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How to accelerate and scale Brazil's economic growth?

The role of industrialization of comparative advantages.

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HOW TO ACCELERATE AND SCALE BRAZIL'S ECONOMIC GROWTH? THE ROLE OF INDUSTRIALIZATION OF COMPARATIVE ADVANTAGES.

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After decades of rapid growth, Brazil's per capita GDP in US dollars increased by a mere 1.5% per year between 1980 and 2023. At this pace, it would take 47 years to double our per capita income and 75 years to reach Portugal's current per capita income. Brazil has not only slowed its growth, but also adopted a highly volatile growth pattern, which has had major economic and social repercussions, such as rising poverty and inequality.[1]

It is suspected that Brazil has fallen into the so-called "middle-income trap", a stylized fact in economic literature characterized by a slowdown in growth rates as a country approaches the intermediate income stage. The trap is associated with the difficulties of transitioning from a growth model based on the accumulation of production factors, such as capital and labor, to a model in which knowledge, productivity. and competitiveness become key drivers of growth.[2]

There are several potential causes behind Brazil's low growth, including a low savings rate, low investment rate, a closed economy with limited international trade, fiscal imbalances, high exposure to terms-of-trade shocks, economic primarization, a poor and unstable regulatory framework, legal uncertainty, excessive bureaucracy, and deficient infrastructure and human capital.

These factors put pressure on the cost of capital, production costs, and public debt, constrain investment and productivity growth, increase dependence on foreign savings, and raise the risks of doing business in Brazil. The resulting low systemic competitiveness helps explain the country's slow growth and modest pattern of international integration into the global economy.

To overcome the low competitiveness of the Brazilian economy, emphasis is usually placed on the so-called "Brazil Cost" agenda, which considers several of the factors mentioned above. Although critical, this agenda is no longer sufficient to ensure economic growth and international competitiveness in the 21st century. **This is because the notion of competitiveness is undergoing transformation.**

Indeed, the notion of competitiveness is undergoing transformation because the

[1] See Arbache and Sarquis (2018).

[2] For more details on the 'middle income trap', see Inter Alia and Rosenblatt (2013) and World Bank (2024).

global economy itself is changing. Climate change, the rise of geopolitics, the digital economy, new production organization technologies, and knowledge are reshaping both the geography and the nature of investments.

In this emerging "new world," the challenges of growing and competing will be more complex. Low costs will no longer be sufficient to ensure value creation, employment, and prosperity. In the era of climate change, deglobalization, and knowledge, what matters, more than ever, is what we do and how we do it: the ability to innovate and create, to do things better, to develop new business models, to add value, and to offer new and efficient solutions to both new and old problems. **What matters, increasingly, is not simply participating, but how we participate in the global economy.**

Unfortunately, Brazil's social and prosperity indicators remain modest. As an example, it was only in the late 1990s that the majority of children of elementary school age were enrolled in school. Productivity continues to grow at a slow pace, and even more concerning is the observation that Brazil's productivity appears to be deteriorating in comparison to other countries.[3]

The situation is not very different when it comes to international competitiveness indicators. On one hand, Brazil's share in global exports remains low and disproportionate to the size of its economy and its GDP per capita. On the other hand, the mode of integration has been undergoing changes, largely due to the rising and dominant share of primary goods in both production and exports. Brazil's participation in global value chains remains timid, with most of the value added in manufactured exports stemming from domestic inputs. As a result, the country remains isolated from global value chains and is integrating into international trade through the "back door".

The issue is that Brazil's structural particularities make it vulnerable and increasingly dependent on gains in productivity and competitiveness. This is primarily due to one of the fastest demographic transitions ever recorded, marked by a sharp decline in fertility rates coupled with rising life expectancy. The most visible consequences of this demographic shift include upward pressure on labor, fiscal, and interest rate costs, and downward pressure on the international competitiveness of the economy, all within a context of constrained fiscal space for public investment.

