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Is the Global Competitiveness Index by the World Economic Forum a reliable tool for the design of labor market policies? Evidence from Latin American countries

Abstract

Most of the competitiveness gap in Latin America is due to its labor market, one of the areas with the highest rates of subjective indicators in the Global Competitiveness Index (GCI). This paper analyzes the subjective component of the GCI in the labor market area and discusses its accuracy for policy advice. We focus on the set of countries that highly rely on the GCI for policy advice and highlight that the perception of business executives of the labor market as rigid contrasts with the significant experience of flexibilization policies undertaken in the region over the past 3 decades. We show that the GCI has been largely constructed with opinion data from large firms, a business sector that accounts for <5% of total firms in the countries of study. Furthermore, the questionnaire exhibits obvious flaws. Thus, we do not find that the GCI provides a solid base for policy advice.

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1 Introduction

Using indexes to rank the competitiveness of countries has gained astounding popularity. Policymakers closely monitor these indexes to design economic and social policies. Favorable rankings are used to consolidate the country's strengths, while poor ones are used to adjust the country's economic policies to achieve sustained growth. The reliability of competitiveness indexes as a public policy tool depends on their ability to capture the country's growth potential. We argue that these indexes are not always constructed with a representative survey sample. In such cases, competitiveness indexes fail in capturing the country's growth potential and thus lead to misleading policy recommendations.

The Global Competitiveness Index (GCI), developed by the World Economic Forum (WEF), has been used as a standard measure of a country's competitiveness. It is a composite index of 12 competitiveness pillars and is constructed from statistical data and survey questions to local business executives. Mostly based on subjective data, the labor market pillar assesses the amount of flexibility that exists in national labor legislation on issues concerning dismissal protection, severance pay, and wage determination. Countries that have less protective legislation score better on the index. Despite the significant experience of Latin American countries with labor market flexibilization policies, business executives perceive the labor market as rigid. This article discusses the accuracy of the GCI for policy purposes in the labor market area by an analysis of its subjective component. The interest is centered on Peru, Colombia, the Dominican Republic, Mexico, and Brazil, the set of countries that have built entire competitiveness systems based on the GCI.

The literature on the GCI can be classified into studies that examine its role in macro-economic indicators and studies that analyze its use as a policy tool. Research in the former assumes that the GCI measures exactly what the WEF intends to measure, i.e., competitiveness, and thus draws conclusions assuming that the GCI correctly represents reality. A series of recent studies has indicated that the GCI influences economic growth (Amar and Hamdi, 2012; Kordalska and Olczyk, 2015; Dadgar et al., 2018; WEF, 2018b; Kalim et al., 2019; Nogueira and Madaleno, 2021a,b), exports (WEF, 2017; Siddiqui, 2020), and capital flows (Athari et al., 2018).¹

Our paper is related to the branch of the literature that, through an analysis of the GCI's methodology, questions the use of the GCI as a policy tool. Lall (2001) pointed out several analytical, methodological, and quantitative problems of the GCI. In the same line, Aleksynska and Cazes (2016) have raised concerns on the suitability of the GCI to compare countries and their regulations over time, given significant variation of components not only across but also within the indicators, whereas Djogo and Stanisic (2016) highlight that the GCI fails to measure countries' current competitiveness as it ignores political integration and recent economic and financial crises. Another group of studies questions the use of business leaders' opinions as primary data and highlights limitations such as the cultural bias inherent to survey responses (Zinnes et al., 2001), the lack of representation of other national groups (Rosenau, 2003; Kaufmann and Kraay, 2008; Soto-Rodriguez and Maiz-Vazquez, 2016), the executive's orientation in favor of or against the government (Kaufmann et al., 2004), and the ideological bias that rewards some policies rather than good outcomes (Bergsteiner and Avery, 2012, 2019).

1 Evidence that debates the claim that the GCI influences economic growth is limited. See, for instance, Petryl'e (2017) and Xia et al. (2012).

Taken altogether, these studies illustrate the limitations of the GCI with a broad approach. We, instead, focus on the set of Latin American and the Caribbean (LAC) countries where the GCI plays a key role in the design of policy and, moreover, on a specific area of the GCI. This approach allows us to add a source of potential bias that has been, to our knowledge, ignored in the literature: the lack of representativeness of the subjective data used to construct the GCI. This deficiency, combined with inadequacies in the questionnaire, shapes our conclusion that labor market reforms in LAC countries are largely based on an index that prioritizes opinions and expectations of a particular business sector. Thus, we argue that the GCI should be used with caution or, at best, simply avoided in policy design.

We put forward our analysis in three parts. First, we evidence that around half of the GCI indicators are constructed with subjective data and that the labor market area presents the highest share of the subjective component, with 67% of indicators based on the opinions of business leaders. Competitiveness in LAC economies, according to the GCI, has been disappointing over the years, and the labor market pillar is one of the areas that deteriorated the most. This context leads us to focus on the set of countries in the region where the GCI plays a prominent role in the design of competitiveness policies: Peru, Colombia, the Dominican Republic, Mexico, and Brazil. The selected countries rely on the GCI to build entire competitiveness systems and formally organize their institutions for competitiveness.

The second part of our analysis discusses the performance of the selected countries in the labor market area, at both an aggregate and a disaggregated level. Here, we show that the indicators with the worst performance come from the subjective component. We highlight that this translates into the business executives' perception of the labor market as rigid, which contrasts with the significant experience of flexibilization policies undertaken in the region. The last part of our analysis addresses methodological issues in the subjective component of the GCI. We reveal that the survey sample in the GCI is not representative of the business structure in LAC countries. While around 80% of business executives surveyed represent large firms, most firms (99.5%) in the region are micro-, small-, and medium-sized enterprises (MSMEs), with almost nine out of 10 classified as microenterprises (Organisation for Economic Co-operation and Development [OECD] et al., 2019). This is followed by a discussion on how repetitive and unclear the questions are and on the inability of the respondents to always provide an informed answer that allows comparison across countries.

The remainder of the paper is set out as follows. Sections 2 and 3 introduce the GCI and discuss its role in policy design in Latin America. In Section 4, we elaborate on the GCI's labor market pillar and discuss the performance of the selected economies in this area. Section 5 sets forth a methodological critique of the subjective component of the GCI in the labor market pillar, which addresses the problems of bias in both the survey sample and the questionnaire. Lastly, Section 6 concludes the paper.

2 Overview of the GCI

Since 1979, the WEF has published yearly Global Competitiveness Reports to provide insight into a country's economic environment and the country's ability to achieve sustained levels

of prosperity and growth. Since 2006, these reports rank countries by their competitiveness measured by the GCI.² The WEF constantly revises the GCI's methodology to be up to date with changes that influence global productivity. We discuss the newest methodology, GCI 4.0, which takes full account of the ongoing Fourth Industrial Revolution. As the indicators that compose the GCI vary across the years, we target the discussion to the 2018 GCI edition.³

The GCI combines 98 indicators into 12 pillars, organized into four categories: i) business dynamism, ii) human capital, iii) markets, and iv) innovation capacity. Each indicator's value is converted into a score ranging from "0" to "100" using a min–max normalization approach.⁴ These normalized scores are then combined into pillar scores.

The overall GCI score is the simple average of the 12 pillar scores and can be interpreted as the distance to the ideal frontier of productivity, which is normalized at a score of 100.

The indicators used in the GCI are a mix of hard data obtained from various international organizations (the World Bank, the International Monetary Fund, and the United Nations Educational, Scientific, and Cultural Organization, among others) and soft data collected via the global Executive Opinion Survey (henceforth, the Survey) conducted by the WEF's partner institutions in the participating countries. In 2018, the partner institutes in the LAC countries were composed of universities (45%), research organizations (20%), government agencies or competitiveness councils (20%), and business associations (10%).⁵ The participation of government agencies or competitiveness councils in the administration of the Survey was much larger among the five countries of interest (44%). These institutions administered the Survey in Colombia and Mexico, whereas a business association takes that role in Peru and universities do the same in the Dominican Republic and Brazil.⁶

Table 1 presents, for each pillar, the distribution of indicators by the data source.

