability of innovating, and this

capacity is positively related to team size" (Teruel et al., 2013, p. 1) with larger teams having a higher likelihood to innovate.

Next to a positive effect of gender diversity on innovation, we expect a country's level of women's economic opportunity to impact the extent to which innovation can benefit from gender diversity in the workforce. In a bottom-up innovation process, employees draw upon their individual pool of knowledge and experience to contribute to the different stages of innovation (Leonard and Sensiper, 1998). The extent to which formal education, which is considered to be a key driver for the breadth and depth of knowledge (Hausman, 2005), is available to women differs vastly between countries. We expect a higher degree of women's economic opportunity, and with that enhanced access for women to education (Economist Intelligence Unit, 2012) and knowledge, to enable better realization of the benefits gender diversity can bring for innovation. The more women and men can contribute equal levels of inherently different knowledge and experiences to a firm's knowledge pool, the more diverse the knowledge pool becomes, which in turn is a driver for firm innovation. Consequently, we suppose that the positive effect of gender diversity on innovation will be higher in countries with high women's economic opportunity compared to countries with low women's economic opportunity. As such, we formulate the following hypothesis:

> **Hypothesis 3:** The effect of gender diversity in a firm's workforce on its likelihood to innovate is positively moderated by women's economic opportunity in a country.

4. Data and Method

4. 1 Data

We test our hypotheses using the Enterprise Survey's firm-level data provided by the World Bank. The Enterprise Survey (ES) is "a firm-level survey of a representative sample of an economy's private sector" (The World Bank, 2016b) and it covers three main components. First, it captures firm characteristics such as its ownership-, management- and workforce structure, as well as its performance. Second, it gathers information on the business environment as well as the investment

climate in which firms operate. This includes insights into infrastructure, corruption, crime, access to finance and the degree of competition. Third, it encompasses information on innovation activities by assessing whether or not new products or services, manufacturing-, marketing-, distribution methods, or organizational structures are introduced.

The World Bank has conducted firm-level surveys for more than two decades, but has only centralized the effort and standardized the instruments in 2005, allowing for better comparability of data across countries thereafter. The ES is orchestrated by distributing firm-level surveys to a representative sample of firms in the non-agricultural formal sector, encompassing firms in the manufacturing, retail and service industry. The ES is stratified based on firms' size, geographical location and industry sector. For this study, the data of 3 low and 12 lower-middle income countries in Africa, the Middle East and South Asia are used. The following steps were taken to determine the countries participating in our study: Out of 146 countries with ES data, information on women's economic opportunity is available for 125 countries (3 countries out of the total of 128 countries with WEOI are not part of the ES sample). With the focus of this study being low and lower-middle income countries, 82 countries labelled by the World Bank as higher-middle or high income countries for the year 2012 were excluded from this research. Furthermore, out of the remaining sample, 16 countries were disregarded due to the ES being gathered before 2012, when the most up to date version of the WEOI was published. Consequently, 27 countries with WEOI and ES data for the years 2013 and 2014 were available. Out of the aforementioned remaining countries, the ES of 11 countries did not contain all information required to test our hypotheses, which where therefore removed. Lastly, 1 country was excluded given that the ES data was only published in 2015 and thus includes a time lag of 3 years to the WEOI, compared to 1 or 2 years for all other countries in our sample. Even after excluding multiple countries for the above mentioned reasons, the ES provides data on as much as 15 developing countries. Using a combined dataset consisting of both ES and WEOI information has two important benefits for the purpose of this research: First, the ES provides firm-level data for 22,616 firms (15,157 firms with complete information), and thus a very extensive data base for the analysis. Second, the ES and WEOI availability in 15 countries offers variety with regards to the levels of women's economic opportunity, which is required for being able to shed light on the hypothesized

interaction effects. More details on the participating countries, the year of the ES and the number of respondents, which typically are owners, directors and top managers of a firm, are summarized in Table 1.

Insert Table 1

4. 2 Variables

Dependent Variable

Innovation is measured by the following question in the ES: "During the last three years, has this establishment introduced new or significantly improved products or services?". We code a variable equal to one if firms respond affirmatively and a variable equal to zero if firms respond negatively to the aforementioned question. This measure of innovation is in line with previous studies (Ayyagari et al., 2011; Teruel et al., 2013).

Independent Variables

Gender Diversity in the Overall Workforce. Our first measure of gender diversity is related to the overall workforce and it is assessed by the following two questions in the ES: "At the end of last fiscal year, how many permanent, full-time individuals worked in this environment?" and "At the end of last fiscal year, how many permanent full-time individuals that worked in this establishment were female?".

Gender Diversity among the Firm Ownership. So far, studies in developed countries have conceptualized gender diversity in firm ownership primarily by the percentage of women on the corporate board representing a firm's shareholders (Miller and del Carmen Triana, 2009; Torchia et al., 2011). In contrast to the preference for diversified shareholder models in developed countries (Bedi and Desai, 2014), firms participating in our research in low and lower-middle income countries in Africa, the Middle East and South Asia are primarily small to medium in size with a variety of ownership forms and not necessarily governed by a board of directors. To account for this different emerging market context, conceptualizing gender diversity in the ownership structure as the percentage of a firm owned by women thus appears to be more appropriate than the percentage of

female members on the board. The ES captures female ownership by the following two questions: "Among the owners of the firm, are there any females?" and "What percentage of the firm is owned by females?". Excluded from this research are companies with shares traded publicly, as insights into the gender of the owners of publicly traded shares are difficult to gather and thus not sufficiently reliable.

