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Private Sector Development Index of OIC Countries

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Private sector development is a multidimensional process both conceptually as well as empirically. It involves many efficiency, quality, sustainability, performance and dynamism features. However, there is no a single country-level measure that captures all these dimensions or features of private sector development. Our paper contributes to the current literature by introducing new composite index of private sector development and its four sub-indices: environment, penetration, sophistication and accountability. These indices are first time created for 57 OIC countries, which can be recalculated on annual basis and should offer a useful analytical tool for policy makers and researchers.

Keywords: Private Sector, Private Sector Development, Index

i. Introduction

There is a growing recognition of the critical importance of the vibrant private sector in sustainable, inclusive and fair development. Private sector development involves improvements in such features or functions provided by the private sector as: quality goods and services, resources and capital allocation, new and sustainable jobs, pays and compensations, fiscal budget revenues, market efficiency and productivity, innovation and knowledge transfers, competitive economy etc.

Generally, there are two types of measures that try approximate private sector development: a) aggregate level objective indicators (i.e., share of private sector in GDP or employment; volume of private sector investment) and b) composite indices developed by international agencies (i.e., Doing Business Index of the World Bank; Global Competitiveness Index of the World Economic Forum).

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Nevertheless, private sector development is a multidimensional process both conceptually as well as empirically. Private sector has gradually evolved across the world, and it involves now many quality, sustainability, performance and dynamism features. However, there is no a single country-level measure that captures all these dimensions or features of private sector development.

In this study, we introduce a four-dimensional Private Sector Development Index of OIC countries to overcome the shortcomings of single indicators or indices. The composite index and its four sub-indices (environment, penetration, sophistication and accountability) are significant improvement over the traditional and single measures and indices of private sector development. We construct the composite index and its sub-indices for 57 OIC countries for the year 2017, using 24 distinct indicators. The paper contributes to the empirical literature as follows. First, we summarize the diverse set of indicators in one easy to use index and four sub-indices. To the best of our knowledge, this is the first ever indicator in that sense. It helps us to avoid the burden of tracking a diverse set of indicators individually. Second, it allow us to assess comprehensively a particular dimension of private sector development and pin down where deficiencies or strength lie. This conclusion could then be further investigated using the disaggregated data from original sources.

The remaining part of the paper is structured as follows. Section 2 provides a brief Literature Review, which is followed by Data and Methodology in Section 3. It continues with Section 4 that reports the main results and discusses some robustness checks. We conclude the paper with high level recommendations and limitations.

ii. Literature review

According to the literature, the private sector involves a broader range of activities, and sometimes it is difficult to draw clear borders between public and private sector. According to Department of International Development (DFID) (2007), the private sector includes agents from farmers to street traders to foreign investors. The Organization for Economic Cooperation and Development (OECD) (1995) defines the private sector as “people organizing themselves into enterprises to carry out production of goods and services to meet market demands and in

process creating jobs, income and wealth for the economy that provide support to enable them to perform these functions". Lienert (2009) defines the private sector based on ownership of institutional units and argues that "Economic Ownership" is an essential factor to avoid ambiguity of allocating entities to either the Public or Private sectors. Hood (2007) implies that the private sector includes formal and informal economic units and enterprises that are directly or indirectly owned by non-governmental entities. For sake of simplicity, we also follow Hood's definition, but limit it to only formal economic agents.

There are a number of indicators or indices that allow us to approximate country-level status of private sector development across the globe. Those indicators, can be grouped under two categories: a) aggregate level objective indicators (i.e., share of private sector in GDP or employment; volume of private sector investment) and b) composite indices developed by international agencies (i.e., Doing Business Index of the World Bank; Global Competitiveness Index of the World Economic Forum).
Nevertheless, all these traditional indicators in general, tend to capture only partially the various features/dimensions of the private sector development. Empirically, there is not a single indicator, when taken its own, would offer a comprehensive understanding of the level of private sector development. And yet, private sector development is a multidimensional process. For example, an enabling business environment is a prerequisite for well-functioning private sector (Federal Ministry for Economic Cooperation and Development (BMZ), 2013). Conceptually, physical and financial infrastructure, regulatory and legal frameworks are underlying drivers of private sector landscape. According to Hood (2007), private sector development outputs include policies, practices, laws, regulations, infrastructure, and other factors necessary to foster businesses.