A second reason is that Brazil is among the most urbanized countries in the world, with 87% of its population already living in cities, bringing with it significant social, infrastructure, security, and governance challenges. Brazilian cities suffer from a high incidence of low productivity, widespread informality and poverty, severe deficits in basic infrastructure, and acute security problems, all of this unfolds in a context where the municipal public finances of major cities have failed to keep pace with

[3] See World Bank (2024).

the growing challenges and responsibilities associated with public service provision.[4]

A third reason for the dependence on productivity and competitiveness is Brazil's per capita capital stock, which is relatively low by international standards in general, and particularly when compared to certain emerging economies such as China, Malaysia, Singapore, Taiwan, and Chile.[5]

Fourth, unlike South Korea, China, and other Asian countries that began their reforms earlier to promote value addition and trade, Brazil can no longer rely on many of the commercial and industrial promotion policies and instruments as it once did, since they now conflict with the current international economic governance framework and with existing agreements and commitments.[6]

Fifth, **addressing poverty, inequality, and the vast regional disparities will require substantial resources, and the most sustainable path to finance these efforts is through sustained economic growth.**

New production and production management technologies, along with the rapid shift in consumption patterns toward more sustainable goods and services, suggest that scale and cost are no longer the primary determinants of competitiveness and investment decisions. The location of many global investments is increasingly being determined by the availability of green, secure, affordable, and abundant energy; infrastructure; conditions that safeguard the resilience of value chains; systemic productivity; and specific market characteristics. Traditional cost arbitrage factors, such as wages, subsidies, tax incentives, and other conventional elements that have historically shaped Brazil's economic growth, are losing relative importance.[7]

It is within this context that **a growing consensus is emerging: productivity and competitiveness, long relegated to the background by Brazil's post-war development model, must now become central components of the country's economic growth strategy.** After all, given the limited prospects for a significant expansion of the labor force or investment rate, we will need to make better use of the resources we already have.

1. How is productivity performing?

Chart 1 shows labor productivity in Brazil and selected emerging economies between 1952 and 2021. Two key findings stand out. First, until the late 1970s, Brazil's

[4] See World Bank (2023) and Barbosa Filho. Turra and Mello Franco (2020)

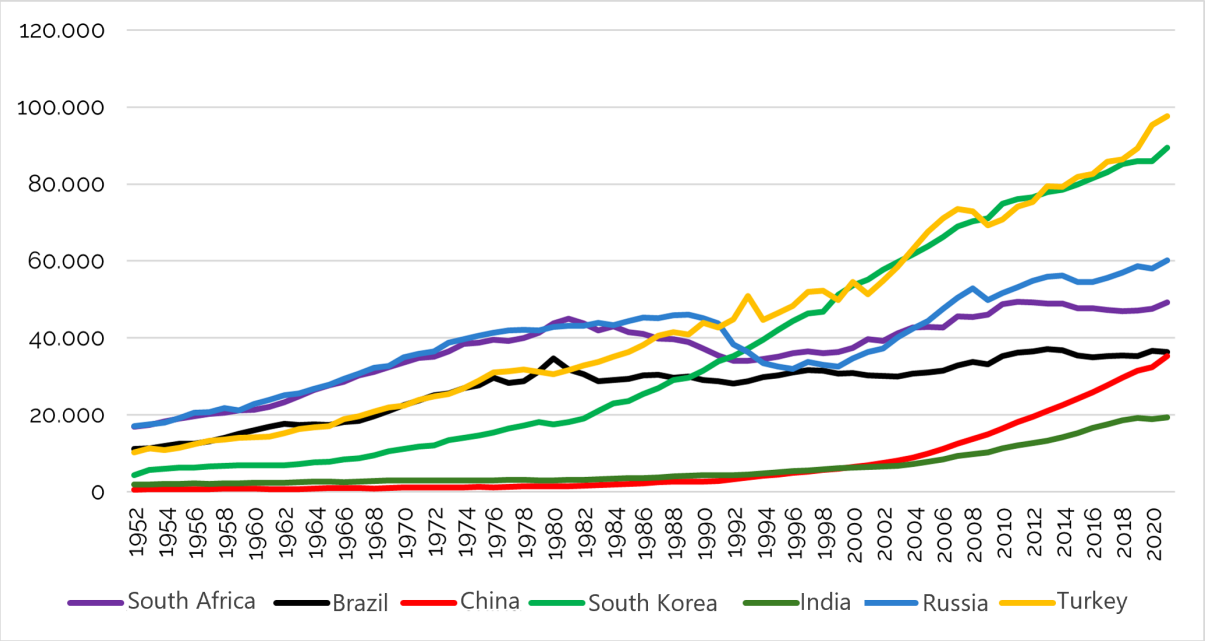
[5] See Arbache (2018).