Blau's Index to measure Gender Diversity among the Overall Workforce and Firm Ownership. Consistent with previous operationalization (Bantel and Jackson, 1989; Campbell and Mínguez-Vera, 2008; Díaz-García et al., 2013; Dwyer et al., 2003; Miller and del Carmen Triana, 2009; Pitcher and Smith, 2001; Ruiz-Jiménez and del Mar Fuentes-Fuentes, 2015; Teruel et al., 2013), we use Blau's (1977) index of heterogeneity to assess the level of heterogeneity versus homogeneity for the two aforementioned independent variables, namely gender diversity among a firm's owners and employees. Blau's index, which was originally proposed by Simpson in 1949, is also known as the Herfindahl's and the Hirschman's index and it is considered to be an ideal measure for capturing variations within a group of people (Harrison and Klein, 2007) as it meets the four criteria put forward for a suitable measure of diversity: complete homogeneity is represented by a zero point, higher diversity is indicated by a larger number, no negative values are assumed and the index is not unbounded (Harrison and Sin, 2006). The equation for Blau's index is $(1-\sum p_k^2)$, where p is the proportion of group members in each of the k categories. Given the range of Blau's index is computed as (k-1) / k, gender diversity within the workforce and the firm ownership structure measured by Blau's index can range from 0 when there is only one gender in the group to 0.50 when there are equal numbers of men and women.

Gender of the Top Manager. The third independent variable captures the gender of the top manager of a firm. The term top manager in this study refers to the firm's highest ranking management individual (The World Bank, 2011) and it is measured by the following question: "Is the Top Manager female". If the question is answered confirmatively, the response is coded as one. If the question is answered negatively, the response is coded as zero.

Moderator

According to van Staveren (2013), five gender indices are most widely used to measure gender equality given their reputable sources and high coverage, one of which is the Women's Economic Opportunity Index (WEOI) of the Economist Intelligence Unit. The WEOI is used in this research to assess to what degree the prevailing laws, practices, customs and attitudes in a country permit women to participate in the workforce under relatively equal conditions to those of men. This assessment allows for an in-depth understanding of the environment in which female employees and entrepreneurs operate.

The WEOI, which was first published in 2010, is available for 128 countries and incorporates 29 indicators from several sources, both national and international as well as quantitative and qualitative. It consists of five categories, namely labor policy and practice, access to finance, education and training, women's legal and social status, as well as the general business environment. Calculated from the unweighted mean of the underlying four to five indicators in each category, the individual scores of the five categories are scaled from 0-100, with 100 being most favorable. Similarly, the overall score of the WEOI is computed from a simple average of the unweighted indicator and category scores. Hence, each indicator contributes equally to its related parent category, which in turn contributes equally to the overall score. The overall WEOI score ranges from 0-100 with higher values again representing higher levels of economic opportunities for women (Economist Intelligence Unit, 2012).

The WEOI is chosen for the following two reasons: First, the WEOI includes all four dimension of human development, namely resources, institutions, capabilities and functionings. This is an important prerequisite for being able to encompass the variety of factors that relate to the opportunities women have in a given country as well as the differences between men and women (van Staveren, 2013). Second, the WEOI's focus on the resources and institutions dimensions is beneficial for the purpose of this study: our research aims at providing policy makers with a means to foster innovation in developing countries. More specifically, this study strives to increase policy makers' understanding of how laws and regulations (measured by the dimensions of resources and institutions) influence firms' ability to leverage the benefits of gender diversity for innovation. The WEOI provides

an ideal measure for this goal in that it helps to clearly depict how the relationship between gender diversity and innovation is impacted by country-level laws and regulations enabling women to participate in the workforce under conditions similar to those of men. Table 2 provides an overview of the WEOI values of the countries participating in this study as well as their rank in a world-wide comparison.

Insert Table 2

Control Variables

Firm size. This study controls for firm size, as previous research finds a positive relationship between the size of a firm and its innovation levels (Díaz-García et al., 2013; Østergaard et al., 2011; Quintana-García and Benavides-Velasco, 2011; Söllner, 2010). Small firms do often not have sufficient financial means to bear the risk of innovation (Hausman, 2005) and lack the economies of scale that larger firms are in a position to have (Ayyagari et al., 2011). Firm size is measured by the number of full-time permanent employees. An ordinal scale with the following coding is employed: firms with less than 5 employees are coded zero, firms with 5 to 19 employees are coded one, firms whose employee size ranges between 20 and 99 are coded two and firms with more than 100 employees are coded three. For the analysis, dummy variables are created.

Firm Type. Based on the previously discussed insights indicating that bigger firms are more likely to innovate, we control for whether or not a firm is part of a larger organization and with that in a position to benefit from the financial support or economies of scale of the parent organization. A zero is coded if a firm answers negatively to the question whether the "Establishment is part of a larger firm" and a one is coded if a firm answers affirmatively.