Private sector presence, penetration and integration into the global economy is another dimension to be considered (DFID, 2011). Improved business environment as an immediate outcome, in its turn results in a better contribution of the private sector to the economy. The sector gets better integrated to economy through creating value addition, employing people and allocating resources.

With the passage of time, private sector has evolved across the world and modern private sector has embedded with new qualities and social

features. In addition to traditional dimensions of private sector development (i.e., environment and penetration), facets such as sophistication (i.e., efficiency, innovation, competitiveness) and social accountability (social entrepreneurship, ethical behavior, social values) now play substantive roles in explaining the level of private sector development. BMZ (2013) for example, stresses on the advancement level of the economy for a more accommodative business environment and better ideas creation. Labuschagne; Brent; and van Erck (2005) focuses on the value addition through ethical practices that directly feed into sustainable development.

As discussed above, multidimensional nature of private sector development requires us to look at a diverse set of indicators and indices. In order to avoid a burden of tracking a multiple indicators individually and to overcome the shortcomings of single indicators as proxies for private sector development, we propose a composite index, which is a summary of four sub-indices namely, Private Sector Environment (PSE); Private Sector Penetration (PSP); Private Sector Sophistication (PSS); Private Sector Accountability (PSA) Indices (Figure 1).

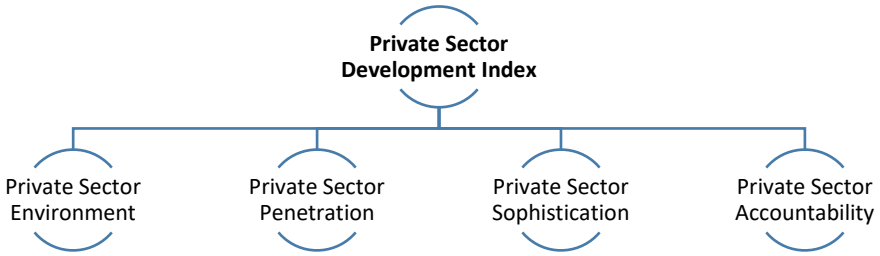


Figure 1: Composition of Private Sector Development Index

These four sub-indices and the final composite index pull together multiple indicators and allow a comprehensive assessment of particular features and the overall level of private sector development. This lets us to pin down where deficiencies or strength in private sector development lie, which could then be examined in greater detail using the disaggregated data at individual level.

iii. Methodology and data

3.1. Methodology

We construct the composite index of the private sector development by using the following three-step approach which is proposed in OECD Handbook on Constructing Composite Indicators (OECD, 2008) and effectively utilized by Svirydzenka (2016):

a) Normalization of variables that were used under particular dimension of private sector development;
b) Aggregation of normalized variables into the sub-indices representing different functional dimensions;
c) Combine the sub-indices into the final composite index.
d)

Firstly, all indicators are normalized between 0 and 1, using the min-max procedures:

$$\boldsymbol{I_x = \frac{x - x_{min}}{x_{max} - x_{min}}} \quad \textbf{(1)}$$

$$\boldsymbol{I_x = 1 - \frac{x - x_{min}}{x_{max} - x_{min}}} \quad \textbf{(2)}$$

Where x is the underlying raw data and I_x is the transformed continuous 0-1 indicator.

Normalization procedure facilitates aggregation over variables expressed in different measurement units and brings their values into an identical range [0, 1]. It relates country performance on an indicator to all countries' minimum and maximum, and thus, the highest (lowest) value of a given variable across countries is equal to one (zero). We use some

indicators (i.e., time to start a business, time to get electricity, time to resolve insolvency), where higher value indicates less development. For these cases, we apply the formula 2 of min-max procedure, in order to rescale the ratings.

