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Large firm dominance on country's entrepreneurship potentials

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Abstract

This paper aims to determine whether countries where large firms are very dominant have less entrepreneurial activities. There is anecdotal evidence that the continued decline in the business dynamism or the number of start-ups in the United States is said to be partly attributed to large firms. One key explanation is that the regulatory environment tends to favor existing large firms – an environment that allows near monopolies and a protection of tiny entrepreneurial elite. Using the Global Entrepreneurship Monitor (GEM) data together with the World Bank – International Finance Corporation's MSME country indicators, I empirically test whether large firm dominance influences entrepreneurial activities as well as intentions. Using fixed effects regression analysis on unbalanced panel of 40 countries over the period 2002–2007, I found that the entrepreneurship potential of a country is potentially at risk if the growth of large firms' stake in the economy is left unchallenged. In particular, a one percentage point increase in the share of large firms to total employment is associated with 0.35 percentage point lower total early-stage entrepreneurial activity rate, holding other factors constant. Also, worth noting is the sensitivity of entrepreneurial intentions to large firm dominance. A one percentage point increase in the share of large firms to total employment dampens (i.e., by 0.56 percentage point) intentions of latent entrepreneurs to start a business within the next 3 years, other factors remaining constant. This second-order effect of large firm dominance depends heavily on the country's institutions. Thus, it is critical for governments to foster a dynamic system that guarantees free competition and rewards creativity. Likewise, it is necessary to review and amend policies that seem to favor large firms that compromise the establishment as well as growth of smaller enterprises.

Keywords: Large firm dominance, Entrepreneurship, Global Entrepreneurship Monitor

Background

Decades back, Schumpeter (1934) regarded entrepreneurship a critical area to fully understand economic development. Up until now, enterprises remain to be considered one of the keys to eliminate poverty as postulated in the newly-established Sustainable Development Goals¹ adopted by world leaders in September 2015 at A UN Summit. Various strands of literature identified channels through which entrepreneurship impacts economic growth and development. These include job creation (e.g., Badal, 2010), productivity improvement, and structural transformation (e.g., Nallari, et al., 2010; Kritikos, 2014).

Noting the above association, entrepreneurship is gradually mainstreamed into the development literature, notwithstanding the availability of more and better data to better understand the process of entrepreneurship (Nallari, et al., 2010). The Global Entrepreneurship Monitor (GEM) successfully improved how one can measure entrepreneurial activities, including the inherent motives behind such endeavors in a cross-country context. The GEM has already been used to study, in a cross-country setting, the link of entrepreneurship to economic growth as well as the determinants of entrepreneurial activities (e.g., Estrin et al. 2011). Studies using GEM dataset have been regularly cited in high quality academic publications such as *The Journal of Business Venturing*, *Small Business Economics*, *Entrepreneurship Theory and Practice*, and the *Journal of International Business Studies*, among others (Bosma 2013; Bergmann et al. 2014). Similarly, the World Bank used the GEM dataset to flesh out information on how entrepreneurship improves growth and job creation as well as to bring in issues on gender gaps (Nallari, et al., 2010).

Entrepreneurship is also widely recognized to encourage and nurture the culture of creativity and innovation – a characteristic that could sustain and bolster country's competitiveness and economic growth. Schumpeter (1934), in his widely cited seminal work, emphasized the role of entrepreneurs in driving innovations. Similarly, Ricketts (2006) firmly believe that entrepreneurship as well as intentions to start a business drives experimentation leading to innovation. Encouraging entrepreneurial activities, then, has important public policy implications.

In response, studies that primarily aim to capture various elements driving entrepreneurial activities and intentions increased. Some focuses on the behavioral perspective where human attributes (e.g., capacities, characteristics and attitudes) were studied. Individual attributes include wealth, peer influences, income class, race, and family and educational background, among others. Gallup, Inc. has developed a framework that captures the multidimensional nature of entrepreneurship (Badal, 2010). It uses a deep understanding of human motivations, attitudes and behaviors, along with contextual variables to explain entrepreneurial activity.