Export. As previous research finds exporting firms to be more innovative than non-exporting firms (Parrotta et al., 2014; Söllner, 2010; Teruel et al., 2013), we furthermore control for whether a firm generates sales from export. The ES provides information on the percentage of national sales as well as the percentage of sales from indirect and direct export. A firm is coded zero for national sales only and one for indirect and direct export.

R&D. This study also controls for R&D investment, as R&D is found to be positively related to higher levels of innovation (Østergaard et al., 2011; Quintana-García and Benavides-Velasco, 2008; Söllner, 2010; Teruel et al., 2013). The ES asks participants "During the last three years, did your establishment spend on formal R&D activities, either in-house or contracted with other companies?". A positive response is coded one and a negative response is coded zero.

Education. Given earlier studies find a highly education workforce to positively impact the innovation levels of a firm (Arvanitis, 2005; Østergaard et al., 2011; Parrotta et al., 2014; Söllner, 2010; Teruel et al., 2013; Zhou et al., 2011), this study also controls for the education level of the workforce. We use the percentage of employees with a secondary school degree as a measure.

Industry Sector. In line with previous research (Østergaard et al., 2011; Parrotta et al., 2014), the industry sector, in which a firm operates is accounted for and is coded one for the manufacturing, two for the retail and three for the services (non-Retail) industry. In the analysis, effect coding is used to assess the impact of the industry a firm is operating in on innovation.

Ownership form. As previously elaborated on, firms participating in our study are characterized by different ownership forms. Shareholding companies with privately traded or no shares are coded two, firms governed by sole proprietorship are coded three, partnerships are coded four and limited partnerships are coded five, whereas all other ownership forms are coded six. To account for the impact of a firm's ownership structure on innovation, effect coding is used for the analysis.

Table 3 summarizes all variables of this research.

Insert Table 3

4. 3 Method

To contrast the before discussed hypotheses, a hierarchical binary logistic regression model was employed for analyzing the data. The selection of this model was governed by the binary nature of the dependent variable on the one hand and the hierarchical nature of the data structure, more specifically the independent variables (Garson, 2013) on the other hand: attributes of individual employees, such as their gender are at level 1; specific attributes of firms such as gender diversity among the workforce

or the ownership structure are at level 2; country level data such as a country's level of women's economic opportunity, in which firms are nested, are at level 3.

To account for the moderating effect of women's economic opportunity, interaction effects were included in the analysis. According to Afshartous and Preston (2011, p. 7), a "problem common with including interaction terms in a regression model is that such terms are often highly correlated with the corresponding lower order terms", which we tested for before conducting the analysis, both when the variables were and were not meancentered. Without centering the independent variables and the moderator at their mean, Tolerance was at times below .2 and VIF values above 10, with an average VIF value way beyond 1 ($\overline{VIF}$ = 46.21), indicating issues with multicollinearity (Field, 2005). After centering Blau's Index both for assessing gender diversity among the ownership structure and the workforce as well as for the WEOI value at the respective mean, multicollinearity is of no concern: for all variables, Tolerance was above .2 and VIF values were smaller than 10 with the average VIF value not being substantially greater than 1 ($\overline{VIF}$=1.27). Based on the afore discussed concerns with regards to multicollinearity, the decision to meancenter the independent variables and the moderator was taken.

5. Results

The descriptive statistics and bivariate correlations for all variables are outlined in Table 4. The subsequent insights illustrate the general trends how and in which context the firms participating in our research operate: First, the majority of the 22,616 firms (15,157 with complete information) across 15 countries are independent firms (79.55 percent) in the manufacturing industry (66.01 percent) with employee numbers ranging from 5 to 99 employees (80.77 percent). Most of the firms, whose average percentage of employees with a secondary school degree accounts for 50.17 percent, are not conducting R&D (76.17 percent) and generate their sales primarily from national transactions (81.39 percent).

Second, Blau's Index for firm ownership and the overall workforce range between 0.0 referring to 100 percent representation of solely one gender and 0.5 referring to a fully equal representation of 50 percent men and 50 percent women. In our study, Blau's Index for firm

ownership is very low with 0.050 and considerably smaller than Blau's Index for the overall workforce, which accounts for 0.144. In other words and more illustrative, on average, as much as roughly 97 percent of the firms are owned by owners of the same gender or by only one owner, thus not allowing for gender diversity, and on average as much as roughly 92 percent of the firms' workforce are of the same gender. In both cases, the gender accounting for the majority are typically men, which also holds true for the gender of top managers (91.30 percent). Furthermore, the mean WEOI derived for our study (40.55) is well below the worldwide average of 57.3. Nevertheless there is still a considerable range in the WEOI values with a minimum of 19.23 for Sudan, representing the lowest WEOI worldwide, and a maximum of 48.70 for Egypt. The aforementioned results underline our initial observation that the level of women's economic opportunity in the countries participating in this study differ, however at generally lower levels compared to developed countries. Lastly, the dependent variable, innovation, indicates that 43.21 percent of the firms participating in this study introduced a new or significantly improved product or service.