As can be seen in Table 1, 45% of the indicators come from the Survey, and the remaining ones come from the statistics of international institutions. Out of the 12 main pillars of competitiveness, five contain more subjective data than data obtained from international organizations. The Labor Market and Skills pillars present the highest share of subjective data (67%). On the other hand, three pillars are partially based on the Survey, and only four come exclusively from objective data.

2 The WEF defines competitiveness as "the set of institutions, policies, and factors that determine the level of productivity of a country" (WEF, 2018b, p. 43).

3 The 2018 GCI edition is the first edition that uses methodology GCI 4.0.

4 The score of a country c in indicator i is calculated as $score_{i,c} = \left(\frac{value_{i,c} - wp_i}{frontier_i - wp_i} \right) \times 100$, where $value_{i,c}$ is the raw value of country c for indicator i , wp_i (worst performance) is the lowest acceptable value for indicator i , and $frontier_i$ is the best possible outcome. Depending on the indicator, this may be a policy target or aspiration, the maximum possible value, or a number derived from statistical analysis of the distribution (90th or 95th percentile). If a value is below the worst performance, its score is zero; if a value is above the frontier value, its score is capped at 100.

5 The partner institutes were classified according to the information provided on their websites. We did not find the website of the Center for Intellectual Capital and Competitiveness, a Mexican partner institute. This institution represents 5% of the partner institutes in LAC in 2018.

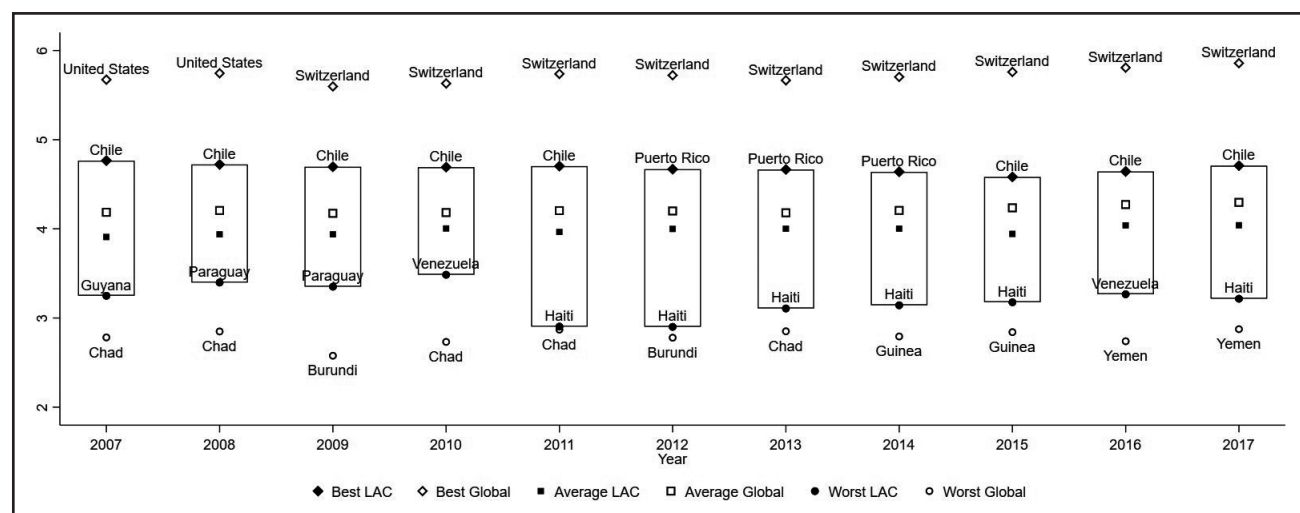
6 Colombia and Mexico have, respectively, two and four partner institutes. Among these, four are government agencies or competitiveness councils.

Table 1 Distribution of the GCI indicators by the data source (%)

Pillar	Executive Opinion Survey	International organization
	(soft data)	(hard data)
1: Institutions	50	50
2: Infrastructure	42	58
3: ICT adoption	0	100
4: Macroeconomic stability	0	100
5: Health	0	100
6: Skills	67	33
7: Product market	50	50
8: Labor market	67	33
9: Financial system	33	67
10: Market size	0	100
11: Business dynamism	50	50
12: Innovation capability	40	60
Total	45	55

Notes: GCI, Global Competitiveness Index; ICT, information and communications technology; WEF, World Economic Forum.

Source: Own elaboration based on the WEF (2018b).

Figure 1 Evolution of the GCI score for LAC, 2007–2017. GCI, Global Competitiveness Index; LAC, Latin American and Caribbean countries.

Source: World Economic Forum. The Global Competitiveness Index dataset 2007–2017.

3 The GCI as a Public Policy Tool in LAC Countries

The use of the GCI in Latin America's competitiveness agenda is related to the competitiveness challenges in the region. Figure 1 illustrates the region's progress in narrowing gaps with global leaders in the period 2007–2017.⁷

⁷ GCI scores for 2018 and 2019 have not been included because they were calculated using the GCI 4.0 methodology, which is not comparable with that of previous years. See Figure A1 in Appendix for the evolution of the GCI score in the period 2017–2019, with the 2017 scores calculated backcast. Trends observed in the period 2007–2017 (Figure 1) persist in 2018 and 2019.

Over the period 2007–2017, the average GCI score in the LAC region is below the global average. Moreover, the distance between the highest-scored LAC country and the best global performer is larger than the distance between the lowest-scored LAC country and the worst global performer. This suggests that the LAC region is, on average, closer to the least competitive economies than to those most competitive. Indeed, Latin America is home to two of the 10 least competitive economies, and its competitiveness performance exhibits wide dispersion.⁸

An investigation of the progress of different factors and institutions that matter for future growth provides a focal point for the discussion of the role that the GCI plays in policy design. Figure 2 provides a snapshot of the evolution of competitiveness in the different GCI pillars.

After a decade of competitiveness monitoring in the LAC countries, many of the fundamentals of competitiveness and growth have worsened in the region. Figure 2 shows that institutions, financial market development, goods, and labor markets have deteriorated in the region. Although on average, infrastructure, macroeconomic environment, health, and higher education have marginally improved, the distance between the best and the worst in the region continues to increase. On the other hand, the pillars that clearly show an improvement are market size and technological readiness.

As they integrate into the global economy, policymakers in LAC countries emphasized the need to incorporate the private sector into a comprehensive competitiveness strategy. The LAC countries created the National Competitiveness Council and Commission (NCC) as a public–private partnership body, with the government represented by ministers of key sectors and the private sector represented by business executives appointed by the President. The NCC is in charge of identifying and promoting actions and reforms that would strengthen productivity and competitiveness. To that end, the NCC relies on competitiveness indexes to benchmark the country's progress in the competitiveness ranking.