Meanwhile, some focused on studying contextual variables that affect entrepreneurship. These include social capital, access to credit, role of government, technology and infrastructure, access to information, and access to markets. Roxas, et al. (2007), Desai et al. (2003), Kshetri (2007), He (2009), and Naudé (2010) all studied the role of institutions in entrepreneurship. Other national framework conditions including macroeconomic stability, skills and education, infrastructure, and other government support and policies also made waves in entrepreneurship studies.

Using the entrepreneurial indicators from the GEM, this paper will introduce a novel way how institutions influence a country's entrepreneurial potential, i.e., through the lens of large firms. Throughout the paper, country-specific classification of firms will be adopted as to what comprises large firms. The majority of countries involved in the study uses the number of employees to categorize firm sizes. Indonesia, India, Singapore and South Africa use some other measures such as asset size, net fixed investments, and sales or turnover (see Appendix 1).

This paper primarily seeks to answer the question, “*Do countries where large firms are very dominant have less entrepreneurial activities?*” The dominance of large firms can be measured in two ways: (a) share of large firms to total GDP, and (b) share of large firms to total employment. Due to data constraint, the latter measure is adopted in the succeeding sections.

The main hypothesis of the study is that the control of the large portion of the economy by incumbent large firms will discourage potential entrepreneurs, especially the smaller ones. It is largely rooted from the proposition that potential entrepreneurs will likely be inhibited by the existing environment that tends to favor existing large firms – an institutional environment that allows near monopolies and protection of tiny entrepreneurial elite. Noting Falkinger and Grossmann (2005), high oligopsony power² hinders entrepreneurial investments. Likewise, in her recent article, Murphy (2015) described the continued decline in the business dynamism or the number of start-ups in the United States as partly attributed to large firms. She further added that “a continued decline might persist even more rapidly, if the growth of large corporations is left unchallenged.”

The next section reviews relevant literature that associates large firm dominance with country’s entrepreneurship potentials. Data and Methodology discusses the data used and the statistical technique applied in the analysis. Results and discussions discusses the empirical findings. Lastly, Conclusion and policy implications concludes and recommends policy directions based on findings.

Literature review

This section briefly reviews selected literature that associates large firm dominance with entrepreneurship potentials. While Spencer et al. (2008) and Spencer and Kirchhoff (2006) posited how new firms, especially technology-based start-ups, likely redistribute wealth in the economy by introducing discontinuous change that disrupts the control of resources and economies of scale held by large firms, it is, as well, likely to discourage potential entrepreneurs if large firms control much of economic resources. As noted by OECD (2010), there are instances where policies tend to favor large existing firms and discriminate against SMEs, e.g., through effective tax rates and compliance standards. Further, Nallari et al. (2010) believed that the potential of entrepreneurship towards development could be hurdled by, among other factors, the concentration of income and wealth in the hands of a few elites.

Falkinger and Grossmann (2005) studied the interaction of entrepreneurial investments (specifically in the manufacturing sector) and power of the owners of land or other natural resources. High oligopsony power in the primary goods sector — resulting from strong concentration of resource ownership — is a hurdle to entrepreneurial investments in manufacturing.

Further, Hathaway and Litan (2014), in their study on the declining business dynamism in the United States, observed that older and larger business fared better than younger and smaller ones, resulting to the decline in the number of start-ups. This led Murphy (2015), in her article, to note that a continued decline in the US business dynamism might persist even more rapidly, if the growth of large corporations is left unchallenged.

The abovementioned empirical and theoretical literatures suggest that one potential area of research that has yet to be further studied is on the extent of how large firm dominance affects future entrepreneurial activities or investments.

Methods

This section discusses the data I used in the analysis, as well as the econometric approach applied. To check the robustness of the model and the results therefrom, several adjustments of the baseline model are also done.