Insert Table 4

As previously elaborated on, we estimated a hierarchical binary hierarchical logistic regression model for the analysis of our hypotheses. Model 1 is the baseline model, which exclusively contains the control variables and serves to evaluate the added explanatory value of the independent variables. Model 2 adds the three direct effects of the independent variables, namely: gender diversity in the firm ownership structure and the overall workforce as well as the gender of the top manager. Model 3 includes three interaction effects between the aforementioned two dimensions of gender diversity and women's economic opportunity as well as the interaction between the gender of the top manager and women's economic opportunity. The results of these models are reported in Table 5.

Insert Table 5

Model 1 demonstrates that various control variables have a significant effect on firms' likelihood to innovate: First, as predicted, firms engaging directly or indireclty in export have a higher likelihood to innovate. Second, in line with our expectation, conducting R&D has a strong positive effect on a firm's likelihood to innovate. This result suggests that firms investing either in internal R&D or in

externally contracted R&D are more likely to innovate. Third, as proposed by previous research (Arvanitis, 2005; Østergaard et al., 2011; Parrotta et al., 2014; Söllner, 2010; Teruel et al., 2013; Zhou et al., 2011), the likelihood for innovation rises with higher education levels within a firm. This result puts forward that a bigger share of educated employees increases the probability for innovation and it underpins the importance of knowledge in the innovation process. Lastly, the results suggest that the ownership form of a firm matters for its likelihood to innovate in that firms governed by limited partnership have the highest likelihood to innovate.

Model 2 describes the direct effect of the independent variables on innovation. We follow the common practice to examine the marginal effects of the independent variable at one standard deviation above and below the mean (Hoetker, 2007) to get a better understanding of the impact of gender diversity on innovation. The results of Model 2 suggest that gender diversity at the ownership level and among the overall workforce, as well as a female top manager increase a firm's likelihood to innovate. We observe that moving from one standard deviation below to one standard deviation above the mean in gender diversity among firm owners gives rise to firms' innovation likelihood by 5.64 percent. This effect is even more prevalent for gender diversity among the workforce: when moving from one standard deviation below to one standard deviation above the mean, a firm's likelihood to innovate increases by 15.79 percent. Moreover, having a female top manager increases the likelihood of firms to innovate by 3.27 percent.

Model 3 assesses the interaction effect between the before discussed measures of gender diversity and women's economic opportunity and thus sheds light on the three hypothesised moderation effects as outlined in Hypotheses 1 to 3. An important observation regarding the coefficients of the interaction between gender diversity and women's economic opportunity is that with the exception of the top manager's gender, there is a positive and statistically significant moderation effect. Thus, to a large extent, our results support the hypotheses that women's economic opportunity moderates the relationship between gender diversity and innovation.

Hypothesis 1 is supported in that women's economic opportunity moderates the relation between gender diversity among a firm's ownership structure and its likelihood to innovate, as graphically displayed in Figure 1. In line with expectations, the effect of gender diversity on innovation varies for

different levels of women's economic opportunity. We observe that when women's economic opportunity is at its minimum, the effect of gender diversity in the firm ownership structure on innovation is negative with a decrease in the innovation likelihood of firms from 46.82 percent to 34.82 percent. It is also evident that at a medium level of women's economic opportunity (mean WEOI value of countries participating in this study), the effect of gender diversity is positive, with an increase in firms' likelihood to innovate from 40.12 percent to 44.91 percent. Moreover, operating in the highest level of women's economic opportunity amplifies the positive effect of gender diversity even further and increases the likelihood to innovate from 38.01 percent to 48.53 percent. Consequently, innovation likelihood reaches its peak (48.53 percent) at a maximum WEOI value and maximum gender diversity in the ownership. Overall, we see a sizeable positive effect of the interaction between gender diversity in the firm ownership structure and women's economic opportunity on innovation, signaling that higher levels of women's economic opportunity allow firms to better leverage the benefits of gender diversity in the ownership structure for innovation. Thus, the results offer strong support for Hypothesis 1.

Insert Figure 1

Hypothesis 2 is not supported as there is insufficient evidence at a 5 percent significance level to reject the claim that women's economic opportunity has no effect on the relationship between the gender of a firm's top manager and its likelihood to innovate. Figure 2 graphically illustrates the impact of having a female top manager on the likelihood to innovate at three different levels of women's economic opportunity (lowest, mean and highest WEOI level).

Insert Figure 2

Hypothesis 3 is supported as women's economic opportunity is found to moderate the relation between gender diversity among a firm's overall workfoce and its likelihood to innovate. Figure 2 illustrates this moderation effect, suggesting that the impact of gender diversity in the overall workforce on a firm's innovation likelihood differs when the level of women's economic opportunity changes. At the lowest level of women's economic opportunity, the impact of gender diversity in the workforce on innovation is negative with a decreasing likelihood for firms to innovate (from 47.39

percent to 40.64 percent). Moreover, when women's economic opportunity is at its mean in terms of our sample, the effect of gender diversity in the workforce is positive: there is a rise in firms' innovation likelihood from 36.27 percent to 52.24 percent. This positive effect is even stronger at the highest level of women's economic opportunity in this sample , where gender diversity increases a firm's likelihood to innovate from 32.67 percent to 56.41 percent. With that, the highest likelihood to innovate (56.41 percent) is associated with firms having maximum gender diversity in the workforce while operating in country with the highest degree of women's economic opportunity. Overall, we find a significant positive moderation effect, demonstrating that higher levels of women's economic opportunity in the country, within which firms operate, help firms to render the benefits of gender diversity in the workforce for their likelihood to innovate. Consequently, the results offer very strong support for Hypothesis 3.