Secondly, normalized variables are then aggregated into the four sub-indices of the private sector development index. These aggregations are weighted linear averages of the underlying series, where the weights are obtained from principal component analysis. The principal component analysis (PCA) reflects the contribution of each underlying series to the variation on the specific sub-index. As a statistical method, the PCA does not allow one to prejudge the importance of particular indicators in measuring private sector development. The PCA groups together individual indicators which are collinear to form an aggregate indicator that carries as much as possible of the information common to individual indicators. It allows to account for greatest possible variation in the indicator set using the smallest possible number of indicators.

Thirdly, using the same procedure above, the sub-indices then combined into the final composite index of private sector development.

3.2. Data

The Private Sector Development (PSD) index draws on a number of data sources: Doing Business Report of the World Bank; Enterprise Surveys of the World Bank; Global Competitiveness Report of the World Economic Forum; and World Development Indicators of the World Bank. The composite index contains 24 distinct indicators, split among four sub-indices or categories: environment, penetration, sophistication and accountability. Indicators for each sub-indices are selected based on the following five criteria:

a) Suitability – data relevance for selected category (sub-index)
b) Availability – data availability across countries and time periods
c) Consistency – data consistency across time and the countries
d) Reliable – data accuracy for intended use
e) Verifiable—so that processes that produce the indicators can be validated

In total, we have selected 24 indicators based on the above mentioned criteria. The date sources and definitions of each indicator are provided in Annex 1, while Annex 2 reports the summary statistics of the underlying data.

iv. Results

In this section, we report and discuss the results of relative ranking of countries on overall, as well as on four dimensions private sector development: PS environment, PS penetration, PS sophistication and PS responsibility. Table 2 reports the state of overall private sector development in 2017 across 57 OIC countries. As we see, the United Arab Emirates (UAE) is the country with the highest PSD index score of 0.8762, while Turkmenistan closes the ranking with the overall score of 0.0018. In terms of composite private sector development index, top 10 OIC countries are: the UAE, Malaysia, Qatar, Bahrain, Jordan, Azerbaijan, Indonesia, Morocco, Kingdom of Saudi Arabia and Turkey. Moreover, there are some differences in terms of country ranking across various dimensions of the private sector development. Some countries might present fairly high ranking in some dimensions, while could lack behind in other dimensions. For example, Gabon ranks 3rd in PSP sub-index, while stay far behind (37th) when it comes to the ranking in PSE. Another example is Qatar, which is ranked 2nd in the PSA index, while it stands at 14th place in terms of PSP sub-index. Likewise, there is a high divergence for other countries like Morocco (2nd in PSP versus 19th in PSA), Kingdom of Saudi Arabia (6th in PSS versus 23rd in PSP), Azerbaijan (4th in PSS versus 12th in PSP).