Entrepreneurial activities and intentions

Entrepreneurial activities and intentions data for the period under study, i.e., 2002–2007, is sourced from the GEM. The GEM is one of the world's largest cross-national collaborative social science research projects (Bosma 2013). The GEM was founded in 1999 as a joint project between Babson College and London Business School primarily aimed to determine factors making some countries more 'entrepreneurial' than others. It has since become a widely used resource for researchers studying factors influencing entrepreneurship, identifying the link between entrepreneurship and the economic performance of nations and regions, the interplay between institutions, entrepreneurship and development, as well as the different types of entrepreneurship.

Entrepreneurial activity (%) is defined as the percentage of individuals aged 18–64 who are either a nascent entrepreneur³ or owner-manager of a new business.⁴ The GEM further classified entrepreneurial activity depending on the main motivation of entrepreneurs in building up their businesses. One refers to opportunity motive, operationally defined as the percentage of individuals involved in early-stage entrepreneurial activity (as defined above) who claim to be purely or partly driven by opportunity as opposed to finding no other option for work. This includes taking advantage of a business opportunity or having a job but seeking better opportunity. On one hand, there are those motivated by necessity, operationally defined as the percentage of individuals involved in early-stage entrepreneurial activity (as defined above) who claim to be driven by necessity (having no better choice for work) as opposed to opportunity. Meanwhile, entrepreneurial intention (%) refers to the percentage of individuals aged 18–64 who expect to start a business within the next 3 years.

Large firm dominance

The dominance of large firms can be measured in two ways: (a) share to GDP and (b) share to employment. The former better gauges how dominant large firms are on a country's economic activity. However, due to data limitations, the latter measure will be used. The share to employment of large firms is derived from World Bank - International Finance Corporation's (WB-IFC) MSME Country Indicators database. It provides both the latest global snapshot and historical data 20 years back on the number of MSMEs and its economic participation in 132 countries. The database compiles the economic participation of MSMEs in terms of total employment from individual country's statistical agencies. The

share of large firms to total employment is calculated as the difference between 100% and MSME's share.

Control variables

Factors such as entrepreneurial education, access to financing, state of infrastructure, available R&D, macroeconomic stability and protection of intellectual property rights are the control variables considered as determinants of entrepreneurial activities and intentions. These data are sourced from GEM, Economic Freedom of the World and World Bank Development Indicators.

Estimation model

To attribute differences in entrepreneurial activities and intentions to large firm dominance, ideal experiments would require comparison of two identical countries, create an environment that fosters dominance of large firms on one country, and take the difference in entrepreneurial activities and intentions with the “control” country. But this kind of experiments is hardly done in cross-country analysis. To mimic such an experiment, I used fixed effects regression analysis that incorporates unobserved time-invariant covariates including constant differences between countries such as culture and history as well as potential heterogeneity between regions. Unobservable time-varying contemporaneous shocks, e.g., technological advances, are also added. This approach, in essence, permits analyzing whether country-specific deviations in entrepreneurial activities and intentions are related to country-specific deviations in large firm dominance, after accounting for any other factors or covariates common to all countries. The general model is specified as follows:

$$Entrep_{it} = \alpha + \theta large_{firm} dominance_{it} + \beta X_{it} + \delta_i + \omega_t + \rho_i + \varepsilon_{it} \quad (1)$$

where $Entrep_{it}$ denotes the rate of entrepreneurial activity and intention of country i at time t . Several GEM measures are used as the dependent variable: (a) the overall entrepreneurial activity (%) as well as the sub-classifications on motivation, i.e., opportunity motive and necessity motive, and (b) entrepreneurial intentions (%).

X_{it} is a vector of independent variables that include:

- a. Entrepreneurship education score– the extent to which entrepreneurship is integrated within the education sector (scores range from 1 to 5).
- b. Start-up cost – the cost (% of per capita income) for a small- to medium-sized limited liability company to start up and formally operate (Ease of Doing Business Report, World Bank Group).
- c. R&D score – refers to the extent to which national research and development will lead to new commercial opportunities and is available to SMEs (scores range from 1 to 5).
- d. Macroeconomic volatility – refers to the 5-year moving standard deviation of real GDP growth.