Peru, Colombia, and the Dominican Republic have adopted the GCI to build entire competitiveness systems and formally organize their institutions for competitiveness. The NCC in Peru implemented the National Competitiveness Policy, which frames the strategy that the country will follow until 2030 to achieve sustained growth.⁹ This policy relies on the GCI to identify areas of improvement and to outline the policies in each area. Likewise, Colombia relied on the country's GCI scores to set the starting point of the economy in the National Competitiveness and Productivity Policy.¹⁰ Based on this diagnosis, Colombia defined a vision for the year 2032 in which the country would be one of the three most competitive in Latin America, with a per capita income equivalent to that of a medium-to-high-income country and an economy that exports high-value-added goods and services. Since then, the GCI quickly became a guiding tool for the country, and the competitiveness agenda set improvements in the GCI ranking as a priority. In the same line, the Initiative for National Productivity and Competitiveness in the Dominican Republic (IPCN) was created by presidential decree and tasked with identifying and promoting actions and reforms that would strengthen productivity and competitiveness.¹¹ Members of the IPCN agreed to use the GCI to set common goals and coordinate actions between the public and private sectors. Recently, the President set a

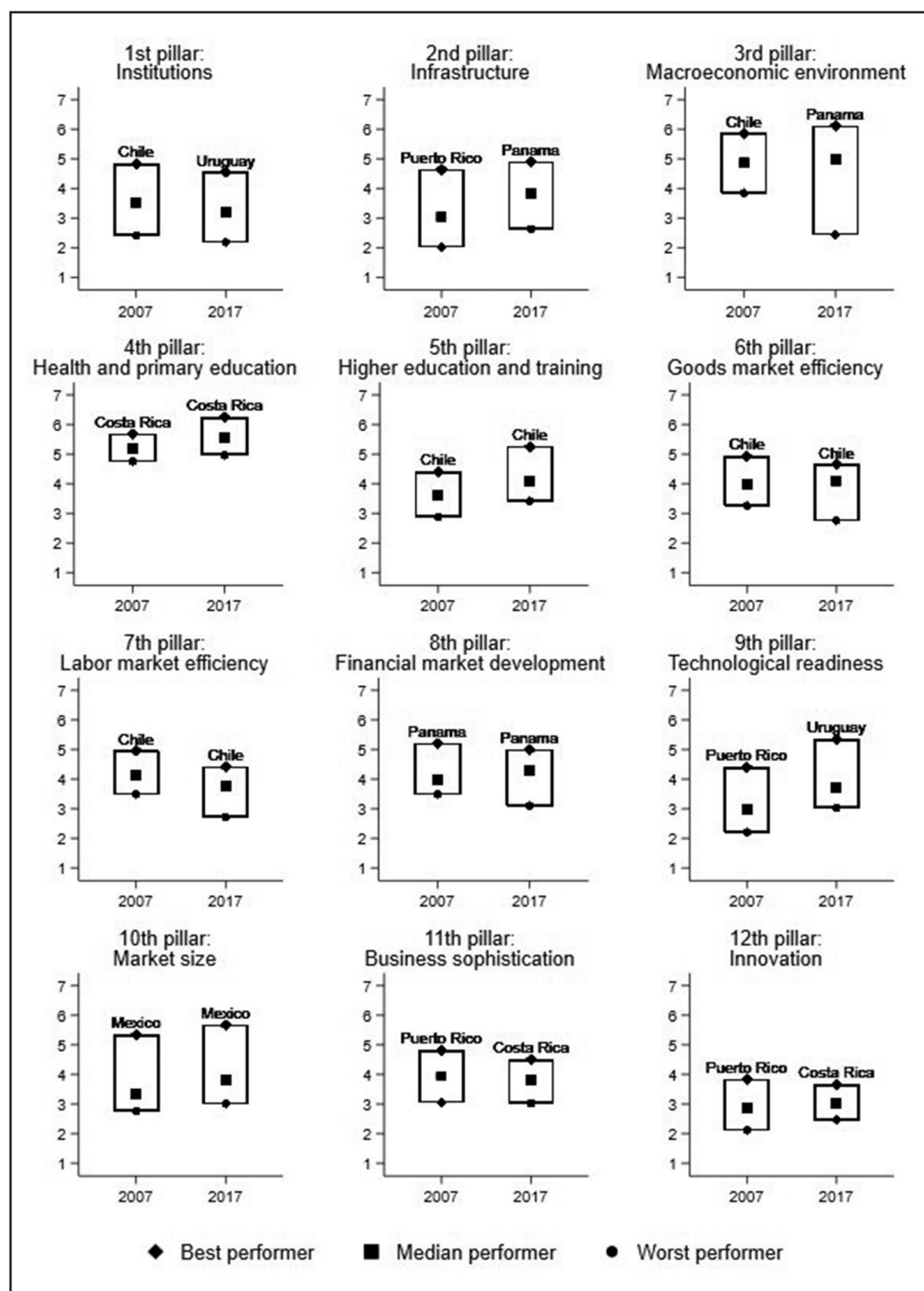
8 For instance, Chile's score (70.3, 33rd) is almost twice that of Haiti (36.5, 138th) (WEF, 2019).

9 Supreme Decree No.345-2018-EF.

10 National Council on Economic and Social Policy (CONPES) No. 3527.

11 Decree 237–15.

Figure 2 Evolution of competitiveness in LAC across the 12 pillars. LAC, Latin American and Caribbean countries.



Notes: Only Hispanic LAC countries are considered.

Source: World Economic Forum. The Global Competitiveness Index dataset 2007-2017.

vision for the year 2030 in which the Dominican Republic would be the most competitive LAC country and one of the 20 most competitive countries by 2040. That vision materialized in the National Strategy for Competitiveness, which comprises a set of policies in favor of the nation's development. As in Colombia and Peru, the GCI in the Dominican Republic guides the reforms proposed in this policy.

Mexico and Brazil, on the other hand, use the GCI data as input to construct their own competitiveness indexes. These countries restrict the comparison to the set of countries that share their economic and social perspectives and focus on the variables that are more directly related to the reality of the set of countries chosen.¹²

While mechanisms permitting private sector representatives to voice their concerns and opinions have been formally established in the LAC countries for a long time, the competitiveness systems in Colombia and Peru have brought private participation in policymaking to a different level. The private sector in these countries created the Private Council on Competitiveness (PCC) as an articulator and interlocutor between the public sector, the private sector, academia, and other organizations interested in promoting competitiveness. The PCC publishes a yearly report that analyzes the performance of these countries in each of the GCI pillars. Based on this diagnosis, the report proposes solutions that could advance Colombia and Peru's competitiveness. The PCC is a member of the NCC's Board of Directors in Colombia and Peru and is one of the institutions that administer the Survey in Colombia. Thus, the PCC not only allows the interest of the private sector to be voiced but also assigns a direct role to the private sector in policy design.

An examination of the PCC composition in Peru and Colombia provides an initial insight into any bias toward particular economic groups in policy design. Currently, the PCCs in Peru and Colombia are made up, respectively, of 18 and 23 national and multinational corporate groups or companies.¹³ According to official ranking databases, 36% and 22% of firms that compose the PCC in Peru and Colombia, respectively, belong to the top 100 firms in each country.¹⁴ Thus, the PCC voices the interests of a particular group within the private sector, whose interests are prioritized in the design of competitiveness policies.

Additional institutional arrangements that evidence the role of the GCI in policymaking for the LAC are the regional indexes and the Competitiveness Labs, both based on the GCI framework. The regional index in Colombia, designed by the PCC in partnership with the academic sector, replicates the role that the GCI plays at a national level and has become a tool for local governments and private sector organizations to monitor their performance. The Competitiveness Lab seeks to identify the region's main competitiveness gaps and produce policy recommendations. In 2013, the WEF launched its first regional Competitiveness Lab focused on the LAC. The Lab identified that skills, technological readiness, and innovation explained the productivity lag in LAC countries vis-à-vis advanced economies (WEF, 2015a). Given its finding, the Latin America Competitiveness Lab has been creating actionable agendas for public-private collaboration to enhance innovation and skills in the region. Colombia,

12 Mexico uses (a) the National Competitiveness Index by the National Institute of Statistics, Geography and Informatics and (b) the International Index for Competitiveness by the Mexican Competitiveness Institute. The former is entirely based on hard data mostly coming from national sources. The latter is constructed with the GCI data. The National Confederation of Industry in Brazil uses the GCI data to construct a competitiveness index presented in the yearly Brazil Competitiveness Reports.

