Levels and dimensions of diversity in small businesses: contributions for performance

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Abstract

Purpose – The purpose of this study is to propose and test a model on the impact of diversity over performance using a Portuguese national wide comprehensively matched employee–employer dataset of small businesses.

Design/methodology/approach – The study uses structural equation modeling to analyze the relationships between variables. The study addresses the impact of top managers and employees' diversity on firm performance considering two dimensions of diversity: knowledge diversity and social diversity.

Findings – The study provides a clear understanding of how workforce diversity affects performance differently at the two hierarchical levels. Both employees' diversities have stronger relations to performance than the diversity of top managers. Results point out to idiosyncratic aspects of services firms' dynamics that should be further explored.

Research limitations/implications – The study presents some limitations, since it uses data from a single country and the dataset provides limited variables.

Practical implications – The study offers evidence on the effects of diversity in small businesses alerting managers to acknowledge such influence when recruiting, selecting and training. With regard to services firms, managers should pay close attention to negative impacts of diversity over performance.

Originality/value – Never before to the authors' knowledge the managers' level diversity and employees' level diversity (considering two dimensions each) effect on performance have been addressed in a single national wide study.

Keywords Performance, Diversity, Structural equation modeling

Paper type Research paper

1. Introduction

Firms need a diverse workforce due to globalization (Kochan *et al.*, 2003; Parrotta *et al.*, 2014). Still, little is known about how different dimensions of diversity at different organizational levels affect performance (Kochan *et al.*, 2003; Leonard *et al.*, 2004; Liang *et al.*, 2007). Workforce diversity may seem beneficial for big companies, but it may also favor small businesses, so additional research should examine the nature of the relationship between workforce diversity and firm performance in small businesses (Gudmundson and Hartenian, 2000). Since the effect of diversity over performance is influenced by firm size (Choi *et al.*, 2017) we address such gap and investigate diversity in small businesses. There are contradictory conclusions (e.g. Lu *et al.*, 2015) on the effect of diversity on organizations'

performance (Roberson *et al.*, 2017) which indicates the need to develop more studies to increase the understanding of the relationship (Shehata *et al.*, 2017).

The topic of diversity influencing firm performance has become increasingly popular. There is growing interest in exploring the extent to which diversity impacts on firm performance, however little is known about which is the influence of different levels of diversity on firm performance. This study addresses diversity by considering two levels of diversity: top managers and employees. Thus, we explore different levels of diversity following Shore *et al.*'s (2009) appeal for a multiple organizational levels approach.

Nevertheless, most previous studies neglect to address the role of different types of diversity at different organizational levels. Studies considering single-attribute heterogeneity present less explanatory power with regard to performance (Lau and Murnighan, 2005; Shore *et al.*, 2009), so we use multi-attribute dimensions of diversity. Since studies that include multiple dimensions of diversity allow for theoretical insights about which ones relate to outcomes (Shore *et al.*, 2009), we consider the effects of two dimensions of diversity – Knowledge Diversity and Social Diversity – in each level, studying their impact on organizational performance. Literature examining the influence of Knowledge Diversity and Social Diversity over performance is understudied (Marino *et al.*, 2016), hence our study addresses this deficit.

Diversity research typically addresses large corporations and multinational companies (Sequeira *et al.*, 2018). Few studies have focused on small businesses because due to their size such firms are less likely to hold a diverse workforce (Selvadurai and Dasgupta, 2016). There are numerous studies on antecedents of performance in small and medium enterprises (SME) (Kafetzopoulos, 2020); however, none has previously addressed the impact of two dimensions of diversity at two organizational levels. We propose a model that shows the relations between Knowledge Diversity and Social Diversity at two organizational levels and performance. Specifically, when addressing diversity at managers' level, we contribute to the upper echelons theory (UET). This study addresses diversity in Portugal accounting for the country context (e.g. small average firm size; not reported ethnic diversity due to constitutional law). Portuguese cultural traces are similar to ascription-oriented cultures where social status derives from personal attributes such as age, experience, social connections or gender (Farndale *et al.*, 2015).

The paper is structured as follows: the initial section holds a literature review that supports and justifies the study's hypotheses. The subsequent section presents the data, the research design and method used. Next is the analysis of the results. The conclusion provides a discussion and the implications on the findings, the study's limitations and suggestions for future research.

2. Firm diversity and performance

Several studies have discussed the relationship between individual diversity of the workforce members and organizational performance (Yadav and Lenka, 2020). Diversity refers to any attribute that might lead individuals to perceive that another person is different (Chaurasia and Shukla, 2012, Jehn *et al.*, 1999; Mannix and Neale, 2005; McMahon, 2010). Diversity is a complex and multidimensional concept (Alcázar *et al.*, 2013), that has mainly focused on gender, age, race, tenure, educational background and functional background (Armstrong *et al.*, 2010; Choi *et al.*, 2014; Jackson *et al.*, 2003). Diversity is economically beneficial at both top managers and employees' levels (Von Bergen *et al.*, 2005). Diversity concerns differences that affect a firm's performance (Chaurasia and Shukla, 2012) and that generate costs as well as benefits (Ellis and Keys, 2015; Okoro and Washington, 2012), advantages as well as disadvantages (Aghazadeh, 2004). Therefore, the studies on the relation between diversity and firm performance have mixed findings (Kochan *et al.*, 2003; Lambert, 2016; Leonard *et al.*, 2004; Liang *et al.*, 2007; Lu *et al.*, 2015; Joshi and Roh, 2009; Bell *et al.*, 2011; Manoharan and Singal, 2017; Dang *et al.*, 2018; Pedrini, 2018; Schrand *et al.*, 2018). Consequently, perceptions of diversity are positively related to perceived performance benefits of organizations (Kundu and Mor, 2017) and there is evidence on firms with workplace diversity policies being likely to