Higher scores on entrepreneurship education as well as the ability of countries to support commercial R&Ds are expected to boost entrepreneurial activities and

intentions. For the majority of entrepreneurs, especially the financially constrained ones, all costs associated with starting a business needs to be minimized. The lower the ratio of start-up costs relative to per capita income, the more start-ups are expected. Meanwhile, when an economy displays high growth volatility amid shocks, entrepreneurial activities and intentions tend to be lower.

The coefficient, θ , is expected to be negative, which will be interpreted as the extent by which the dominance of large firms (in employment) unnecessarily deters entrepreneurial potentials (activities and intentions) of a country. In relation to the hypothesis, a negative coefficient indicates that a country where large firms seem dominant would tend to have lower entrepreneurial activities and intentions.

All time-invariant factors that could influence the entrepreneurial activities and intentions of a country, e.g., culture, geography, among others, are accounted for by the inclusion of country-specific fixed effects, δ_i . Meanwhile, time-varying unobservable factors are addressed by the addition of year fixed effects, ω_t . Potential heterogeneity across regions (i.e, Asian and non-Asian region) is controlled for by the region fixed effects, ρ_i . The idiosyncratic error term, ε_{it} , is assumed to be normal.

Robustness check

To check the robustness of the model and consequently its results, I made several adjustments of equation (1). Three different exercises are made: (a) exclude year fixed effects; (b) come up with a balanced dataset by getting the average of 2002–2004 and 2005–2007 for all variables, and re-run the baseline equation; and (c) run the baseline model with the inclusion of other control variables. The additional control variables include the strength of IPR protection index, per capita GDP (in 2005 USD), infrastructure index, political stability index, regulatory quality index and rule of law index.

Results and discussions

This section presents the descriptive statistics of the panel data and the empirical findings from the regression analysis.

Summary statistics

The study used an unbalanced panel of 40 countries (see Appendix 2 for the full list of countries) for a total of 94 observations limited to years 2002 to 2007.⁵ Countries involved are selected randomly based on data availability on entrepreneurship variables and large firm dominance. Likewise, it is important to note that this study is unable to account post-crisis period. While entrepreneurship variables are available up to 2015, the most recent data on the share of large firms to total employment from the MSME Country Indicators of the WB-IFC is 2007.

Table 1 shows that for the sample as a whole, 8.0% of working-age population is engaged in early-stage entrepreneurial activities. It is also apparent that there are, on average, more entrepreneurs driven by opportunity (6%) than necessity (1.7%). Likewise, 14.5% of the working-age population intends to venture into

Table 1 Summary statistics

Variables	Unit	No. of obs.	Mean	Std. Dev.	Min	Max
Entrepreneurial activities and intentions						
Entrepreneurial activity	%	94	8.0	5.8	1.4	40.3
<i>of which:</i> Necessity motive ^a	%	94	1.7	2.1	0.2	13.1
Opportunity motive ^b	%	94	6.0	4.1	0.8	26.9
Entrepreneurial intentions	%	94	14.5	10.9	1.1	62.8
Established business ownership rate	%	94	6.9	4.1	0.5	21.9
Large firm dominance						
Share to total employment of large firms	%	94	56.9	15.1	7.2	97.8
Control variables						
Entrepreneurship education score	index (1 to 5)	94	2.1	0.3	1.4	2.8
R&D score	index (1 to 5)	94	2.5	0.4	1.6	3.5
Start-up cost (% of per capita income)	%	94	13.2	16.5	0.2	102.1
Macroeconomic volatility	5-year moving std. dev.	94	1.7	1.7	0.4	9.4

^aNecessity motive is operationally defined as the percentage of individuals involved in early-stage entrepreneurial activity who claim to be driven by necessity (having no better choice for work) as opposed to opportunity

^bOpportunity motive is operationally defined as the percentage of individuals involved in early-stage entrepreneurial activity who claim to be purely or partly driven by opportunity

business within the next 3 years. On average, large firms account for bulk of employment at around 56.9%, indicating the dominant role of large firms in an economy.

