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The Impact of the Business Environment on the Size of the Micro, Small and Medium Enterprise Sector; Preliminary Findings from a Cross-Country Comparison

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Abstract

According to the study *Voices of the Poor* from the World Bank, poor people expect to escape poverty through "income from their own business or wages earned in employment". A streamlined business environment supporting the sustainable development of small and medium enterprises (SMEs) may contribute to improve the living conditions of low income households in terms of employment opportunities. The paper tries to determine if having a larger SME sector is the result of competitive or constraining business environments. Applying an OLS estimation of a multiple linear regression model using cross-country data, the study attempts to assess how much of the cross-country variation in the contribution to employment and the size of the SME sector in the economy can be explained by cross-country variation in business environment regulations. The estimation results show that low entry costs, easy access to finance, and good levels of business sophistication and innovation predict a larger SME sector. There is a weak association with high exit costs as well. A productive and competitive SME sector must be associated with sophisticated and innovative business environments, in that sense the paper tries to contribute a basis for gauging this approach.

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1. Introduction

According to Chen, 2005 the persistence of poverty worldwide is a major challenge of the 21st century; more than 1 billion people struggle to survive on less than \$1 a day, of these, roughly half – 550 million – are working. The World Bank study *Voices of the Poor* asked 60,000 poor people around the world how they thought they might escape poverty. The answers, as stated by the study, were explicit: “women and men alike pin their hopes above all on income from their own business or wages earned in employment”.

One possibility to improve the opportunities for the poor is to provide a favorable environment for Small and Medium Enterprises (SMEs). For example, micro, small, and medium enterprises (MSMEs) typically have high labor intensity and thus support job creation, especially in the industry and services sector. In OECD economies, provide 60-70 percent of employment MSMEs while accounting 55 percent of the GDP[†].

However, the framework under which small firms operate in most developing countries has ample room for improvement. In the IFC’s *Doing Business* ranking, almost all low income countries occupy spots over 100 out of 183 participating economies[‡]. Particularly bad is the score of low income countries for the Trading across Borders indicator (Their average ranking position is 144). Similarly, the World Economic Forum’s *Global Competitiveness Report* ranks low income countries with an average position of 110 out of 139 countries for Business Sophistication and an average position of 99 for Innovation.

The International Labour Organization, 2005 states that a number of studies focus on the role of the business environment in small enterprise development; on the other hand, the Donor Committee for Enterprise Development, 2009 says that more recently the focus has shifted towards the impact of reforms of the business environment on economic growth and poverty alleviation more in general[§].

There is a worldwide assumed and empirical strong positive association between SMEs and economic growth; however, the World Bank, 2003 caution against directly subsidizing SMEs’ development. They suggest that regressions for reverse causation erode the significance of the relationship and that cross-country comparisons do not show that SMEs do much to boost the incomes of the poor. Nevertheless, cross-country regressions provide qualified evidence that an effective business environment does cause growth^{**}. Altenburg and von Drachenfelds, 2006 point out that some Asian economies (with high present and past rates of GDP growth) rank low on the business environment rankings. Based on that, it is proposed that an effective business environment should not only follow a minimalistic^{††} approach but also consider other issues such as innovation and business sophistication.

[†] In Aris, 2006, it is described that the contribution to GDP by SMEs range from 50% in Korea, 55.3% in Japan, 57.0% in Germany, 60% in China, and 47.3% in Malaysia. Nonetheless, for example, in Bolivia only microenterprises account for 95% of the firms, 83.1% (91.2% plus SMEs) of employment and just 25.5% (31.6% plus SMEs) of the GDP according to Banco Interamericano de Desarrollo, 2006.

[‡] The average ranking position for low income countries is 140, from 37 low income countries only 6 occupy a position under 100; Kyrgyz Republic (44), Rwanda (58), Ghana (67), Zambia (76), Solomon Islands (96), and Kenya (98). The average ranking position including lower middle income countries is 125 out of 183 ranked economies. Evidently, the ranking assigns the first places to the best performers.

[§] This is supported, as well, by Chen, 2005, International Labour Organization, 2002, and International Labour Organization, 2004.

^{**} Thorsten and Demirgüç-Kunt, 2004 affirm that even though a positive relationship holds as much for the lowest income quintile as for the rest of the society, the results do not show that a good business environment has an effect on poverty reduction beyond its positive effect on GDP per capita growth.

^{††} Altenburg and von Drachenfelds, 2006 state that rankings such as the Ease of Doing Business or the Index of Economic Freedom are New Minimalistic Approaches – NMA. Based on the evidence that some Asian successful economies usually rank much lower on these rankings, it is proposed that an effective assessment of the BE may consider, as well, issues like innovation and business sophistication (A proposed wider approach).

