

Quality of Public Goods and Efficiency of Government Spending in Brazil

- ▶ In discussions surrounding Brazil's high levels of government spending and public debt, a common argument is that those indicators for other countries exhibit similar or even higher levels. This argument overlooks the cost of debt in those countries - generally, developed markets with significantly lower interest rates - and the quality of the public goods and services they offer, which is the focus of this study.
- ▶ To compare Brazil's performance with other countries, we use quality metrics across five key areas: health, education, public administration, equity, and infrastructure. We also assess spending efficiency by weighting the quality of public goods and services against total government spending as a percentage of GDP.
- ▶ The results show that Brazil underperforms in both quality and efficiency when compared to international benchmarks. Even in education, where the country ranks relatively better in terms of quality, it remains inefficient in terms of spending.
- ▶ In this sense, adopting measures to improve the quality and efficiency of public spending is a reasonable approach to address Brazil's fiscal constraints, especially given the country's rising debt-to-GDP ratio.

To analyze the quality of public goods, we used socioeconomic indicators compiled by the World Bank, following a methodology similar to Ribeiro (2008). The indicators are grouped into five categories:

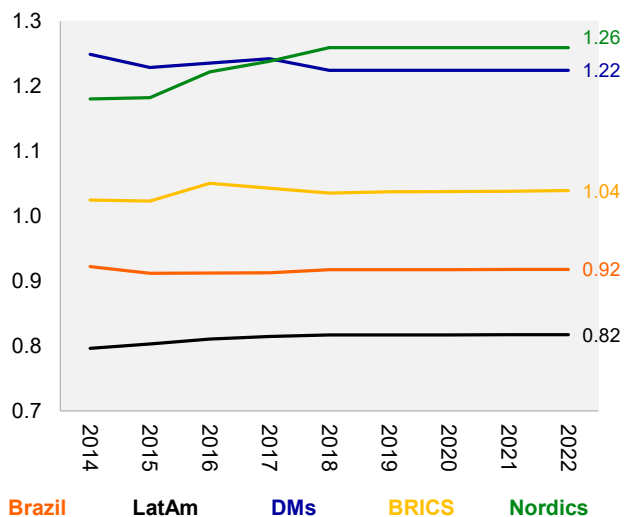
- **Education:** Youth literacy rate; Mathematics performance in PISA; On-time graduation rates (i.e., students who do not repeat grades)
- **Health:** Life expectancy; Neonatal mortality rates.
- **Administration:** Corruption control index, Judicial system quality index; Number of procedures required to start a business (a measure of bureaucracy).
- **Equity:** Share of total income held by the poorest 40%.
- **Infrastructure/Security:** Percentage of the population with access to electricity; Intentional homicides per 100,000 people.

We aggregate these five dimensions into an index that represents the quality of public goods offered in each country, with each group of variables having equal weight (20%). The construction was done in such a way that values above 1 indicate that the country performs better than the average on that particular dimension, whereas values below 1 indicate a performance worse than the average (e.g., a performance of 1.05 indicates that a group's result is 5% above the average).

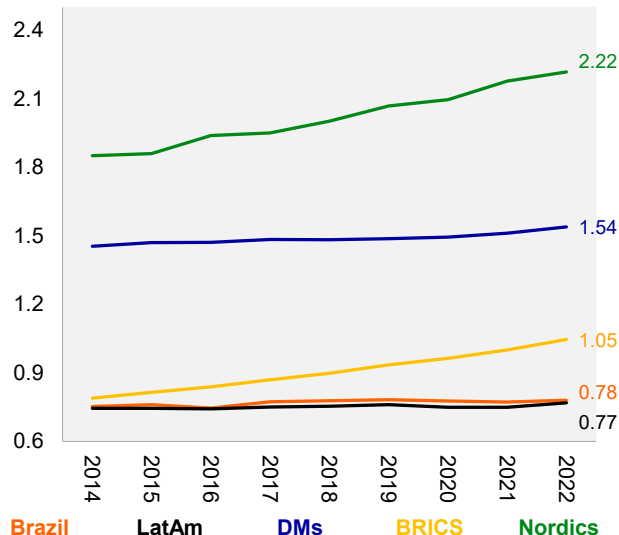
We divided the sample into five groups: i) Brazil; ii) Latin America ¹; iii) BRICS²; iv) Developed markets (DMs)³ e v) Nordic countries ⁴.

The charts⁵ below show the evolution of the indicators for each group in the five dimensions analyzed.