Results

It is evident in Table 2 (under the baseline model) that the dominance of large firms (in employment) potentially discourages entrepreneurship activities and intentions. Particularly, on average, a one percentage point increase in the share of large firms to total employment depresses total early-stage entrepreneurial activity rate by 0.35 percentage point, holding other factors constant. In addition, large firm dominance is associated with lower entrepreneurial activities for both opportunity-driven (-0.22 percentage point decline) and necessity-driven entrepreneurs (-0.11 percentage point decline). It is also worth to note that entrepreneurial intention is more sensitive to large firm dominance. A one percentage point increase in the share of large firms to total employment will potentially dampen (i.e., by 0.56 percentage point) intentions of latent entrepreneurs to start a business within the next 3 years, other factors remaining constant.

Entrepreneurial potential of a country is potentially at risk if the growth of large firms’ stake in the economy is left unchallenged. It may be explained by the bounded entrepreneurship that Ray (1993) argues to arise from conditions such as the dominance of an elite entrepreneurial class. He noted De Soto’s argument that the dominant entrepreneurial class tends to favor the monopolistic interests of the elite entrepreneurial class instead of advocating an egalitarian and dynamic system in which law would guarantee free competition and reward creativity. This system, he described as “owned”, discourages production of new wealth from potential entrepreneurs and stimulates “non-productive and parasitic activity”.

Table 2 Regression results, main estimates and robustness check

Dependent variables	Baseline Model					Baseline model but no year fixed effects						
	Entrepreneurial activity	Opportunity motive	Necessity motive	Entrepreneurial intentions	Entrepreneurial activity	Opportunity motive	Necessity motive	Entrepreneurial intentions	Entrepreneurial activity	Opportunity motive	Necessity motive	Entrepreneurial intentions
Share to total employment of large firms	-0.35*** (0.1063)	-0.22*** (0.0724)	-0.11*** (0.0365)	-0.56*** (0.1852)	-0.34*** (0.1079)	-0.21** (0.0804)	-0.10*** (0.0324)	-0.53*** (0.1816)				
Entrepreneurship education	1.15 (2.2577)	0.43 (1.6703)	0.13 (0.7060)	1.44 (3.1128)	1.34 (1.8951)	0.84 (1.4561)	-0.12 (0.5513)	2.15 (2.5368)				
Available commercial R&D	0.40 (2.4756)	-0.02 (1.8435)	0.36 (0.8511)	-0.17 (3.0841)	-0.04 (2.1021)	-0.45 (1.7241)	0.37 (0.7007)	-0.87 (2.7552)				
Macroeconomic volatility	-1.70 (1.6105)	-0.78 (1.0364)	-0.94 (0.5704)	-0.81 (1.0947)	-1.72 (1.3889)	-0.89 (0.8211)	-0.87 (0.5582)	-0.86 (0.9624)				
Start-up cost	0.08 (0.1932)	0.05 (0.1320)	0.07 (0.0704)	0.21 (0.1991)	0.13 (0.1437)	0.05 (0.1080)	0.11** (0.0437)	0.23 (0.1459)				
Constant	54.36*** (19.3267)	33.36** (12.7479)	19.79*** (6.8161)	72.92*** (22.2386)	52.61*** (17.6500)	33.18*** (11.9132)	18.69*** (6.0825)	71.13*** (21.4575)				
Observations	94	94	94	94	94	94	94	94				
R squared	0.958	0.953	0.966	0.980	0.956	0.949	0.962	0.979				
Dependent variables	Synthetic balanced panel					Baseline model with added controls ^a						
Share to total employment of large firms	-0.39*** (0.0766)	-0.26*** (0.0409)	-0.11*** (0.0372)	-0.69*** (0.1246)	-0.36*** (0.0986)	-0.21*** (0.0696)	-0.14*** (0.0305)	-0.60*** (0.1934)				
Entrepreneurship education	2.24 (3.4638)	0.67 (1.8257)	0.58 (1.9070)	-3.14 (6.5085)	1.52 (2.3406)	0.79 (1.7529)	0.30 (0.7369)	1.70 (3.3775)				
Available commercial R&D	-2.57 (3.3948)	-1.58 (1.7900)	-0.11 (1.8663)	-4.69 (8.5578)	0.28 (2.5537)	0.02 (1.9807)	0.07 (0.6829)	0.04 (3.2415)				
Macroeconomic volatility	0.46 (1.5233)	0.62 (0.8225)	-0.09 (0.8091)	-0.66 (1.4761)	-1.35 (1.2011)	-0.44 (0.7930)	-0.94** (0.3571)	-0.63 (0.9317)				
Start-up cost	0.22 (0.2138)	0.14 (0.1129)	0.13 (0.1050)	0.59 (0.4489)	-0.01 (0.1459)	-0.02 (0.0882)	0.04 (0.0580)	0.28 (0.2200)				