[6] See UNCTAD (2014). The rules of the World Trade Organization restrict various policies and instruments aimed at trade stimulation and promotion, particularly when they are interpreted as measures that interfere with free competition among countries. Trade, investment, services, and intellectual property agreements, as well as climate-related commitments, also impose constraints on certain industrial policy actions.

[7] See Arbache and Esteves (2023).

productivity was higher than in most other emerging economies. Second, from that point onward, productivity lost momentum, stagnated, and Brazil began to fall behind in comparison to other countries.

Chart 1 - Labor productivity per employed person



Source: Conference Board.
Note: values were calculated in 2020 US dollars, using PPP conversion.

Table 1 shows the growth rate of labor productivity. Between 1952 and 2021, productivity grew at an annual rate of 1.74%. From 1952 to 1980, it increased by 4.14% per year, but dropped to just 0.16% between 1980 and 2021, a fraction of the performance seen in other economies.

Table 1 - Annual labor productivity growth (%) per employed person, in selected periods

	1952 – 2021	1952 – 1980	1980 – 2021
South Africa	1.60	3.38	0.33
Brazil	1.80	4.22	0.16
China	6.44	4.03	8.09
South Korea	4.56	5.30	4.09
India	3.48	1.72	6.67
Russia	1.91	3.39	0.92
Turkey	3.41	4.25	2.98

Source: Conference Board.

Note: values were calculated based on 2020 US dollars, using PPP conversion.

Data from the Conference Board highlight that labor productivity in Brazil is significantly lower than in advanced economies. For instance, the ratio between Brazil's productivity and that of the United States was 24% in 1952, rose to 46% in 1980, but fell back to 24% by 2021.

Given the importance of productivity for economic growth, the poor performance of this indicator has, among its consequences, the lack of convergence of per capita income with that of advanced countries. Data from the Conference Board, adjusted for PPP, show that in 1952, the American per capita GDP was 5.6 times higher than Brazil's; by 1980, this difference had narrowed to 2.9 times. In 2021, however, the gap widened again to 4.3 times.

Some factors that help explain Brazil's low productivity include the misallocation of resources at both sectoral and firm levels; barriers to market entry; idiosyncratic distortions and protectionism, which affect competition and the cost of inputs and capital goods; slow productivity growth within firms; limited labor mobility and distortions in the labor market; the predominance of small, underfunded and poorly equipped businesses; a high number of informal enterprises with low productivity; poor management; and low quality and availability of competitive services.[8] Reports comparing countries' competitiveness point to unfavorable business conditions in Brazil, with particular emphasis on issues related to education, infrastructure, business efficiency, and government efficiency.[9]

When examining sectoral productivity in the Brazilian economy, we observe positive performance in the primary sector, particularly in agriculture, mainly due to the intensive use of technology and mechanization; negative performance in the secondary sector; and also negative performance in the tertiary sector, where,

[8] See Inter Alia; Bonelli, Veloso and Pinheiro (2017) and Arbache (2018).