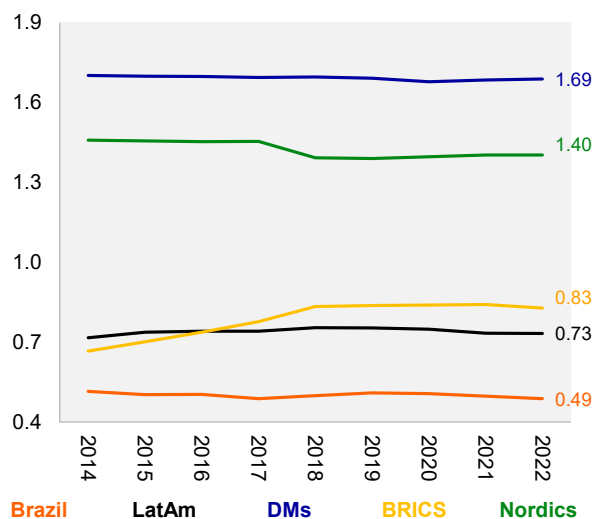
Quality of Education



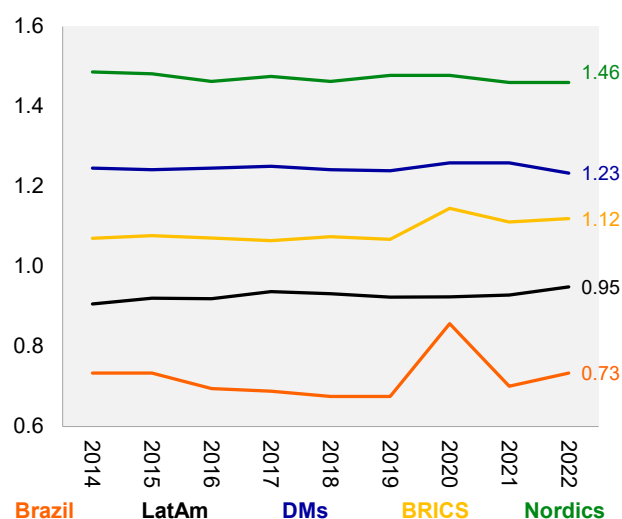
Quality of Health



Quality of Public Administration



Quality of Equity



¹ Argentina, Brazil, Bolivia, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Paraguay and Peru

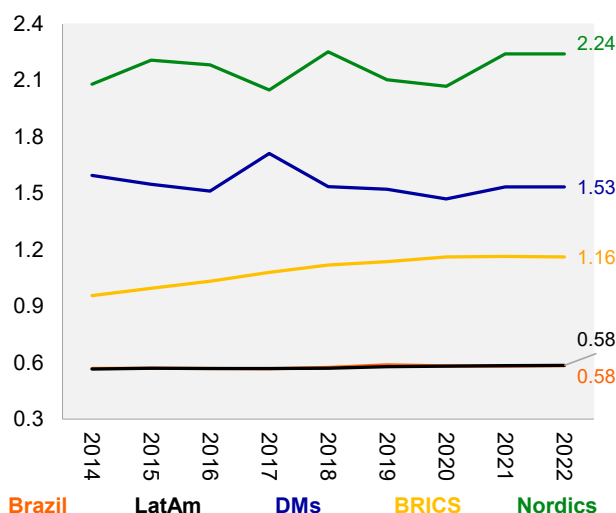
² Brazil, Russia, India, China e South Africa

³ Australia, France, Germany, United Kingdom, United States and New Zealand

⁴ Sweden, Denmark and Norway

⁵ We calculated the indicators for each group by taking a simple arithmetic average of the countries that comprise it.