perform better than those without such policies (Hossain *et al.*, 2020). Oppositely, there are reports of either insignificant or negative relationships between diversity and firm performance (Adams and Ferreira 2009; Bell *et al.*, 2011; Van Dijk *et al.*, 2012; Shehataa *et al.*, 2017; Čelebić *et al.*, 2020) and adverse impact on group cohesion, conflicts and turnover (Roberson, 2019). Nonetheless, literature relates diversity to superior performance (Joshi *et al.*, 2006; Aghazadeh, 2004; Sparber, 2009; Okoro and Washington, 2012; Parrotta *et al.*, 2014).

There is a reported effect of top management's diversity on performance (Awino, 2013; Boone and Hendriks, 2009; Cannella *et al.*, 2008; Certo *et al.*, 2006; Díaz-Fernández *et al.*, 2014; Qian *et al.*, 2013; Wu *et al.*, 2011). Small businesses' top management diversity has been associated to performance (Ruiz-Jiménez *et al.*, 2016; Salloum *et al.*, 2019). Fewer studies address the effect of the employees' diversity on performance (Leonard *et al.*, 2004; Østergaarda *et al.*, 2011). While the literature reports a relationship between organizational diversity and firm performance, it fails to describe different contributions of organizational diversity to firm performance. This limited understanding of the diversity effects over performance may explain why prior research has produced mixed results (Lambert, 2016).

Considering that firms will achieve different performances due to being heterogeneous in resources (Barney, 1991, 2001; Ahuja and Katila, 2004), including human resources (Mahoney, 1995) and management capabilities (Barney, 1991). Having a diverse workforce allows firms to blend the characteristics of different individuals in distinctive ways and thus have a unique combination of human resources (Wong and Karia, 2010) that creates capabilities to take advantage of specific market opportunities or eliminate competitive threats (Barney, 1991, 2001; Hitt *et al.*, 2001; Sirmon *et al.*, 2007). Following Buller and McEvoy (2012) we address the relation between the firm's diversity and its performance. There is evidence of positive relationship between workforce diversity and overall performance (Pedrini, 2018; Hossain *et al.*, 2020; Farmanesh *et al.*, 2020). The workforce's skills, knowledge and behaviors are the sources of organizational resources (Colbert, 2004) associated to the sustained competitive advantage (Barney, 1991, 2001; Colbert, 2004).

Given all the presented arguments, we anticipate that firm diversity impacts positively on SME performance. Although SME have particular characteristics and limited resources, like the lack of resources and capabilities, and the limited ability to compete due to internal and external issues (Kafetzopoulos, 2020), however, differences among individuals are expected to exist. Thus, such rationale suggests that the existence of individual differences will be beneficial to SME performance.

2.1 Top managers' diversity and performance
To address the effect of top managers' diversity on performance, we build on the UET that argues that top managers' characteristics impact on the firm's performance. The UET emphasizes the relevancy of the top managers' teams' composition regarding strategic decision-making (Boone and Hendriks, 2009) and organizational outcomes (Hambrick, 2007; Qian *et al.*, 2013). Executives' functional backgrounds, formal education, work experiences and positions influence the ways in which they scan and process internal and external information to support decision-making (Zweigenhaft and Domhoff, 2006; Graham *et al.*, 2017). Top managers' characteristics such as experiences, values and personalities (Hambrick, 2007) influence their decisions and therefore organizational options (Nishii *et al.*, 2007). Mixed top management teams gather broader cognitive resources (Helfat and Peteraf, 2015), wider vision and more extensive external contacts than homogeneous teams (Wu *et al.*, 2011). Diversity in top management improves the overall performance (Yadav and Lenka, 2020).

Moreover, heterogeneous top management teams can leverage knowledge and develop strategic alternatives to address dynamic environments (Boone and Hendriks, 2009; Rodan and Galunic, 2004). Top managers' diversity can improve the ability to identify new strategic opportunities that lead to change (Wu *et al.*, 2011) that in turn contributes performance (Boone

and Hendricks, 2009; Kim and Rasheed, 2014). Top management teams' characteristics affect organizational performance directly (Díaz-Fernández *et al.*, 2014; Hambrick 2007). The relevancy of heterogeneous top management teams is often reported considering gender diversity (Ali *et al.*, 2014; Reguera-Alvarado *et al.*, 2017; Dang *et al.*, 2018; Schrand *et al.*, 2018), functional background diversity (Boone and Hendriks, 2009), functional and tenure diversity (Certo *et al.*, 2006) and age diversity (Li-Qun *et al.*, 2005). Therefore, there is a theoretical support suggesting a positive influence of top managers' diversity over performance.

2.2 Employees' diversity and performance
Employees can differ on demographic variables like age, gender and race (Jehn *et al.*, 1999) and on less visible characteristics as well, such as level of education, tenure with the company, functional background, experience and knowledge (Ilmakunnas and Ilmakunnas, 2011; Jehn and Bezrukova, 2004; Liang *et al.*, 2007; Sparber, 2009). There are mixed-effects of workforce diversity over performance, yet the advantages of diversity prevail over the disadvantages (Lee, 2018). Diversity can be beneficial to firms by providing a broad range of ideas, knowledge and skills that improve the organizational capabilities of decision-making and problem-solving.