Table 1: Country Rankings on Private Sector Development, 2017

	PS Development		PS Environment		PS Penetration		PS Sophistication		PS Accountability	
	rank	**score**	rank	score	rank	score	rank	score	rank	score
United Arab Emirates	**1**	**0.8762**	1	0.9018	1	0.7555	1	0.9061	1	0.9416
Malaysia	**2**	**0.8078**	2	0.8834	4	0.5598	2	0.8895	3	0.8984
Qatar	**3**	**0.7361**	4	0.7745	14	0.4016	3	0.8333	2	0.9353
Bahrain	**4**	**0.6662**	3	0.8043	7	0.4772	5	0.6927	5	0.6904
Jordan	**5**	**0.6258**	11	0.6949	5	0.5566	8	0.6269	8	0.6248
Azerbaijan	**6**	**0.6182**	10	0.7043	12	0.4146	4	0.6950	7	0.6591
Indonesia	**7**	**0.6110**	12	0.6326	10	0.4546	7	0.6562	4	0.7006
Morocco	**8**	**0.5993**	5	0.7484	2	0.6135	12	0.5224	19	0.5130
Saudi Arabia	**9**	**0.5617**	16	0.6039	23	0.3101	6	0.6608	6	0.6720
Turkey	**10**	**0.5475**	6	0.7478	19	0.3376	10	0.5566	15	0.5482
Albania	**11**	**0.5413**	7	0.7088	15	0.3984	19	0.4699	11	0.5879
Oman	**12**	**0.5263**	8	0.7077	31	0.2869	13	0.5155	10	0.5950
Gambia	**13**	**0.5250**	17	0.6019	11	0.4421	17	0.4771	12	0.5787
Cote d'Ivoire	**14**	**0.5110**	13	0.6223	6	0.4829	25	0.4049	16	0.5338
Guinea	**15**	**0.5073**	34	0.4792	8	0.4683	15	0.4806	9	0.6011
Senegal	**16**	**0.4930**	20	0.5704	13	0.4029	14	0.4855	18	0.5133
Lebanon	**17**	**0.4924**	14	0.6142	26	0.3058	9	0.5920	24	0.4577
Brunei	**18**	**0.4841**	15	0.6100	32	0.2722	16	0.4796	13	0.5745
Kazakhstan	**19**	**0.4698**	18	0.5832	28	0.3041	18	0.4718	17	0.5198
Tunisia	**20**	**0.4620**	9	0.7074	24	0.3097	27	0.3966	28	0.4344
Uganda	**21**	**0.4591**	19	0.5774	16	0.3763	28	0.3959	21	0.4869
Gabon	**22**	**0.4515**	37	0.4405	3	0.6095	36	0.2999	25	0.4560
Egypt	**23**	**0.4483**	24	0.5529	30	0.2957	21	0.4367	20	0.5079
Tajikistan	**24**	**0.4454**	22	0.5601	29	0.2999	31	0.3515	14	0.5702
Cameroon	**25**	**0.4381**	36	0.4544	9	0.4624	29	0.3712	22	0.4647
Guyana	**26**	**0.4370**	23	0.5567	20	0.3311	24	0.4135	27	0.4466
Pakistan	**27**	**0.4263**	28	0.5163	22	0.3142	20	0.4423	29	0.4326
Nigeria	**28**	**0.4220**	32	0.4875	17	0.3720	26	0.4042	30	0.4242
Kuwait	**29**	**0.4201**	21	0.5637	40	0.1293	11	0.5289	23	0.4586
Iran	**30**	**0.3928**	25	0.5501	36	0.2010	23	0.4232	32	0.3967
Benin	**31**	**0.3904**	30	0.4977	27	0.3047	34	0.3113	26	0.4480
Mali	**32**	**0.3891**	33	0.4796	25	0.3058	30	0.3554	31	0.4157
Mozambique	**33**	**0.3807**	26	0.5275	18	0.3682	35	0.3059	37	0.3212
Bangladesh	**34**	**0.3638**	38	0.4372	34	0.2447	22	0.4261	35	0.3473
Kyrgyzstan	**35**	**0.3638**	27	0.5247	21	0.3205	38	0.2520	34	0.3579
Algeria	**36**	**0.3310**	39	0.4292	35	0.2348	32	0.3449	40	0.3150
Burkina Faso	**37**	**0.3267**	35	0.4778	33	0.2599	39	0.2484	38	0.3205
Syria	**38**	**0.3181**	29	0.5040	39	0.1321	37	0.2615	33	0.3750
Suriname	**39**	**0.2995**	40	0.4213	38	0.1441	33	0.3132	39	0.3193
Sierra Leone	**40**	**0.2794**	31	0.4900	45	0.0676	40	0.2144	36	0.3457
Yemen	**41**	**0.1857**	54	0.2199	46	0.0636	41	0.1733	41	0.2861
Chad	**42**	**0.1701**	51	0.2769	41	0.1216	43	0.1050	42	0.1768
Libya	**43**	**0.1608**	49	0.3063	47	0.0599	42	0.1125	43	0.1645
Mauritania	**44**	**0.1529**	43	0.3874	42	0.0948	44	0.1046	44	0.0249
Togo	**45**	**0.1219**	41	0.4174	48	0.0545	49	0.0155	45-57	0.0000
Maldives	**46**	**0.1149**	42	0.4081	49	0.0515	53	0.0001	45-57	0.0000
Djibouti	**47**	**0.1090**	44	0.3626	44	0.0733	54-57	0.0000	45-57	0.0000
Afghanistan	**48**	**0.0993**	48	0.3193	52	0.0374	45	0.0402	45-57	0.0000
Uzbekistan	**49**	**0.0987**	47	0.3273	51	0.0379	47	0.0296	45-57	0.0000
Niger	**50**	**0.0968**	45	0.3378	54	0.0366	51	0.0128	45-57	0.0000
Guinea Bissau	**51**	**0.0934**	53	0.2635	43	0.0742	46	0.0357	45-57	0.0000
Comoros	**52**	**0.0852**	46	0.3342	57	0.0066	52	0.0001	45-57	0.0000
Palestine	**53**	**0.0795**	50	0.2920	55	0.0114	50	0.0144	45-57	0.0000
Sudan	**54**	**0.0783**	52	0.2759	53	0.0372	54-57	0.0000	45-57	0.0000
Somalia	**55**	**0.0770**	56	0.1263	37	0.1815	54-57	0.0000	45-57	0.0000
Iraq	**56**	**0.0673**	55	0.2031	50	0.0467	48	0.0195	45-57	0.0000
Turkmenistan	**57**	**0.0018**	57	0.0000	56	0.0072	54-57	0.0000	45-57	0.0000