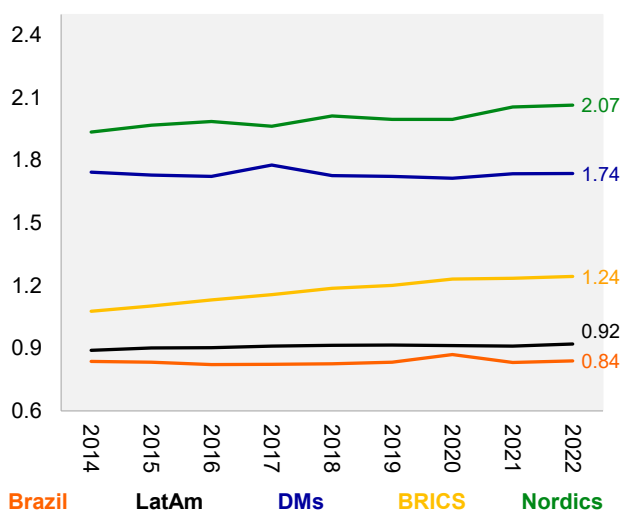
Quality of Infrastructure



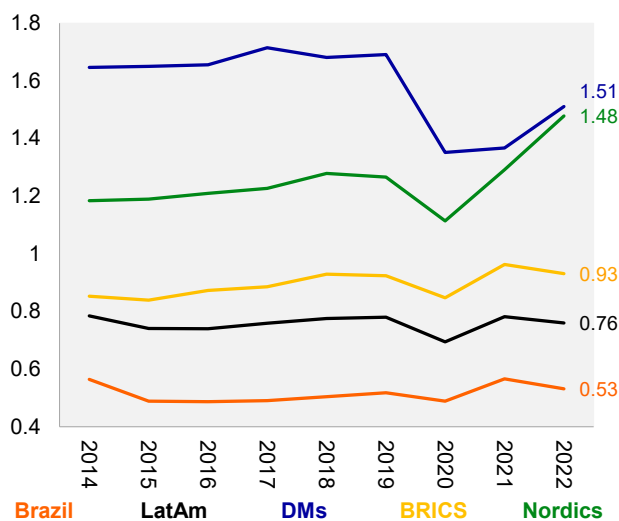
Additionally, we divided the quality indicator by total government spending as a percentage of GDP to measure the efficiency of public spending.

We observe that Brazil performs worse than all aggregated groups in terms of both the quality of goods and services and spending efficiency.

Quality of Public Goods



Public Spending Efficiency

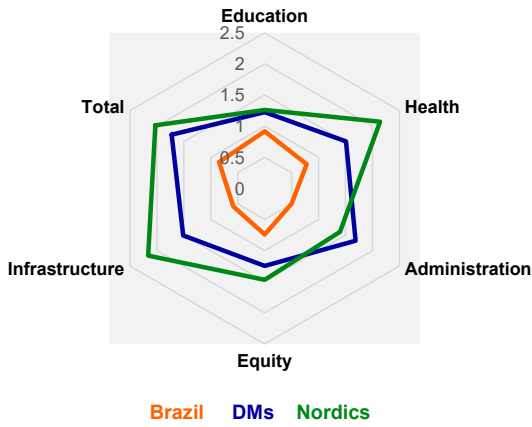


When the quality of public goods is weighted by a country's total government expenditure - thereby measuring efficiency - Brazil's index suffers a significant decrease (moving further away from 1). It is also noteworthy that developed market governments are generally more efficient than the Nordic countries', which spend significantly more: the average total government spending as a proportion of GDP for DMs is approximately 23.7%, whereas for Nordic countries it is almost 34.8%. For Brazil, this figure is 34.7%.

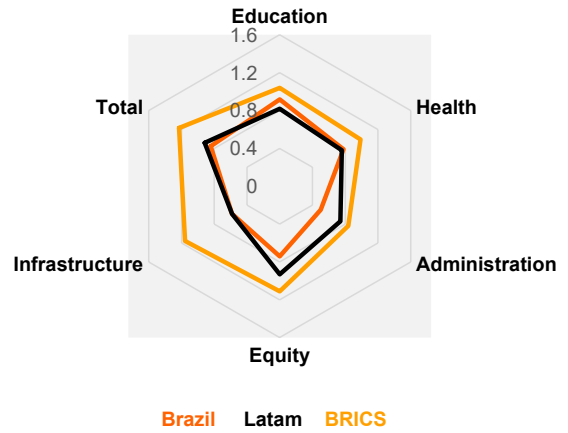
One reason for Brazil's poor performance in the efficiency indicator is the large volume of public resources allocated to pensions and general government expenses. This is highlighted in the article "General Government Expenditure by Function" (available [here](#), only in Portuguese), published by Brazil's National Treasury, which shows that Brazil has elevated spending levels in these categories, being the country that invests the most in general public services worldwide. However, this expenditure does not translate into improvements in the quality of public goods offered.

Furthermore, to compare the performance of the public sector in different segments, the graphs below show the four-year average of the indicators of the quality of public goods in each group, as well as the total.