Table 2 Regression results, main estimates and robustness check (Continued)

Constant	41.32** (19.5082)	26.22** (9.7894)	12.33 (10.8046)	88.93*** (19.4546)	46.68*** (15.0089)	25.36** (9.9949)	21.00*** (4.7047)	73.99*** (22.3511)
Observations	38	38	38	38	93	93	93	93
R squared	0.991	0.995	0.981	0.996	0.966	0.962	0.975	0.982

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$; Standard errors are reported in parenthesis

^a Additional control variables include strength of IPR protection, per capita GDP, infrastructure index, political stability, regulatory quality and rule of law

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$; Standard errors are reported in parenthesis

In a similar vein, this has something to deal with what OECD (2010) noted that there are instances where policies tend to favour large existing firms and discriminate against SMEs, e.g., through effective tax rates and compliance standards. Nallari et al. (2010) believed that the potential of entrepreneurship towards development could be hindered by, among other factors, the concentration of income and wealth in the hands of a few elites.

The result is found robust based on alternative models/equations performed. Disregarding the year constant term, the coefficients of large firm dominance are not statistically different with the baseline model. A one-percentage point increase in the share of large firms to total employment is associated with 0.34 percentage point decrease in entrepreneurial activity, 0.21 percentage point for opportunity-driven entrepreneurs and 0.10 percentage point for necessity-driven ones, keeping all other factors constant. In addition, there is expected 0.53 percentage point decrease in entrepreneurial intentions from a higher large firm dominance, other factors remaining constant.

Similar observations can be inferred from the other two alternative models. The synthetic balanced dataset after getting the average 2002–2004 and 2005–2007 generated not statistically different coefficients of large firm dominance with that of the baseline model. Holding other factors constant, a percentage increase in large firms' share to total employment is, on average, associated with 0.39 percentage point lower entrepreneurial activity, 0.26 percentage point lower for opportunity-driven entrepreneurs and 0.11 percentage point lower for necessity-driven entrepreneurs. Entrepreneurial intentions is likewise at risk for this alternative model, at 0.69 percentage point lower for a percentage point increase in large firm dominance, other things being equal.

Lastly, for the model with the addition of other explanatory variables such as the strength of IPR protection, per capita GDP, infrastructure index, political stability, regulatory quality and rule of law generated results similar with the other models. Entrepreneurial activity is, on average, lower by 0.36 percentage point from a percentage point increase in large firm dominance, 0.21 percentage point for opportunity-driven and 0.14 percentage point for necessity-driven entrepreneurs.

Conclusion and policy implications

Several factors have already been identified that either drive or depress entrepreneurial activities. In the short-run, the tendency and form of entrepreneurial activity is influenced by the state of economy (Reyes, et al., 2013) as macroeconomic health and vibrancy is said to guarantee growth (OECD, 2010). Regulatory quality that determines how costly it is to establish an enterprise as well as the access to finance are among the other critical elements that affect one's desire to start a business.

Likewise, entrepreneurs need adequate infrastructure, such as quality ICT services (e.g., internet access) as well as commercial R&D. The country's stock of human resources also defines how entrepreneurial a country will be. As Velasco (2013) mentioned, there would be more people likely to engage in business

activities if entrepreneurial education is well integrated in the country's education system.

