Brazil Innovation and Development Index

Brazil's innovation map in your hands

2025

INPI INSTITUTO NACIONAL DA PROPRIEDADE INDUSTRIAL

Ministry of Development, Industry, Trade and Services
Brazilian National Institute of Industrial Property
Executive Directorate
General Coordination for Economics and Innovation

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Executive Summary

Brazil Innovation and Development Index – IBID 2025

Brazil, a country of continental scale, is characterized by deep economic, social, cultural, and environmental diversity[1]. These regional asymmetries reflect different development trajectories, making it essential to understand them when designing public policies and institutional strategies for more inclusive and balanced growth.

Based on this premise, the **National Institute of Industrial Property (INPI)**, through its **General Coordination for Economics and Innovation**, presents the **second edition** of the **Brazil Innovation and Development Index – IBID**, a tool designed to measure and analyze the performance of local science, technology, and innovation (ST&I) ecosystems across the country.

The first edition, launched in 2024, established IBID as Brazil's official synthetic innovation index, aligned with the methodology of the **Global Innovation Index (GII)** from the **World Intellectual Property Organization (WIPO)**. IBID offers a regionalized, multidimensional view of the National Innovation System (NIS) and has become a reference for government, industry, academia, and civil society.

In its 2025 edition, IBID continues to support evidence-based decision-making in public and private sectors, updating data and providing a critical view of innovation evolution in Brazil from 2014 to 2025. This period was marked by structural changes – including economic fluctuations, the COVID-19 pandemic, digital transformation, demographic shifts, and emerging Technologies – that affected regions differently, reinforcing the value of a comparative regional innovation index.

IBID is more than a measurement tool – it is a strategic guide for planning actions focused on knowledge generation, the use of intellectual property, and strengthening technological capacities. INPI reaffirms its role in promoting innovation as a pillar of sustainable and competitive development.

[1] The full list of Federation Units (UFs), regions to which they belong and related acronyms can be found in the Appendix.

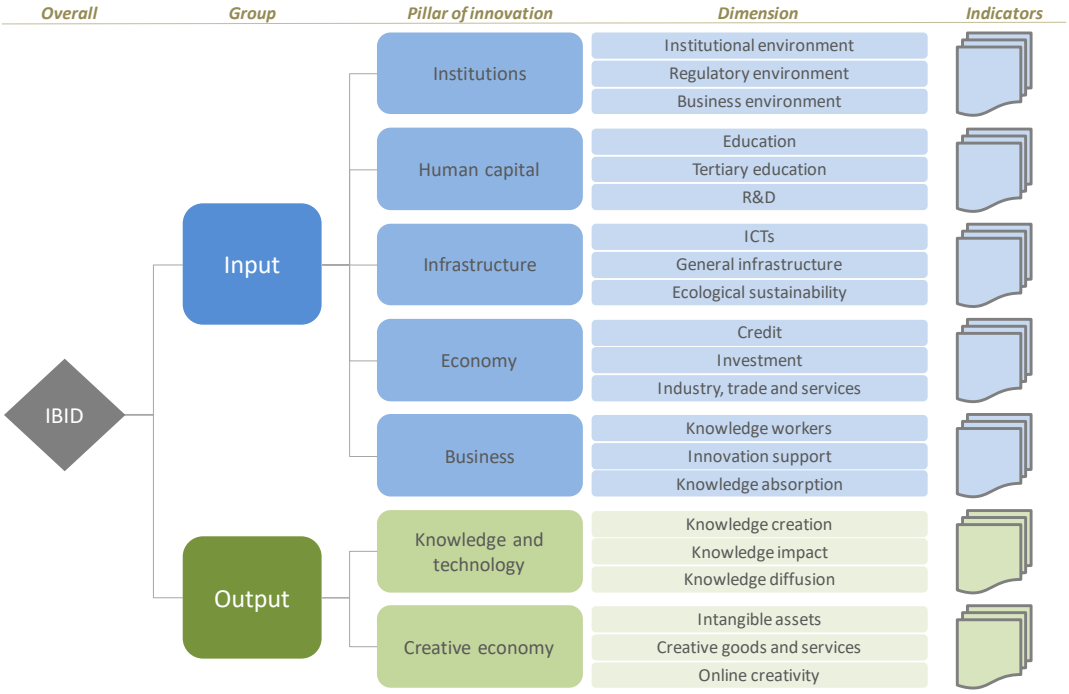
Structure and Methodology

IBID 2025 maintains the structure of its first edition, organized into two main components:

- ***Innovation Input*** assesses conditions that enable or hinder innovation in each region; and
- ***Innovation Output*** measures the tangible results of innovation, such as patents, scientific output, and technology adoption.

These are divided into **7 thematic pillars** and **21 dimensions**, based on **80 official statistical indicators**. The methodology follows the Global Innovation Index (GII) model by WIPO, enabling domestic comparisons similar to how the GII ranks countries globally.