Insert Figure 3

Robustness Check

We performed a robustness check to measure the sensitivity of our results to alterations in the specification of gender diversity in the firm ownership. We therefore assessed the results of our model when excluding the ownership form of sole proprietorship. Given that we measure gender diversity among the ownership structure as the balance between the percentage of the firm owned by men versus women, a single owner does not allow for gender balance and thus automatically represents the value 0.00 for Blau's Index. The results of the repeated analysis exlcuding sole proprietorship yielded in results very similar to the results when including sole proprietorship. Both gender diversity in the firm ownership as well as its interaction with women's ecnomic opportunity exhibited a positive significant effect on innovation. The aforementioned insights indicate that our results are not sensitive to this change.

6. Discussion

This research suggests that firms operating in countries where women's economic opportunity is high are better able to reap the benefits from a gender balanced ownership structure and workforce for their likelihood to innovate compared to firms embedded in countries with low levels of economic

opportunity for women, in which gender diversity can even be detrimental for a firm's likelihood to innovate. Essentially, our study underscores the importance of both gender diversity at a firm level as well as appropriate laws and regulations enabling women to participate in the workforce under similar conditions like men at a national level for innovation.

In this section, we first discuss how we classify this study in the perspective of research on innovation, development and gender. Second, we outline the novelty and significance of our moderation effect and findings, and conclude with suggestions for possible policy implications.

Innovation is an important driver for econommic growth and social welfare (Corsi and Akhunov, 2000) and according to the Organization for Economic Cooperation and Development (OECD) it is especially vital for developing countries as "the build-up of innovative capacities has played a central role in the growth dynamics of successful developing countries" (OECD, 2012, p. 4). Gender diversity at different levels in the organization, which has been found to benefit innovation in developed countries (Miller and del Carmen Triana, 2009; Østergaard et al., 2011; Pitcher and Smith, 2001; Teruel et al., 2013; Torchia et al., 2011), has not yet been investigated as to whether it can also increase innovation in developing countries. Furthermore, no study to date has assessed if the degree to which a country's laws, regulations, practices, customs and attitudes allowing women to participate in the workforce under similar conditions like men, has an impact on the degree to which firms can leverage the potential benefits of gender diversity for innovation.

The results of our study put forward that, without taking the moderating effect of women's economic opportunity into account, gender diversity at all organizational levels as well as having a female top manager have a positive effect on a firm's likelihood to innovate (Model 2). This is in line with findings for developed countries with regards to gender diversity among the firm owners (Miller and del Carmen Triana, 2009; Torchia et al., 2011) as well as in the workforce (Díaz-García et al., 2013; Østergaard et al., 2011; Teruel et al., 2013).

The analysis of the moderation effect of women's economic opportunity, which is a novel approach in gender diversity and innovation research, additionally suggests that the effect of gender diversity on a firm's likelihood to innovate depends on the environment a firm is embedded in. This has several important implications: On the one hand, the results put forward that the positive effect of

gender diversity on firms' innovation likelihood is amplified with increasing WEOI levels. On the other hand, both gender diversity in the ownership structure and in the overall workforce can have a negative effect on a firm's likelihood to innovate if the firm is operating in a country with very little economic opportunity for women.

When examining the WEOI cut-off point at which the impact of gender diversity on innovation changes from being negative to being positive, the following insights stand out: First, both for gender diversity at the ownership and at the workforce level, the respective cut-off points are very low, indicating that gender diversity increases firms' innovation likelihood in the majority of the developing countries in this study, despite the generally low WEOI. Second and more specifically, for gender diversity at the ownership level to have a positive effect on innovation, a women's economic opportunity index above 36.65 is required. In this study, 4 countries have a WEOI below this cut-off point, worldwide only 15 out of 128 countries have lower WEOI values. The negative effect of gender diversity in the ownership structure on innovation in countries below the WEOI cut-off point may be partially driven by the very low status women are associated with (Economist Intelligence Unit, 2012), which may prompt male owners to not take women's perceptions, views, experiences and knowledge into account in the decision making process (Nielsen and Huse, 2010). With an increasing proportion of female ownership, the overall input being considered by men for taking a decision may thus decrease, which may in turn lead to less informed decisions and ultimately to a decrease in innovation. Another driver for the negative effect of gender diversity among the firm ownership on innovation in countries below the WEOI cut-off point may be related to risk aversion: female owners might be more risk averse in countries with very low WEOI compared to female owners in countries with higher WEOI and therefore opt for more conservative rather than innovative strategies as it may be more difficult for them to find a comparable employment opportunity in case an innovative strategy fails.