In the Table 2 below we aggregate the summary statistics by regions, which help us to drive some region-specific conclusions with regard to the divergence in the level of private sector development and its dimensions.

Table 2: Summary Statistics of the Private Sector Development, by region

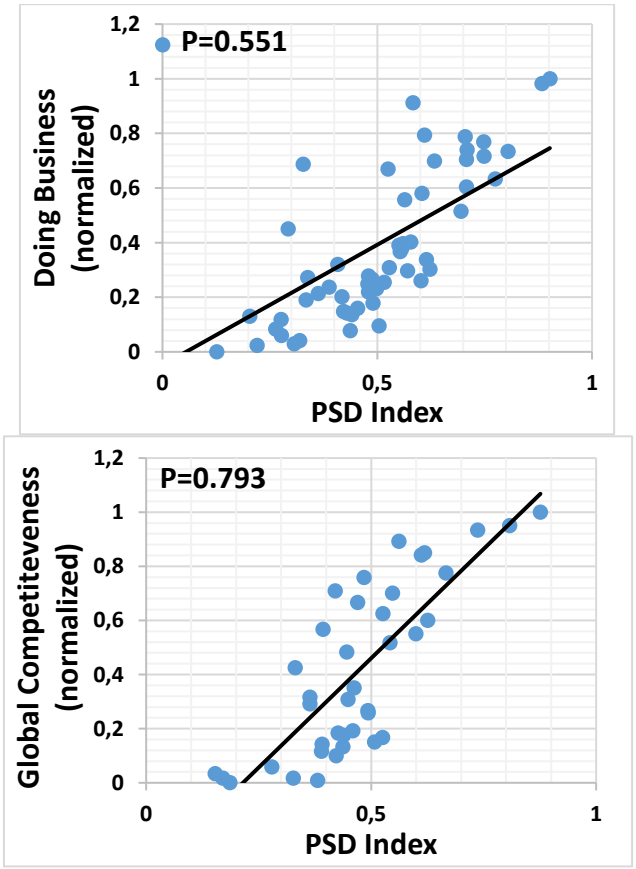
ASIA						Eastern Europe and Central Asia					
	PSE	**PSP**	**PSS**	**PSA**	**PSD**		**PSE**	**PSP**	**PSS**	**PSA**	**PSD**
Min	0.319	0.037	0.000	0.000	**0.099**	**Min**	0.000	0.007	0.000	0.000	**0.002**
Max	0.883	0.560	0.890	0.898	**0.808**	**Max**	0.748	0.415	0.695	0.659	**0.618**
Mean	0.532	0.268	0.407	0.413	**0.405**	**Mean**	0.520	0.265	0.353	0.405	**0.386**
Median	0.516	0.272	0.426	0.433	**0.426**	**Median**	0.572	0.312	0.411	0.534	**0.458**
Std. Dev.	0.517	0.164	0.261	0.279	**0.212**	**Std. Dev.**	0.233	0.145	0.231	0.247	**0.208**
Middle East and North Africa						**Sub-Saharan Africa**					
	PSE	**PSP**	**PSS**	**PSA**	**PSD**		**PSE**	**PSP**	**PSS**	**PSA**	**PSD**
Min	0.203	0.011	0.000	0.000	**0.067**	**Min**	0.126	0.007	0.000	0.000	**0.077**
Max	0.902	0.755	0.906	0.942	**0.876**	**Max**	0.622	0.610	0.485	0.601	**0.525**
Mean	0.550	0.275	0.424	0.440	**0.423**	**Mean**	0.439	0.265	0.239	0.291	**0.309**
Median	0.564	0.287	0.437	0.458	**0.448**	**Median**	0.478	0.305	0.300	0.346	**0.381**
Std. Dev.	0.206	0.206	0.265	0.270	**0.227**	**Std. Dev.**	0.120	0.178	0.176	0.222	**0.164**