13 Information retrieved from <https://compite.com.co/el-cpc/miembros/> and <https://www.compite.pe/somos/> on July 06, 2022.

14 In Peru, the PCC is composed of, at least, 50 firms (the number of firms of one corporate group is not publicly available). The ranking comes from *América Economía Intelligence* (<https://www.americaeconomia.com/negocios-industrias/estas-son-las-500-empresas-mas-grandes-del-peru-2019>) and *Peru Top* (<https://ptp.pe/>), which rank firms according to their 2018 total sells and income, respectively. In Colombia, the ranking comes from Colombia's institutional open data portal <https://www.datos.gov.co/Economia-y-Finanzas/1000-Empresas-mas-grandes-del-pa-s/8hn7-rpp8> and the financial statements of institutions not covered by Colombia's open data portal, which were recovered directly from the financial institutions' websites. The ranking is based on firms' operational income in 2018. The rankings for both countries were retrieved on June 17, 2022.

Mexico, and Brazil have incorporated these plans into their national competitiveness agendas as part of a broader strategy to boost competitiveness and improve the business environment.¹⁵

4 The Labor Market Pillar

The rationale of the WEF's labor market pillar is that well-functioning labor markets foster productivity through (i) flexibility, which allows matching workers with the most suitable jobs for their skills, and (ii) talent management, which develops the workers' talent to reach their full potential. According to the WEF, a well-functioning labor market materializes in a flexicurity system, in which the labor market is characterized by high flexibility combined with workers' protection, gender parity for labor market participation, and a welfare state through active labor market policies (WEF, 2018b).

In its yearly reports, the WEF highlights that flexible labor markets represent a healthy feature for the business environment. In particular, efficiency and flexibility in the labor market are crucial for ensuring that workers are allocated to their best use in the economy. Among the main indicators to measure flexibility in the labor market, the WEF points out the following: cooperation in employer–employee relations; the flexibility that employers have in hiring, firing, and determining their workers' wages; the extent to which pay is related to worker productivity; and whether there is equal treatment of women and men in the labor market. On the other hand, aspects that frame the extent of workers' rights in an economy include civil rights, the right to bargain collectively, the right to strike, the right to associate freely, and the right to due process (WEF, 2018b).

Table 2 illustrates the scores and positions of the countries under analysis in the labor market pillar of the GCI, as well as in each of its 12 indicators. The table also shows the regional scores.

Table 2 indicates that labor market performance remains one of the biggest challenges for the LAC region. The region's average score is 55.3, marginally more than halfway to the frontier. Overall, the LAC region ranks in Position 4 among the seven regions. While the LAC region, on average, is the second-best regional performer in ease of hiring foreign labor and internal labor mobility, it is the worst or second-worst regional performer in active labor market policies, the flexibility of wage determination, hiring and firing practices, redundancy costs, cooperation in labor–employer relations, and pay and productivity.

The GCI scores depicted in Table 2 paint a mostly negative picture of the selected countries' labor markets. While their overall labor market performance lies around the regional average score, the selected countries are among the bottom 35 globally in at least two labor market indicators. Peru has the lowest number of indicators ($n=2$) performing among the worst 35 in the world, whereas Brazil has the highest number of indicators ($n=7$) performing in the same range.¹⁶

Table 2 also illustrates that the selected countries excel in some indicators. Yet, there is not a specific area of the labor market in which all countries stand out. For instance, Peru is <30 points below the competitiveness frontier in the wage determination flexibility indicator

¹⁵ See WEF (2016b) for Mexico, WEF (2016a) for Colombia, and WEF (2018a) for Brazil.

¹⁶ A small number of indicators in the bottom 35 should not be interpreted as a better performer. For instance, the two indicators that make Peru belong to the bottom 35 globally, make Peru belong also to the bottom 15 globally.

Table 2 GCI scores and countries' ranks in the labor market pillar for the selected countries, 2018

	LAC		Peru		Colombia		Dominican Republic		Mexico		Brazil	
	Score*	Rank**	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank
Objective data												
Female participation in labor force	59.1	4	56.9	82	66.9	67	100	3	44.6	89	77.3	49
Labor tax rate	85.5	5	95.8	34	85.3	83	85.3	83	75.6	112	55.3	137
Redundancy costs	57.5	6	84.5	40	73.6	71	53.8	110	62.5	99	76.2	66
Workers' rights	68.8	3	70.1	71	57.7	110	84.5	28	56.7	112	66	88
Subjective data												
Active labor market policies	23.8	7	17.9	126	30.5	92	19	120	25.3	109	27.6	105
Cooperation in labor-employer relations	52.2	6	50.7	102	55.8	69	56.7	63	57	61	46.6	117
Ease of hiring foreign labor	54.7	2	52.5	63	51.2	71	53	60	55.3	48	40.6	122
Flexibility of wage determination	59.9	7	76.3	16	62.5	85	59	103	68.6	55	51.9	124
Hiring and firing practices	35.4	7	31.5	128	38.7	109	39.3	108	40.2	105	20.8	138
Internal labor mobility	60.6	2	65.6	24	64.4	33	68	17	66.4	22	29.2	138
Pay and productivity	40.6	6	42.5	96	42.5	97	42.3	98	45.1	82	39.5	113
Reliance on professional management	50.6	5	51.1	81	51.6	78	48.2	91	53.8	67	56.7	58
Pillar 8: Labor market	55.3	4	58.8	72	57.9	80	61.6	51	54.4	100	51	114

GCI, Global Competitiveness Index; LAC, Latin American and Caribbean countries; WEF, World Economic Forum.

*Average score of the LAC countries.

**The regional ranking includes East Asia, the Pacific, Eurasia, Europe, North America, LAC, Middle East, North Africa, South Asia, and Sub-Saharan Africa.
Source: WEF (2018b).

Notes: Ranking covers 140 countries. The rank position is based on the GCI score. If there is a tie among countries, the rank position is based on the raw value, which explains why the Dominican Republic ranks third in the first indicator despite it being in the frontier.

(76.3, 16th), while the Dominican Republic is among the top globally in female labor force participation (100, 3rd) and internal labor mobility (68, 17th). Conversely, the selected countries share labor market rigidities in terms of hiring and firing practices and active labor market policies. The selected countries are among the bottom 40 globally in these indicators, with Peru (31.5, 128th) and Brazil (20.8, 138th) being the worst performers in hiring and firing practices, and Peru (17.9, 126th) and the Dominican Republic (19, 120th) being the worst performers in active labor market policies.

A closer look at the performance of indicators according to the data source reveals a heterogeneous pattern. The selected countries rank worse on indicators collected from the Survey. That is, the labor market is more burdensome when the performance is measured by the opinions of business leaders than by statistical data. While this can be a result of the indicators' performance and not of the indicators' data source, the fact that business leaders perceive the labor market as rigid is at odds with the significant experience of Latin America in implementing labor market reforms mostly oriented to deregulate the labor market and to support productive units to formalize.

Though not exhaustively, Table 3 lists the main efforts undertaken for formalization in the selected countries. We have classified the policies into three main components: regulatory environment, incentives to formalize employment, and the boosting of enterprise registration and creation.

Table 3 reveals that, with few exceptions, the selected countries have implemented policies consistent with WEF's mandates.¹⁷ A key component of the actions taken has been the creation of an enabling environment for micro- and small-sized enterprises (MSEs), because of the realization that informality in that productive sector is prevalent (International Labor Organization [ILO], 2015).