Even though there is a growing recognition of the role that SMEs play in sustained economic growth, there is little systematic research in this area in order to support the various policies in favor of SMEs, primarily because of the lack of data. The International Finance Corporation, 2000 suggests that scale-based enterprise promotion is driven by social and political considerations rather than by economic reasoning.

Therefore, there is the need to contribute to a better understanding of the SME sector development. The database presented in this study provides comprehensive statistics on the size of the SME sector, employment in the industry and services sector and data on selected business environment indicators across a broad spectrum of countries.

Applying an OLS estimation of a multiple linear regression model using cross-country data, this paper assesses how much of the cross-country variation in employment and size of the SME sector can be explained by cross-country variation in various business environment regulations, including: ease of firm entry, access to credit, ease of exit, property registration, contract enforcement, business sophistication, and innovation.

The paper presents in Section 2 some issues for the analytical framework of the economic and econometric model. Section 3 describes the data and methodology, and Sections 5 to 6 discuss and conclude about the findings.

2. Analytical Framework

One of the premises for private sector promotion is that failures in the market place contribute to poverty. As one characteristic of those failures, Hughes, 1999 cited by the International Labour Organization, 2002 highlights that among a sample of EU countries and some non-EU countries, the lower GDP per capita the higher the share of the smallest (1-9 workers) and the larger enterprises (50 and more workers), but the lower the share of enterprises with 10 to 49 workers^{‡‡}.

The effects of regulation of the market place and its impact on aggregate economic performance have attracted increasing attention in recent years. Loayza and Servén, 2010 mention that regulation can be thought of as a set of rules that constrain the actions of economic agents in order to meet social goals.

Blanchard, 2006 establishes that excessive regulation could be the prime cause for European macroeconomic underperformance in the last decade vis-à-vis the United States. Excessive regulation of the business environment is also identified among the key obstacles to growth in many developing countries as declared by World Bank, 2008.

The International Labour Organization, 2005 assesses the business environment for small enterprises considering three perspectives; a) the policy, legal, and regulatory framework, b) the organizational framework and c) the markets, social and economic settings. These perspectives open the discussion for considering government and non-government organizations that are created to implement and enforce policies, laws and to perform other functions in the business environment (e.g. business incubators, innovation centers, research agencies, chambers of commerce, business associations, trade unions, and other private associations). The business sophistication and innovation indicators from the Global Competitiveness Report try to precisely gauge some of the aspects mentioned before.

Drucker, 1998 defines innovation as “the effort to create purposeful, focused change in an enterprise’s economic or social potential”. In this process, innovation and business sophistication, if coordinated, translate

^{‡‡}The database utilized in this paper (which will be described in Section 3) confirms these findings. By carrying out a simple regression between the percentage of micro and small enterprises in each country on their corresponding GDPpc, the obtained relationship is negative and statistically significant at the 1% level. For medium enterprises the relationship is also significant at the 1% level, but positive.

knowledge into economic growth and social well being. This process encompasses a series of scientific, technological, organizational, financial, and commercial activities. At a macro level and in order to carry out these activities, all the actors usually interrelate and work together.

On the same basis that; it is not only the regulatory framework in the strict sense which may play a role in the business environment, Ayyagari, Beck and Demirgüç-Kunt, 2007 conclude that there is only weaker evidence suggesting that a larger SME sector may be associated with higher costs related to the exit of firms or to the labor regulation. Therefore, they suggest that a larger role of SMEs in manufacturing is more strongly associated with a competitive business environment.

Table 1 presents a summary of the variables utilized to measure the business environment, compiled from some other studies executed in this area. As it can be verified, there is an opportunity to include variables related to more innovative and sophisticated business environments on the study of their impact on the development of the private sector.

Business Environment indicators generally refer to firms of all sizes. Nevertheless, World Bank, 2003 states that financial and institutional underdevelopment constrains significantly more the operation and growth of small and medium sized firms.

In order to describe the economic model, the departure point is the assumption that the macroeconomic impact of business regulation arises from its effects on the creation, growth, and renewal of firms (i.e. the life stages of a firm: entry, growth, and exit). At the same time, if the regulation conduces to have a productive and competitive private sector, employment will be both maintained and generated.

The question then, is if regulation improves the conditions for firm's activities or, on the contrary, it imposes unnecessary restrictions that increase costs and reduce productivity. Seven main areas of a firm's activity that are subject to regulation as part of the business environment were considered: ease of entry, access to credit, ease of exit, property registration, contract enforcement, business sophistication, and innovation; for each area an indicator was utilized.