Fig.1. IBID Classification Structure



Source: INPI, General Coordination for Economics and Innovation (INPI, 2025).

Key Features of IBID

Type: Synthetic, multidimensional index (0 to 1 scale)
Geographic coverage: Brazil (1), Macroregions (5), States (27)
Disaggregation: Overall (1), Group (2), Pillar (7), Dimension (21)
Indicators: 80 statistical variables from official sources
Frequency: Annual
Reference period: Data up to the previous year (t−1)

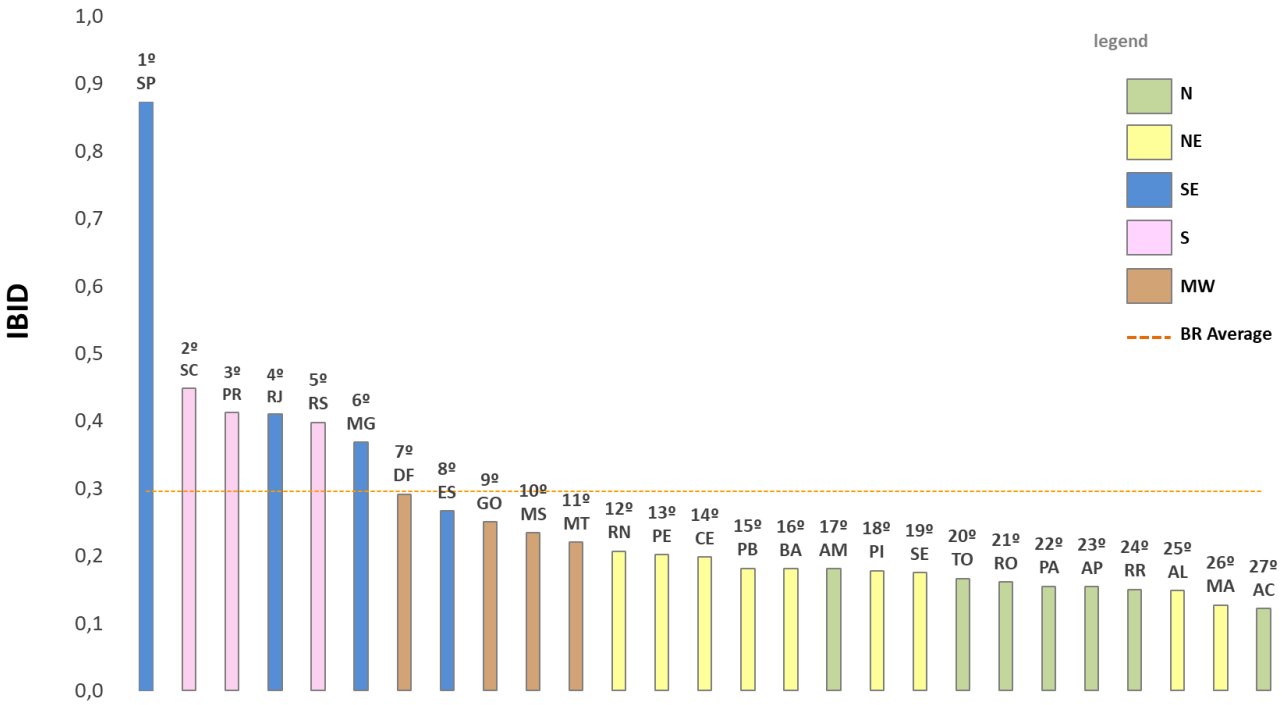
Full datasets and tables are available on the INPI Data Portal.
Access here.

Overview

The 2025 edition of the Brazil Innovation and Development Index (IBID) offers a comprehensive snapshot of the innovation landscape across the country. Below are **ten key stylized trends** that characterize the national innovation dynamics observed in this edition:

Stylized trend #01. *The states of São Paulo (SP), Santa Catarina (SC), Paraná (PR), Rio de Janeiro (RJ), and Rio Grande do Sul (RS) represent the most innovative regional economies in Brazil*

Fig.2. IBID – Overall Ranking 2025



Source: INPI, General Coordination for Economics and Innovation (INPI, 2025).