The relevancy of having a heterogeneous group of employees is often reported considering several characteristics providing evidence that employees' diversity is positively associated to firm performance, e.g. gender diversity (Herring, 2009; Pedrini, 2018), sexual orientation and gender identity diversity (Hossain *et al.*, 2020), racial/ethnic diversity (Mohammadi *et al.*, 2017) and age diversity (Li *et al.*, 2011). Such literature offers an optimistic view of diversity in which it provides a suitable basis for performance improvement. On the other hand, there is a pessimistic view of diversity highlighting the problems with distinctiveness or differences among employees. Diversity most likely leads to negative social processes resulting in poor performance (Mannix and Neale, 2005). There seems to be a relation between these two dimensions of diversity: over time, group members neutralize the negative and pessimistic effects and reinforce the positive and optimistic effects, as the result of group members developing and maintaining interactions among themselves (Harrison *et al.*, 1998). Consequently, there is a theoretical support suggesting a positive influence of employees' diversity over performance.

2.3 Dimensions of diversity and performance
The literature has explored multiple dimensions of diversity (Mannix and Neale, 2005; Shore *et al.*, 2009). However, most studies focus on a single effect, while the different dimensions' influence is not likely to be captured (Van Knippenberg and Schippers, 2007). Thus, this study adopts two dimensions: social diversity (SD) and knowledge diversity (KD).

Knowledge diversity and performance. KD reflects individuals' differences in personal education, experience and professional practice. Individuals in diverse units collaborate with other individuals carrying different knowledge, a variety of different perspectives, sources of information and expertise. Marino *et al.* (2016) find that KD seems to be beneficial to productivity. The results of KD are improved outcomes, overcoming possible group coordination and integration problems (Phillips *et al.*, 2004; Mannix and Neale, 2005). Such differences among individuals result in the dissemination of knowledge, ideas and skills, enhancing creativity and problem-solving capabilities, and finally improving organizational performance (Yadav and Lenka, 2020).

KD regards diversity in tenure, position, education and degree (Jehn and Bezrukova, 2004; Jehn *et al.*, 1999), similar to diversity job oriented attributes at deep-level diversity (Yadav and Lenka, 2020). Tenure is a proxy for the total firm-specific tacit knowledge from the experience of individuals (Hitt *et al.*, 2001). Tenure influences the quality of the decisions made by diverse top management teams (Awino, 2013), having a positive effects on strategic change and sales

growth (Wu *et al.*, 2011). The position in the firm reflects the level of experience of individuals; it contributes to structural diversity (Cummings, 2004). Firm's performance benefits from top management's functional diversity, which is closely linked to position diversity (Boone and Hendriks, 2009; Cannella *et al.*, 2008; Certo *et al.*, 2006). Education reflects the individual's academic level and it is a proxy for articulated knowledge (Hitt *et al.*, 2001). Educational diversity encourages strategic change (Wu *et al.*, 2011) and has positive effects on sales growth (Certo *et al.*, 2006), productivity (Garnero *et al.*, 2014; Marino *et al.*, 2016) and innovation (Østergaarda *et al.*, 2011). Diversity in educational degrees is similar to functional-background diversity, considering it increases the ecological validity of the study (Boone and Hendriks, 2009). Following an increasing body of literature (e.g. Østergaarda *et al.*, 2011), the study addresses the effect of KD on sales performance (SP) and proposes:

H1. Top managers' knowledge diversity has a positive relation with sales performance.

H2. Employees' knowledge diversity has a positive relation with sales performance.

Social diversity and performance. Social diversity reflects individuals' differences in demographic characteristics, such as ethnicity, nationality, gender, age and income (Liang *et al.*, 2007). Social diversity involves characteristics similar to cultural diversity that influences organizational performance (Ayega and Muathe, 2018). Diversity regards the explicit differences in social category membership, such as gender, age and ethnic background or nationality of members (Jehn *et al.*, 1999). There are differences among social and personal identity of individuals, thus the purpose of diversity management is to enhance the performance of a heterogeneous workforce (Yadav and Lenka, 2020).

SD regards the social differences individuals present in gender, age and income, similar to diversity relations oriented attributes at surface-level diversity (Yadav and Lenka, 2020). The gender's influence on performance is part of the SD in the workforce (Liang *et al.*, 2007). Workforces with proportionately more women have better performance levels (Joshi *et al.*, 2006) and overall firm-performance outcomes are contingent upon the level of top managers' gender diversity (Oba and Fodio, 2013; Ali *et al.*, 2014; Reguera-Alvarado *et al.*, 2017; Salloum *et al.*, 2019). The age dispersion of workers matters for average productivity, yet, authors are not unanimous on the diversity effect of age on firms' productivity; age diversity may be harmful to firms' productivity (Garnero *et al.*, 2014) or it may be positive for productivity (Guest and Stewart, 2011). Thus, De Meulenaere *et al.* (2016) reveal contradicting effects of workforce age diversity. The income level is part of the SD in the workforce (Joshi *et al.*, 2006; Liang *et al.*, 2007). The income level is related to firms' productivity because higher incomes tend to raise the opportunity cost of having children that lowers fertility and raises the share of middle-aged workers and hence productivity (Guest and Stewart, 2011). Thus

H3. Top managers' social diversity has a positive relation with sales performance.

H4. Employees' social diversity has a positive relation with sales performance.