This study presents a novel way to analyse how institutions influence a country's entrepreneurial potential, i.e., through the lens of large firms. As estimated, the dominance of large firms (measured in terms its share to total employment) potentially inhibits entrepreneurial activities and intentions. In addition, much attention needs to be put into its effect on latent entrepreneurs. This could affect a country's long-run growth because entrepreneurship is believed to play a critical role in one country's economic growth and development (Schumpeter, 1934).

There is consensus among researchers that studied entrepreneurship for a set of policy recommendations that could potentially encourage more start-ups. All points towards cutting costs associated with starting a business, ensuring macroeconomic stability, improving infrastructure, regulatory services and access to finance. Some emphasized the need to incorporate entrepreneurship in the education sector to younger generations the importance of building a dynamic business sector to economic development.

Technological advancement, including the ever increasing use of the social media, has been offering unique solutions that would further drive entrepreneurship activities and intentions. Financially constrained potential entrepreneurs may take advantage of the thriving crowdfunding practice of funding a venture. Financial access through crowdfunding potentially transforms banks and credit institutions in the developing world (Caldwell et al., 2016).

Despite the potential risk from the excessive growth of large firms' stake in the economy, large enterprises also play a vital role in fostering one country's entrepreneurial potential. The key is to establish a strong link between large firms and smaller ones in the production chain.

Since the dominance of large firms in the economy is believed as a second-order issue resulting from institutional flaws promoting monopolistic interests of the elite entrepreneurial class, governments should do away with such a system. A dynamic system that guarantees free competition and rewards creativity must be put up and maintained. Likewise, it is necessary to review policies that seem to favor large firms that compromise the establishment as well as growth of smaller enterprises. The OECD (2010) identified effective tax rates and compliance standards as some of the policy areas that may discriminate against small enterprises.

Endnotes

¹Detailed information can be accessed here: <http://www.un.org/sustainabledevelopment/sustainable-development-goals/>

²Oligopsony power is determined by strong concentration of resource ownership (Falkinger and Grossmann 2005).

³Percentage of individuals aged 18–64 who are currently a nascent entrepreneur, i.e., actively involved in setting up a business they will own or co-own; this business has not paid salaries, wages, or any other payments to the owners for more than 3 months.

⁴Owner and manager of a running business that has paid salaries, wages, or any other payments to the owners for more than 3 months, but not more than 42 months.

⁵Data set is available here: <https://zenodo.org/record/165523#.WCJlfl97IU>

Appendix 1

Table 3 Classification of firms by country

Country	Firm classification	Criteria			
		Micro	Small	Medium	Large
Argentina	no. of employees	Industry < 5 Trade < 5 Services < 4	Industry < 24 Trade < 23 Services < 17	Industry < 96 Trade < 67 Services < 66	Industry > 96 Trade > 67 Services > 66
Australia	no. of employees	1-4	5-19	20-199	> 199
Austria	no. of employees	1-9	10-49	50-249	>249
Belgium	no. of employees	1-9	10-49	50-249	>249
Brazil	no. of employees	0-9	10-49	50-249	>249
Canada	no. of employees	1-9	10-99	100-499	>500
Switzerland	no. of employees	1-9	10-49	50-99	> 100
Chile	no. of employees	1-9	10-49	50-199	>200
Czech Republic	no. of employees	1-9	10-49	50-249	>249
Germany	no. of employees	1-9	10-49	50-249	>249
Denmark	no. of employees	1-9	10-49	50-249	>249
Spain	no. of employees	1-9	10-49	50-249	>249
Finland	no. of employees	1-9	10-49	50-249	>249
France	no. of employees	1-9	10-49	50-249	>249
Greece	no. of employees	1-9	10-49	50-249	>249
Hong Kong	no. of employees	Manufacturing < 100 Non manufacturing < 50			Manufacturing > 100 Non manufacturing > 50
Croatia	no. of employees	0-9	10-49	50-249	>249
Hungary	no. of employees	1-9	10-49	50-249	>249

Table 3 Classification of firms by country (Continued)