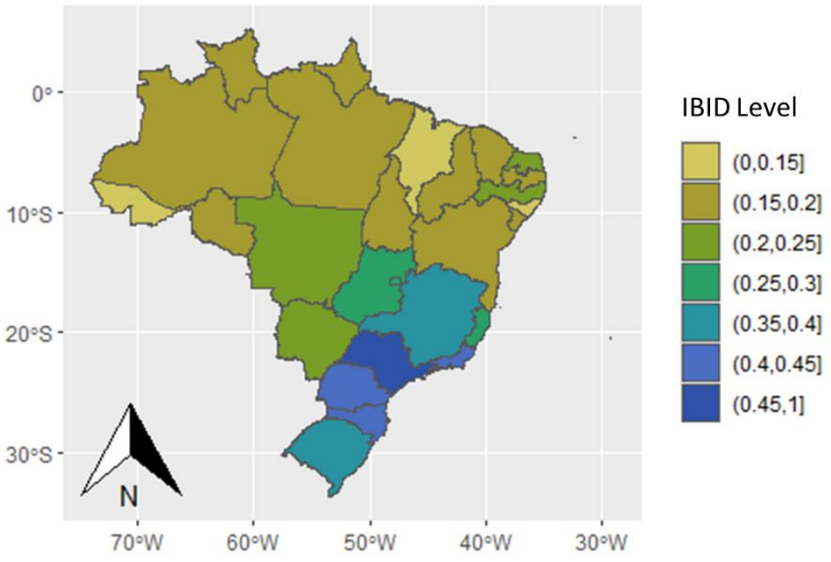
- São Paulo (SP) reaffirms its national leadership in innovation. Its IBID score reached 0.891 in 2024, equivalent to 3.1 times the national average, and remained strong in 2025 at 0.872, or 3.0 times above the average. São Paulo (SP) has consistently led the IBID rankings since the historical series began in 2014.

- Santa Catarina (SC) ranks 2nd, followed by Paraná (PR) (3rd), Rio de Janeiro (RJ) (4th), and Rio Grande do Sul (RS) (5th) – forming the top five most innovative states in the country.

- In 2025, only six states scored above the national IBID average: São Paulo (SP), Santa Catarina (SC), Paraná (PR), Rio de Janeiro (RJ), Rio Grande do Sul (RS), and Minas Gerais (MG). In 2024, there were seven; the Federal District (DF) (7th), previously above average, fell below in 2025.

- The Southeast and South regions dominate the innovation landscape, occupying seven of the top eight positions in the national ranking. In contrast, states from the North and Northeast concentrate the bottom 16 positions, while Midwest states rank in the middle range of the overall IBID.

Fig.3. IBID – Regional Map of Brazil, 2025



Source: INPI, General Coordination for Economics and Innovation (INPI, 2025).

Stylized trend #02. *Amazonas (AM) was the state that advanced the most in the overall IBID ranking between 2024 and 2025*

- Fifteen states maintained their positions in the overall ranking, while twelve changed: six improved and six declined. Amazonas (AM) stood out, rising from 20th to 17th place.

- Rio de Janeiro (RJ) (4th) widened its lead over Rio Grande do Sul (RS) (5th) – from a 0.2% margin in 2024 to 3.0% in 2025 – and narrowed the gap to Paraná (PR) (3rd) from 1.2% to 0.7%.

- In the Innovation Input group, eight states held their positions, ten advanced, and nine declined. Amazonas (AM) and Pará (PA) posted the largest gains, each climbing seven spots, while Pernambuco (PE) and Piauí (PI) dropped six positions each.

- In the Innovation Output group, five states remained stable, ten improved, and twelve declined. Piauí (PI) recorded the largest gain (+6), while Goiás (GO) and Maranhão (MA) fell four places each.

Fig.4. IBID 2025 vs. IBID 2024 Comparison: Overall and Group Rankings

UF	Ranking 2025	IBID 2025	Ranking 2024	IBID 2024	IBID Δ 2025 x 2024	IBID-Input Δ 2025 x 2024	IBID-Output Δ 2025 x 2024
SP	1	0,872	1	0,891	= 0	= 0	= 0
SC	2	0,449	2	0,415	= 0	↗ 1	= 0
PR	3	0,413	3	0,406	= 0	↘ 1	↗ 2
RJ	4	0,410	4	0,402	= 0	↘ 1	↗ 1
RS	5	0,398	5	0,401	= 0	↗ 1	↘ 2
MG	6	0,368	6	0,378	= 0	= 0	↘ 1
DF	7	0,291	7	0,304	= 0	= 0	↘ 1
ES	8	0,266	8	0,268	= 0	= 0	↗ 1
GO	9	0,251	9	0,252	= 0	= 0	↘ 4
MS	10	0,234	10	0,228	= 0	↘ 1	↗ 3
MT	11	0,220	12	0,205	↗ 1	↗ 1	= 0
RN	12	0,207	11	0,216	↘ 1	↘ 3	↗ 3
PE	13	0,201	13	0,195	= 0	↘ 6	= 0
CE	14	0,198	14	0,188	= 0	↗ 1	↘ 1
PB	15	0,181	17	0,167	↗ 2	↘ 5	↗ 3
BA	16	0,181	15	0,179	↘ 1	= 0	↘ 3
AM	17	0,181	20	0,153	↗ 3	↗ 7	↗ 1
PI	18	0,178	18	0,160	= 0	↘ 6	↗ 6
SE	19	0,175	16	0,178	↘ 3	↘ 4	↘ 3
TO	20	0,166	19	0,154	↘ 1	= 0	↘ 1
RO	21	0,161	22	0,143	↗ 1	↗ 3	= 0
PA	22	0,154	24	0,133	↗ 2	↗ 7	↘ 2
AP	23	0,154	25	0,132	↗ 2	↗ 3	↗ 3
RR	24	0,150	23	0,135	↘ 1	↗ 3	↘ 2
AL	25	0,148	21	0,143	↘ 4	= 0	↘ 2
MA	26	0,127	26	0,125	= 0	↗ 1	↘ 4
AC	27	0,122	27	0,111	= 0	↘ 1	↗ 3