3. Method
Similarly to Mohammadi *et al.* (2017), we assess the impact of diversity over performance, yet using new dimensions of diversity at different organizational levels contributes to more consistent empirical findings (Ruiz-Jimenez *et al.*, 2016). Studies exploring the effects of managers and employees' diversity on firm performance use various performance outcomes (Roberson *et al.*, 2017) such as sales-related variables (Weinzimmer *et al.*, 1998). Literature supports that diversity at managers' level impact positively on performance, as well as diversity at employees' level impact positively on performance (e.g. Roberson *et al.* (2017)), yet, never before to our knowledge the two levels of diversity have been addressed in a single national wide study. The study uses structural equation modeling (SEM) (Kline, 1998) to test

the stated hypotheses, analyzing the relationship of top managers' knowledge diversity (TMKD), top managers' social diversity (TMSD), Employees' knowledge diversity (EKD) and employees' social diversity with SP.

3.1 Data collection and measures
This study uses a nationwide dataset of small businesses. The data come from a 2014 and 2015 Portuguese governmental matched employee–employer dataset built using a mandatory survey that firms with at least one employee must submit annually. Even though the study explores an extensive dataset, it is limited to the organizational and individual variables that firms are required to report. Since individuals and firms are cross-referenced by a distinctive code, it was possible to match firms with their members. However, not all firms disclose information about every individual, thus data contain some missing values. In order to guarantee an acceptable level of information on each firm, the study considers the ones on which the survey reports complete information on at least 30% of the employees and 30% of the managers, which includes dataset regarding 62,353 firms. We admit there is a bias due to national size of Portuguese firms, which is very small. This is not specific of Portuguese firms. According to the National Bureau of Statistics, the majority (99.9%) of Portuguese firms are small business (INE, 2017) they are SME having a staff headcount of 250 individuals or less (OECD, 2015, p. 17). The majority of organizations in organisation for economic co-operation and development (OECD) are also SME (99% of the companies) (OECD, 2015).

In order to avoid endogeneity, the study controls for a very plausible explanation why most diverse firms tend to over perform, which is that firms that over perform tend to be diverse (and not the other way around). Thus, using time-lag dependent and independent variables helps to avoid the reverse causality issues providing a solution to endogenous problems existing between firms' diversity and performance (Carter *et al.*, 2010; Hsu *et al.*, 2019). In order to avoid reverse causation, we used lagged explanatory variables by one year in the model. Data on SP regard n while diversity variables regards to $n-1$. Using this procedure guarantees that diversity effects are measured the following year and thus reflect such influence. We adopted the lagged observations of diversity and its consequence (one year apart: year $n-1$ and year n) following the literature (Triana *et al.*, 2019; Tuan *et al.*, 2019) to avoid unnecessary endogeneity resulting from reverse causality. Using a longitudinal approach by introducing a one year time lag in our data between our measures of diversity and firm performance (Chadwick and Dawson, 2018; Nielsen *et al.*, 2016) reduces the concerns of endogeneity (Abdullah *et al.*, 2016; Dezso and Ross, 2012). Consequently, data used in the study only regard firms presenting data in both years. The study is protected from common method bias, since the data are not self-reported; rather the data are objective information about sales and the workforce's demographics (Podsakoff *et al.*, 2003). Table 1 offers dataset's industry breakdown. Overall average firm size is 18.65 waged individuals; typically industrial firms in the data set are larger (26.49) than services firms (16.60).

Considering education, most individuals (79.76%) have no degree. Employees account for 92.81% of these individuals, while top managers without a degree are only 7.19% of the total observations. Such evidence seems to be consistent with the characteristics of the Portuguese population in which only 21.6% hold a degree (INE, 2017).

3.2 Variables
Because KD and SD are categorical variables, the study adopts an entropy-based index to derive the aggregate measure (França and Lourenç; Liang *et al.*, 2007). The index shows the distribution of individuals among the possible categories of a variable. The literature considers the entropy index as a measure of diversity (Choi and Rainey, 2010; Choi *et al.*, 2017). The index is as follows:

One-digit SIC code	Industry	Number of firms	%	Average firm size	Diversity and performance in small businesses
0	Extracting industries, agriculture and fisheries	1,340	2.15	15.66	
1, 2 and 3	Manufacturing and power industries	11,761	18.86	27.72	
4	Construction works and wholesale or retail trade	26,417	42.37	14.42	
5	Transportation, lodging and restaurants	6,391	10.25	15.11	
6	Financial, insurance and real estate firms	3,916	6.28	13.41	
7	Consulting, scientific and administrative services	2,779	4.46	18.89	
8	Public administration, defense, education and health firms	7,165	11.49	26.08	
9	Artistic and sporting activities	2,584	4.14	18.08	
Total		62,353	100	18.65	

Note(s): SIC = Standard Industrial Classification; Average firm size = average number of waged persons; average dimension of industrial firms = 26.49; average size of services firms = 16.60 (the difference is statistically significant at 1% level)

$$H = -\sum_{i}^{n} p_i \ln(p_i) \tag{1}$$

where n is the total number of categories of each variable and P_i is the fraction of individuals falling into category i. A log-linear specification establishes the relations between the logarithms of the entropy index, using logarithms plus a minimum value: $\ln(H + 0.01)$. The constant 0.01 is added to keep zero entropy values in the analysis, which is the minimum non-zero value reached by entropy indexes. Regarding SP, the study uses the logarithm of the sales per waged worker plus a constant: $\ln(S + 0.1)$. This specification allows for the convergence of the estimation that is not possible with a linear specification. Besides, the coefficients of a log-linear equation could be interpreted as an elasticity.