Third, it stands out that for gender diversity among the workforce to have a positive effect on innovation, an even lower WEOI level (29.21) is sufficient. Only 2 countries in this study and 5 out of 128 countries worldwide are below this threshold. The results for firms operating in countries below the WEOI cut-off point suggest that firms with low gender diversity in the workforce are more likely to innovate than firms with a highly gender diverse workforce. This insight is in line with previous

observations that diversity can at times lead to "increased transaction costs, since interaction and communication between different knowledge bases and groups might be difficult" (Østergaard et al., 2011, p. 502). As previously elaborated on, an important benefit of gender diversity in the overall workforce for innovation is the inherently different knowledge of male and female employees (Singh et al., 2008) that they build on to create new knowledge and to innovate (Quintana-García and Benavides-Velasco, 2008). Wenger (2000) points out that employees may however not be able to learn from each other and enrich the organizational knowledge pool as afore discussed if their knowledge base and experiences are too distant from each other. This may be the case in countries with very low levels of women's economic opportunity, where women's access to education is very limited (Economist Intelligence Unit, 2012). If women lack scholarly education, the knowledge of male and female employees may be too distant from each other and women's knowledge may therefore not be considered in the innovation process. Therefore, the available input for bottom-up innovation could be reduced by increasing gender diversity in the workforce and with that a firm's likelihood to innovate may decrease in countries with a WEOI below the previously elaborated on cut-off point.

In contrast to the moderating effects previously discussed, there is insufficient evidence to reject the claim that women's economic opportunity has no significant impact on the relation between the gender of a top manager and innovation: Independent of the level of women's economic opportunity, having a female top manager increases a firm's likelihood to innovate. There are two potential explanations for this lack of a moderating effect: first, the top manager can only be either a man or a woman and does thus not represent a true measure of gender diversity but is rather a description of a manager's gender. Second, the majority of the firms participating in our study are small to medium enterprises, in which it is likely that one of the firm's owners serves at the same time also as the highest ranking management individual (Westhead and Howorth, 2006). It is thus possible that the moderating effect of WEOI is already captured in the interaction between gender diversity among the firm owners and women's economic opportunity.

Beyond the evidence put forward by our study, avenues for future research include first, shedding light on whether the results of this research focusing on developing countries with low levels of WEOI also hold true for firms operating in countries with overall higher levels of women's

economic opportunity. Given that the developing countries participating in our study range below average on WEOI, including the worldwide lowest ranking country Sudan, there may be no negative effect of gender diversity on innovation in countries with relatively high WEOI. Despite generally higher levels of WEOI, we however still expect it to moderate the relationship between gender diversity and innovation likelihood. Second, an updated Women's Economic Opportunity Index and Enterprise Survey panel data might additionally allow researchers to better examine causal effects.

Our findings propose that gender diversity at all levels of the organization as well as the women's economic opportunity in a country play an important role for innovation in low and lower-income countries in Sub-Saharan Africa, North Africa, the Middle East and South Asia. Gender diversity can serve as an approporiate measure to increase firms' likelihood to innovate in the majority of the countries in our study, despite their generally low levels of women's economic opportunity compared to the worldwide average. Therefore, policy makers should ensure that country legislation encourages firms to create equal opportunities for men and women at the firm level and to employ equal numbers of men and women at the different levels in the organization. It is however imparative, that policy makers in countries with very low levels of women's economic opportunity focus on improving the situation of women at a country level in a first step to allow firms to reap the benefits of gender diversity at the different organizational levels. This includes adjustments in various regulatory aspects such as equality in labor policies as well as in education and training but also increasing the legal and social status of women.

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Table 1: Overview of available information (Enterprise Survey)

	Country	Year	Number of Respondents
Low Income Countries*	Malawi	2014	490
	Tanzania	2013	534
	Uganda	2013	742
Lower-middle Income Countries**	Bangladesh	2013	1,401
	Egypt	2013	2,667
	Ghana	2013	714
	India	2014	9,079
	Kenya	2014	765
	Morocco	2013	332
	Nigeria	2013	2,585
	Pakistan	2013	1,032
	Senegal	2014	571
	Sudan	2013	659
	Yemen	2013	352
	Zambia	2013	693
Total			22,616

* World Bank's definition of low income economies for 2012: GNI per capita of $1,035 or less (World Bank, 2016)
** World Bank's definition of lower- middle income economies for 2012: GNI per capita of maximum $4,085 (World Bank, 2016)

Table 2: Women's Economic Opportunity Index Ratings and Ranking

Country	Region	WEOI Value (out of 100)	Rank (out of 128)
Egypt	Middle East & North Africa	48.7	80
Kenya	Sub-Saharan Africa	47.5	86
Morocco	Middle East & North Africa	47.0	89
Ghana	Sub-Saharan Africa	46.4	91
Tanzania	Sub-Saharan Africa	45.4	95
India	South Asia	41.9	98
Uganda	Sub-Saharan Africa	40.4	102
Bangladesh	South Asia	39.2	105
Malawi	Sub-Saharan Africa	39.0	107
Senegal	Sub-Saharan Africa	38.7	108
Zambia	Sub-Saharan Africa	36.9	112
Pakistan	South Asia	35.5	116
Nigeria	Sub-Saharan Africa	33.4	119
Yemen	Middle East & North Africa	24.6	126
Sudan	Sub-Saharan Africa	19.2	128

