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DOES WORKFORCE DIVERSITY MATTER ON CORPORATE VENTURING?

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ABSTRACT

Ongoing academic debates demand a better understanding of the effect of workforce diversity (not only top managers) on unexplored outcomes (not only financial performance). We proposed/tested a conceptual model that theorizes the moderate role of workforce demographics on corporate venturing drivers by adopting different theoretical perspectives. Using a sample of 17217 employees across 20 countries, our findings highlight that women and migrant workers contribute to corporate venturing by identifying business opportunities (exploration experiences) and taking advantage of their intellectual capital (human capital and social capital). Several implications for leaders who manage a diversified workforce emerge from this study.

Keywords: Workforce Diversity; Exploration; Exploitation; Ambidexterity; Innovation; Entrepreneurship; Corporate Venturing; GEM

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INTRODUCTION

Workforce diversity refers to the composition of work units in terms of the cultural or demographic characteristics salient and symbolically meaningful in the relationships among group members (DiTomaso et al., 2007, p. 474). Prior studies have classified workforce diversity into two dimensions. The first dimension is related to demographic characteristics (i.e., age, income, gender, and nationality) that exhibit differences between various individuals (Friedman and DiTomaso, 1996; Jasso, 2001; Peroni et al., 2016). The second dimension is related to cultural characteristics (i.e., values, beliefs, cognitions) that are not noticeable to individuals within an organization (Yadav and Lenka, 2020). This study understood a diversified workforce as organizations integrated by employees with different demographic backgrounds regarding generational cohorts, gender, personal income, and immigration status.

Over the past decades, workforce diversity was analyzed with diverse lenses in management and entrepreneurship fields. *Firstly, in the management literature*, diversity management research emerged as a new organizational paradigm (Gilbert et al., 1999) focused on effectively managing workforce by valuing its diversity (Sessa, 1992). Diversity management research has analyzed human resources practices to manage diversity, inequalities, work-life balance (D'Netto and Sohal, 1999; DiTomaso et al., 2007; Yee et al., 2020), as well as the positive effects of diversity on performance (Sung and Choi, 2019; Lee and Kim, 2020; Kim et al., 2020). A recent literature review on workforce diversity has highlighted the repeatedly investigated effect of diversified top managers' teams on organizational performance (Yadav and Lenka, 2020, p.13). However, workforce diversity research needs to be conducted across countries for exploring the effect of employees'

diversity (not only managers) on unexplored outcomes (Yadav and Lenka, 2020, p.12). Secondly, *in the entrepreneurship literature*, corporate entrepreneurship represents the firms' ability to be innovative, risk-taking, competitive, proactive, and adaptable through the development of renewal/innovation strategies (strategic entrepreneurship) and the creation of ventures (corporate venturing) (Guth and Ginsberg, 1990; Sharma and Chrisman, 1999). Diversity research in corporate entrepreneurship has limited the analysis to the top or middle managers that pursue corporate entrepreneurship within innovative (multinational) firms (Hayton, 2005; Heavey and Simsek, 2013; Boone et al., 2019; Garrett et al., 2020). The achievement of corporate venturing strategies requires leadership and the workforce's full involvement. Consequently, workforce diversity may play a relevant role in the employees' propensity to become self-employed, intrapreneurs, or continue to be employed within entrepreneurial organizations (Marino et al., 2012; Yeganegi et al., 2019). However, little is known about the contribution of workforce diversity in corporate entrepreneurship outcomes as the creation of innovative ventures under the umbrella of their employers (Junni et al., 2015; Guerrero et al., 2019; Mom et al., 2019; Yeganegi et al., 2019).

Inspired by the literature's stated gaps, this study examines the effect of a diversified workforce on corporate venturing activities. By adopting different theoretical approaches (corporate entrepreneurship, employee ambidexterity, and intellectual capital), we propose a conceptual model that theorizes how workforce demographics moderate corporate venturing drivers. The assumption that workforce diversity matters in venturing corporate activities is tested by using a sample of 17217 employees across 20 countries.

Our results contribute to the workforce diversity literature (Yadav and Lenka, 2020) and the corporate venturing literature (Guerrero et al., 2019; Yeganegi et al., 2019) with insights into how the workforce's engagement in corporate venturing by identifying business opportunities (exploration experiences) and taking advantage of intellectual capital (human capital and social capital) depends on its demographics (gender, age, nationality, income). The study also encourages future research into how nature/nurture conditions within innovative/entrepreneurial organizations to generate value for shareholders are influenced by diversified workforce' behaviors (Narayanan et al., 2009; Guerrero et al., 2019; Yadav and Lenka, 2020). Regarding practical implications, changing the workforce's demographic dynamics should lead many organizations to rethink or re-design organizational strategies, innovative/entrepreneurial behaviors, and cultures (Sung and Choi, 2019).

The remainder of this paper is organized as follows: Section 2 develops the conceptual framework. Section 3 presents the methodology used in the study. Section 4 discusses the main findings. Finally, Section 5 presents the main conclusions, implications for decision-makers, and future lines of research.

CONCEPTUAL FRAMEWORK

Corporate venturing and employees' diversity

According to Guerrero et al. (2019), there is a consensus about three critical components behind any corporate venturing: the workplace (organization) that provides favorable conditions for achieving the corporate venturing activities; the (ambidexterity) process that includes the exploration and exploitation of new opportunities that be transformed into

innovative and entrepreneurial initiatives; and the workforce (employees) who lead and execute the innovative and entrepreneurial processes.

Given the complexity of studying the labor force's diversity, we identify three theoretical approaches to examine the contribution of the labor force's demographics to create ventures for employers (corporate venturing). First, *paying attention to the workplace*, the corporate entrepreneurship literature explains how organizational support may encourage the flourishing of creativity, innovation, and entrepreneurship (Narayanan et al., 2009; Alpkan et al., 2010). According to Colombo et al. (2016), entrepreneurial organizations' climate is characterized by autonomy, a meaningful job, and adequate rewards systems. Extant studies have explained that perceptions, values, motivations, and other attributes are configured according to the individuals' generational cohorts (Parru and Urwin, 2011), nationality (Boone et al., 2019), and gender (Petrie and Roman, 2004). The workforce's perceptions of organizational supports will vary depending on their demographic characteristics. Second, *paying attention to the exploration/exploitation process*, the organizational ambidexterity literature explains how employees' abilities shifted depending on their involvement in exploration or exploitation activities (Mom et al., 2009; Good and Michel, 2013; Li et al., 2016). Management research has validated an individual-behavioral orientation toward ambidexterity capabilities associated with accomplishing the tensions/problems related to exploration and exploitation processes (Mom et al., 2009). Innovation literature has also recognized how diversified teams contribute to achieving ambidexterity processes and the highest performance (Mom et al., 2015). Third, *paying attention to the employees*, the intellectual capital literature explains how the effects of intellectual capital facets (i.e., human, social, investor, and entrepreneurial capital) on organizational ambidexterity

(Kostopoulos et al., 2015; Turner et al., 2015) and corporate venturing (Guerrero and Peña-Legazkue, 2013, 2019). Intellectual capital is a determinant in the propensity to pursue corporate venturing opportunities (Ireland et al., 2009; Parker, 2011; Guerrero et al., 2019). Although the relationship between diversified workforce and innovation/entrepreneurship outcomes is scarce, many entrepreneurial organizations are integrated by a heterogeneous labor force, including women workers, migrant workers, elderly workers, and low-income workers (Guerrero et al., 2019). This workforce diversity may influence on any organizational activity and outcome.