[9] See IMD (2024).

despite the presence of some high-productivity areas such as the financial and e-commerce sectors, there is a large number of small and informal businesses with low or very low productivity. International empirical evidence for emerging countries indicates that the industrial sector has the potential to operate with higher productivity[10]. However, this is still not the case in Brazil.

2. Brazil's industrial sector

Through effort and sacrifice, Brazil has built over decades a dynamic and integrated industrial sector that helped the country grow and become one of the largest economies in the world.[11] However, since the 1990s, the industrial sector has shown signs of losing momentum. Basic indicators, such as output and employment trends, suggest that industry has been growing more slowly than other sectors and may even be losing ground in the economy.[12]

The problem with this type of analysis is that it may lead to partial or even misleading conclusions. This is because industrial activity has undergone substantial transformations, such as vertical specialization and outsourcing, which decentralize and fragment production while generating gains in efficiency and innovation.[13] As a result, the dividing line between industry and services has become increasingly blurred due to the growing share of services in the intermediate consumption of industry, even raising methodological challenges in measurement.[14] In addition to these, there are Brazil-specific factors, such as overindustrialization in the 1970s associated with import substitution industrialization, issues with relative prices of output and investment, changes in IBGE statistical series, among others.[15]

These transformations are not unique to Brazil, but rather common to many economies that modernize and integrate into the global economy. They lead to a "tide effect" of reduced industrial participation in the economy. For this reason, a more careful examination of the evolution of Brazil's industrial dynamism requires broader and comparative analyses, combined with the usual analysis of domestic performance indicators.[16]

To illustrate what is happening with the sector in Brazil, we make use of the "industry-space" approach", a simple yet useful theoretical tool for comparative analysis of industrial dynamics, the industry-space is the locus where two key variables revealing industrial dynamism intersect:

[10] Consider, for instance, the development of South Korea's economy over the past decades. Although the services sector accounts for the largest share of GDP, as is typical in economically advanced countries, the industrial sector stands out for its high productivity.

[11] There is a rich body of empirical literature demonstrating that economic development and growth are closely linked to structural transformations favoring a modern, diversified, and internationally integrated industrial sector. See, for instance, United Nations (2007).

[12] See Arbache (2012).

[13] See Rowthorn and Ramaswamy (1997).

[14] See Arbache (2016) and Leão (2017).

[15] See Bonelli and Pessoa (2010) and Ferreira *et al.* (2008).

[16] See Arbache (2012. 2018).

the share of industry in the economy and industrial density. The latter reflects an economy's ability to mobilize productive resources and infrastructure, as well as its capacity to innovate and manage those resources in ways that promote industrial development.[17]

Figure 1 theoretically illustrates Brazil's position in the industry-space. Brazil would be located in region R1, that is, a region of low industrial density and low industrial share in GDP. Considering that Brazil entered late into the competition for a place in the global economy and global value chains, it is now necessary to find shortcuts that promote rapid growth in industrial density, in order to accelerate economic growth prospects and reduce the widening income gap that separates Brazil from advanced and many emerging countries.

In light of the industry-space framework, we will need to find policies that move us from notional point A in Figure 1 - where we are currently located - to notional point B. If successful, these policies could save us many years, or perhaps decades, of conventional economic development, as well as significant resources. The United States would be located somewhere in region R4, meanwhile, China would be in region R3, after having followed the entire conventional trajectory illustrated there.[18]

Empirical evidence shows that Brazil's industrial sector is losing dynamism both domestically and internationally, in a context where industrial policy has returned to the center of global economic strategy and has become the target of aggressive protectionist, discriminatory, and subsidy-based policies, as seen in the cases of the United States and Europe.[19]