There is a cut point to distinguish diversity at two levels, top managers and employees. Top managers are organizational members at higher levels in the structure: levels 1 and 2 (17.5% of the total workforce – top managers). Employees are organizational members from level 8 to level 3 (82.5% of the total workforce – employees). There are micro, small and medium firms in the estimations; all firms with less than 250 waged individuals (OECD, 2015, p. 17). Firms with only one manager present the minimum level of managers' diversity in the sample, which may be considered "zero managers' diversity" reference level. The same applies for firms with only one employee. While these firms integrate the range of diversity of this study, single manager or single employees firms may present other idiosyncrasies that impact SP (controlled using dummy variables).

KD refers to the aggregate measure of differences among firm members on the basis of their personal knowledge. Differences arise due to dissimilarities among firm members in education, experience and expertise (Hambrick, 2007). It comprises four variables: (1) Tenure diversity refers to differences among firm members on the basis of the number of years working in the firm; (2) Position diversity refers to differences among firm members on the basis of their position in the vertical structure rank, covering eight levels from internship to top management position; (3) Education diversity refers to differences among firm members on the basis of formal academic instruction, comprising 11 levels from no literacy to PhD level and (4) Degree diversity refers to differences among firm members on the basis of the area of studies, including 25 areas (including "no specific area").

TMKD refers to the KD of top managers (levels 1 and 2) and EKD refers to the KD of employees (levels 3 to 8). SD refers to the aggregate measure of differences among firm members on the basis of social differences among individuals due to diverse gender, age and income. Following Liang et al. (2007) such differences in personal social background occur due to dissimilarities among firm members in gender, age and income. It comprises three variables: (1) Gender diversity refers to differences among firm members on the basis of gender, it considers males and females; (2) Age diversity refers to differences among firm members on the basis of the individuals' age in years from 16 to 75 years old, covering 60 levels and (3) Income diversity refers to differences among firm members on the basis of their salary, including seven levels based on the quantiles of individuals' wages in euros.

TMSD refers to the SD of top managers (levels 1 and 2) and *Employees' social diversity* (ESD) refers to the KD of employees (levels 3–8).

SP is measured by the logarithm of gross revenue per employee. Following Choi and Rainey (2010), SP reflects employees' efforts disassociated from variations in other factors such as products and capital markets (Richard et al., 2007). Since the nationwide dataset involves firms with some amplitude of dimensions (micro, small and medium), it is considered adequate to deal with the size effect. Studies addressing firms' diversity use SP as an output measure (Armstrong et al., 2010; Datta et al., 2005; Jackson and Joshi, 2004; Joshi et al., 2006; Kochan et al., 2003; Richard et al., 2007). Table 2 presents the statistics for all variables.

3.3 Analysis and results

The study uses SEM to analyze the relations between variables and to perform a confirmatory factor analysis that uses Stata®. The reliability of the constructs is assessed using Cronbach's alpha and composite reliability, which exceeds 0.7 for all constructs as recommended (Hair et al., 2009). The convergent validity of the model is evaluated by examining the factor loadings in the SEM (Table 3) and the average variance extracted (AVE) of each construct (Table 4), which is above 0.5 as recommended. The discriminant validity is

Variable	Mean	Std. dev	Min	Max
Number of employees per firm	15.2	25.3	1	245
Number of top managers per firm	3.4	7.7	1	225
Number of waged persons per firm	18.7	29.0	2	250
Log of the number of waged persons	2.3	1.0	0.7	5.5
Degree diversity (Employees)	−3.3	1.8	−4.6	0.8
Degree diversity (Top managers)	−3.2	2.1	−4.6	0.6
Position diversity (Employees)	−1.3	1.9	−4.6	0.6
Position diversity (Top managers)	−3.6	1.8	−4.6	−0.4
Education diversity (Employees)	−0.8	1.7	−4.6	0.7
Education diversity (Top managers)	−3.0	2.1	−4.6	0.7
Tenure diversity (Employees)	−0.3	1.8	−4.6	1.3
Tenure diversity (Top managers)	−2.6	2.3	−4.6	1.3
Age diversity (Employees)	0.2	1.5	−4.6	1.3
Age diversity (Top managers)	−2.1	2.4	−4.6	1.3
Gender diversity (Employees)	−2.0	1.9	−4.6	−0.4
Gender diversity (Top managers)	−3.2	1.9	−4.6	−0.4
Income diversity (Employees)	−0.8	1.7	−4.6	0.7
Income diversity (Top managers)	−3.1	2.0	−4.6	0.6
Sales performance	10.5	2.5	−2.3	18.9

Table 2.
Descriptive statistics

Note(s): Std. dev. = Standard deviation; Min. = Minimum; Max. = Maximum

Variables	Top managers' knowledge diversity	Employees' knowledge diversity	Top managers' social diversity	Employees' social diversity
Position diversity (E)	0.1453	*0.7853*	–	–
Degree diversity (E)	0.3357	0.4565	–	–
Education diversity (E)	0.1187	*0.8552*	–	–
Tenure diversity (E)	0.1315	*0.8244*	–	–
Position diversity (TM)	*0.7713*	0.11	–	–
Degree diversity (TM)	*0.8721*	0.1218	–	–
Education diversity (TM)	*0.8681*	0.1159	–	–
Tenure diversity (TM)	*0.8555*	0.1739	–	–
Gender diversity (E)	–	–	0.1103	*0.7229*
Age diversity (E)	–	–	0.0963	*0.8864*
Income diversity (E)	–	–	0.1262	*0.8677*
Gender diversity (TM)	–	–	*0.8219*	0.0813
Age diversity (TM)	–	–	*0.9061*	0.1375
Income diversity (TM)	–	–	*0.8569*	0.0946