Hypotheses

Workforce diversity and perceptions of the organizational environment

An organizational climate is the primary driver of innovative and entrepreneurial initiatives (Ireland et al., 2009; Narayanan et al., 2009; Alpkan et al., 2010; Antoncic and Antoncic, 2011; Lee et al., 2017). A good combination of organizational climate' components (autonomy, rewards, and meaningful) is strongly related to the (un)success of innovative and entrepreneurial initiatives (Colombo et al., 2016). *Workplace autonomy* is an organizational climate that encourages creativity, innovation, and entrepreneurship (Kuratko et al., 2015). A few studies have studied diversity in workplace autonomy (Petrie and Roman, 2004). Job autonomy represents the opportunity of balancing work and family lives for all labor groups (Green and Cohen, 1995; Wong et al., 2008), especially for entrepreneurial women (Úbeda-García et al., 2017; Ruiz et al., 2019). Job flexibility also represents a non-monetary return derived from participating in innovative and entrepreneurial initiatives that motivate low-income and immigrant workers (Kim et al., 2006; Stone and Stubbs, 2007). Likewise, *rewards systems* are part of an organizational climate that enhances employees' motivations

(Gibson et al., 2009; Patel et al., 2013) and, combined with job autonomy, reinforces entrepreneurial/innovative employees' intentions (Guerrero et al., 2019). The incentive system represents an encouragement for corporate employee-entrepreneurs involvement in corporate venturing because it represents a trade-off based on ambitions, values, and motivations (Monsen et al., 2010; Guerrero et al., 2019) that differ among gender, ethnicity, generational cohort, and educational level. A *meaningful job* is also related to organizational value systems and personal goals that may vary per generational cohort, ethnicity, and educational level (Fairlie, 2011). The workforce experienced a meaningful job when values, demands, and motivations are aligned at personal and organizational levels (Scroggins, 2008). Employees' perceptions of having meaningful work facilitate personal growth and contribute to greater motivation and satisfaction. These employees' perceptions vary according to personal backgrounds in terms of generational cohorts (Guerrero et al., 2019), gender, ethnicity, or migration status (Culpan and Wright, 2002; Brandes et al., 2010). It explains why groups with similar backgrounds help develop entrepreneurial initiatives due to the high intra-group solidarity, shared values, norms, and attitudes that facilitate economic activities (Peroni et al., 2016). Assuming that the workforce's perceptions about organizational support strengthen their engagement in corporate venturing, we suggest the following hypotheses:

Hypothesis 1a: Favorable organizational supports increase the employees' engagement in corporate venturing

Hypothesis 1b: Diversity in the labor force positively moderate the effect of favorable organizational supports on corporate venturing activities.

Workforce diversity and ambidexterity experience

Employee ambidexterity is the ability related to employees' behavioral orientation towards combining exploitation and exploration processes simultaneously within a specified period (Mom et al., 2015, p. 135). Employee ambidexterity represents the good combination of exploration abilities (e.g., the identification or generation of innovative and entrepreneurial opportunities) and exploitation abilities (e.g., the exploit of identified opportunities via strategies, resources, and capabilities) that are responsible for the successful employees' innovative performance (Rosing and Zacher, 2017, p. 697). Exploration and exploitation learning processes increase performance and variability (March, 1991, p. 83). If innovations/technologies are novel, the advantages will be superior for the workforce familiar with the required knowledge and capabilities to explore/exploit them. The accumulation of knowledge about the link between ambidexterity and workforce demographics is limited and inconclusive (Yadav and Lenka, 2020). According to Ang et al. (2007), the difference in race, gender, age, ethnicity, and nationality may positively affect firms' engagement in corporate entrepreneurship. A few studies have found that gender diversity in teams is beneficial for introducing untypical ways of exploring and exploiting innovation opportunities (Zacher and Rosing, 2015; Zacher et al., 2016; Jahanshahi et al., 2018). Boone et al. (2019) also found a positive effect of nationality diversity on innovation and entrepreneurship processes, but this effect depends on social relationships at the team-level and country-level. Some insights showed how entrepreneurial attitudes and employees' ambidexterity abilities vary across generational cohorts (Guerrero et al., 2019). Younger generations are more ambidexterity-oriented than the older generations. Therefore, balanced and diversified teams (gender, nationality, age) provide different perceptions and capabilities during exploration/exploitation of innovation and entrepreneurship opportunities (Díaz-

García et al., 2013; Cropley and Cropley, 2017). Assuming that the ambidexterity workforce's experiences strengthen their engagement in corporate venturing, we suggest the following hypotheses:

Hypothesis 2a: Ambidexterity experience increase the employees' engagement in corporate venturing

Hypothesis 2b: Diversity in the labor force positively moderate ambidexterity experience on corporate venturing activities.

Workforce diversity and intellectual capital

Intellectual capital is represented by human capital, social capital, investor capital, and entrepreneurial capital (Kostopoulos et al., 2015). Previous studies have shown the positive effect of diversified intellectual capital on entrepreneurship and innovation (Bosma, 2013; Guerrero et al., 2019). Entrepreneurship literature has recognized different knowledge sources that contribute to corporate venturing (Parker, 2011). Prior studies also identify different intellectual capitals during exploration/exploitation processes: *human capital* increases the entrepreneurial intention of employees depending on their educational level and experiences (Millan et al., 2014), *entrepreneurial capital* reduces the barriers as the knowledge filters during innovation and entrepreneurship processes depending on employees' demographic backgrounds (Guerrero and Urbano, 2014), *investors' capital* represents a valuable workforce's learning experience that provides useful information and specific facilities for creating ventures (Ucbasaran et al., 2009), and *social capital* represents a window of workforce's contacts that represents a source of multiple resources/capabilities

required for developing corporate ventures (Heavey et al., 2015). The demographic backgrounds (age, gender, income, and nationality) explain differences in the workforce's intellectual capital (Parker, 2011; Guerrero et al., 2019) and the workforce's feasibility of participating in corporate venture activities (Van Auken et al., 2006). Assuming that the workforce's intellectual capitals strengthen their engagement in corporate venturing, we suggest the following hypotheses:

Hypothesis 3a: Intellectual capital increase the employees' engagement in corporate venturing

Hypothesis 3b: Diversity in the labor force positively moderate the effect of intellectual capital on corporate venturing activities.