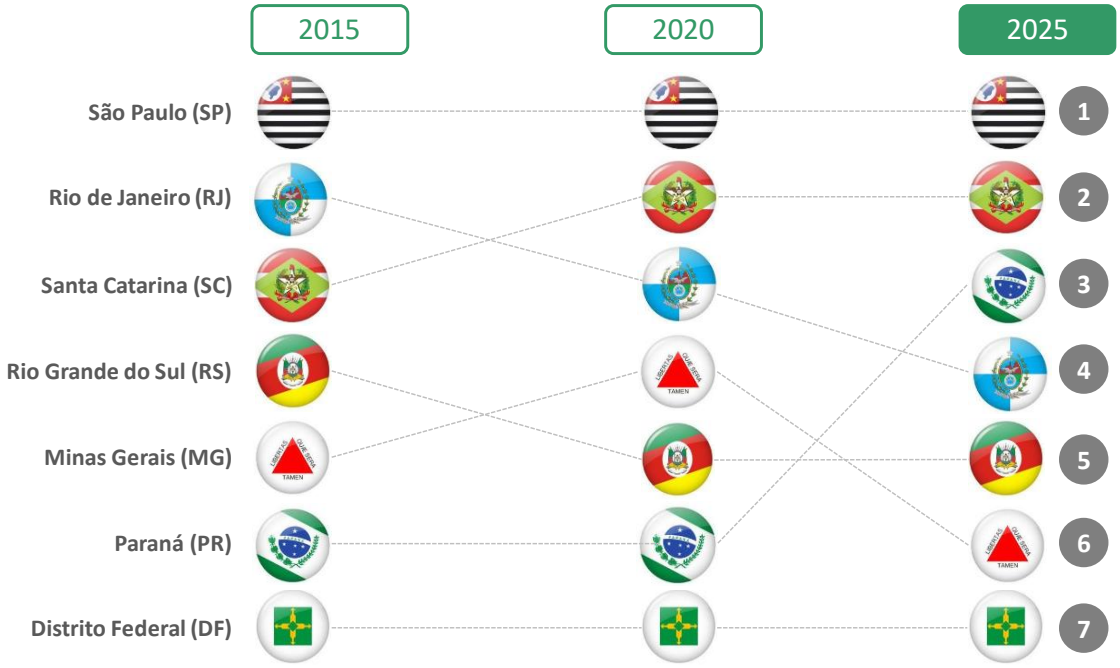
legend
- North
- Northeast
- Southeast
- South
- Midwest
- ↗ n Nº of positions gained
- ↘ n Nº of positions lost
- = 0 Stability

Source: INPI, General Coordination for Economics and Innovation (INPI, 2025).

Stylized trend #03. *Over the past decade (2015–2025), the country's most innovative economies have remained unchanged, though significant shifts have taken place at the top of the overall ranking*

- The top 10 in the overall IBID ranking remained unchanged between 2024 and 2025, indicating short-term stability.
- Over the medium and long term (2015–2025), Santa Catarina (SC) and Paraná (PR) have shown a steady upward trajectory, gaining prominence in the national innovation landscape.
- Rio de Janeiro (RJ) shows a gradual downward trend over the same period, signaling challenges in maintaining its position among the top performers.
- Minas Gerais (MG) and Rio Grande do Sul (RS) have alternated positions throughout the decade, reflecting intense competition between the two states.
- The Federal District (DF) has consistently held 7th place, indicating stable innovation performance over time.

Fig.5. Most Innovative Brazilian States According to IBID: A Comparative Analysis Between 2015 and 2025



Source: INPI, General Coordination for Economics and Innovation (INPI, 2025).

Stylized trend #04. *Between 2015 and 2025, Paraná (PR), Paraíba (PB), Piauí (PI), and Amapá (AP) emerged as the fastest-growing ('climbers')*