Note(s): E = Employees; TM = Top managers; Values shown italic are those defining a factor (only considered when >0.6)

Table 3.
Factor loadings

Constructs	Items	Cronbach's alpha	CR	AVE	1	2	3	4
1. Top managers' knowledge diversity (TMKD)	4	0.877	0.907	0.710	*0.843*			
2. Employees' knowledge diversity (EKD)	3	0.796	0.893	0.822	0.366	*0.906*		
3. Top managers' social diversity (TMSD)	3	0.836	0.897	0.744	–	–	*0.862*	
4. Employees' social diversity (ESD)	3	0.770	0.867	0.687	–	–	0.281	*0.829*

Note(s): CR = Composite reliability; AVE = Average variance extracted; The italic values in the diagonal are square roots of average variance extracted

Table 4.
Construct reliability, AVE and correlations

verified by comparing the square root of the AVE for each construct and the correlations of the other constructs in the model (Hair *et al.*, 2009).

Items with factor loadings below 0.60 (Hair *et al.*, 2009) were removed to ensure convergent validity in the model. Table 5 presents the results of the SEM estimations, all estimations include fixed effects specific to the industries described in Table 1. The majority of the estimated paths are positive and significant ($p < 0.01$), which supports the study's hypotheses

Variables (1 year lagged)	SP
1. TMKD	0.034*** (0.008)
2. EKD	0.041*** (0.008)
3. TMSD	0.009 (0.016)
4. ESD	0.149*** (0.011)
5. Dummy total number of managers = 1	−0.019 (0.013)
6. Dummy total number of employees = 1	0.104*** (0.008)
One-digit ISIC code (reference: 0)	
1, 2, 3	−0.013 (0.011)
4	0.051*** (0.013)
5	−0.036*** (0.009)
6	−0.049*** (0.007)
7	0.003 (0.006)
8	0.208*** (0.011)
9	−0.197*** (0.006)

Note(s): TMKD = Top managers knowledge diversity; EKD = Employees knowledge diversity; TMSD = Top managers social diversity; ESD = Employees social diversity; SP = Sales performance
ISIC = International Standard Industrial Classification of All Economic Activities; Standard errors in parentheses, ***$p < 0.01$
The variables of knowledge diversity (management and employees) are estimated with Position, Degree, Education and Tenure. The variables of social diversity are estimated with Gender, Age and Income
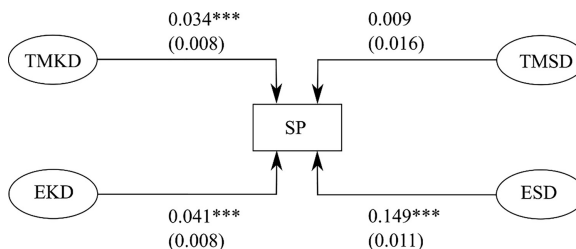
Table 5.
Results of SEM paths' estimations and associated hypothesis

H1, H2 and H4. Regarding H3 the estimated path although being positive it is not significant and thus it does not support the hypothesis. Such findings are reflected in Figure 1 representing top managers' diversities and employees' diversities contribution to performance.

We addressed the entire database to test the hypotheses and additionally we have addressed them in subsets considering firm size and industry. Table 6 shows that the majority of the estimated paths are positive and significant, supporting the hypotheses H1, H2, H3 and H4 when addressing all firms together. With regard to the industrial sector, all the effects of managers' and employees' diversities on SP is positive and significant. The study compares estimations in two data subsets: micro firms and SME. Firms with less than 10 waged individuals (Micro firms) account to 54.11% of the sample's observation.

Firm's size regards the number of waged individuals. Industry classification is based on the ISIC codes in Table 6. Since the findings regard organization-level, the dynamics of the workforce diversity should consider the industry-related differences (Choi *et al.*, 2017), thus we develop such specific analysis. The industry effect is reflected in the different results considering all firms; industrial firms; services firms (Table 6).

Results show how important is to study diversity in small businesses, since overall there seems to be a dominant positive effect of the employees and the managers' two diversities

Figure 1.
Representation of main results of Table 5

Hypotheses	All firms (62,353)	Industrial firms[a] (39,518)	Services firms[b] (22,835)	Micro firms[c] (33,742)	Small, medium firms[d] (28,611)	Δ	SE	t-stat
TMKD → SP	0.034*** (0.008)	0.023** (0.010)	0.035*** (0.013)			−0.012	0.017	−0.73
EKD → SP	0.041*** (0.008)	0.110*** (0.010)	−0.048*** (0.014)			0.158	0.017	9.11
TMSD → SP	0.009 (0.016)	0.146*** (0.020)	−0.100*** (0.027)			0.246	0.034	7.32
ESD → SP	0.149*** (0.011)	0.185*** (0.012)	0.108** (0.024)			0.078	0.027	2.88
TMKD → SP				9.43E-06 (1.04E-05)	0.077*** (0.011)	−0.077	0.011	−7.22
EKD → SP				0.045*** (0.011)	0.026*** (0.009)	0.019	0.014	1.37
TMSD → SP				−0.010 (0.021)	0.018 (0.020)	−0.028	0.029	−0.977
ESD → SP				0.142*** (0.016)	0.071*** (0.010)	0.071	0.019	3.828