Public Goods Quality



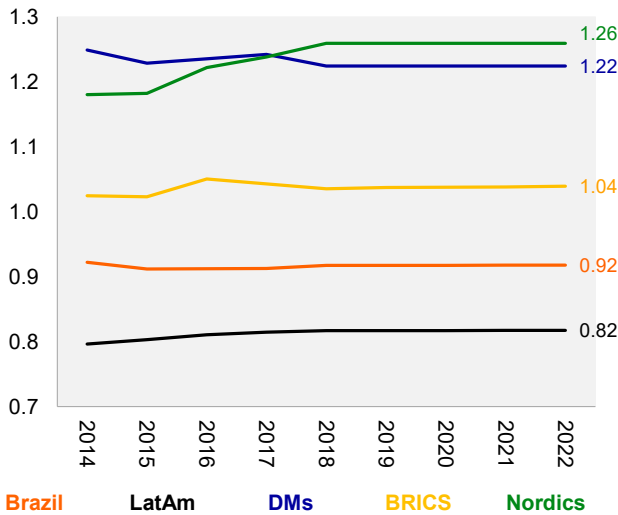
Public Goods Quality



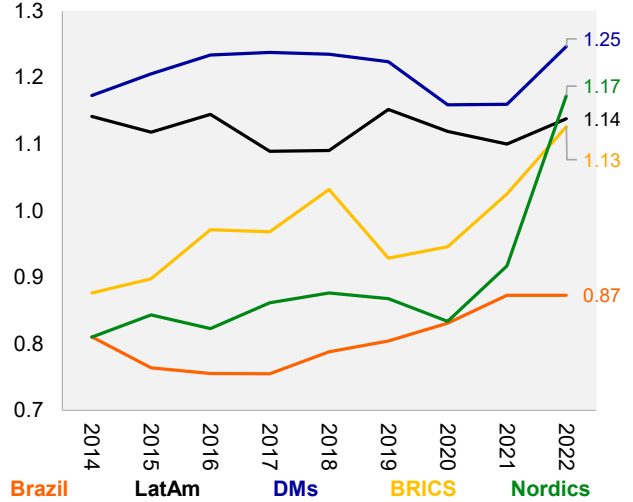
It is clear that Brazil's public sector underperforms the other country groups in most sectors. The exceptions are in health and education, in which Brazil performs slightly better than its Latin American peers. However, the indicator values are still below 1 in both cases, showcasing a performance that is still below the sample average.

The charts below display the time series for the quality of public goods and services and the efficiency of public spending, focusing only on the variables from the Education group, in which Brazil has some advantage compared to other Latin American countries.

Quality of Education



Spending Efficiency in Education



It is noteworthy that, even though Brazilian education shows higher quality than the Latin American average, in terms of spending efficiency, the country stands significantly behind. Notably, for most of the sample, there is considerable closeness between education spending efficiency in Brazil and in the Nordic countries. This is partly due to the high amount spent by these countries - around 7.6% of GDP (except in 2022, when it fell to 5.6%, which explains the sharp increase in the efficiency indicator in that year) - compared to Brazil's sample average of 5.9%.

As shown so far, Brazil finds itself in disadvantage in both quality and efficiency of public spending. In this context, a natural question arises: how to reverse or at least improve this situation?

As emphasized by Maia, Valle, Frossard, Campos, Mélo, and Carvalho (2007), increasing the efficiency of public spending is not achieved simply by reducing the amount spent, as the provision of public goods and services might be negatively affected. In fact, the goal should be to increase the return on the resources deployed - spend less and produce more - through the adoption of more modern and effective management practices. Improving the efficiency of public spending requires a strategic shift toward more robust governance mechanisms, the adoption of performance-oriented budgeting practices, and the consolidation of a culture of accountability.

A first step in this direction is **strengthening institutional frameworks** to ensure that oversight bodies and fiscal councils operate with clear responsibilities and sufficient resources. As highlighted by Tanzi and Davoodi (1998), this improvement helps increase transparency and reduce the risk of the misappropriation of resources that should be allocated to essential services. One measure that could help in this regard is adhering to international organizations, which could speed up the adoption of more effective oversight mechanisms.

A second relevant aspect involves **reformulating budgetary practices** by transitioning from historical allocations to methods of performance-based budgeting. Evidence presented by the OECD (2009) shows that this approach - focused on measurable targets - encourages public entities to prioritize cost-effectiveness and service quality, allowing for the reassessment of underperforming programs and continued funding for those showcasing effectiveness. The systematic use of data and analyses throughout this process reinforces the state's ability to learn from past experiences and better direct its resources.

In addition to these budgetary reforms, **modernizing public finance management systems** is critical. By adopting updated accounting standards, more agile cash management systems, and real-time monitoring tools, policymakers can track resource use more accurately and make adjustments as new challenges arise. In this regard, Grigoli and Ley (2012) emphasize that solid financial management not only raises spending efficiency but also positively influences social well-being by channeling resources to areas with the greatest socioeconomic return.