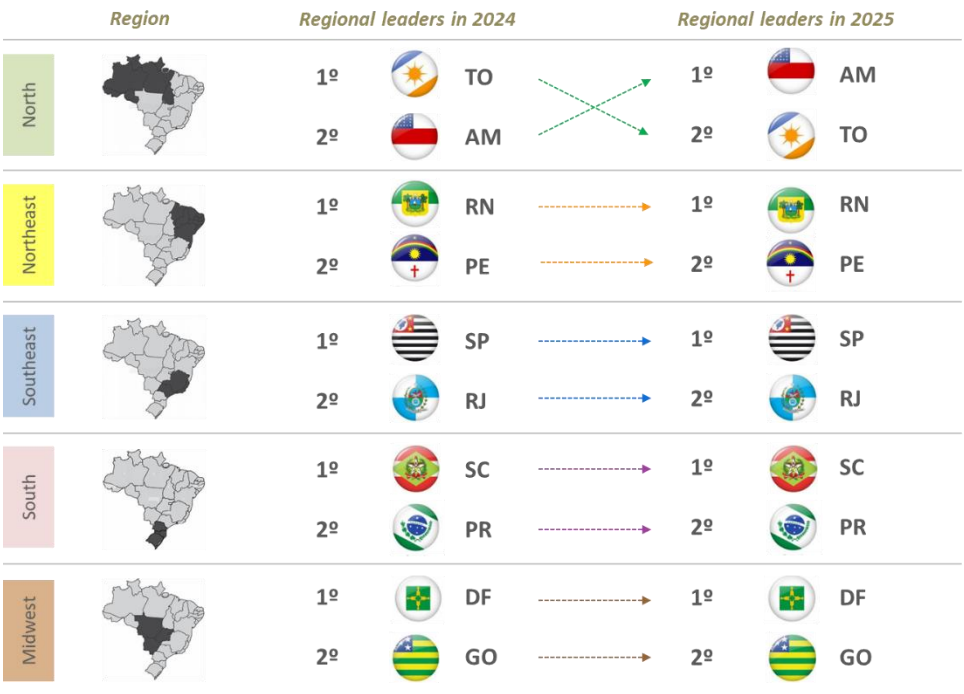
- Paraná (PR), Paraíba (PB), Piauí (PI), and Amapá (AP) stand out as the states with the fastest growth in IBID performance over the past decade. They are classified as "climbers" by the World Intellectual Property Organization (WIPO).
- At the top of the ranking, Paraná (PR) rose from 6th to 3rd place between 2015 and 2025, consolidating its position among Brazil's three most innovative economies.
- In the mid-range, Paraíba (PB) advanced from 18th to 15th, showing consistent improvement.
- Among lower-ranked states, Piauí (PI) recorded the largest gain – moving from 21st to 18th – followed by Amapá (AP), which rose from 25th to 23rd.

Fig.6. IBID 'Climbers': Fastest-Growing States in the Overall Ranking, 2015 vs. 2025

Source: INPI, General Coordination for Economics and Innovation (INPI, 2025).

Stylized trend #05. *São Paulo (SP), Santa Catarina (SC), the Federal District (DF), Rio Grande do Norte (RN), and Amazonas (AM) lead the IBID rankings within their respective regions (regional leaders)*

Fig.7. IBID Regional Leaders: Leading Innovative Economies by Macroregion



Source: INPI, General Coordination for Economics and Innovation (INPI, 2025).

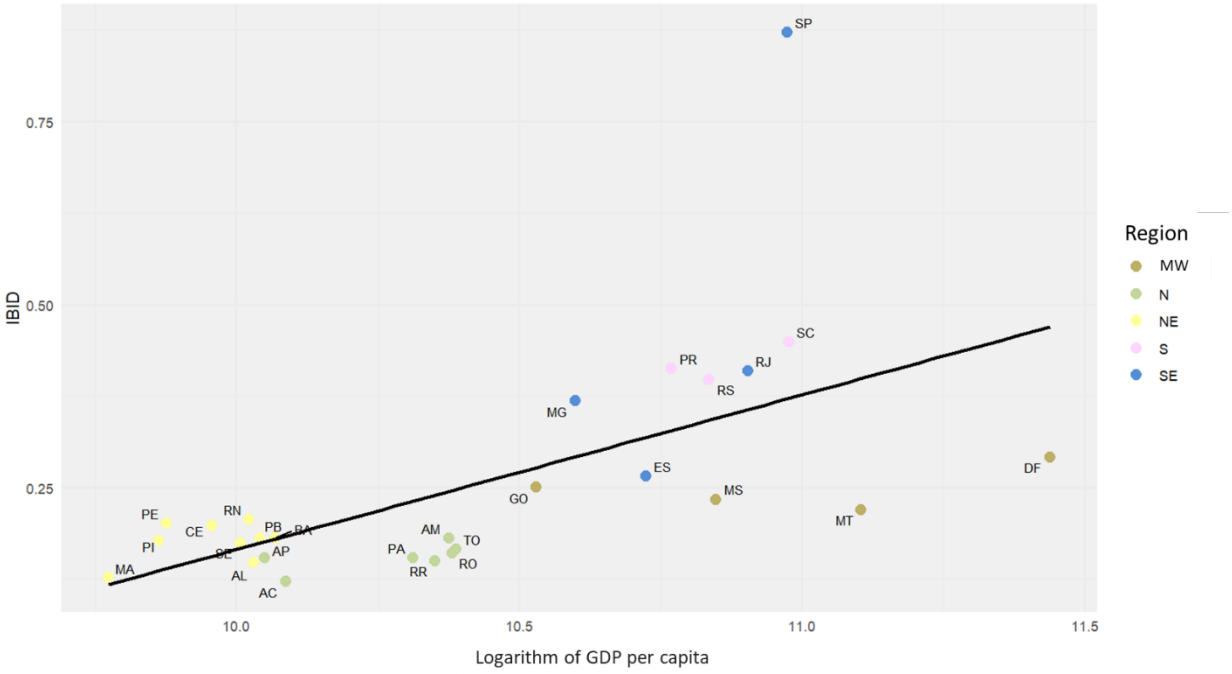
- In the 2025 edition of the IBID, compared to the previous year, the only change in regional leadership occurred in the North, where Amazonas (AM) overtook Tocantins (TO) to become the top-performing state in the region. In all other regions, the leading states remained unchanged.
    - Southeast: São Paulo (SP) (1st) and Rio de Janeiro (RJ) (4th)
    - South: Santa Catarina (SC) (2nd), followed by Paraná (PR) (3rd)
    - Midwest: Federal District (DF) (7th), followed by Goiás (GO) (9th)
    - Northeast: Rio Grande do Norte (RN) (12th) and Pernambuco (PE) (13th), with closely matched performances
    - North: Amazonas (AM) (17th) and Tocantins (TO) (20th)
- Except for the North, which shows greater variability, regional leaders have remained stable throughout the IBID historical series:
    - Southeast: São Paulo (SP), leading since 2014
    - Midwest: Federal District (DF), since 2014