An analysis of the evolution of the GCI scores in the labor market pillar for the selected economies further illustrates the disconnection between the policies implemented and the perception of business representatives regarding the labor market as rigid. Figure 3 depicts the evolution of the labor market performance according to the GCI in a subset of years when formalization policies were implemented.¹⁸ We measure the labor market performance with (i) the overall GCI score in the labor market pillar, which includes both subjective and objective indicators, and (ii) the GCI score of the subjective indicators in the labor market area.

Except for Peru, the overall performance of the labor market according to the GCI has decreased over time. The declining trend in the labor market performance seems to be driven by the trend of the business leaders' perceptions. Specifically, the rate of decrease in the subjective labor market performance is between 1.82 and 3.12 times that in the overall performance, with Brazil and Colombia presenting the smallest and largest proportions, respectively.¹⁹ This pattern suggests that, over the period in which labor market policies consistent with WEF's mandates have been implemented, the perception of business leaders deteriorated more rapidly than the overall labor market performance did.

¹⁷ In Brazil and the Dominican Republic, the reforms towards the end of the 1980s and early 1990s produced more protective labor regulations. In 2002, the Peruvian Supreme Court ruled in favor of the right to reinstatement of workers who were dismissed unfairly.

¹⁸ Due to data limitations and GCI's methodology comparability, we restrict this analysis to the period 2007–2017.

¹⁹ Table A1 in Appendix shows the GCI scores over time.

Table 3 Formalization policies in the selected countries

	Peru	Colombia	Dominican Republic	Mexico	Brazil
Regulatory environment	1990s: Elimination of job security regulation; introduction of temporary contracts; reduction in severance payments; expansion of training and subcontracting schemes; weakening of collective bargaining institutions 2002: Supreme Court rules in favor of the reinstatement of workers dismissed unfairly Deregulation in hiring and dismissal	1990s: Elimination of the minimum term and extension of the maximum term of fixed-term contracts; introduction of temporary contracts; integrated wages; reduction in the cost of dismissing workers with indefinite contracts; expansion of training and subcontracting 2002: Increase in the maximum working day by 4 hours; reduction in severance payments 2010, 2012: Reduction of direct cost of hiring workers 2013: Social security contributions linked to weeks effectively worked	1990s: Increase in the cost of dismissal	2012: Introduction of temporary contracts; 2012: Introduction of temporary contracts; reduction in hiring and firing costs	1988: Increase in the minimum overtime premium, in value of paid vacations, in cost of dismissing workers and in payroll taxes
Special employment regimes	2000, 2006: Agricultural promotion regime 2003, 2008, 2013: Micro and small enterprises employment regime				

(Continued)

Table 3 Continued

	Peru	Colombia	Dominican Republic	Mexico	Brazil
Incentives to formalize employment	Reduction in social security contributions for youth	2010: Social security contributions for youth are discounted from income tax 2016: Exemption of the contribution to the family compensation fund during the first year of employment for youth		2010: Subsidies for hiring youth who have never held a formal job	2000: Subsidies for the hiring of young interns
	Reduction in social security contributions for microentrepreneurs and/or SMEs			2014: Social Security Incorporation Regime (RISS)	1999: New law for SMEs 2008: Law on Individual Entrepreneurs (IME)
	Simplification of business registration for entrepreneurs	2016: Exemption for the mercantile registry and the first renovation for young entrepreneur companies	2016: Law on Entrepreneurship		

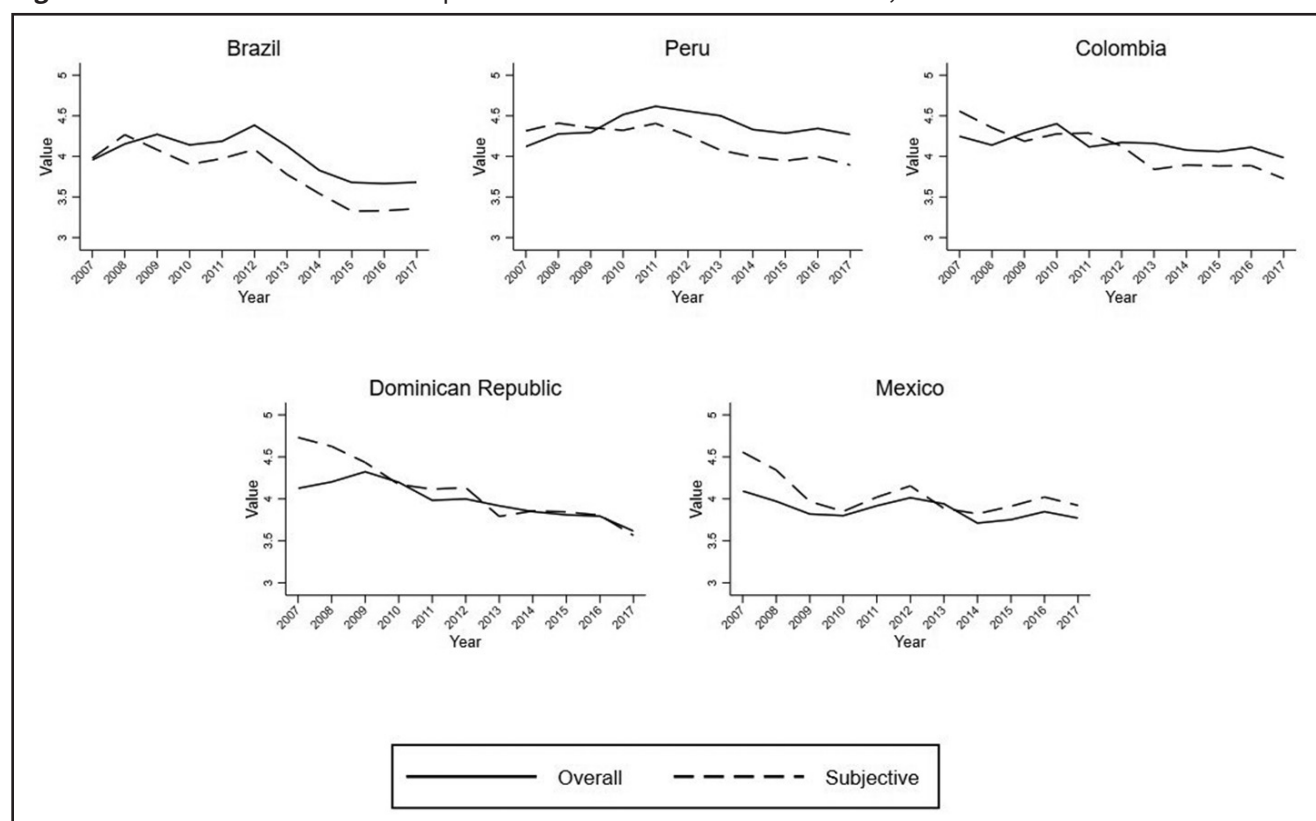
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Table 3 Continued

	Peru	Colombia	Dominican Republic	Mexico	Brazil
Boost enterprise registration and creation	Simplified taxation regimes for MSEs and microentrepreneurs	2003, 2008, 2013: Promotion and formalization of Micro and Small Enterprises Act 2003: New Simplified Single Regime (RUS) 2004: Special Income Tax Regime (RER)	2000: Micro, Small and Medium Enterprise Law 2016: Simplified Tax Regime (Monotributo)	2007: Tax Simplification Procedure (PST) 2019: Simplified Tax Regime (RST)	1984: Microenterprise Statute 1988: New Federal Constitution, Art. 179 1996, 2006: Simplified Taxation System (SIMPLES) 2008: Law on Individual Entrepreneurs (IME) 2014: eSocial
	Single winners for enterprises	2007: Electronic payroll system	2006: Planilla Integrada de Liquidación de Aportes (PILA)		
	Simplification of business registration business	2008: Only business license required to operate 2012: Anti-Red Tape Decree legalization		2002: Rapid business start-up system (SARE)	2006: National Network for the Simplification of Registration and Legalization of Companies and Business (REDESIM)

ILO, International Labor Organization; MSE, micro- and small-sized enterprises; SME, small- and medium-sized enterprises.