Note(s): The first column replicates the estimation of Table 5
TMKD = Top managers knowledge diversity; EKD = Employees knowledge diversity; TMSD = Top managers social diversity; ESD = Employees social diversity; SP = Sales performance; SE = Standard error; [a]includes 0, 1, 2 and 3 SIC code firms; [b]includes 4, 5, 6, 7, 8 and 9 SIC code firms; [c]9 or less waged people per firm; [d]more than 9 waged people per firm; **$p < 0.05$; ***$p < 0.01$
All estimations include dummies for sectors, dummies firms with one manger and one employee

Table 6.
Estimated standard
regression – weights
and statistics

over performance. ESD positively influences SP across altogether, industrial, services, micro, and small and medium firms. EKD also affects positively SP on the majority of cases, apart from services SME, in which case the impact is negative. On the other hand, TMSD has no significant influence on SP when considering all the firms together or when addressing micro, and small and medium apart. However, there is a significant positive effect of TMSD on industrial firms and a negative one regarding services firms. Finally, TMKD affects positively SP on the majority of cases, apart from micro firms, in which case the impact is not significant (most probably due to the small size of micro firms there is a neglectable diversity in top management). The findings reveal that employees' diversities affect SP strongly than mangers' diversities. Additionally, there are mixed influences of diversity (both positive and negative) concerning services firms.

4. Conclusions

First, we brought to light the importance of studying diversity in SME in contrast with extensive diversity research on large corporations (Sequeira *et al.*, 2018). Second, we addressed diversity at two levels: the managers' level and the employees' level. Third, we proposed two dimensions of diversity: the knowledge diversity and the social diversity. Forth, we empirically tested an original model on the effect of diversity on performance using a national wide study and found employees' diversities have stronger relations to performance than the diversity of managers. Fifth, we supported most of our research hypotheses and uncovered a difference in diversity effects on performance among services SME vs industrial ones.

4.1 Theoretical contributions

By addressing diversity at managers' level we contribute to expand the understanding of UET. The influences of TMKD positively affect the SP when considering all firms and the subsets of small and medium firms. Evidence does not support the hypothesis on the positive effect of TMSD over SP considering all firms and the subsets of different sizes. Such results reveal contradicting effects of top managers' diversity. Thus, it adds to the literature on negative relationships between diversity and firm performance (Adams and Ferreira 2009), specifically on diversity leading to negative social processes resulting in poor performance (Mannix and Neale, 2005).

Our research's findings introduce the reasoning that workforce diversities relate to SP and thus contribute to competitive advantage. Following Roberson *et al.* (2017) challenge to develop research in diversity to advance the understanding firms' diversity, we extend the research by addressing multiple dimensions and across different levels of diversity simultaneously using a nationwide dataset. Additionally, results show the relevancy of context in diversity studies by exploring the effect of dimensions of context; the organization's size and the industry (Table 6). The study advances the research on the effects of diversity on firms' performance by providing evidence on how KD and SD affect SP at top management and employees' levels. Results show that the effect of TMKD on SP is positive and significant, agreeing with numerous literature on the effect of diversity (Joshi *et al.*, 2006; Aghazadeh, 2004; Sparber, 2009; Okoro and Washington, 2012; Parrotta *et al.*, 2014).

On the other hand, the findings reveal that the effect of TMSD on SP is not significant. Such evidence challenges the research that states diversity can be beneficial to firms by providing a larger portfolio of ideas, knowledge, capabilities and skills and thus providing a suitable basis for performance improvement (Mannix and Neale, 2005). Similarly, the results show the effect of ESD on SP is stronger than the effect of EKD on SP (Table 5). This finding

means that relationship-oriented diversity impacts on performance more than task-related diversity at the employees' level. Since both impacts are positive, such findings contest the literature reporting problems that come from diversity in groups, such as generating high costs of coordination and conflicts that leads to the limiting of organizational effectiveness and firms' productivity that could result in poor performance (Mannix and Neale, 2005). Thus, this study helps to clarify a long-standing debate on the opposite effects of the dimensions of diversity (Choi and Rainey, 2010).

Findings reflect a clear size effect in results when addressing the two size groups of firms:

(1) The effect of TMKD on SP is not significant for micro firms and it is positive and significant for small and medium sizes suggesting that smaller firms do not benefit from the effect TMKD and thus it follows the literature on diversity being beneficial for larger firms (Gudmundson and Hartenian, 2000).

(2) The effect of EKD on SP is not significant for both micro and small and medium firms questioning extensive dominant literature on the effect of diversity (Aghazadeh, 2004; Sparber, 2009; Okoro and Washington, 2012; Parrotta *et al.*, 2014).

(3) The effect of TMSD on SP is not significant regarding both micro and small and medium firms. Such results suggest a new theoretical development considering the specific effects of social diversity at top management level.

(4) The effect of ESD on SP is larger for micro firms than for small and medium ones, contradicting the literature on diversity being beneficial for larger firms (Gudmundson and Hartenian, 2000).

There is a clear industry effect in results when addressing the two groups of firms:

(1) TMKD effect is larger for services firms than for industry firms. Considering services firms in the dataset are smaller on average than industrial firms, this result contradicts literature on diversity being beneficial for larger firms (Gudmundson and Hartenian, 2000).