The variables will be described in Section 3. Equations (1), (2), and (3) establish the basic economic model. Additionally to the business environment variables, GDPpc (Gross Domestic Product per capita) will be utilized as a proxy for the economic setting of every country.

$$\text{Number of SMEs} = f(\text{Business environment}) \quad (1)$$

$$\text{Industry and Services Sector Share of Employment} = f(\text{Business environment}) \quad (2)$$

$$\text{SMEs share of employment} = f(\text{Business environment}) \quad (3)$$

There are two possible general mechanisms in which the business environments may have an impact on generating greater shares of SMEs or higher shares of employment in the industry and services sector. A greater share of SMEs in the economy could be either the result of a regulation framework that facilitates the constant entry, growth and exit of SMEs or the result of a stifling business regulation which imposes a burden to the private sector by, sometimes unnecessary, heavy and costly regulation of contracts, registries and hiring processes among others. For the case of the employment share in the industry and services sector, if a competitive business environment is associated with more employment in these sectors, it will be a good indicative that a streamlined regulation helps to develop a private sector able to keep and generate better employment opportunities. Figure 1, describes these general mechanisms.

Table 1: Business Environment – Identified Aspects

Measurement of Business Environment Cross-Research Comparison					
Thorsten and Demirgüç-Kunt, 2004	Loayza et al., 2005	Dyring, J. and Goedhuys, M., 2004	IFC's Doing Business	Ayyagari, Thorsten and Demirgüç-Kunt, 2007	Relevant Identified Aspects
Cost of Business Registration	Firm entry		Starting a business (1)	Cost of Entry	Firm entry
	Labor markets		Employing workers (3)	Labor Market Regulation	Labor markets
	Fiscal burden	Fiscal burden of government	Paying taxes (7)		Fiscal burden
	Trade barriers	Trade policy	Trading across borders (8)		Trade policy
	Financial markets	Banking and finance	Getting credit (5)	Credit Registry	Financial markets
Cost of Contract Enforcement	Contract enforcement		Enforcing contracts (9)	Cost of Contract Enforcement	
Cost and Efficiency of the Insolvency Process	Bankruptcy regulation		Closing a business (10)	Bankruptcy	Bankruptcy Regulation
Protection of Property Rights		Property Rights	Registering property (4)	Property Rights	Property rights
		Regulation		Regulatory Environment	
	(Governance)	Global Corruption Report		Institutional Development	Governance
		Government intervention in the economy			
		Monetary policy			
		Black market activity			
		Capital flows and foreign investment			
			Dealing with construction permits (2)		
			Protecting investors (6)		
					Business sophistication and Innovation

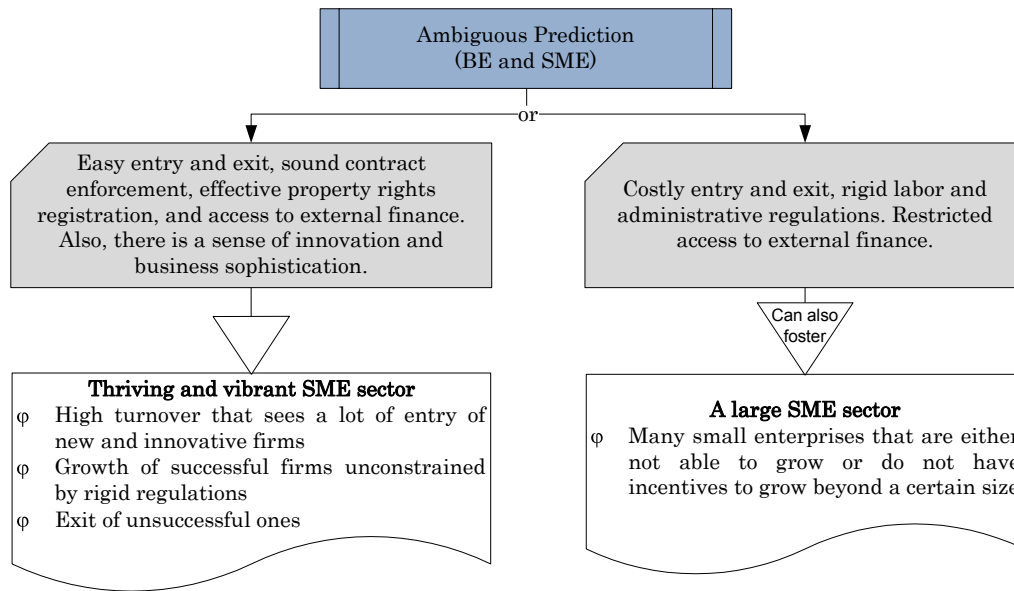


Figure 1: Possible Mechanisms for a Higher Share of SMEs in the Economy based on Ayyagari, Beck and Demirgüç-Kunt, 2007

Therefore, this paper relates the variation in the share of SMEs and employment in the nonagricultural sector across countries to differences in the business environment in which firms operate. Specifically, the indicators of the SME sector are related to indicators of the ease of entry, access to credit, ease of exit, property registration, contract enforcement, business sophistication, and innovation.