Indonesia	asset and turnover size	a ≤ Rp. 50 mil; t ≤ Rp. 300 mil	Rp. 50 mil < a ≤ Rp. 500 mil; Rp. 300 mil < t ≤ Rp. 2,5 bil	Rp. 500 mil < a ≤ Rp. 2,5 bil; Rp. 2,5 bil < t ≤ Rp. 50 bil	Rp. 500 mil > a ≥/= Rp. 2,5 bil; Rp. 2,5 bil > t ≥/= Rp. 50 bil
India	investment size	Mfg.: Invst. < US\$ 50,000, Servc.: Invst. < US\$ 20,000	Mfg.: Invst. < US\$ 1 mil, Servc.: Invst. < US\$ 0,4 mil	Mfg.: Invst. < US\$ 2 mil, Servc.: Invst. < US\$ 1 mil	Mfg.: Invst. > US\$ 2 mil, Servc.: Invst. > US\$ 1 mil
Ireland	no. of employees	1-9	10-49	50-249	>249
Iceland	no. of employees	1-9	10-49	50-249	>249
Israel	no. of employees	1-9	10-49	50-100	>100
Italy	no. of employees	1-9	10-49	50-249	>249
Jamaica	no. of employees	1-3	4-10	11-49	>49
Jordan	no. of employees	1-4	5-19	20-99	>99
Japan	no. of employees	1-4	5-19	20-299	>299
Kazakhstan	no. of employees	0-50		51-250	>250
Korea	no. of employees	<10 in Mfg., Mining, Constr., Transp.; < 5 in other	<50 in Mfg., Mining, Constr., Transp.; < 10 in other	<300 depending on industry	>300 depending on industry
Latvia	no. of employees	1-9	10-49	50-249	>249
Netherlands	no. of employees	1-9	10-49	50-249	>249
Norway	no. of employees	1-9	10-49	50-249	>249
New Zealand	no. of employees	1-9	10-99	100-499	>499
Peru	no. of employees	1-10	11-50	51-200	>200
Philippines	no. of employees	1-9	10-99	100-199	>199
Poland	no. of employees	1-9	10-49	50-249	>249
Puerto Rico	no. of employees	1-9	10-49	50-249	>249
Portugal	no. of employees	1-9	10-49	50-249	>249
Romania	no. of employees	1-9	10-49	50-249	>249
Russia	no. of employees	1-15	16-100	101-250	>250

Table 3 Classification of firms by country (Continued)

	net fixed asset investments	no. of employees	no. of employees	no. of employees	Non manufacturing < 200 million Manufacturing < \$15 million	Non manufacturing > \$200 million Manufacturing > \$15 million
Singapore						
Slovenia		1-9	10-49	50-249		
Sweden		1-9	10-49	50-249		
Thailand			Production < 50 Services < 50 Wholesale < 25 Retail < 15	≤51 Production < 200 ≤51 Services < 200 ≤26 Wholesale < 50 ≤16 Retail < 30	Production > 200 Services > 200 Wholesale > 50 Retail > 30	
Turkey		1-19	20-49	50-249		
Uruguay		1-4	5-19	20-99		
United States		1-9	10-99	100-499		
Venezuela			1-50	51-100		
South Africa			<50; t < R 32mil (differentiated by sector)	Agri < 100; other < 200; t < R 64mil (differentiated by sector)	Agri > 100; other > 200; t > R 64mil (differentiated by sector)	

Appendix 2

Table 4 List of Countries in the Panel

1	Austria	29	Philippines
2	Belgium	30	Poland
3	Brazil	31	Puerto Rico
4	Canada	32	Portugal
5	Switzerland	33	Singapore
6	Chile	34	Slovenia
7	Czech Republic	35	Sweden
8	Germany	36	Thailand
9	Spain	37	Turkey
10	Finland	38	Uruguay
11	France	39	United States
12	Greece	40	South Africa
13	Hong Kong		
14	Croatia		
15	Hungary		
16	Indonesia		
17	India		
18	Ireland		
19	Iceland		
20	Italy		
21	Jordan		
22	Japan		
23	Kazakhstan		
24	Latvia		
25	Netherlands		
26	Norway		
27	New Zealand		
28	Peru		

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Competing interest

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