- South: Santa Catarina (SC), since 2020
- Northeast: Rio Grande do Norte (RN), since 2021

Stylized trend #06. *The economies of the Northeast exhibit innovation performance that exceeds expectations given their income levels*

- Despite the IBID's weighting of various indicators by population and income, there is a clear correlation between GDP per capita and innovation performance: lower income levels tend to limit investments in infrastructure, human capital, and R&D.
- Fourteen of the 27 states are classified as innovation outliers by IBID, showing results above what is expected given their GDP per capita.
- Regionally, the following patterns emerge:
  - In the Northeast, all states except Alagoas (AL) outperform their expected innovation level based on income.
  - In the North and Midwest, most states perform below expectations.
  - In the South, all states exceed their expected performance.
  - In the Southeast, only Espírito Santo (ES) falls below expectation, while São Paulo (SP) stands out as a productivity outlier.

Fig.8. IBID vs. GDP per Capita: Innovation Performance Relative to Income Level

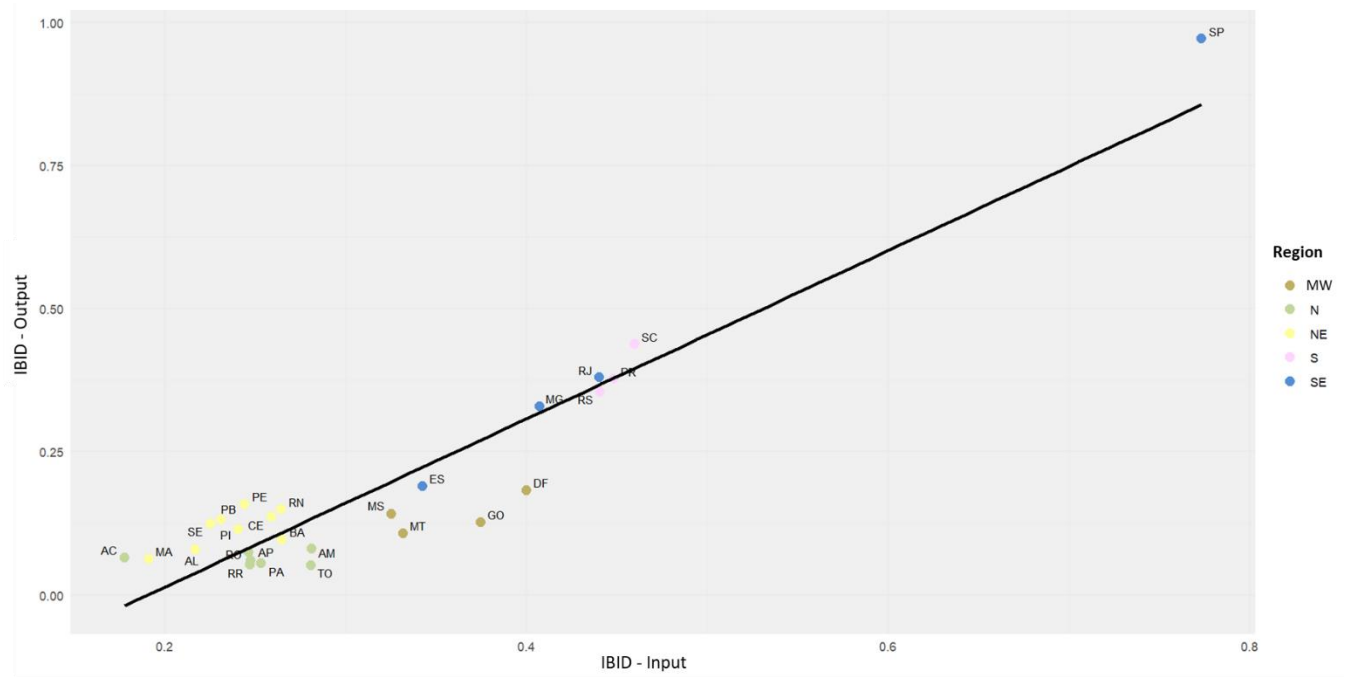


Source: INPI, General Coordination for Economics and Innovation (INPI, 2025).