Proposed model

Figure 1 shows the proposed conceptual model. Based on our literature review, we assume that a diversified workforce positively moderates the effect of individual-level drivers of corporate venturing. We first assume that the probability of workforce's engagement in corporate venturing increases when: employees have favorable perceptions about the organizational climate in terms of autonomy, a meaningful job, and reward systems (H1a); employees have an ambidexterity experience (H2a); employees have different intellectual capitals (H3). We then assume a positive moderation effect (H1b, H2b, H3b) produced by the workforce' diversity in terms of demographics characteristics (gender, age, nationality, and income).

Insert Figure 1 here

METHODOLOGY

Data collection

We used individual-level data from the Adult Population Survey (APS) of the Global Entrepreneurship Monitor (Reynolds et al., 2005). The 2012 and 2013 waves included a set of questions that captured information about (1) entrepreneurial employee activities (e.g., venture creation), (2) workplace characteristics (e.g., employees' perceptions about a meaningful job, autonomy, and income satisfaction), (3) migration (e.g., place of born, first or second generation of immigrants) and (4) innovation (e.g., employees' innovation goals, organizational' innovation goals). Our sample consists of 17,217 employees across 20 countries¹. The country-level data came from the World Bank Open Data.

Description of variables

Corporate venturing captures when an employee has (not) undertaken entrepreneurial actions in the last three years to create a new venture for his/her employer (Bosma et al., 2011; Guerrero and Peña- Legazkue, 2019). Specifically, this variable takes value one if when the employee answered “yes” to the three previous criteria and zero otherwise (Guerrero et al., 2019): (a) employees' involvement in developing intrapreneurial activities for their primary employer in the last three years; (b) employees that are currently trying to create a new venture for their employer; and (c) employees are operating a new venture for fewer than 42 months.

¹ The list of countries that included in their APS the four set of questions were: Belgium, China, Croatia, Denmark, Estonia, Finland, Greece, Hungary, South Korea, Lithuania, Malaysia, Namibia, Nigeria, Peru, Philippines, Poland, Romania, Slovenia, Slovakia, and United Kingdom.

The first explanatory variable captures the employees' perceptions of workplace characteristics measured with a Likert scale (1 = lower to 5 = higher). This explanatory variable included three proxies: *a meaningful job* measured the perceptions that the employee has a meaningful job (Alrumaithi et al., 2015; Guerrero et al., 2019); *job autonomy* measured the perceptions that the employee can decide how to do his or her work (Hornsby et al., 2002; Kuratko et al., 2015); and *rewards* measured the perceptions that employees are satisfied with their current income (Monsen et al., 2010).

The second explanatory variable captures the employees' ambidexterity experience through three proxies (Yeganegi et al., 2019; Guerrero et al., 2019). *Exploration experience* is measured by a dichotomous variable that takes the value 1 when the employee has been involved in the idea development but not implementing the idea for their employer in the previous three years. *Exploitation experience* is measured by a dichotomous variable that takes the value 1 when the employee has been involved in implementing the idea but not in idea development for their employer in the previous three years. *Ambidexterity experience* is measured by a dichotomous variable that takes the value 1 when the employee has been involved in both idea development and idea implementation for their employer in the previous three years.

The third explanatory variable captures five employees' intellectual capital (Kostopoulos et al., 2015; Turner et al., 2015). *Human capital* is measured by a dichotomous variable that takes the value 1 when the employee has a college degree (Alpkan et al., 2010; Parker, 2011). *Social capital* is measured by a dichotomous variable that takes the value 1 when the employee mentioned that know someone who has started a business in the past two years (Bosma, 2013; Guerrero et al., 2019). *Investor capital* is measured by a dichotomous variable

that takes the value 1 when the employee had investor experience in the past three years (Bosma, 2013). *Entrepreneurial capital* is measured by a dichotomous variable that takes the value 1 when the employee had entrepreneurial experience in the previous year (Millan et al., 2014). *Opportunity perceptions* are measured by a dichotomous variable that takes the value 1 when the employee perceives entrepreneurial opportunities in the next six months (Guerrero and Peña-Legazkue, 2014).

The four explanatory variable captures the moderation effect of a diversified workforce captured through four proxies demographics characteristics: the *women workers* are measured by a dichotomous variable that takes the value 1 when the employee reported a female gender (Guerrero et al., 2019); the *migrant workers* are measured by a binary variable that takes the value 1 when the employee born in a different country (Peroni et al., 2016; Boone et al., 2019); the *elderly workers* are measured by a dichotomous variable that takes the value 1 when the employee born from 1946 to 1964 (Lamm and Meeks, 2009; Guerrero et al., 2019); and the *low-income workers* are measured by a binary variable that takes the value 1 when the employee reported personal income lower than 33,000 dollars/year (Bosma, 2013).

The control variables added to our model based on previous studies (Parker, 2011; Bosma et al., 2011; Guerrero et al., 2019) were: the size of employers' organizations in terms of the number of employees that were included in our analysis as a natural logarithm (*InSize*); the organization type is measured by a dichotomous variable that takes value 1 when the organization was private, otherwise, if it was public (*Organization type*); the natural logarithm of total unemployment per country (*Labor market conditions*); the natural

logarithm of the industry value added per country (*Competitive intensity*); the natural logarithm of high-technology manufactured exports per country (*Technological intensity*); and the natural logarithm of R&D expenditure per country (*Innovation intensity*).

Statistical Model

Given the dichotomous nature of our dependent variable, we used a logistic analysis. We show our results via odds ratios because it is a single summary score of the effect, and the probabilities are more intuitive than simple coefficients (see Mickiewicz et al. 2019; Guerrero et al., 2019). The odds demonstrate the probability that an outcome (corporate venturing) will occur in the presence of an explanatory variable (e.g., workforce's organizational perceptions, workforce's ambidexterity experience, workforce's intellectual capitals). An odds ratio value lower than 1 indicates a negative coefficient, and an odds ratio value greater than or equal to 1 indicates a positive coefficient (Langer, 2017). Based on these arguments, we decided to show our results using odd ratios.