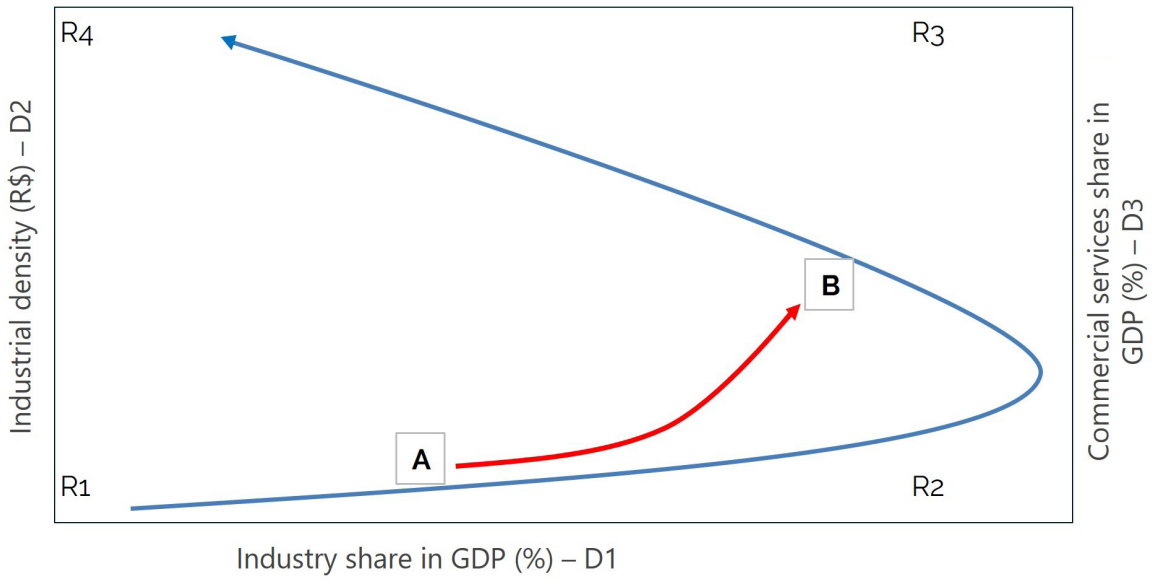
The emergence of climate change and geopolitical shifts may favor increased productivity in Brazil. In fact, although the challenges facing industry are significant and complex, the many business and investment opportunities now arising could revitalize the Brazilian economy, and the industrial sector in particular, elevating it to a new level.

[17] See Arbache (2014).

[18] For a detailed discussion, see Arbache (2016).

[19] See Evenett *et al.* (2024), Arbache *et al.* (2016) and Arbache (2016).

Figure 1 - Brazil in search of a shortcut – industrial density, industry and services



Source: Arbache (2016).

3. And what would be the path forward?

Various competitiveness indicators suggest that Brazil is not well-prepared to compete in the global economy. On one hand, we do not have sufficiently attractive production costs to redirect foreign investment to sectors where labor, taxes, and other factors are competitive advantages. On the other hand, the previously mentioned competitiveness and productivity issues also make the country unattractive for investments in sectors that seek this type of competitive edge. As a result, foreign investment here is primarily aimed at the domestic market. To move forward, it will be necessary to seek alternatives.

One such alternative is **to find shortcuts that accelerate our transition toward the production of higher value-added goods and services. A powerful shortcut lies in the many opportunities associated with decarbonization and sustainability, as well as food and energy security.**

4. Comparative advantages and competitiveness

The globalization of production was driven by the search for cheap labor, leading to industrial concentration in Asian countries. However, the growing electrification and digitalization of production, alongside factors such as the environmental agenda, extreme climate events, geopolitical tensions including wars and frictions between the United States, Europe, and China, and energy price volatility, have led major companies to reconsider their industrial location strategies. They are

now seeking resilience and geographic diversification as an alternative to protect supply chains, customers, and ultimately, their business interests.