Equations (4), (5) and (6) describe the econometric models.

$$\ln \text{SME} = \beta_0 + \beta_1 \ln \text{GDPpc} + \beta_2 \text{entry} + \beta_3 \text{credit} + \beta_4 \text{regprop} + \beta_5 \text{contract} + \beta_6 \text{exit} + \beta_7 \text{sophis} + \beta_8 \text{innova} + u \quad (4)$$

$$\ln \text{employINDSERV} = \beta_0 + \beta_1 \ln \text{GDPpc} + \beta_2 \text{entry} + \beta_3 \text{credit} + \beta_4 \text{regprop} + \beta_5 \text{contract} + \beta_6 \text{exit} + \beta_7 \text{sophis} + \beta_8 \text{innova} + u \quad (5)$$

$$\ln \text{SMEemploy} = \beta_0 + \beta_1 \ln \text{GDPpc} + \beta_2 \text{entry} + \beta_3 \text{credit} + \beta_4 \text{regprop} + \beta_5 \text{contract} + \beta_6 \text{exit} + \beta_7 \text{sophis} + \beta_8 \text{innova} + u \quad (6)$$

According to Wooldridge, 2009, large integer values often appear in logarithmic form. This is the case for SME and GDPpc. Additionally, taking logs narrows the range of the variable. That is why the share on employment of the industry and services sector (employINDSERV) will be in logarithmic form. The variables measuring the business environment will be in level form in order to facilitate interpretation and also because most of them are percents and will not take extremely large values.

In Section 3, a RESET test for functional form misspecification is carried out. Then, a test for joint significance of some business environment variables as well as a Breusch-Pagan test for heteroskedasticity are studied.

3. Data and Methodology

Table 2 provides a complete description of all the variables utilized in this study. The dependent variables are the number of small and medium enterprises in each economy (SME, and MSME includes microenterprises), the share of the MSME employment in the total labor force (SMEemploy), and the share of the industry and services sector (non agricultural sector) employment in the total labor force.

The independent variables are ease of entry measured as the costs of registration relative to gross national income (ENTRY), the credit accessibility measured by the information that is available through credit registries (CREDIT), the costs related to official transfer of a property from a seller to a buyer (REGPROP), the legal costs incurred in dispute resolution (CONTRACT), the ease of exit measured by the costs of closing a business, as percentage of the estate (EXIT), the business sophistication level (SOPHIS), and the innovation level (INNOVA) . Gross Domestic Product per capita is utilized as a control variable (GDPpc). In this research a measurement of the labor regulation is not included since this aspect is under revision by the International Finance Corporation's Doing Business ranking because of some observations from the International Labor Organization (e.g. the issue of the absence of minimum wages in some high performing countries).

Table 2: Indicators of SMEs, Employment, and the Business Environment

Indicator	Description	Source / Observations
SME	It is the number of small and medium enterprises in the economy of each country. It doesn't consider the number of microenterprises.	Micro, Small and Medium Enterprise Country Indicators (MSME-CI) provides both the latest global snapshot and historic data back 20 years on the number of MSMEs in 132 world economies. In this study, the latest snapshot (mainly presenting information for the first decade of the century) was utilized. Available at: http://www.ifc.org/ifcext/globalfm.nsf/Content/MSME-CountryIndicators
MSME	It is the number of micro, small and medium enterprises in the economy of each country.	
SMEEMPLOY	Measures the participation of micro, small and medium enterprises in the economy. It is the share of the MSME sector in the total labor force.	
employINDSE RV	It is the percentage o total employment in the industry and services sector. It is calculated as one minus the percentage of total employment in agriculture. Average for the decade of 2000s. Employees are people who work for a public or private employer and receive remuneration in wages, salary, commission, tips, piece rates, or pay in kind. Agriculture corresponds to division 1 (ISIC ^{§§} revision 2) and includes hunting, forestry, and fishing. Industry corresponds to divisions 2-5 (ISIC revision 2) and includes mining and quarrying (including oil production), manufacturing, construction, and public utilities (electricity, gas, and water). Services correspond to divisions 6-9 (ISIC revision 2) and include wholesale and retail trade and restaurants and hotels; transport, storage, and communications; financing, insurance, real estate, and business services; and community, social, and personal services.	International Labour Organization, Key Indicators of the Labour Market database. Accessed through World Development Indicators.

Table 2. continued . . .