To test our hypotheses, we first ran three models per exploratory variable: workforce's perceptions of organizational climate (Models 1), workforce's ambidexterity experience (Models 2), and workforce's intellectual capitals (Model 3). We then created interactions between each exploratory variable and each workforce's demographic characteristics (our workforce diversity measure) to test its moderation effects. Table 1 shows the correlation matrix and descriptive. The correlation matrix reveals that most of the explanatory variables are not highly correlated. According to descriptive statistics, the prevalence of workers that have created a corporate venture for their employers in the last three years is approximately 9% (Appendix 1). On average, of the total sample, the workforce demographics are

represented by women workers (44%), migrant workers (5%), elderly workers (22%), and low-income workers (22%). Workers also have positive perceptions about a favorable climate towards corporate entrepreneurship (three on a five-point Likert scale).

Insert Table 1 here

FINDINGS AND DISCUSSION

Workforce's demographic characteristics

All models show a significant effect on corporate venturing (see Model 1a, Model 2a, and Model 3a). However, migrant workers represented the unique demographic characteristic that positively influences innovative and entrepreneurial activities. Therefore, nationality diversity increases the probability that workers be engaged in corporate entrepreneurship. A plausible explanation is that migrants knew information about home/host markets that may prevent potential entry problems or be sources of innovative opportunities. Previous studies found that diversified workers' nationalities strengthen a team's ability to scan and interpret the available international information associated with corporate venturing and innovation (Peroni et al., 2016; Boone et al., 2019). Concerning the direct effect of gender and age, we observe that a worker's probability of creating corporate ventures decreases when they are women and elderly workers. An explanation could be that women/elderly workers are segregated into less rewarded job tasks than men/youngest workers that take advantage of power/negotiation skills into more challenging working conditions (Petrie and Roman, 2004). However, given the inconclusive nature of workforce diversity literature, it is relevant to explore the moderation effect of the workforce's demographic background for a better understanding of the workforce diversity in corporate venturing.

Workforce's organizational perceptions and corporate venturing

Table 2 shows the increasing or decreasing probability of corporate venturing associated with the workers' perception of organizational supports (Model 1).

Insert Table 2 here

Regarding the workforce's perceptions, Model 1a shows that a good workforce's perceptions about workplace autonomy (1.041; $p < 0.100$) and the meaningful job (1.047; $p < 0.100$) increase the workforce's engagement in corporate venturing. Model 1a did not show enough insights regarding the influence of rewards perception on corporate venturing. Results suggest that non-monetary returns expressed in terms of autonomy and consistency with values highly influence the workforce' engagement in corporate venturing (Petrie and Roman, 2004; Guerrero et al., 2019), supporting H1a.

Concerning the moderation effect, Model 1b shows that workforce diversity reinforces the positive effect of *job autonomy* on corporate venturing through generational cohorts (1.031; $p < 0.100$) and personal income ranges (1.092; $p < 0.100$). Our results show that motivated workers (elderly and low-income) by non-economy incentives (e.g., flexibility to do their work) are likely to participate in creating innovative initiatives with a risk assumed by their employers (Patel et al., 2013; Lee et al., 2017; Guerrero et al., 2019). A few studies found that race/gender segregation was not significantly associated with workplace autonomy (Petrie and Roman, 2004). A plausible explanation is that the lack of autonomy in one's workplace is a means of inequality. Model 1c shows that workforce diversity reinforces the positive effect of a *meaningful job* on corporate venturing when workers are women (1.061;

$p < 0.100$) and migrant (1.067; $p < 0.100$). Given the workforce's nature, women/migrants are highly motivated by generating significant contributions to the community (Fairlie et al., 2011), consistent with personal values and organizational purposes (Monsen et al., 2010). In this vein, women/migrants will be interested in participating in innovative and entrepreneurial processes aligned with their values, motivations, and expectations (Scroggins, 2008). Model 1d shows that the workforce's *income diversity* reinforces rewards' positive effect on corporate venturing (1.132; $p < 0.100$). Low-income workers' primary motivation is increasing their salary or rewards conditions (Gibson et al., 2009). The workforce's income diversity shows that workers' engagement in corporate venturing activities is motivated by the returns or rewards (Monsen et al., 2010). Our results show that diversity in the labor force positively moderates the perception of organizational supports on corporate venturing (supporting H1b).

Workforce's ambidexterity experiences and corporate venturing

Table 3 shows the increasing or decreasing probability of corporate venturing associated with the workforce's ambidexterity experiences (Model 2).

Insert Table 3 here

Regarding the workforce's ambidexterity experience, Model 2a show that the prior workforce's experiences in exploration (1.054; $p < 0.100$), exploitation (1.082; $p < 0.010$), and ambidexterity (1.402; $p < 0.100$) increase the workforce's engagement in corporate venturing. Innovation/entrepreneurial projects require teams with abilities to identify potential opportunities (exploration) and abilities to transform these potential opportunities

into innovations, new business models, or new ventures (exploitation). Previous studies recognized the relevant contribution of a workforce with a previous leading role experience in the idea development and a previous leading role experience in the idea implementation (Bosma et al., 2011; Guerrero et al., 2019). Consequently, a workforce with ambidexterity abilities (simultaneous exploration and exploitation abilities) are more likely to participate in corporate entrepreneurship strategies than a workforce without ambidexterity abilities (Zacher et al., 2016; Yeganegi et al., 2019). These results support H2a.

Concerning the moderation effect, Model 2b shows that workforce diversity reinforces the positive effect of *previous experience in exploration activities* on corporate venturing through gender (1.008; $p < 0.100$) and nationality (1.047; $p < 0.010$). Literature recognized that teams integrated by gender equality quote (Ahl, 2006) and immigrant quotes (Aliaga-Isla and Rialp, 2013) are more likely to identify innovations than unbalanced teams. The explanation is that non-native workers are a source of information from their home/host markets that facilitate the generation innovations and reduce entry barriers (Boone et al., 2019). However, we did not find insights about workforce demographics' moderation effect on the relationship between exploitation/ambidexterity and corporate ventures. A plausible explanation is that exploitation roles are limited for top or middle managers teams with direct access to networks, resources, and organizational support. As a result, a reduced number of employees will recognize an ambidexterity experience. It also explains why it is important to analyze the distance to power, workforce diversity, and inequality (DiTomaso et al., 2007). Our results are partially supporting H2b.