The availability of clean, safe, affordable, and abundant energy is becoming a highly competitive factor. Brazil stands out in these and other criteria. After all, the country already has a predominantly renewable electricity matrix and holds immense potential for solar, wind, and biomass energy production.[20] Brazil also possesses vast reserves of freshwater, many deposits of critical minerals for the energy transition, the greatest biodiversity, the largest tropical forest, immense marine resources, large areas of arable land, one of the largest oil reserves, and leads the low-carbon fuels agenda. In addition, Brazil is geographically distant from geopolitical tensions, while being relatively close to North America and Europe. The food and energy autonomy that Brazil already enjoys is a privilege held by few large countries, with profound implications for the economy, politics, diplomacy, and business.

As demand for essential minerals for green technologies, such as lithium, copper, graphite, niobium, bauxite, and rare earths, increases, the relevance of geography also rises. Geography also affects regional trade agreements, economic integration, and logistics costs. Being close to major economic centers or trade routes, such as ports, waterways, or railways, can enhance competitiveness. The growing focus on regionalization, driven by geopolitical tensions and supply chain risks, reinforces the importance of geography in international trade and investment. Disruptions caused by the pandemic, geopolitical tensions, and wars are leading companies to rethink supply chains and adopt strategies such as "reshoring" and "powershoring", in which Brazil is a global standout.[21]

In summar, **Brazil presents itself as a potentially attractive destination that aligns environmental sustainability and economic security goals with business interests and economic development.**

Essentially, after decades of marginalization, geography and natural resources are returning to the forefront as drivers of business attraction and competitiveness, as well as critical elements for national autonomy and independence. As the global economy shifts toward decarbonization and demands more food and energy, geography and natural resources will assume an even more prominent economic role.

[20] Brazil has already completed the transition to a renewable electricity matrix. Approximately 90% of its power generation is renewable, with hydropower accounting for at least 65% of the total. Much of the required investment has already been made and accounted for, granting Brazil a significant financial and temporal advantage over countries that still need to undertake this transition, including China, the United States, and Europe. See Arbache and Esteves (2023) and Mandacaru *et al.* (2025).

[21] See Arbache (2023) and Arbache and Esteves (2023).

5. The industrialization of comparative advantages

An attractive path for Brazil to resume faster growth is to focus on something concrete, attainable, feasible, and appealing: its comparative advantages. Due to its geography and past investments anchored in that geography, the country has gained a prominent position in several international commodity markets, think of minerals and metals, agricultural products, energy resources, biofuels, timber, among others.

However, while commodities have made fundamental contributions to the country's economy, it now seems reasonable to take a step forward and explore a strategy of industrializing its comparative advantages. This approach could enable Brazil to move from point A to point B in Figure 1. After all, the global context is favorable for Brazil to boldly advance in that direction.

Indeed, the global political context, population and income growth, and climate change are reshaping the global economy. One of the most likely outcomes will be an increase in the relative prices of many resources that Brazil possesses, consider, for example, the amount of water required to produce many essential foods and proteins.

In other words, geography is gaining importance due to complex, interconnected global trends that are expected to intensify in the coming decades. There are already signs of rising relative prices, as observed in certain minerals and food products, but there is room for even more significant shifts in the years and decades ahead. All of this would create a favorable environment for new investments and business opportunities, enabling the country to better leverage its natural resources, commodities, and the competitive advantages it has already built, such as renewable energy and low-carbon fuels.

The industrialization of comparative advantages is an economic strategy that treats natural resources and geography as starting points, not endpoints, for the development of more complex and higher value-added economic activitieso. Rather than exporting only natural resources and raw materials, the country could export those same resources embedded in more sophisticated products, attracting capital, encouraging investment, requiring more qualified human capital, improving the external accounts, and promoting broader and more solid foundations for economic development.