*Sweden on Rank 1 WEOI Value of 90.40

Table 3: Overview of available variables

Variable	Description	ES/ WEOI
Dependent Variable	Innovation	During the last three years, has this establishment introduced new or significantly improved products or services? (ES)
Independent Variables	Gender diversity firm owners	Amongst the owners of the firm, are there any females? (ES)
		What percentage of the firm is owned by females? (ES)
	Gender diversity overall workforce	How many permanent, full-time individuals worked in this establishment? (ES)
		How many permanent full-time individuals that worked in this establishment were female? (ES)
	Gender top manager	Is the Top Manager female? (ES)
Moderator	Women's economic opportunity	Women's Economic Opportunity index, composed of 29 quantitative and qualitative indicators (WEOI)
Control Variable	Firm Size	Number of employees (ES)
	Firm Type	Establishment is part of a larger firm (ES)
	Export	What percentage of this establishment's sales were national sales, indirect export, direct export? (ES)
	R&D	Did this establishment spend on formal research and development activities, either in-house or contracted with other companies? (ES)
	Education	What is the percentage of full-time permanent workers who completed secondary school? (ES)
	Industry	Industry Sector (ES)
	Ownership	What is this firm's current legal status? (ES)

Table 4: Descriptive Statistics and Correlations (N=22,616)

	Variable	Mean	Std. Dev.	Min	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	Innovation	0.41	0.49	0.00	1.00	-																	
2	Manufacturing (Industry)	0.73	0.44	0.00	1.00	0.02	-																
3	Retail (Industry)	0.10	0.3	0.00	1.00	0.03	-0.56	-															
4	Small (Firm Size)	0.40	0.49	0.00	1.00	-0.12	-0.14	0.13	-														
5	Medium (Firm Size)	0.39	0.49	0.00	1.00	0.04	0.07	-0.06	-0.65	-													
6	Large (Firm Size)	0.21	0.41	0.00	1.00	0.1	0.09	-0.08	-0.42	-0.41	-												
7	Firm Type	0.21	0.40	0.00	1.00	0.06	-0.08	0.04	-0.15	-0.05	0.24	-											
8	Export	0.18	0.38	0.00	1.00	0.12	0.11	-0.1	-0.21	-0.03	0.29	0.13	-										
9	R&D	0.26	0.44	0.00	1.00	0.37	0.05	-0.01	-0.17	0.04	0.15	0.12	0.17	-									
10	Education	48.54	-32.78	0.00	100	0.15	-0.17	0.13	-0.09	0.00	0.11	0.06	0.06	0.16	-								
11	Shareholding private (Ownership)	0.11	0.32	0.00	1.00	0.02	0.02	-0.05	-0.15	-0.01	0.19	0.11	0.17	0.05	0.03	-							
12	Sole Proprietorship (Ownership)	0.50	0.50	0.00	1.00	-0.08	-0.03	0.08	0.22	-0.04	-0.22	-0.19	-0.21	-0.15	-0.12	-0.36	-						
13	Partnership (Ownership)	0.19	0.40	0.00	1.00	-0.03	0.06	-0.05	0.01	0.02	-0.02	0.02	0.01	-0.01	-0.03	-0.18	-0.49	-					
14	Limited Partnership (Ownership)	0.17	0.38	0.00	1.00	0.12	-0.04	0.00	-0.16	0.04	0.15	0.13	0.11	0.16	0.17	-0.16	-0.45	-0.22	-				
15	WEOI (Centered)	1.22	4.32	-16.49	7.52	-0.04	-0.02	-0.05	0.00	0.01	0.00	-0.06	0.03	-0.05	0.09	0.12	-0.11	-0.02	0.07	-			
16	Gender Diversity Firm Ownership (Centered)	0.00	0.14	-0,05	0,45	0.07	-0.02	-0.01	-0.05	-0.01	0.07	0.04	0.12	0.05	0.06	0.17	-0.33	0.13	0.13	0.07	-		
17	Gender Top Manager	0.08	0.27	0.00	1.00	0.08	-0.06	0.04	-0.03	-0.02	0.06	0.05	0.07	0.1	0.08	0.02	-0.06	-0.02	0.09	0.02	0.17	-	
18	Gender Diversity Workforce (Centered)	-0.01	0.18	-0,14	0,36	0.18	-0.18	0.13	-0.13	0.05	0.09	0.1	0.12	0.11	0.18	0.02	-0.03	-0.04	0.07	-0.03	0.09	0.15	-

Table 5: Hierarchical Binary Logistic Regression Results (N=15,157)