Sources: ILO (2014), Organización Internacional del Trabajo (OIT) (2015), and Salazar-Xirinachs and Chacaltana (2018).

Figure 3 Evolution of labor market performance in the selected countries, 2007–2017.

Notes: The series subjective is an arithmetic average of the indicators' scores obtained with business leaders' opinions.

Source: World Economic Forum. The Global Competitiveness Index dataset 2007–2017.

Another interesting feature of the role that subjective data play in the GCI scores is that, for most years, the labor market pillar in Peru, Brazil, and Colombia has performed better when objective indicators are included in the GCI scores. However, the pattern observed in the Dominican Republic and Mexico tells a different history. Thus, we cannot draw any conclusion on whether subjective data improve or deteriorate the GCI labor market scores in the selected countries.

Overall, the evidence presented above indicates that the labor market flexibilization reforms are not properly reflected in the labor market GCI scores, particularly when performance is measured exclusively with opinion data. This suggests that the Survey respondents either are not aware of the measures taken or are benefiting from them. On the one hand, most policies have been implemented to ease MSEs' transition to formality; then, if small units of production are not adequately represented in the Survey, these policies are not necessarily known to the Survey respondents.

On the other hand, reductions in the cost of formalization have been the underlying premise behind the policies implemented in the selected economies. As Table 3 shows, a series of legislative initiatives sought to simplify procedures for registering companies and reduce the cost of operating formally. These measures resulted in lower costs of hiring and firing, as well as a lower tax burden for small units of production (Chacaltana, 2016). Thus, if the Survey respondents represent the firms operating with the most protected and regulated systems, that

business sector could benefit from policies aimed at reducing formalization costs. Evidence of the positive relationship between the use of short-term contracts and firm size in Colombia and Peru supports the view that large firms advocate for the use of flexible forms of employment.²⁰ In either case, the misalignment between measures adopted over the past 3 decades in the region and the perception of business representatives of the labor market as rigid calls for a methodological analysis of the GCI subjective component.

5 Subjective Data: The Survey

The Survey captures the opinions of business leaders around the world on a broad range of topics for which statistics are unreliable, outdated, or nonexistent for many countries. Respondents evaluate these aspects on a scale of “1” (worst) to “7” (best). The questionnaire is the same across countries.

The literature agrees on two preconditions for reliable survey results.²¹ First, participants should be carefully selected, and the sample should be representative of the country’s business structure. Given that rankings and comparisons (over time and across countries) based on the GCI are used in policymaking, surveys provide reliable results when the same respondents give their impression of conditions over time and when participants share common economic, business, and information contexts. Second, the survey should rely on a high-quality questionnaire. Questions should be clear, based on appropriate concepts to capture the different subjects, and should not be similar. In the following sections, we show that these conditions are not always fulfilled in the Survey.

5.1 The survey sample

The Survey aims to “capture reality as best as possible, and business leaders are arguably the best positioned to assess these aspects” (WEF, 2018b, p. 623). However, business executives have views that significantly differ from other types of respondents (Kaufmann and Kraay, 2008; Aleksynska and Cazes, 2016) and their assessments reflect their ideological orientation in favor of or against the government (Kaufmann et al., 2004).

Moreover, even within the surveyed firms, the literature questions the adequacy of business leaders as respondents. Soto-Rodriguez and Maiz-Vazquez (2016), for instance, argue that the questions in the Survey do not require either particular expertise on the subject matter or a hierarchical position in the firm to be answered. To examine whether a change in the type of respondents would make a difference in the GCI, Soto-Rodriguez and Maiz-Vazquez (2016) compare the result of the Survey with those obtained from a nonexecutive sample. The study finds significant differences between executives and employees regarding their perception of competitiveness and indicators in all components of the GCI. Literature on learning organizations, resource-based models, and alternative approaches to competitiveness considers the organization’s human resources as a whole as the main driver of the competitive potential of any business (Barney, 2001; Fahy, 2002; Ajitabh and Momaya, 2004).

²⁰ See Castellani et al. (2020) and Jaramillo and Campos (2019).

²¹ See Aleksynska and Cazes (2016) and Lall (2001).

In that line, an examination of whether the Survey reflects the opinions of a particular group within the selected economies is an important matter. If the Survey captures perceptions of a representative group of business leaders, then the disconnection revealed between the GCI scores and labor market policies implemented in the region suggests that the adopted measures have not been large enough to boost formalization in the region. On the other hand, if the perceptions captured by the Survey represent the opinions of a particular sector in the business community, then the lack of alignment between the GCI scores and labor market policies in the region responds to unawareness of or benefit-seeking from the business sector represented in the Survey.

The policy implications in the two scenarios are opposite. Whereas the use of a representative Survey validates the use of the GCI as a policy tool, prioritizing opinions of a particular group indicates that, despite its role in influencing labor market reforms and policies, the GCI is not satisfactory for formulating policy recommendations.

The Survey is conducted at the national level by the WEF's network of partner institutes, which follow WEF's sampling guidelines in order to ensure that the sample of respondents is the most representative possible and comparable across the world. First, the partner institutes build a sample frame that reflects the structure of the economy by economic sector and firm size.²² This results in a large list of potential business executives from firms of various sizes and from the various sectors of activity. Then, the partner institutes separate the frame into two lists: one that includes only large firms and a second list that includes all other firms. Each list represents the various economic sectors, which are classified as agriculture, industry, and services. Finally, the partner institutes randomly select firms from each list to receive the Survey. Table 4 presents the evolution of WEF's sampling guidelines.

Columns (2) and (3) in Table 4 present WEF's sampling guidelines regarding the composition of the Survey sample size over the period 2008–2019. The Survey clearly prioritizes large firms. Except in 2017, the sample frame has been divided into two lists: one that includes only large firms, and a second list that includes all other firms. Starting from 2018, the Survey sample is composed of a random selection of large firms and SMEs, where the cutoff number of workers is 250.²³ This means that a microenterprise has the same chance to be selected in the Survey as a firm with, say, 200 workers. The WEF supports the high reliance of the Survey on large firms “because these companies tend to have a better knowledge about the overall economy and the relative quality of the business environment” (WEF, 2008, p. 77, 2009, p. 57, 2010, p. 65, 2011, p. 83).

The remaining columns in Table 4 show the average number of respondents in the Survey worldwide and in the selected countries. Over the period 2008–2019, the WEF's sampling guidelines have resulted in nearly 100 respondents per country. The number of executives interviewed in Peru and the Dominican Republic, however, remained below average throughout most of the period.

The distribution of the Survey sample by firm size is informative about whether the Survey prioritizes the opinions and expectations of a particular business sector. Table 5 compares the distribution of firms in the Survey sample with the actual business structure for the selected economies in the period 2008–2019.

²² WEF uses the number of workers to define the firm's size.

²³ The number of workers that define the firm size has been country-specific until 2016.