§§ ISIC stands for International Standard Industrial Classification

Indicator	Description	Source / Observations
ENTRY	Costs of registration relative to gross national income (GNI) per capita that a start-up must bear before it becomes legally operational. Specifically, it includes the legal cost of each procedure to formally register a company and relates the sum of these costs to GNI per capita. Average 2004-2011.	Doing Business Data. International Finance Corporation. World Bank Group. (Methodology based on Djankov, La Porta, Lopez-de-Silanes, & Shleifer, 2002)
CREDIT	Indicates the information that is available through credit registries, such as positive and negative information, information on firms and households, data from sources other than financial institutions, and historical data. This index ranges from zero to six, with higher values indicating that more information is available. Average 2004-2011.	Doing Business Data. International Finance Corporation. World Bank Group. (Methodology based on Djankov, McLiesh & Shleifer, 2007)
REGPROP	Costs related to official transfer of a property from a seller to a buyer, including all fees, taxes, duties and other payments to notaries and registries as required by the law. The costs are computed relative to the value of the property. Average 2004-2011.	Doing Business Data. International Finance Corporation. World Bank Group. The costs of property registration range from 0.2% in New Zealand and Belarus to 27.2% of property value in Nigeria, with a sample average of 5.58% of property value.
CONTRACT	Legal costs incurred in dispute resolution. Cost is recorded as a percentage of the claim. Three types of costs are recorded: court costs, enforcement costs and average attorney fees. Average 2004-2011.	Doing Business Data. International Finance Corporation. World Bank Group. (Methodology based on Djankov, La Porta, Lopez-de-Silanes & Shleifer, 2003)
EXIT	Measures the costs of closing a business, as percentage of the estate (i.e. all the money and property that a firm owns). Specifically, it includes all legal court costs and other fees that are incurred when closing a limited liability company. Average 2004-2011.	Doing Business Data. International Finance Corporation. World Bank Group.
SOPHIS	It is the ranking assigned to a respective country regarding its performance in this aspect. Best ranked economies go towards 1, worst ones towards 139. Business sophistication concerns the quality of a country's overall business networks as well as the quality of individual firms' operations and strategies.	Global Competitiveness Report by World Economic Forum. (Methodology described in World Economic Forum, 2009.)
INNOVA	It is the ranking assigned to a respective country regarding its performance in this aspect. Best ranked economies go towards 1, worst ones towards 139. In particular, it means sufficient investment in research and development (R&D), especially by the private sector; the presence of high quality scientific research institutions; extensive collaboration in research between universities and industry; and the protection of intellectual property.	Global Competitiveness Report by World Economic Forum. (Methodology described in World Economic Forum, 2009.)
GDPpc	GDP per capita is gross domestic product divided by midyear population. Data are in constant US\$. The base year is 2005. In this sample the variable is an average for the decade of 2000s. The intention is to control for the economic settings of each economy.	World Bank based on World Development Indicators data. Luxembourg has the highest GDPpc with a value of USD 55,135. The lowest is from Democratic Republic of the Congo with USD 88.12.

Table 3 below presents the summary statistics of the utilized database.

Table 3: Summary Statistics

Variable	Observations	Mean	Standard Deviation	Minimum	Maximum
SME	116	207,164.50	1,002,238	0	10,231,000
MSME	125	1,002,920.00	2,500,153	2,050	22,655,831
SMEemploy	117	40.27	21.60	1.76	92.83
employINDSERV	129	22.16	21.08	.25	80.20
Entry	183	71.85	147.25	0	1,089.65
Credit	183	2.66	2.13	0	6
Regprop	179	6.48	5.27	0	28.79
Contract	183	34.63	26.46	7.8	163.19
Exit	157	15.75	11.19	1	76
Sophis	139	70	40.27	1	139
Innova	139	70	40.27	1	139
GDPpc	184	6,766.68	9,938.88	88.12	51,135.45

The number of analyzed countries varies depending on the utilized dependent variable. All available units of information from the database were utilized. For the case of SME the sample includes 99 countries (31 "High income: OECD", 8 "High income: nonOECD", 30 "Upper middle income", 21 "Lower middle income", and 9 "Low income"). For the case of SMEemploy, the sample includes 104 countries (31 "High income: OECD", 11 "High income: nonOECD", 31 "Upper middle income", 22 "Lower middle income", and 9 "Low income"). Finally, employINDSERV includes 105 countries with a similar distribution by income level as in the previous cases.

Table 4 present correlations among the dependent variables and Table 5 present correlations of all the variables including the business environment indicators. GDPpc is highly correlated with almost all the variables. It is very interesting to notice that SME is only correlated with CREDIT, SOPHIS and INNOVA. The correlation with the last two variables is negative as expected because business sophistication and innovation are values for a ranking in which the lower value is the best one.

Before carrying the multiple linear regressions by OLS, a RESET test for functional form misspecification was carried out. The results suggest that there is no a sort of functional form problem. A detailed procedure of RESET test for the model is presented in Appendix A.

Since the variables SOPHIS and INNOVA are an original contribution of this paper for the analysis of the impact of business environment on small enterprise employment, a test in order to verify joint significance of those variables was also carried out. The result provides an F value (9.76) which strongly supports the conclusion that both variables are jointly statistically significant in the model. The detailed test is presented in Appendix B.