As presented in Table 2, the MENA region and Asia regions have the highest average score for the composite index of the private sector development, while Sub-Saharan Africa demonstrates the lowest score. Nevertheless, some dimensions of private sector development appear to be similarly high (low) across all regions. For example, scores of Private Sector Environment index are relatively high across all regions, while a contrary picture is observed for the scores of Private Sector Penetration index.

In Figure 1 we discuss some robustness checks. We believe that the composite index and its four sub-indices are an improvement over the traditional measures and indices of private sector development. Conceptually, they incorporate information on a broader range of features of private sector development. For example, as Figure 2 demonstrates, while our overall PSD index and four sub-indices are correlated with the most wide-spread traditional indices, the correlation is not perfect or one

for one. Therefore, one could argue that our indices contain more information.

Figure 1: Correlation of Private Sector Development Index and Traditional Indices



v. Conclusions

In this study, we introduced the composite Private Sector Development (PSD) index and its four sub-indices – environment, penetration, sophistication and accountability – for 57 OIC countries for the year 2017. This is the first ever constructed composite index (and its four sub-indices) that offers significant improvement over the traditional measures and it serves as an important step towards measuring private sector development more comprehensively than before.

According to the results, top 10 OIC countries in terms of composite PSD index are: UAE, Malaysia, Qatar, Bahrain, Jordan, Azerbaijan, Indonesia, Morocco, Kingdom of Saudi Arabia and Turkey. However, this ranking differs, sometimes drastically, when it comes to the various dimensions of the PSD, being it environment, penetration, sophistication and accountability. Finally, further robustness checks prove the strength of our indices over the traditional measures and indices of private sector development.

A challenge for all empirical literature is that the broad measures of private sector development capture only partially the various functions of private sector and no one of them merits exclusive reliance. However, our new PSD index and its sub-indices help one to avoid the burden of tracking a diverse set of indicators individually. It also allows to assess comprehensively a particular dimension of private sector development and pin down where deficiencies or strength lie. These outcomes could then be further investigated using the disaggregated data from original sources.