Table 4 Evolution of WEF's sampling guidelines and Survey sample size for the selected countries, 2008–2019

Year	Sample frame lists	Definition of firm size	Average number of respondents	Number of respondents in the selected countries				
				Peru	Colombia	Dominican Republic	Mexico	Brazil
	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2008	SMEs; large enterprises	Country-specific	91	84	128	61	73	180
2009	SMEs; large enterprises	Country-specific	95	89	235	61	154	181
2010	SMEs; large enterprises	Country-specific	98	86	195	43	94	168
2011	SMEs; large enterprises	Country-specific	98	88	137	54	354	185
2012	SMEs; large enterprises	Country-specific	100	83	286	91	278	143
2013	SMEs; large enterprises	Country-specific	94.7	85	204	56	320	98
2014	SMEs; large enterprises	Country-specific	92.8	85	162	62	340	114
2015	SMEs; large enterprises	Country-specific	98.6	91	162	77	311	197
2016	SMEs; large enterprises	Country-specific	102.8	88	158	78	304	128
2017	Micro and large enterprises, SMEs	<10, 11–250, >251	95.9	90	134	54	291	103
2018	SMEs; large enterprises	≤249; >250	92.25	98	113	59	208	118
2019	SMEs; large enterprises	≤249; >250	97.5	112	117	61	161	231

SME, small- and medium-sized enterprises; WEF, World Economic Forum.

Source: WEF (2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015b, 2016c, 2017, 2018b, 2019).

Table 5 shows that the Survey sample in the selected countries is far from representing the business structure in their economies. MSEs, firms with <100 employees, are a fundamental part of the productive structure in Latin America, accounting for >95% of firms in the countries of study. Moreover, these countries have a firm landscape oriented to microenterprises (firms with <10 employees), which represent around 98% nationally. In contrast, the Survey sample consists mainly of large firms, except for the case of Colombia, where almost half of the surveyed firms have <100 workers.

Among the selected countries, Peru exhibits the largest business sector misrepresentation. Throughout the period 2008–2011, out of 10 business executives surveyed, <2 were representatives of firms with <100 workers. A disaggregation of large firms (not shown in the Table) indicates that firms with 101–500 employees have the highest participation in the Survey, accounting for more than twice the share of larger firms. On the other hand, the share of firms with <101 employees has remained smaller than the participation of firms with 1,001–5,000 workers.

Table 5 The Survey and the country: percentage of firms with <100 workers in the selected countries, 2008–2019

		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Peru	The Survey	2	9	12	16	–	–	–	–	–	–	–	–
	The country	98.4	98.4	98.3	98.3	98.3	98.5	98.4	98.4	98.4	98.0	99.1	98.4
	1–10	98.2	98.2	98.1	98.1	98.0	98.4	98.2	98.2	98.2	97.8	99.0	98.2
	11–100	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2
Colombia	The Survey	52	43	43	49	–	–	–	–	–	–	–	–
	The country ^a	–	–	–	99.7	99.6	99.6	99.6	99.5	99.5	99.6	99.6	99.6
	1–10	–	–	–	94.5	93.6	92.9	92.7	92.3	92.2	93.0	92.7	92.7
	11–100	–	–	–	5.2	6.0	6.7	6.8	7.2	7.4	6.7	6.9	6.9
Mexico	The Survey	15	25	33	38	–	–	–	–	–	–	–	–
	The country	–	99.5	99.4	99.5	99.5	99.5	99.4	99.4	99.4	99.4	99.3	99.3
	1–10	–	94.96	93.92	93.80	93.75	94.09	93.84	93.78	93.69	93.58	93.57	93.48
	11–100	–	4.53	5.50	5.66	5.70	5.41	5.52	5.61	5.70	5.81	5.76	5.83
Dominican Republic	The Survey	49	46	1	26	–	–	–	–	–	–	–	–
	The country ^b	–	95.4	96.5	96.9	96.3	95.3	–	–	97.2	97.2	97.3	98.1
	1–10	–	66.4	70.1	71.5	69.9	70.6	–	–	74.1	73.9	74.3	76.0
	11–100	–	29.0	26.4	25.4	26.3	24.7	–	–	23.1	23.3	23.0	22.1
Brazil	The Survey	4	20	23	22	–	–	–	–	–	–	–	–
	The country ^c	99.1	99.2	99.1	99.1	99.1	99.1	99.1	99.1	99.0	99.0	98.9	99.2
	1–10	88.9	88.9	88.8	88.1	87.9	87.9	87.1	86.7	86.6	86.1	85.3	87.9
	11–100	10.2	10.2	10.3	11.0	11.2	11.2	12.0	12.3	12.5	12.9	13.6	11.3

Note: “–” Information not available.

^a The classification of firms by number of workers is 1–10, 11–50, and 51–200. Thus, the row 11–100 contains firms that have between 11 and 200 workers.

^b For 2008–2018, the classification of firms with <100 workers is 1–9 and 10–99; for 2019, the classification is 1–10 and 11–150.

^c The classification of firms with <100 workers is 0–9 and 10–99.

Source: WEF (2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015b, 2016c, 2017, 2018b, 2019) for the Survey. Official sources have been used to retrieve the business structure in the selected economies: *Ministerio de la Producción* (by request) for Peru; *Confecámaras* (by request) for Colombia; *Directorio Estadístico Nacional de Unidades Económicas* (DENUE) for Mexico; *Directorio de Empresas y Establecimientos* for the Dominican Republic; *Estatísticas do Cadastro Central de Empresas* (CEMPRE) for Brazil.

Although information on the distribution of firms by size in the Survey is not available for recent years, two facts suggest that it has not changed over the years. First, there are no important changes in the sampling guidelines. If any, a decade ago, the definition of firm size has been more adequate to local conditions (see Table 4). Moreover, even with country-specific size definitions, the Survey has underrepresented MSEs (see Table 5). Thus, the homogeneous stratification of firms by number of workers implemented since 2017 would rarely increase the share of MSEs in the Survey. Second, the continuity of the partner institutes in administering the Survey has been stable over time in the selected economies. Peru, Colombia, and the Dominican Republic have had the same institutions administering the Survey since 2008, whereas Mexico and Brazil have kept stable at least one institution throughout the period 2008–2019.²⁴

24 Mexico replaces one institution in 2009, adds another one in 2018, and removes two institutions (including the one introduced the preceding year) the following year; Brazil removes one institution in 2014.

To the extent that the implemented policies, guided by the GCI, strive to boost formalization, one expects that the subjective component of the GCI focuses on capturing the formalization barriers of the productive sector in which informality prevails. The analysis above has illustrated that this is not the case. Thus, labor market policies that aim to combat informality are based on perceptions of the most regulated and protected productive sector, which also presents the lowest informality rates.

5.2 The questionnaire

Survey questions can only be valuable when they are properly phrased and contain clear concepts. Three issues to analyze arise here. First, whether the questions are clear and unambiguous, allowing respondents of different countries to interpret them identically. Second is whether respondents can provide an informed answer that is useful for ranking their country. The final issue is whether the questions are not repetitive. Deficiencies in these factors can create noise and redundant information and thus cloud rather than improve the rankings (Lall, 2001). The questions related to the labor market indicator, as well as the scores assigned to each answer, are presented in Table 6.

The questions are often unclear or confusing, and the assessment standards are not comparable across countries. That is, it is very likely that executives are not using the same benchmarks, leading to biased perceptions of the relative position of a country and, thus, misleading rankings (Lall, 2001; Ochel and Rohn, 2006). The question for Indicator 1, hiring and firing practices, asks whether the respondent believes that such practices are flexible in his/her country. Flexibility could be thought of as the amount of time in advance for an employer to dismiss

Table 6 Questionnaire of the Survey's labor market pillar

Indicator	Question ("In your country...")	Answer
1. Hiring and firing practices	To what extent do regulations allow for the flexible hiring and firing of workers?	1 = not at all 7 = to a great extent
2. Cooperation in labor–employer relations	How do you characterize labor–employer relations?	1 = generally confrontational 7 = generally cooperative
3. Flexibility of wage determination	How are wages generally set?	1 = by a centralized bargaining process 7 = by each company
4. Active labor policies	To what extent do labor market policies help unemployed people to reskill and find new employment?	1 = not at all 7 = to a great extent
5. Ease of hiring foreign labor	How restrictive are regulations related to the hiring of foreign labor?	1 = highly restrictive 7 = not restrictive at all
6. Internal labor mobility	To what extent do people move to other parts of the country for professional reasons?	1 = not at all 7 = to a great extent
7. Reliance on professional management	Who holds senior management positions in companies?	1 = usually relatives and friends without regard to merit 7 = mostly professional managers chosen for merit
8. Pay and productivity	To what extent is pay related to employee productivity?	1 = not at all 7 = to a great extent

Source: World Economic Forum (2018b)

a worker, how much it costs to dismiss, or even an administrative burden. To the extent that the WEF cannot make sure that all business executives interviewed understand the metric as flexibility, this question is unclear and confusing. Even if they all think on time, the phrasing of the question leaves open any interpretation since one executive can think it is flexible to be able to hire and fire the same day, whereas another can think in the same year. Furthermore, a business leader could say that it is difficult to hire and fire workers in his/her country. However, this answer does not mean that this business executive believes that there is any problem with that difficulty or that he/she prefers it to be easier to hire and fire workers.