Workforce's intellectual capitals and corporate venturing

Table 4 shows the increasing or decreasing probability of corporate venturing associated with the workforce's intellectual capital (Model 3).

Insert Table 4 here

Regarding the workforce's intellectual capital, Model 3a show that human capital (1.296; $p < 0.001$), social capital (2.651; $p < 0.001$), investor capital (1.604; $p < 0.001$), entrepreneurial capital (1.481; $p < 0.001$), and opportunity perceptions (2.222; $p < 0.001$) increase employees' engagement in corporate venturing (supporting H3a). Prior studies have revealed that employees' intellectual capitals are antecedents of corporate entrepreneurship (Ireland et al., 2009; Parker, 2011; Kostopoulos et al., 2015; Turner et al., 2015; Guerrero et al., 2019). However, extant studies have tested separately intellectual capitals' role in entrepreneurial processes without adopting a workforce diversity perspective.

Concerning the moderation effect, Model 3b shows that workforce diversity reinforces the positive effect of *human capital* on corporate venturing through generational cohorts (1.257; $p < 0.100$). Elderly workers' human capital has accumulated knowledge, particular abilities, and unique experiences with/across organizations (Becker, 2002; Guerrero et al., 2019), representing a core competence for their current entrepreneurial and innovative employer. Although skilled women/migrants' potential role, this study did not find conclusive results about the moderation effect of these workforce groups. Model 3c shows that workforce diversity reinforces the positive effect of *social capital* on corporate venturing through gender (1.274; $p < 0.010$), immigrant status (1.149; $p < 0.100$), and generational cohorts

(1.241; $p < 0.010$). This model provides insights into how networks from a diversified workforce benefit the creation of ventures under the parent organization's umbrella (Heavey et al., 2015). Intuitively, the balanced team configuration will be a good strategy for organizations with an innovative and entrepreneurial orientation. Model 3d shows that workforce diversity reinforces the positive effect of *investor capital* on corporate venturing through elderly workers (1.593; $p < 0.010$) and migrant workers (1.538; $p < 0.100$). Monetary resources and prior experiences in specific markets influence conditioned the configuration of *investor capital*. It explains why having an investor capital is influenced by workers' age older or migratory status. Indeed, women experience small investor experiences with friends and family (Bosma, 2013). Our findings are supporting H3b.

CONCLUSIONS

Main conclusions

The purpose of this study was to examine how workforce demographics (age, gender, income, and nationality) moderate corporate venturing drivers: the workforce's organizational perceptions (H1a), the workforce's ambidexterity experience (H2a), and the workforce's intellectual capital (H3a). This paper contributes to ongoing academic debates. The *first contribution* relates to the effects of workforce diversity (not only managers) on unexplored organizational outcomes (not only performance) across countries (Yadav and Lenka, 2020, p.12). Our results proposed/tested a conceptual framework about a diversified workforce's role in corporate entrepreneurship using a sample of 17217 employees across 20 countries. We provide insights into the workforce's contribution of women, multiple generational cohorts, and immigrants to achieve new organizational outcomes through their motivations, abilities, capabilities, and capitals. Our insights open a new window to provide

a better theoretical/empirical understanding of the diversified workforce's contributions to their workplaces through multidisciplinary approaches (i.e., management, entrepreneurship, innovation, sociology, economics). The *second contribution* relates to the moderation effects of the workforce's demographic diversity (not limited to the top or middle managers) into the individual-drivers of corporate venturing (Junni et al., 2015; Guerrero et al., 2019; Mom et al., 2019; Yeganegi et al., 2019). Our results provided insights into the workforce's engagement in corporate venturing by identifying opportunities (using their exploration abilities) and taking advantage of intellectual capital (using their human capital and social capital), as well as how these drivers are influenced by the demographic background of workers (especially the diversity in terms of gender, age, nationality, and income). Our insights open a new window to provide robust workforce diversity measurements to understand a diversified workforce's critical role in corporate entrepreneurship under uncertain environmental conditions.

Limitations and future research

We acknowledge several limitations and future research opportunities. First, the APS GEM survey provided traditional and unique measures concerning entrepreneurial employee activity, workplace environments, innovation, and migration. Therefore, our measures represented the workers' perceptions without enough details about parent organizations (workplace), the corporate entrepreneurship strategy (process), and the corporate venture organization (outcome). Future research opens an opportunity window for capturing organizational details of the workforce diversity into corporate entrepreneurship processes, the strategic view of the parent organization, and the innovation level of the new corporate venture. Second, like any secondary dataset, the selection of our proxies was supported by

previous studies. Our adopted workforce diversity measures demographics characteristics that exhibit differences between employees (Friedman and DiTomaso, 1996; Jasso, 2001; Peroni et al., 2016). Future studies should consider novel measurements that capture both workforce diversity's dimensions: the demographic and the cultural (Yadav and Lenka, 2020). Novel measurements also demand novel quantitative (longitudinal) and qualitative (cases, experiments, action research) methods to capture robust data within organizations. Third, our theory development considers the analysis of diversity management and corporate entrepreneurship literature. Future research should propose theory development by adopting multiple theoretical lenses to understand workforce diversity and corporate entrepreneurship (innovation, entrepreneurship, management, sociology, psychology).

Implications

Several implications emerge from our results. *For the entrepreneurial workforce*, the analysis highlights the workforce propensity into corporate venturing. Our results are relevant for workers with entrepreneurial intentions that could be transformed into entrepreneurial actions by creating ventures under their organizations' umbrella. In this vein, workers should value their demographic backgrounds and promote diversity within their workplaces. *For top/middle managers*, our results provide insights into the benefits of different workforce groups into corporate venturing strategies. Given the current workplace configuration and uncertain external conditions, managers should pay attention to updating human management practices by valuing employees' diversity and cultural/demographic background. It may allow the creation of diversified teams to motivate the identification and implementation of novel marketable ideas. Nowadays, it is also unfortunate that some organizations lack attention to organizational conditions to engage the workforce in

innovative and entrepreneurial tasks. *For policymakers*, the United Nations' sustainable development goals are looking for inclusion and diversity. In this vein, policymakers should support these goals by incentivizing diversity/equality within organizations through innovation and entrepreneurship policy frameworks. Directly/indirectly, these actions will generate multiple benefits at an individual level (professional/personal growth), organizational level (sustainable performance), and social level (economic and social outcomes).