Variables	Model 1		Model 2		Model 3	
Control Variables	B	SE	B	SE	B	SE
Industry (Manufacturing)	0.050	(0.040)	0.304***	(0.053)	0.308***	(0.053)
Industry (Retail)	0.218***	(0.056)	0.367***	(0.073)	0.355***	(0.073)
Firm Size (Small)	-0.033	(0.164)	0.126	(0.382)	0.210	(0.380)
Firm Size (Medium)	0.101	(0.165)	0.260	(0.382)	0.351	(0.381)
Firm Size (Large)	0.055	(0.168)	0.254	(0.383)	0.357	(0.382)
Establishment Type	0.026	(0.040)	-0.046	(0.047)	-0.058	(0.047)
Export	0.402***	(0.042)	0.235***	(0.051)	0.234***	(0.052)
R&D	1.579***	(0.038)	1.618***	(0.044)	1.616***	(0.044)
Education	0.006***	(0.000)	0.005***	(0.001)	0.005***	(0.001)
Shareholding company (no/privately traded shares)	0.013	(0.115)	0.022	(0.135)	0.044	(0.135)
Sole Proprietorship	0.124	(0.106)	0.080	(0.127)	0.080	(0.127)
Partnership	-0.027	(0.110)	-0.030	(0.130)	-0.009	(0.130)
Limited Partnership	0.293**	(0.111)	0.307*	(0.131)	0.300*	(0.131)
WEOI	-0.031***	(0.003)	-0.019***	(0.004)	-0.013**	(0.005)
Direct effects of Gender Diversity (GD)						
GD Firm Ownership			0.551***	(0.145)	0.355*	(0.163)
Gender Top Manager			0.162*	(0.070)	0.192*	(0.075)
GD Workforce			1.505***	(0.106)	1.378***	(0.111)
Interactions						
WEOI X GD Firm Ownership					0.093*	(0.036)
WEOI X Gender Top Manager					-0.005	(0.018)
WEOI X GD Workforce					0.122***	(0.028)
Constant	-1.237***	(0.198)	-1.640***	(0.406)	-1.737***	(0.405)
LR Chi2			249.75		282.90	
Prob>chi2			0.000		0.000	

*p<0.05, **p<0.01, ***p<0.001

Figure 1: Gender Diversity in the Ownership Structure

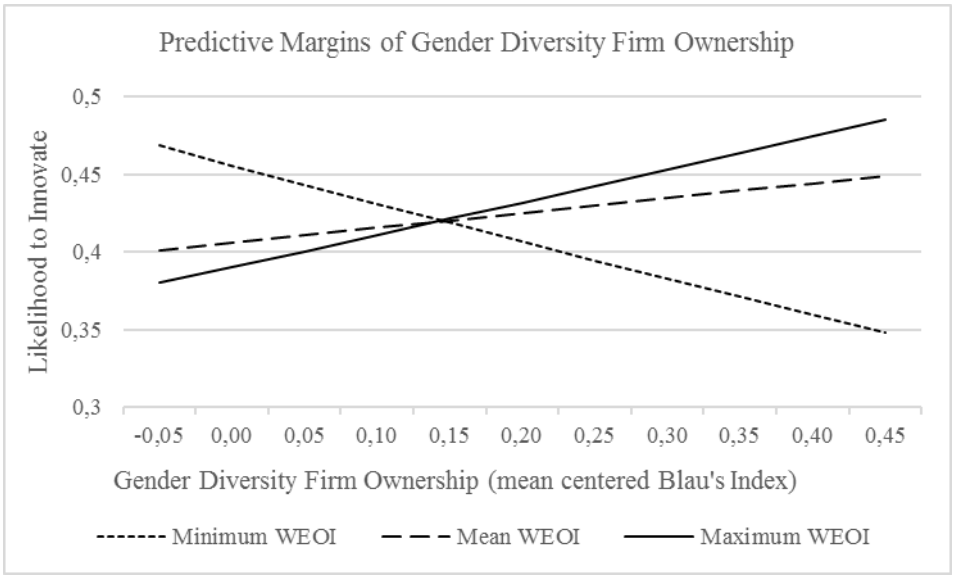

Figure 2: Gender of the Top Manager

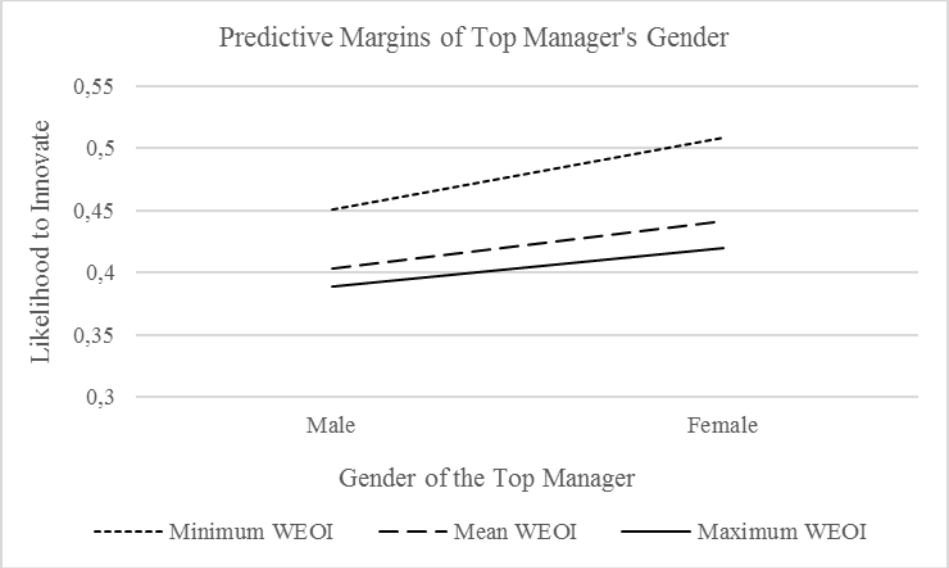

Figure 3: Gender Diversity in the Overall Workforce