Finally, the adoption of **open and competitive public procurement practices** can yield immediate benefits, reducing inefficiencies, lowering costs, and ensuring that more suppliers have access to bidding processes. Implementing digital platforms and transparent procedures, as advocated by the World Bank (2016), helps mitigating losses stemming from failures and irregularities while strengthening society's confidence in the public administration. Maia, Valle, Frossard, Campos, Mélo, and Carvalho (2007) also illustrate a policy of this nature by citing the program to incentivize alternative sources of electric energy (Proinfa), created by the Brazilian government in response to the 2001 blackout. This program aims to diversify the country's energy matrix through long-term energy purchase contracts, offering favorable conditions for renewable energy producers to compete in the market.

In all these areas, systematic and independent evaluation - through regular audits, citizen participation, or external scrutiny - underpins a flexible, results-oriented approach. When these measures are cohesively articulated, they can bring about a substantial transformation in how public resources are allocated and managed, resulting in more effective services and improved social and economic indicators.

Conclusion

This study shows that Brazil's public spending problem is deeper than its high expenditure levels. When analyzing the quality of spending, we see that Brazil is in a weak position—a situation that becomes even more severe when spending efficiency is added to the equation. In this sense, adopting measures to reverse this scenario is a sensible way to tackle Brazil's fiscal constraints, especially in a context of rising debt as a proportion of GDP.

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Appendix: Methodology of the Proposed Indicators

As mentioned before, the data used are available on the World Bank website. For periods in which data are not available, we used a linear approximation. For example, if no data were available between years A_I (initial year) and A_F (final year), the value assumed for year $A_j \in [0, A_F - A_I]$ is defined by the equation below:

$$D_j = \frac{D_F - D_I}{A_F - A_I} * (D_j - A_I)$$

Intuitively, the fraction $\frac{D_F - D_I}{A_F - A_I}$ represents the average annual change in the index. This value is multiplied by the number of periods that have passed until the data becomes available again.

Exceptionally for the indices of judiciary quality and for the data on the number of days to start a business in the country (used as a measure of bureaucracy), the series ended in 2019. To work around this issue, the last available value was extrapolated to 2022 (this did not significantly affect the analysis because historically these data show little variation).

Also, the variables in which a higher value indicates a poorer provision of public goods (such as intentional homicides and neonatal mortality) were raised to -1 (i.e., inverted) to facilitate the comparison. Finally, all variables were divided by their sample average for all countries, aiming to facilitate the comparative analysis - again, values higher than 1 indicate a performance above the average and vice versa.

The calculation of the quality of public goods for group G_i in year t , consisting of variables V_1, \dots, V_n , was calculated by a simple arithmetic mean, as indicated below:

$$G_{it} = \frac{1}{n} \left(\sum_n V_{nt} \right), \text{ where } G \in [\text{Health, Education, Administration, Equity, Infrastructure}],$$

where n is the total number of variables in that group.

In turn, the Public Goods Quality (PGQ) indicator is the average of all groups standardized across countries (group mean = 1).

$$PGQ_{it} = \frac{1}{5} \left(\frac{Sd_i}{E[Health]} + \frac{Ed_i}{E[Edu.]} + \frac{Adm_i}{E[Adm.]} + \frac{Eq_i}{E[Eq.]} + \frac{Inf_i}{E[Inf.]} \right)$$

Finally, as previously described, in order to obtain the Public Spending Efficiency (PSE) indicator, we divided PGQ by the government spending of the country in question as a percentage of GDP, denoted by $\left(\frac{G}{Y}\right)_{it}$.

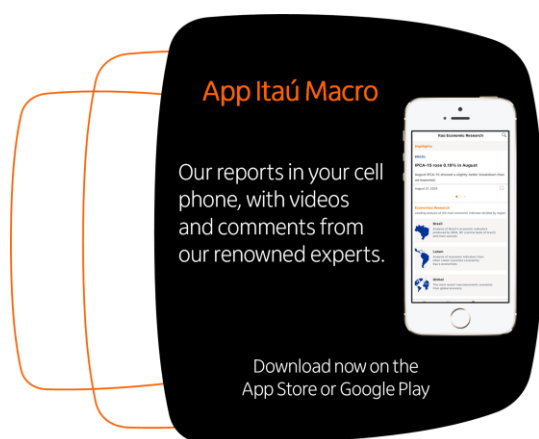
$$PSE_{it} = \frac{PGQ_{it}}{\left(\frac{G}{Y}\right)_{it}}$$

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