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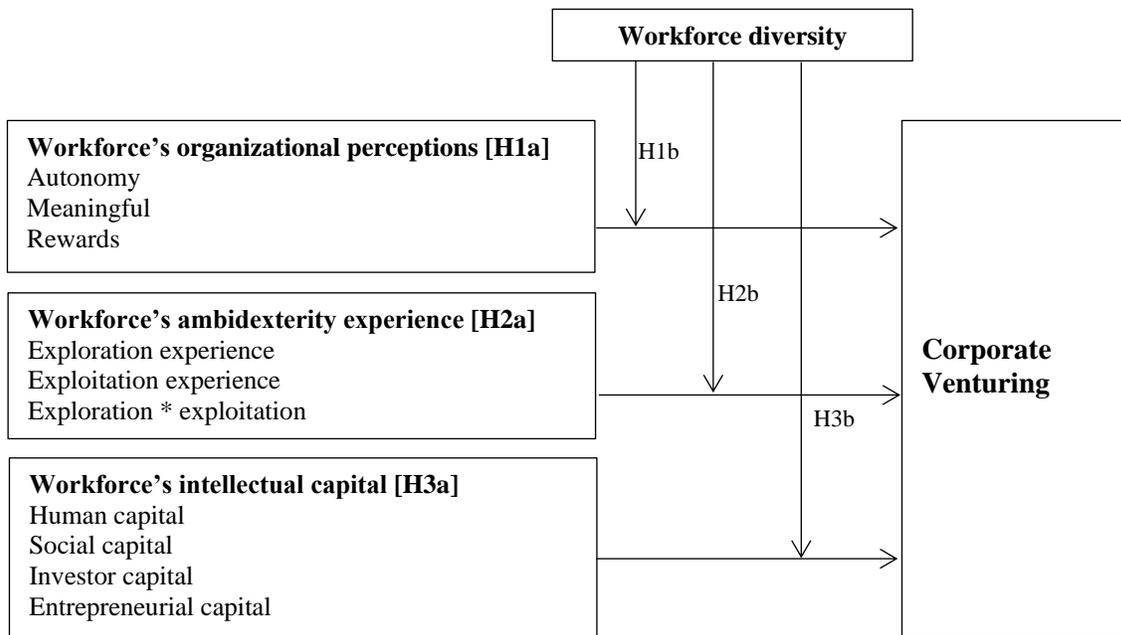


Figure 1. Proposed Conceptual Model

Source: Authors

Table 1: Correlation matrix

Variables	Mean	Std. Dev.	Min	Max	1	2	3	4	5	6	7	8	9
1 Corporate venturing	0.094	0.292	0	1	1								
2 Type_private	0.640	0.480	0	1	0.0628*	1							
3 Insize	4.119	2.114	1.609	13.816	0.0069	-0.0115*	1						
4 InUnemployment	2.242	0.699	1.131	4.190	0.0145*	-0.0391*	0.0061	1					
5 InTech	2.162	1.324	-2.303	4.190	-0.0504*	0.0778*	0.0026	-0.1146*	1				
6 InR&D	0.050	1.315	-2.303	4.190	-0.0972*	-0.0184*	0.0111*	0.3215*	0.5905*	1			
7 InIndustry	33.573	11.881	11.920	95.490	0.0392*	0.0372*	-0.0034	0.2982*	-0.1032*	0.3516*	1		
8 Women workers	0.439	0.496	0	1	-0.0621*	-0.1388*	0.0016	0.0147*	0.0631*	0.0580*	-0.0419*	1	
9 Migrant workers	0.045	0.206	0	1	0.0025	0.0108*	0.0021	0.0807*	0.0658*	0.1255*	0.0051	0.0141*	1
10 Elderly workers	0.223	0.416	0	1	-0.0586*	-0.1183*	0.0410*	0.0049	0.0404*	0.0574*	-0.0775*	0.0260*	0.0222*
11 Low-income workers	0.223	0.416	0	1	-0.0185*	0.0449*	-0.0024	-0.0146*	-0.0321*	-0.0036	0.0642*	0.0247*	0.0128*
12 Autonomy	3.250	1.416	1	5	0.0797*	0.0435*	-0.0116*	-0.0904*	-0.0679*	-0.1861*	0.1800*	-0.0279*	-0.0064
13 Meaningful	3.273	1.554	1	5	0.0788*	0.0294*	-0.0194*	-0.0811*	-0.1435*	-0.2410*	0.2474*	-0.0277*	-0.0389*
14 Rewards	3.198	1.354	1	5	0.0549*	0.0042	-0.0084	-0.0602*	-0.1010*	-0.1966*	0.2068*	-0.0138*	-0.0401*
15 Exploration experience	0.108	0.310	0	1	0.0031	-0.0071	0.0007	0.0048	0.003	0.0045	-0.0019	-0.0046	0.0077
16 Exploitation experience	0.069	0.253	0	1	-0.0055	-0.0077	0.0023	0.0031	-0.0008	-0.0004	-0.0051	-0.0003	-0.0013
17 Ambidexterity experience	0.036	0.187	0	1	0.0021	-0.0049	0.0039	0.0026	0.0002	0.0011	0.0002	-0.0025	0.0081
18 Human capital	0.307	0.461	0	1	0.0228*	-0.1816*	0.0097*	0.0841*	0.0610*	0.1566*	0.0483*	0.0771*	0.0566*
19 Social capital	0.396	0.489	0	1	0.1694*	0.0379*	-0.0011	-0.0412*	-0.0823*	-0.0962*	0.0387*	-0.0643*	-0.0318*
20 Investor capital	0.060	0.238	0	1	0.1013*	0.005	0.0019	0.0032	-0.0910*	-0.0859*	0.0212*	-0.0447*	-0.0098*
21 Entrepreneurship capital	0.028	0.166	0	1	0.0819*	0.0163*	0.0028	0.0175*	-0.0877*	-0.0830*	0.0199*	-0.0186*	-0.0097*
22 Opportunity	0.381	0.486	0	1	0.1683*	0.0356*	-0.006	-0.0205*	-0.1389*	-0.1335*	0.0213*	-0.0596*	-0.0179*
Variables	10	11	12	13	14	15	16	17	18	19	20	21	22
10 Elderly workers	1												
11 Low-income workers	0.0130*	1											
12 Autonomy	-0.0201*	0.0245*	1										
13 Meaningful	-0.0158*	0.0220*	0.5309*	1									
14 Rewards	0.0164*	-0.0103	0.4697*	0.7163*	1								
15 Exploration experience	-0.0043	0.0011	0.0002	-0.0013	0.0007	1							
16 Exploitation experience	0.0206*	0.0008	-0.0057	-0.0034	0.0044	0.3670*	1						
17 Ambidexterity experience	0.0017	-0.0012	0.0000	0.0002	0.0067	0.5580*	0.7131*	1					
18 Human capital	-0.0293*	-0.1854*	-0.0041	-0.0097	-0.0036	0.0024	0.0018	0.0014	1				
19 Social capital	-0.0963*	-0.0598*	0.0614*	0.0698*	0.0471*	-0.0009	-0.0027	0.0009	0.0583*	1			
20 Investor capital	-0.0082*	-0.0381*	0.0335*	0.0382*	0.0377*	0.0005	-0.005	-0.0021	0.0341*	0.1327*	1		
21 Entrepreneurship capital	-0.0227*	0.0137*	0.0262*	0.0257*	0.0098	0.0008	0.001	-0.0043	-0.0141*	0.0790*	0.0666*	1	
22 Opportunity	-0.0673*	-0.0221*	0.0783*	0.0885*	0.0602*	0.0026	-0.0059	-0.0004	0.0105*	0.2155*	0.0923*	0.0528*	1