Another important aspect to analyze before proceeding with the estimation and interpretation is to check for the presence of heteroskedasticity. Consequently, Appendix C presents a detailed Breusch-Pagan test for heteroskedasticity. The results provide evidence against heteroskedasticity in the model. This means that the reported standard errors are reliable.

With the previous considerations, the paper will proceed to apply a multiple linear regression by OLS. Nevertheless, because there is a significant degree of correlation among most of the independent variables; individual regressions will also be calculated. The econometric model for the individual regressions is the following:

$$\ln \text{SME} = \alpha_0 + \alpha_1 \ln \text{GDPpc} + \alpha_2 \text{Var}_i + u \quad (7)$$

Where Var_i represent in turn each of the seven independent variables used in this paper to describe the business environment.

It is proposed to control for GDPpc on the basis of the study of Ayyagari, Beck, and Demirgüç-Kunt, 2007 which finds that the SME sector’s contribution to employment shows a strong positive correlation with GDP per capita. This result is confirmed according to Tables 4 and 5.

Table 4: Correlations among Dependent Variables and Control Variable

	Ln GDPpc	Ln employindserv	Ln sme	Ln smeemploy
Ln GDPpc	1.0000			
Ln employindserv	0.7811***	1.0000		
Ln sme	0.1664*	0.1105	1.0000	
Ln smeemploy	0.2985***	0.3032***	0.1308	1.0000

*** ** * stand for significance levels at 1, 5, and 10 percent respectively.

Source: Own elaboration.

Table 5: Correlation among Variables

	Ln GDPpc	Ln employindserv	Ln sme	Ln smeemploy	Entry	credit	regprop	contract	exit	sophis	innova
Ln GDPpc	1.0000										
Ln employindserv	0.7811***	1.0000									
Ln sme	0.1664*	0.1105	1.0000								
Ln smeemploy	0.2985***	0.3032***	0.1308	1.0000							
entry	-0.4534***	-0.4007***	-0.1172	-0.1715*	1.0000						
credit	0.5251***	0.3803***	0.2940***	0.2321**	-0.3154***	1.0000					
regprop	-0.3274***	-0.1077	-0.0032	0.0109	0.3722***	-0.4400***	1.0000				
contract	-0.4804***	-0.4402***	-0.1123	-0.3146***	0.4677***	-0.3073***	0.3221***	1.0000			
exit	-0.3627***	-0.2612***	0.0739	-0.0970	0.3145***	-0.3281***	0.1975**	0.3962***	1.0000		
sophis	-0.8012***	-0.6068***	-0.3589***	-0.2309**	0.3657***	-0.5177***	0.2901***	0.5353***	0.2490***	1.0000	
innova	-0.7092***	-0.5343***	-0.3687***	-0.2450***	0.3383***	-0.4001***	0.22224***	0.2891***	0.2894***	0.8940***	1.0000

*** ** * stand for significance levels at 1, 5, and 10 percent respectively.

Source: Own elaboration.

4. Results and Discussion

Using OLS multiple linear regression, Table 6 shows a significant association of several dimensions of the business environment with the size of the SME sector (measured by the number of SMEs in each economy), and the SME sector's contribution to employment (measured as the percentage of total employment) as well as with the employment share in the industry and services sector across countries; however, these associations occur at times in conflicting ways.

There is a positive association of high exit costs and the size of the SME sector in specification (1), suggesting that failure to efficiently resolve failing enterprises artificially increases the number of SMEs; however, in the other models, this association is no longer significant. Regarding other rigidities of the business environment, it can be noticed that registering property and enforcing contracts appear significant in some models. These findings contribute to the theory that a larger SMEs sector is due to stifling regulations that prevent SMEs from growing. Nevertheless, EXIT is only significant in one model and REGPROP as well as CONTRACT may just be suggesting an inefficient judicial system.

On the other hand, it can be verified, also from Table 6, that access to credit is statistically significant and positively correlated in three of the four specifications. Therefore, access to credit plays a very important role at the moment of contributing to have larger numbers of SMEs. Ease of entry is statistically significant at the one percent level in specification (3) which suggests that larger employment shares in the industry and services sector are characterized by more frequent entry. Additionally, innovation shows itself statistically significant (though at the ten percent level) in specifications (1) and (2). Overall, this is strong evidence for supporting that a large SME sector is the result of a business enabling and competitive environment.