(2) EKD effect is positive for industry firms and negative for services firms, revealing a peculiar aspect of services firms' dynamics that should be further explored. However, this results is in line with previous literature on negative effects of diversity over performance (Adams and Ferreira, 2009).

(3) TMSD effect is positive for industry firms and negative for services firms. Again, the services firms seem to have a different reaction to TMSD than industrial forms. Nevertheless, such findings are consistent with literature on diversity leading to negative social processes resulting in poor performance (Mannix and Neale, 2005).

(4) ESD effect is larger for industry firms than for services firms. Since industrial firms in the data set are larger than services firms, such finding is consistent with literature on diversity being beneficial for larger firms (Gudmundson and Hartenian, 2000).

By addressing diversity at different industry groups, we contribute to expand what most previous studies neglected to do: understanding the role of industry in diversity effect over firm performance. Little was known about the different effects of diversity type, as well as the contribution of managers' level and employees' level diversities separately.

4.2 Managerial implications
Empirically, this study provides original contributions offering evidence on the effects of diversity in small businesses by examining two dimensions of the phenomena at two firm

levels using a large-scale, governmental matched employee–employer dataset collected over a two-year period. When addressing overall effects and regarding the knowledge diversity, it seems employees' diversity (EKD and ESD) is more relevant than top managers' diversity for performance (TMSD is not significant). With regard to firm size, the findings support that micro firms benefit from higher positive effects of employees' diversity (both EKD and ESD) than small and medium firms. On the contrary, managers' diversity (just TMKD) only influences small and medium firms' performance positively.

Regarding firms' industry, results show TMKD and ESD impact positively on performance when considering industrial and services firms. Whereas EKD and TMSD positively affect performance when considering industrial firms and negatively when considering services firms. Such distinction emphasizes the differences among industries reported in the literature (Datta *et al.*, 2005) and must attract research attention to idiosyncratic aspects of industrial and services firms' dynamics that should be further explored. Such findings strengthen the differences in results when addressing services firms and call for extra subsequent work on diversity in services firms. Empirically, the findings alert small business' managers to some challenges. TMKD and EKD impact positively on SP and thus it is worth acknowledge such influence when recruiting, selecting and training. With regard to services firms managers should pay close attention to negative impacts of diversity over performance (EKD and TMSD).

4.3 Implications for research

This study has implications for research by offering a framework to address diversity in SME at two levels and considering two types of diversity:

Diversity at top management level – individuals in the top two out of eight organizational levels

Diversity at employees' level – individuals in the middle and lower six out of eight organizational levels:

Knowledge diversity – regards diversity in tenure, position, education and degree

Social diversity – regards diversity in gender, age and income.

Following our proposed rationale, colleagues may cover several aspects of diversity in SME.

Given our results, implications for research regard the need of future studies that could focus on the impacts of having a diverse workforce in services SME. Our study reveals mixed findings regarding the influence of diversity on performance in such settings. Thus, future research should investigate the phenomenon in services SME. We suggest the use of case studies to identify the particularities of the relation between diversity and performance in these firms. We believe that extensive observation, qualitative interviews and archival and documental analyses will expose the sources of such mixed effects.

Additional implications point to future research that should adopt other approaches to address diversity in small businesses combining qualitative and quantitative methodologies to balance the depth and richness of qualitative methods with the power of generalization of quantitative methods. Using mixed methods will allow offering more insights related with the phenomenon. Qualitatively, it will enable to uncover how diversity conditions influence performance in SME. Quantitatively, it will show the impact of each antecedent on SME's performance. Thus, the findings from such methodological approach will give an expanded view of the effect of diversity on firm performance. Additionally, colleagues may further study the impact of diversity on nonprofitable organizations, such as religious, governmental or third sector institutions.

4.4 Limitations and future work
By addressing small businesses from a single country, the study uses biased data. Further studies could more broadly test the model in other regions and countries as well. Findings alert for the differences in diversity effects when addressing services firms, calling for further research. There are alternative possibilities to test diversity dimensions and performance; yet, the governmental dataset provided limited variables. Other variables could have been used to measure the contributions of diversity to performance. Firms' performance was measured in terms of sales, which is the most accepted output measure; however, other measures like innovation, strategic change or sustained competitive advantage are also worth addressing.

The study estimates the effect of diversity on performance in small businesses, but other contextual factors might influence performance levels, such as the leaders' entrepreneurial style, the control mechanisms used or the adopted organizational strategies. The pressures from the external environment on firms' performance are not accounted for in this study. External forces like the intensity of competitive rivalries or the bargaining power of customers are not addressed and thus, the study subscribes the effects on performance to internal diversity's influence.

The study provides a debate about diversity across hierarchical levels in firms, which adds to a recent line of research within the diversity literature. Yet, although the study offers a model to explain how diversity at different levels affects performance, the model is not able to involve all possible variables. Regarding SD in particular, it does not include diversity in terms of ethnicity or national origin/citizenship, although it is a relevant dimension, unfortunately data on this are not available in the national dataset. Nevertheless, the underlying mechanisms that explain why certain results occur remains unattained.

The study explores diversity at two levels and dimensions across different firm sizes and industries; however, such work could be complemented by introducing other rationales for conjoint analysis (e.g. technology adopted in the firm). Such extensions could lead to richer and deeper understandings of the interaction between diversity and other organizational dimensions. Future studies should explore contextual and environmental constrains (e.g. the effect of partnerships or interorganizational knowledge sharing) and make additional contributions to understand diversity effects over organizational performance under different circumstantial pressures.

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