Stylized trend #07. *Northeastern states are more efficient at converting their inputs into innovation outputs*

- Analysis of the dispersion between the Input group (input-related) and the Output group (product-related) reveals distinct regional patterns of innovation productivity.
- Northeastern states demonstrate higher relative efficiency, with output performance exceeding what would be expected based on available inputs, outperforming states in the North and Midwest.
- In contrast, states in the Southeast and South, with greater economic weight and established infrastructure, tend to align closely with the estimated average, reflecting a more linear relationship between input and output.

Fig.9. IBID-Input vs. IBID-Output: Innovation Context Conditions and Results



Source: INPI, General Coordination for Economics and Innovation (INPI, 2025).

Stylized trend #08. *São Paulo (SP), the Federal District (DF), Goiás (GO), and Santa Catarina (SC) rank highest in specific innovation indicators*

- Among the 27 states, 18 lead nationally in at least one specific IBID innovation indicator.
- São Paulo (SP) leads in 38 of the 80 IBID 2025 indicators (47.5%), with particularly strong performance in the Output group, where it leads 20 of 25 indicators (80%).
- Within the IBID-Output group, São Paulo (SP) does not hold first place in only five indicators:
    - *Scientific impact of publications* – led by Rio Grande do Sul (RS)
    - *Number of startups* – led by Santa Catarina (SC)
    - *Patent filings in agroindustry* – led by Rio Grande do Sul (RS)
    - *Internet accesses per 100,000 inhabitants* – led by Santa Catarina (SC)
    - *Salaries in creative sectors* – led by Rio de Janeiro (RJ)
- Rio de Janeiro (RJ), despite ranking 5th overall and above the national average, leads in only one specific indicator.
- The Federal District (DF), although below the national average in 2025, stands out by leading nine indicators in the Input group, demonstrating strength in foundational structural factors despite lower output conversion.

Fig.10. States with the Most IBID Indicators Ranked First in Specific Rankings

UF	Input	Output	Total
SP	18	20	38
DF	9	0	9
GO	5	0	5
SC	3	2	5
AP	4	0	4
RS	2	2	4
PR	3	0	3
AM	2	0	2
ES	2	0	2
PI	2	0	2
AC	1	0	1
CE	1	0	1
MA	1	0	1
MG	1	0	1
MT	1	0	1
PA	1	0	1
RJ	0	1	1
RN	1	0	1
Total	**57**	**25**	**82**

Note: The total sum may exceed 80 (the number of IBID indicators) due to ties in the leadership of certain indicators, a situation observed in 2025.

Source: INPI, General Coordination for Economics and Innovation (INPI, 2025).

Stylized trend #09. *The national leaders in innovation exhibit robust performance in the majority of the seven pillars*

- São Paulo (SP) (1st) maintains absolute leadership across all seven IBID pillars, consolidating its position as a broad and balanced national innovation benchmark.
- Santa Catarina (SC) and Paraná (PR) rank 2nd and 3rd in the IBID 2025, reflecting consistent performance across all evaluated pillars.
- Conversely, states with the lowest performance in each pillar are heterogeneously distributed throughout the overall ranking, indicating that specific bottlenecks – not necessarily poor performance across all aspects – limit their final position. This dispersion of weaknesses suggests the need for targeted strategies tailored to each state's structural challenges.
- Rio de Janeiro (RJ) (4th) shows uneven performance across pillars, with major weaknesses in 'Institutions' and 'Economy' affecting its ranking. The Federal District (DF) (7th) displays inconsistency mainly in 'Institutions,' 'Economy,' and 'Knowledge and Technology.' Espírito Santo (ES) (8th) was mainly impacted by low performance in the 'Economy' pillar, negatively influencing its overall position.

- Goiás (GO) (9th) and Mato Grosso (MT) (11th) perform well in 'Institutions' but show weaker results in other components, reflecting an imbalance across indicators.

- The lowest-ranked states are predominantly in the North and Northeast regions, reflecting persistent regional disparities and greater exposure to structural weaknesses in pillars essential for innovation.

- The IBID 2025 scenario highlights the concentration of the highest innovation indices in the Southeast and South regions, with some diffusion toward the Midwest. Meanwhile, the North and Northeast regions remain below desired performance levels, reflecting persistent structural challenges.