Notes: Significant level at the 1%

Table 2: Logistic Regression (Model 1: Workforce's organizational perceptions)

	Model 1a			Model 1b			Model 1c			Model 1d		
	Odds Ratio	Std. Err.	P>z									
Country controls												
InUnemployment	0.592	0.163	**	0.592	0.164	**	0.587	0.164	**	0.587	0.165	**
InTech	0.715	0.129	*	0.715	0.130	**	0.714	0.131	**	0.714	0.132	**
InR&D	0.637	0.081	***	0.634	0.081	***	0.633	0.082	***	0.624	0.081	***
InIndustry	0.981	0.013		0.981	0.013		0.980	0.013		0.982	0.013	
Organizational controls												
Orgatype_private	1.602	0.100	***	1.608	0.100	***	1.613	0.101	***	1.610	0.100	***
lnSize	1.018	0.013	*	1.019	0.013	*	1.020	0.013	*	1.019	0.013	*
Workforce demographics												
Women workers	0.619	0.035	***	0.587	0.082	***	0.513	0.065	***	0.657	0.092	***
Immigrants workers	1.278	0.041	**	1.527	0.440	*	1.077	0.290	*	1.412	0.414	*
Elderly workers	0.614	0.045	***	0.770	0.131	*	0.676	0.105	*	0.662	0.118	**
Low-income workers	0.765	0.054	***	0.570	0.104	***	0.717	0.117	**	0.521	0.093	***
Workforce's organizational perceptions												
Autonomy	1.041	0.023	*	1.039	0.028	*						
Autonomy * women workers				1.016	0.040							
Autonomy * migrant workers				0.942	0.083							
Autonomy * elderly workers				1.031	0.046	*						
Autonomy * low-income workers				1.092	0.053	*						
Meaningful	1.047	0.028	*				1.017	0.028	*			
Meaningful * women workers							1.061	0.037	*			
Meaningful * migrant workers							1.067	0.085	*			
Meaningful * elderly workers							0.968	0.042				
Meaningful * low-income workers							1.021	0.046				
Rewards	0.962	0.027								0.988	0.030	
Rewards * women workers										0.982	0.040	
Rewards * migrant workers										0.972	0.093	
Rewards * elderly workers										0.976	0.051	
Rewards * low-income workers										1.132	0.058	*
N	17217			17217			17217			17217		
Countries	20			20			20			20		
Log likelihood	-5228			-5241			-5248			-5237		
Wald chi2	256.4			259.2			256.9			253.3		
Prob > chi2	***			***			***			***		
LR test vs. logit model	173.3			175.8			181.8			179.4		
Prob >= chibar2	***			***			***			***		

*Significance at the 10% level; **Significance at the 5% level; ***Significance at the 1%.

Table 3: Logistic Regression (Model 2: Workforce' ambidexterity experience)

	Model 2a			Model 2b			Model 2c			Model 2d		
	Odds Ratio	Std. Err.	P>z									
Country controls												
InUnemployment	0.590	0.163	**	0.592	0.163	**	0.592	0.163	**	0.592	0.163	**
InTech	0.713	0.129	**	0.715	0.129	**	0.714	0.129	**	0.715	0.129	*
InR&D	0.636	0.081	***	0.637	0.081	***	0.636	0.081	***	0.637	0.081	***
InIndustry	0.981	0.013		0.981	0.013		0.981	0.013		0.981	0.013	
Organizational controls												
Orgatype_private	1.602	0.100	***	1.603	0.100	***	1.602	0.100	***	1.603	0.100	***
lnSize	1.018	0.013		1.018	0.013		1.018	0.013		1.018	0.013	
Workforce demographics												
Women workers	0.590	0.163	**	0.620	0.037	***	0.611	0.036	***	0.615	0.036	***
Immigrants workers	1.713	0.129	**	1.272	0.180	*	1.263	0.174	*	1.312	0.177	**
Elderly workers	0.636	0.081	***	0.606	0.047	***	0.613	0.046	***	0.610	0.045	***
Low-income workers	0.981	0.013		0.756	0.057	***	0.782	0.057	***	0.774	0.056	***
Workforce's organizational perceptions												
Autonomy	1.041	0.023	*	1.041	0.023	*	1.041	0.023	**	1.041	0.023	**
Meaningful	1.047	0.028	*	1.047	0.028	*	1.047	0.028	*	1.046	0.028	*
Rewards	0.962	0.027		0.962	0.027		0.962	0.027		0.962	0.027	
Workforce's ambidexterity experience												
Exploration	1.054	0.108	*	1.004	0.16	*						
Exploration * women workers				1.008	0.181	*						
Exploration * migrant workers				1.047	0.431	**						
Exploration * elderly workers				1.124	0.246							
Exploration * low-income workers				1.103	0.239							
Exploitation	1.082	0.118	**				1.011	0.202	*			
Exploration * women workers							0.823	0.190				
Exploration * migrant workers							1.169	0.646				
Exploration * elderly workers							1.062	0.294				
Exploration * low-income workers							0.68	0.212				
Exploration * Exploitation	1.402	0.339	*							1.210	0.314	*
Ambidexterity * women workers										0.841	0.248	
Ambidexterity * migrant workers										0.341	0.355	
Ambidexterity * elderly workers										1.187	0.426	
Ambidexterity * low-income workers										0.712	0.278	
N	17217			17217			17217			17217		
Countries	20			20			20			20		
Log likelihood	-5225			-5227			-5225			-5226		
Wald chi2	261.3			257			260.4			258.7		
Prob > chi2	***			***			***			***		
LR test vs. logit model	173.1			173.1			173.1			173.3		
Prob >= chibar2	***			***			***			***		

*Significance at the 10% level; **Significance at the 5% level; ***Significance at the 1%.