A notable example is powershoring, an emerging concept involving the decentralization of the production of energy-intensive industrial goods to geographies that offer clean, safe, affordable, and abundant energy.[22]

The sophistication of the economic structure has been the path followed by countries that successfully escaped the middle-income trap over the past five decades.[23] but each country has pursued its own path according to its specific conditions and context. With the comparative advantages it holds, Brazil could, like few others, help the world

[22] See Arbache (2023. 2025) and Arbache and Esteves (2023).

[23] See World Bank (2024).

decarbonize more rapidly and address food and energy insecurity, not only through the export of commodities, but also by offering a broader range of products, services, technologies, and solutions.

Powershoring could be one of these shortcuts, allowing the country to attract energy-intensive investments that need to decarbonize. This includes sectors known as "hard-to-abate," which are among the largest emitters of greenhouse gases and face enormous costs to decarbonize. Steel, aluminum, fertilizers, chemicals, glass, ceramics, low-carbon fuels, pulp and paper, among other sectors, are actively seeking solutions, and Brazil could be part of the answer.

Much is already underway. In fact, projects are currently being developed for fertilizer plants, low-carbon fuels (e.g., SAF, e-methanol, biodiesel), batteries, steel, pulp and paper, among others, taking advantage of Brazil's immense production advantages. Ports with nearby industrial zones powered by renewable energy would be especially attractive locations for these investments.[24]

The core of the strategy to industrialize comparative advantages lies in exporting natural resources and commodities in the form of advanced products and services, with broad economic and business implications, and unprecedented social and territorial impacts. By encouraging the development of a broader productive base anchored in natural advantages, the strategy integrates sectors, brings together seemingly opposing interests, such as agriculture and industry, and promotes economic diversification.

As the industrialization of comparative advantages requires extensive knowledge and technology, advanced business models, the production of equipment and capital goods, sophisticated services, and a strong digital economy, its impacts could be profound. Our greatest challenge is to organize, accelerate, and scale this ongoing agenda, transforming it into a State strategy with a long-term vision.

The strategy could have major repercussions on productivity, a fundamental element for addressing the most critical issues in Brazil's development. However, the strategy would not be universally applicable to all situations. In some cases, it would be advantageous to take the next step and add value, while in others, continuing to produce and export commodities might be the more beneficial path.

While Brazil presents new and powerful business and investment opportunities, the previously mentioned challenges, such as the "Custo Brasil" and the tax bias against value-added activities, remain obstacles. It will therefore be necessary to weigh the costs and risks involved and work on a coordinated agenda of public and private policies that optimize investment benefits while limiting or reducing barriers.

The industrialization of comparative advantages is particularly well-positioned to help the country address issues related to high urbanization, demographic change, poverty, and inequality. After all, many of the activities related to adding

[24] See Arbache and Esteves (2023).

value to commodities tend to be located in urban areas and involve long value chains. The strategy could be decisive for Brazil to achieve a higher standard of development and a more sustainable, resilient, and inclusive prosperity.

6. How to move forward?

The strategy depends on both macro and micro-level policies. On one hand, public policy should address the "Custo Brasil" agenda, foster partnerships and attract foreign capital, promote technology and innovation, and revise regulations and policies that discourage value addition. On the other hand, the private sector could be more ambitious, internationalizing its operations, adding more value, and investing more in technology and innovation. Private sector engagement will be stronger to the extent that the government demonstrates commitment and alignment with this agenda.

In upcoming work, we will explore the macro, micro, and regulatory agendas in greater detail.

7. Final remarks

For Brazil to grow and prosper in the highly complex context we live in, bold action will be required. The conventional formulas that worked for other countries in different eras no longer deliver the same results and may be even less effective in the near future. Yet Brazil holds valuable assets that allow it the luxury of being ambitious. Its comparative advantages are powerful engines for development and can also serve the interests of the world.

Harnessing these potentialities and converting them into tangible outcomes requires strategic vision, a pragmatic and execution-oriented mindset, coordination, and partnerships. The journey will not be easy, but the effort will be worthwhile.

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