Tables 7, 8, 9, and 10 present the estimation results for individual OLS multiple linear regressions with the independent variables measuring the business environment. In Tables 7 and 8, when taking as dependent variable the size of both SME sector and MSME sector (i.e. including microenterprises), access to credit, business sophistication, and innovation emerge as significantly correlated. Table 10, presents a negative and significant relationship of ease of entry with the share of employment in the industry and services sector. Finally, Tables 9 and 10 show that enforcing contracts is negatively correlated with the share of employment both in SME and the industry and services sector in general. The aforementioned result, rather than suggesting larger SMEs sector because of complex regulation may again be suggesting some problems of the judicial system, such as delays, excessive number of procedures among others which makes the judicial system highly inefficient and costly for the interests and dynamics of the private sector, particularly for SMEs.

In general, the results provide evidence that larger SME sectors are due to a more competitive business environment that eases the access to finance and facilitates entry. Moreover, a large SME sector may also be the result of high quality of business networks, high quality of individual's firms operations and strategies (Measured by business sophistication) as well as significant levels of investment in R&D, the presence of high quality research institutions, and collaboration among industry, universities, and the government (Measured by innovation). However, there is also weaker evidence that market rigidities such as higher exit costs, and imperfections in the judicial system may also be leading to larger SME sectors.

These findings seem to be reasonable especially when contrasted with the experience of the East Asian economies (e.g. Hong Kong, Korea, Singapore, Malaysia, etc). Also based on these findings the paper aims to bring a new perspective to the discussion of supporting SMEs. It seems to be reasonable to support SMEs; however, it is also important to think of the contribution of SMEs not only in terms of size or in terms of how many people are working in that sector, but also in terms of value added and productivity. Productive and competitive SMEs must be associated with sophisticated and innovative business environment, in that sense the paper tries to make an initial approach for starting to gauge this issue.

Table 6: OLS Results

Dependent variable:	Ln sme	Ln smeemploy	Ln employindserv	Ln msme
Independent Variables	(1)	(2)	(3)	(4)
Ln GDPpc	-.58989*** (.2085)	.0013 (.0971)	.2083*** (.0248)	-.6304*** (.2066)
entry	-.0020 (.0066)	.0048 (.0030)	-.0020*** (.0007)	-.0014 (.0065)
credit	.3673*** (.1174)	.0680 (.0497)	.0261** (.0126)	.4382*** (.1109)
regprop	.0215 (.0465)	.0178 (.0204)	.0082* (.0045)	.1041** (.0455)
contract	-.0080 (.0095)	-.0122*** (.0043)	.0021 (.0015)	-.0050 (.0094)
exit	.0523*** (.0199)	.0011 (.0096)	.0010 (.0022)	.0241 (.0201)
sophis	-.0122 (.0111)	.0038 (.0050)	.0015 (.0013)	-.0141 (.0108)
innova	-.0193* (.0100)	-.0080* (.0043)	.0013 (.0010)	-.0109 (.0094)
C	15.1676*** (2.1287)	3.6123*** (1.0315)	2.2691*** (.2598)	16.8955*** (2.1494)
Observations	99	104	105	110
R ²	0.2753	0.1596	0.7119	0.2372

Standard errors in parenthesis

***, **, * stand for significance levels at 1, 5, and 10 percent respectively.

Table 7: OLS Individual Regressions

Dependent variable:	Ln sme	Ln sme	Ln sme	Ln sme	Ln sme	Ln sme	Ln sme
Independent Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
C	8.7031*** (1.1866)	8.9297*** (.9007)	8.7458*** (.9854)	8.8760*** (1.1534)	7.9306*** (1.1397)	15.3145*** (1.7945)	13.9601*** (1.5715)
Ln GDPpc	.1934 (.1336)	.0408 (.1261)	.1857 (.1130)	.1816 (.1249)	.2458* (.1222)	-.3919** (.1732)	-.2653* (.1545)
Entry	-.0010 (.0046)						
Credit		.2685** (.1057)					
Regprop			.0084 (.0461)				
Contract				-.00353 (.0076)			
Exit					.0279 (.0203)		
Sophis						-.0301*** (.0070)	
Innova							-.0246*** (.0060)
Observations	110	110	107	110	103	107	107
R ²	0.0327	0.0873	0.0253	0.0343	0.0441	0.1697	0.1597

Standard errors in parenthesis. ***, **, * stand for significance levels at 1, 5, and 10 percent respectively.