Nevertheless, there are a number of limitations to the Private Sector Development index that need to be taken into account in future studies. First, our broad set of indicators capture only formal private sector development. Although the significance of shadow or informal private economy is still imperative in many OIC countries, we did not factor it in to the index simply due to insufficient data across countries and time. Second, again due to the data shortages, the index has not incorporated some potentially relevant features of private sector development: financial performance or efficiency of private sector (i.e., profit, growth).

While there are limitations of the composite PSD index and its four sub-indices, it should aid policy makers as an important tool to more accurately diagnose the status of the private sector development and devise the policies and reforms accordingly. Having it calculated every year would also assist OIC states in gauging the progress toward healthier and more pro-growth private sector and determine the effectiveness of their reforms. Last but not the least, it should also serve development practitioners and researchers analyzing the various relationship between private sector development and economic outcomes.

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Annex 1. Data sources and definitions

SUB-INDEX	INDICATOR	DEFINITION	SOURCE
PS Environment	**Time to start a business (days)**	The median duration (calendar days) that incorporation lawyers or notaries indicate is necessary in practice to complete a procedure with minimum follow-up with government agencies and no unofficial payments.	Doing Business Report
	Time to export (hours)	It is the time taken for documentary compliance, border compliance and domestic transport. Time is measured in hours, and 1 day is 24 hours.	Doing Business Report
	Time to get electricity (days)	The median duration (calendar days) that the electricity utility and experts indicate is necessary in practice, rather than required by law, to complete a procedure with minimum follow-up and no extra payments.	Doing Business Report
	Time to resolve insolvency (years)	Time for creditors to recover their credit is recorded in calendar years. The period of time measured by Doing Business is from the company's default until the payment of some or all of the money owed to the bank.	Doing Business Report
	Business impact of rules on FDI	How restrictive are rules and regulations on foreign direct investment (FDI)? [1 = extremely restrictive; 7 = not restrictive at all]	Global Competitiveness Report
	Domestic credit to the private sector (% of GDP)	Financial resources provided to the private sector by financial corporations, such as through loans, purchases of non-equity securities, and trade credits and other accounts receivable, that establish a claim for repayment.	World Development Indicators
	Quality of overall infrastructure	How do you assess the general state of infrastructure (e.g., transport, communications, and energy) in your country? [1 = extremely underdeveloped—among the worst in the world; 7 = extensive and efficient—among the best in the world]	Global Competitiveness Report

SUB-INDEX	INDICATOR	DEFINITION	SOURCE
PS Penetration	**Gross fixed capital formation, private sector (% of GDP)**	Private investment that covers gross outlays by the private sector (including private nonprofit agencies) on additions to its fixed domestic assets measured as percent of GDP.	World Development Indicators
	Investment in infrastructure with private participation (millions)	The value of infrastructure projects in telecommunications, energy, transport, and water and sanitation that have reached financial closure and directly or indirectly serve the public.	The Little Data Book on Private Sector Development
	New business density	The number of new limited liability corporations registered in the calendar year per 1,000 working-age population	World Development Indicators
	Prevalence of foreign ownership	How prevalent is foreign ownership of companies? [1 = extremely rare; 7 = extremely prevalent]	Global Competitiveness Report
	Extent of market dominance	How do you characterize corporate activity? [1 = dominated by a few business groups; 7 = spread among many firms]	Global Competitiveness Report
SUB-INDEX	**INDICATOR**	**DEFINITION**	**SOURCE**
PS Sophistication	**High technology export (% of total manufacturing exports)**	Products with high Research and Development, D intensity, such as in aerospace, computers, pharmaceuticals, scientific instruments, and electrical machinery measured as percent of total manufacturing exports.	World Development Indicators
	Firm level technology absorption	To what extent do businesses adopt the latest technologies? [1 = not at all; 7 = to a great extent]	Global Competitiveness Report
	Internet usage, %	People who used the internet from any location and for any purpose, irrespective of the device and network used.	Global Competitiveness Report
	Capacity of innovation	To what extent do companies have the capacity to innovate? [1 = not at all; 7 = to a great extent]	Global Competitiveness Report
	Value chain breadth	How broad is companies' presence in the value chain? [1 = narrow, primarily involved in individual steps of the value chain; 7 = broad, present across the entire value chain]	Global Competitiveness Report