The question to assess Indicator 2, confrontational relations, also challenges the soundness and reliability of the respondents' answers. Is asking for a raise being confrontational? Is denying working overtime without extra payment confrontational? This question could have different answers for different business executives, particularly in the selected economies. As a result of the formalization policies implemented in the region, labor market regulations in the countries of study are specific to the firm size and economic activity. What is considered flexible in agriculture might not be flexible in mining, so the responses can reflect such contextual differences. Similarly, MSEs face lower nonwage costs than large firms. Thus, perceptions of business executives operating in a nonrepresentative regulatory framework are being compared with perceptions of business leaders in other countries with homogeneous regulation across firms of all sizes.

Providing an informed answer that allows the respondent's country to be ranked with respect to others is another weak area of the Survey. Business executives can only assess legislation concerning their own firm, but not that of the whole country. For instance, if the firm has not hired or tried to hire any foreign worker, the respondent cannot provide an informed answer. This is relevant in the Peruvian case since foreign workers represent only, until 2018, 0.85% of all urban workers in the private sector (Ministerio de Trabajo y Promoción del Empleo [MTPE], 2018). Moreover, foreign workers in the private sector are concentrated in firms with <100 workers (MTPE, 2019), which are underrepresented in the Survey.

Finally, the questions are repetitive. For instance, the questions for Indicators 3 and 8, "flexibility on wage determination" and "pay and productivity", respectively, are asking the same information in different ways. From the scores assigned to potential answers, one can infer that wages set by firms, rather than determined on negotiation, increase productivity. Thus, the underlying question here is the relationship between wages and productivity, which is also asked explicitly in Indicator 8, "Pay and Productivity". What happens if a business executive perceives that wages are determined by the firm and are not related to productivity? This would be inconsistent with the channel between wages setting and productivity, according to the WEF. Thus, respondents may try to differentiate their answers without really adding meaningful new information, which yields counterproductive results. From a different perspective, the question regarding flexibility on wage determination is indirectly asking for the role of labor unions, which is already covered as an objective indicator.

6 Conclusions

This article has discussed the accuracy of the GCI for policy purposes in Latin America through an analysis of its subjective component. The region provides an ideal scenario for

that purpose because some countries have built entire competitiveness systems based on the GCI to advance in competitiveness. We focus on the labor market area as LAC policymakers have identified formalization as a primary policy objective that would lead to competitive economies. Consistent with the WEF's mandate, for a long time, the LAC countries have combated informality with reductions in the cost of formalization. A series of legislative initiatives strove to simplify procedures for registering companies and for reducing the costs of operating formally.

Despite the region's ample experience in formalization policies, business representatives' perceptions of the labor market as rigid persist. The fact that the labor market flexibilization reforms are not properly reflected in the labor market GCI scores suggests that the Survey respondents either are not aware of the measures adopted or are benefiting from them, which leads to examination of the methodology of the GCI subjective component. We have shown that the Survey sample in the GCI is not representative of the business structure in the selected economies, particularly that of Peru. The Survey sample consists mainly of large firms, whereas MSEs are the cornerstone of the productive structure in Latin America, accounting for >95% of firms in the countries of study. Moreover, these countries have a firm landscape oriented to microenterprises, which comprise around 98% of businesses. In contrast, the Survey assigns the same likelihood to a microenterprise and a firm with, say, 200 workers, to be selected in the Survey sample.

We have further shown that the Survey provides qualitative information on elusive concepts. Business executives do not always have the same benchmark to compare countries, and it is not clear how a respondent answers questions about topics he/she does not know. In the same line, some concepts are counted more than once in the Survey, which implies that the indicators are biased toward the overrepresented concepts. In light of the methodological issues revealed in this paper, we conclude that the GCI is not sufficiently sound to deliver coherent policy advice.

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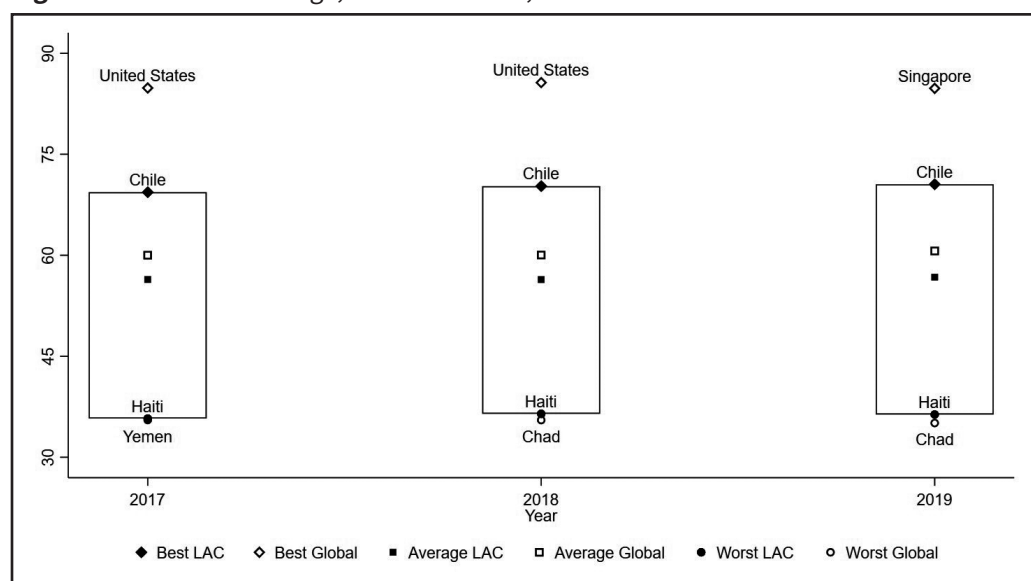
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Appendix

Figure A1 GCI score range, 2017–2019. LAC, Latin American and the Caribbean countries.



Notes: Score in 2017 is a backcast edition with methodology GCI 4.0.

Source: Data for 2018 come from The Global Competitiveness Index (GCI) data set 4.0 2018, and data for 2019 come from the World Bank GCI 4.0: Global Competitiveness Index 4.0.

Table A1 GCI labor market scores in 2007 and 2017

	Overall			Subjective		
	2007	2017	Δ	2007	2017	Δ
Peru	4.12	4.27	0.32	4.31	3.89	-2.87
Colombia	4.25	3.98	-0.58	4.56	3.73	3.12
Dominican Republic	4.13	3.62	-1.19	4.73	3.56	2.14
Mexico	4.09	3.77	-0.74	4.56	3.92	1.82
Brazil	3.96	3.68	-0.65	3.98	3.36	2.35

Notes: Average compound growth rates are shown.

Source: The Global Competitiveness Index (GCI) data set 2007–2017 (World Economic Forum).