Table 8: OLS Individual Regressions

Dependent variable:	Ln msme	Ln msme	Ln msme	Ln msme	Ln msme	Ln msme	Ln msme
Independent Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
C	11.3540*** (1.1911)	11.9289*** (.8521)	10.8940*** (.9589)	11.6958*** (1.1184)	12.0359*** (1.1092)	17.9240*** (1.8484)	15.8393*** (1.5924)
Ln GDPpc	.1145 (.1339)	-.1363 (.1186)	.1342 (.1097)	.0889 (.1215)	.0437 (.1193)	-.4656 *** (.1775)	-.2717* (.1555)
Entry	-.0007 (.0048)						
Credit		.4109*** (.0960)					
regprop			.0717 (.0443)				
contract				-.0052 (.0076)			
exit					-.0003 (.0204)		
sophis						-.0286*** (.0072)	
innova							-.0202*** (.0062)
Observations	124	124	121	124	116	118	118
R ²	0.0111	0.1410	0.0294	0.0147	0.0013	0.1239	0.0907

Standard errors in parenthesis

***, **, * stand for significance levels at 1, 5, and 10 percent respectively.

Table 9: OLS Individual Regressions

Dependent variable:	Ln smeemploy	Ln smeemploy	Ln smeemploy	Ln smeemploy	Ln smeemploy	Ln smeemploy	Ln smeemploy
Ind. Var.	(1)	(2)	(3)	(4)	(5)	(6)	(7)
C	2.2156*** (.5099)	2.2558*** (.3930)	2.1387*** (.4200)	2.8816*** (.4833)	2.6060* (.4656)	2.2160*** (.8209)	2.5663*** (.7009)
Ln GDPpc	.1531*** (.0571)	.1255** (.0535)	.1554*** (.0480)	.1015** (.0515)	.1118** (.0493)	.1521* (.0785)	.1219* (.0681)
Entry	-.0001 (.0020)						
Credit		.0506 (.0445)					
Regprop			.01063 (.0197)				
Contract				-.0086* (.0037)			
Exit					-.0018 (.0089)		
Sophis						.0003 (.0033)	
Innova							-.0014 (.0027)
Observations	116	116	114	116	110	111	111
R ²	0.0874	0.0977	0.0863	0.1289	0.0549	0.0851	0.0871

Standard errors in parenthesis

***, **, * stand for significance levels at 1, 5, and 10 percent respectively.

Table 10: OLS Individual Regressions

Dependent variable:	Ln employindersv	Ln employindersv	Ln employindersv	Ln employindersv	Ln employindersv	Ln employindersv	Ln employindersv
Independent Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
C	2.8275*** (.1285)	2.7390*** (.1175)	2.6971*** (.1251)	2.9229*** (.1403)	2.7922*** (.1265)	2.2307*** (.2555)	2.2912*** (.2151)
Ln GDPpc	.1820*** (.0150)	.1876*** (.0155)	.1944*** (.0143)	.1779*** (.0150)	.1849*** (.0136)	.2361*** (.0245)	.2299*** (.0209)
entry	-.0005* (.0003)						
credit		.0081 (.0110)					
regprop			.0020 (.0044)				
contract				-.0027** (.0011)			
exit					-.0001 (.0022)		
sophis						.0020** (.0010)	
innova							.0018** (.0008)
Observations	126	126	124	126	116	113	113
R ²	0.6172	0.6090	0.6083	0.6250	0.6464	0.6580	0.6604

Standard errors in parenthesis

***, **, * stand for significance levels at 1, 5, and 10 percent respectively.

5. Conclusions

The paper compiled a dataset of cross-country information about the size and employment contribution of the SME sector, the employment share in the industry and services sector as well as the business environment indicators in order to determine if larger SME sectors are due to competitive business environments.

Some dimensions of the business environment can explain cross-country variation in the importance of SME sector's size and contribution to employment. Specifically, three pillars are identified that support the theory of competitive business environment having a positive impact on SMEs; the ease of entry, the effectiveness of credit information sharing and the sophistication and innovation of the business environment. The evidence suggesting that a larger SME sector may be associated with higher exit costs or inefficient legal systems is weak.

An increasing body of literature is indicating that the SME sector might be a result of economic development rather than one of the causes. Nevertheless, there is no single advanced economy without a strong SME sector. The findings of this research contribute to guide the support to the SME sector when it comes to streamline the business environment in which firms operate. Improving the business environment may contribute to economic growth because it sets the conditions for any economic unit to thrive, including SMEs. For the case of the formal SME sector, it will be important to constantly improve the credit channels, and simplify the procedures for opening and closing a business. Finally, policies in favor of SMEs should pay careful attention to the issue of innovation and business sophistication beginning with topics such as fostering collaboration among enterprises, universities, and other institutions (public and private).

One of the main limitations of the study is that the definition of SME varies from country to country, which makes comparisons difficult to interpret; nonetheless, if data is aggregated (i.e. not considering micro, small,

and medium individually) the disparities could diminish. It will be also interesting to have data as for how much is the contribution of SMEs to Gross Domestic Product (GDP).

In general, a competitive business environment may result in larger SMEs sectors in terms of number of firms and contribution to employment.

To further advance in this issue it is suggested to set some broad definition of SME in order to improve the comparison among countries, as well as to include in future analyses measures of the importance of SMEs in terms of value added while maintaining the focus on business sophistication and innovation.

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