	State of cluster development	How widespread are well-developed and deep clusters (geographic concentrations of firms, suppliers, producers of related products and services, and specialized institutions in a particular field)? [1 = nonexistent; 7 = widespread in many fields]	Global Competitiveness Report
	Capacity utilization (%)	Share of the current output in the maximum output possible using the current inputs.	Enterprise Survey
SUB-INDEX	**INDICATOR**	**DEFINITION**	**SOURCE**
PS Accountability	**Ethical behavior of firms**	How do you rate the corporate ethics of companies (ethical behavior in interactions with public officials, politicians and other firms)? [1 = extremely poor—among the worst in the world; 7 = excellent—among the best in the world]	Global Competitiveness Report
	Efficacy of corporate boards	To what extent is management accountable to investors and boards of directors? [1 = not at all; 7 = to a great extent]	Global Competitiveness Report
	Company spending on R&D	To what extent do companies invest in research and development (R&D)? [1 = do not invest at all in R&D; 7 = invest heavily in R&D]	Global Competitiveness Report
	Willingness to delegate authority	To what extent does senior management delegate authority to subordinates? [1 = not at all; 7 = to a great extent	Global Competitiveness Report
	Degree of customer orientation	How well do companies treat customers? [1 = poorly—mostly indifferent to customer satisfaction; 7 = extremely well—highly responsive to customers and seek customer retention]	Global Competitiveness Report

Annex 2. Summary statistics of the data

#	INDICATOR	Obs	Max	Min	Mean	Median
1	**Time to start a business (days)**	56	84.0	4.5	18.3	13.5
2	**Time to export (hours)**	55	589.0	15.0	151.3	132.0
3	**Domestic credit to private sector (% of GDP)**	54	123.9	3.6	36.9	27.0
4	**Time to resolve insolvency (years)**	48	5.0	1.0	2.8	2.7
5	**Business impact of rules on FDI**	44	5.5	2.9	4.3	4.3
6	**Time to get electricity (days)**	55	428.9	10.0	96.7	78.0
7	**Quality of overall infrastructure (value)**	44	6.2	1.5	3.6	3.8
8	**Gross fixed capital formation, private sector (% of GDP)**	45	63.3	1.0	16.9	15.8
9	**Investment in infrastructure with private participation (% of GDP)**	43	0.0	0.0	0.0	0.0
10	**New business density (new registrations per 1,000 people ages 15-64)**	35	29.7	0.0	1.9	0.8
11	**Prevalence of foreign ownership (value)**	42	5.6	2.2	4.1	4.1
12	**Extent of market dominance (value)**	44	5.0	2.1	3.6	3.6
13	**High-technology exports (% of manufactured exports)**	45	43.0	0.0	5.2	2.1
14	**Firm-level technology absorption (value)**	44	5.7	2.6	4.2	4.3
15	**Individuals using Internet (%)**	44	98.0	4.4	41.4	30.1
16	**Capacity for innovation (value)**	44	5.4	2.1	3.9	3.9
17	**Value chain breadth (value)**	44	5.3	2.1	3.6	3.6
18	**State of cluster development (value)**	44	5.4	2.7	3.6	3.6
19	**Capacity utilization (%)**	38	84.0	52.6	69.5	70.7
20	**Ethical behavior of firms (value)**	44	6.0	2.6	3.9	3.7
21	**Efficacy of corporate boards (value)**	44	5.7	2.3	4.5	4.6
22	**Company spending on R&D (value)**	44	5.1	1.8	3.2	3.0
23	**Willingness to delegate authority (value)**	44	5.3	2.1	3.6	3.6
24	**Degree of customer orientation (value)**	44	5.9	2.4	4.4	4.4