Table 4: Logistic Regression (Model 3: Workforces' intellectual capitals)

	Model 3a			Model 3b			Model 3c			Model 3d			Model 3e					
	Odds Ratio	Std. Err.	P>z															
Country controls																		
InUnemployment	0.831	0.217		0.610	0.167	*	0.686	0.187		0.633	0.169	*	0.591	0.160	**	0.723	0.194	
InTech	0.838	0.143		0.728	0.130	*	0.766	0.136		0.749	0.131	*	0.709	0.126	**	0.779	0.137	
InR&D	0.704	0.085	***	0.621	0.078	***	0.659	0.083	***	0.646	0.080	***	0.646	0.081	***	0.693	0.086	***
InIndustry	0.995	0.013		0.982	0.013		0.987	0.013		0.984	0.013		0.980	0.013		0.988	0.013	
Organizational controls																		
Orgatype_private	1.640	0.114	***	1.710	0.109	***	1.610	0.103	***	1.624	0.102	***	1.600	0.100	***	1.557	0.104	***
lnSize	1.023	0.014	*	1.017	0.013		1.023	0.013	*	1.018	0.013		1.018	0.013		1.020	0.014	
Workforce demographics																		
Women workers	0.629	0.040	***	0.660	0.047	***	0.553	0.052	***	0.627	0.038	***	0.615	0.036	***	0.523	0.048	***
Immigrants workers	1.375	0.202	**	1.373	0.227	**	1.633	0.304	***	1.264	0.177	*	1.257	0.172	*	1.146	0.246	
Elderly workers	0.686	0.055	***	0.570	0.053	***	0.613	0.070	***	0.650	0.049	***	0.614	0.046	***	0.595	0.066	***
Low-income workers	0.890	0.070		0.820	0.066	**	0.939	0.102		0.786	0.058	***	0.763	0.056	***	0.827	0.090	*
Workforce's organizational perceptions																		
Autonomy	1.040	0.026	*	1.043	0.023	**	1.038	0.024	*	1.039	0.023	*	1.040	0.023	*	1.042	0.025	*
Meaningful	1.023	0.031		1.043	0.028		1.037	0.029		1.049	0.029	*	1.048	0.028	*	1.033	0.030	
Rewards	0.964	0.030		0.960	0.027		0.967	0.028		0.961	0.027	*	0.964	0.027	*	0.964	0.029	
Workforce's ambidexterity experience																		
Exploration	0.995	0.113	*	1.032	0.107	*	1.011	0.107	*	1.051	0.109	*	1.051	0.108	*	1.061	0.116	*
Exploitation	0.62	0.121	**	0.683	0.118	**	0.676	0.119	**	0.677	0.118	**	0.679	0.118	**	0.632	0.122	**
Exploration * Exploitation	1.612	0.438	*	1.443	0.35	*	1.525	0.375	*	1.456	0.354	*	1.372	0.334	*	1.497	0.396	*
Workforce's intellectual capitals																		
Human capital	1.296	0.089	***	1.634	0.135	***												
Human capital * women workers				0.767	0.091	**												
Human capital * migrant workers				0.758	0.207													
Human capital * elderly workers				1.257	0.187	*												
Human capital * low-income workers				1.014	0.183													
Social capital	2.651	0.167	***				3.052	0.244	***									
Social capital * women workers							1.274	0.151	**									
Social capital * migrant workers							1.149	0.17	*									
Social capital * elderly workers							1.241	0.184	*									
Social capital * low-income workers							0.796	0.114	*									
Investor capital	1.604	0.159	***							2.468	0.294	***						
Investor capital * women workers										1.076	0.212							
Investor capital * migrant workers										1.133	0.564							
Investor capital * elderly workers										1.593	0.158	**						
Investor capital * low-income workers										1.001	0.272							
Entrepreneurial capital	1.481	0.201	***										1.643	0.29	***			
Entrepreneurial capital * women workers													1.118	0.294				
Entrepreneurial capital * migrant workers													1.538	1.007	*			
Entrepreneurial capital * elderly workers													1.186	0.416				
Entrepreneurial capital * low-income workers													0.998	0.303				
Opportunity perception	2.222	0.14	***													2.401	0.198	***
Opportunity * women workers																1.374	0.168	***
Opportunity * migrant workers																1.417	0.405	*
Opportunity * elderly workers																1.065	0.166	
Opportunity * low-income workers																0.926	0.138	
N	17217			17217			17217			17217			17217			17217		
Countries	20			20			20			20			20			20		
Log likelihood	-4229			-5179			-4947			-5165			-5199			-4473		
Wald chi2	788.5			316.5			648.9			354.3			282.2			494.8		
Prob > chi2	***			***			***			***			***			***		
LR test vs. logit model: chibar2(01)	119.4			165.5			163.4			155.7			164			141		
Prob >= chibar2	***			***			***			***			***			***		

*Significance at the 10% level; **Significance at the 5% level; ***Significance at the 1%.

Appendix 1: Prevalence rates of labor force demographics per countries

Country	Corporate venturing	Workforce demographics			
		Women workers	Migrant workers	Elderly workers	Low-income workers
South Africa	6.8%	41.4%	3.6%	19.3%	17.3%
Greece	0.0%	47.2%	5.3%	18.5%	0.0%
Belgium	3.6%	50.1%	4.2%	32.9%	10.7%
Hungary	7.3%	48.3%	2.7%	25.7%	24.8%
Romania	11.0%	44.4%	0.5%	21.3%	17.0%
United Kingdom	5.5%	54.1%	5.5%	34.1%	14.6%
Denmark	5.6%	49.0%	17.7%	24.6%	19.9%
Poland	6.2%	48.9%	0.2%	26.6%	25.8%
Peru	20.1%	32.1%	0.1%	14.3%	25.3%
Malaysia	2.9%	32.4%	3.7%	12.0%	24.4%
Philippines	12.0%	35.0%	0.1%	19.0%	34.6%
South Korea	5.0%	39.1%	0.2%	23.5%	27.8%
China	5.9%	48.0%	0.0%	13.5%	24.3%
Turkey	0.0%	36.6%	1.5%	11.0%	10.4%
Nigeria	32.2%	37.9%	0.4%	15.6%	16.1%
Namibia	23.2%	45.2%	3.6%	6.3%	26.1%
Finland	4.6%	51.3%	2.9%	32.6%	14.1%
Lithuania	7.6%	53.3%	2.8%	28.6%	22.3%
Estonia	9.5%	53.2%	9.2%	36.6%	25.3%
Croatia	8.2%	50.5%	11.4%	25.0%	10.2%