Fig.11. IBID 2025: Overall and Pillar Rankings

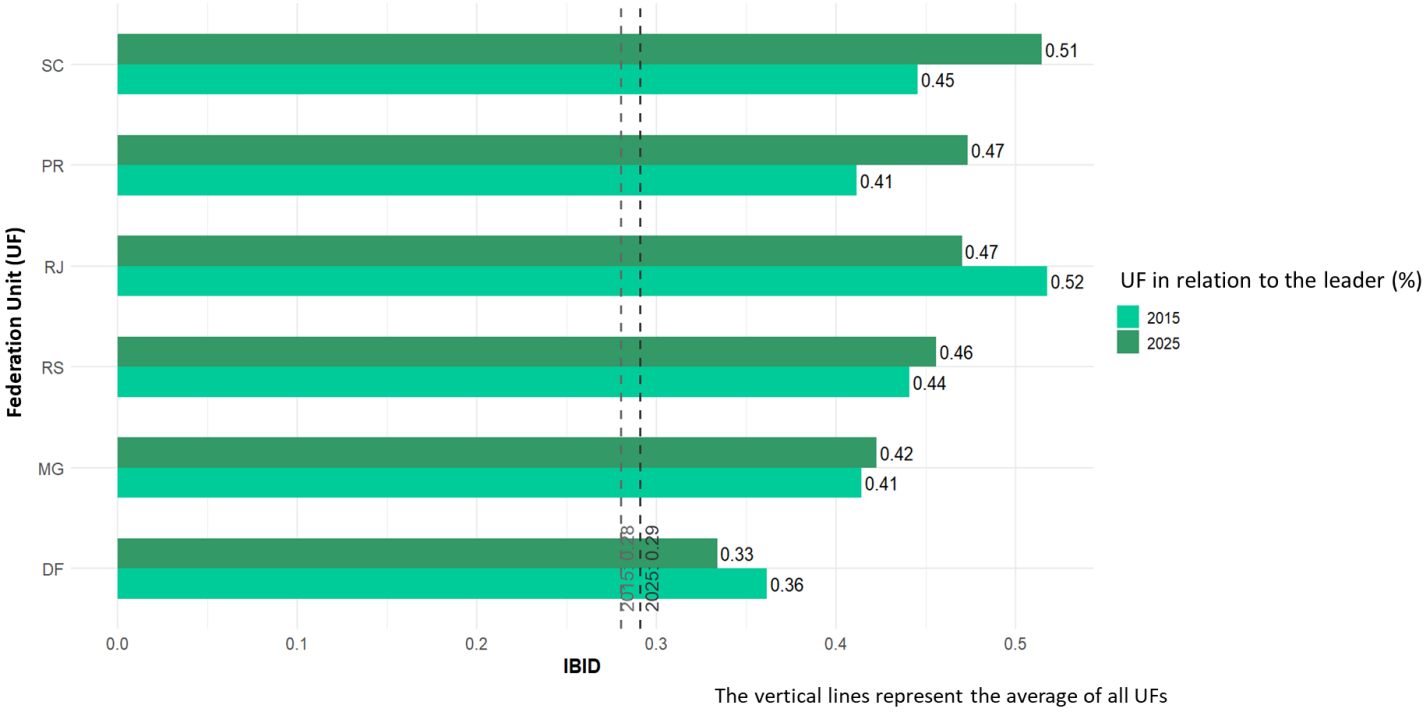
	UF	IBID	Institutions	Human capital	Infrastructure	Economy	Business	Knowledge and technology	Creative economy
1	SP	0,872	1	1	1	1	1	1	1
2	SC	0,449	2	6	2	2	6	3	3
3	PR	0,413	5	4	5	4	5	2	6
4	RJ	0,410	14	3	4	7	4	6	2
5	RS	0,398	9	7	7	3	2	4	4
6	MG	0,368	11	5	6	5	7	5	5
7	DF	0,291	16	2	3	27	3	13	8
8	ES	0,266	7	8	9	24	8	14	7
9	GO	0,251	3	9	8	6	11	19	10
10	MS	0,234	12	10	10	11	16	11	11
11	MT	0,220	4	14	11	8	17	23	14
12	RN	0,207	18	22	13	14	13	7	16
13	PE	0,201	25	17	17	22	12	8	9
14	CE	0,198	22	11	23	12	15	12	13
15	PB	0,181	24	19	21	19	10	10	17
16	BA	0,181	15	23	12	9	25	25	15
17	AM	0,181	6	12	24	21	9	15	24
18	PI	0,178	21	18	19	16	22	9	19
19	SE	0,175	27	26	18	15	18	18	12
20	TO	0,166	13	16	16	13	19	27	18
21	RO	0,161	8	24	20	17	26	22	21
22	PA	0,154	19	21	15	10	21	26	20
23	AP	0,154	17	13	14	26	14	20	25
24	RR	0,150	10	15	26	18	24	21	26
25	AL	0,148	20	27	22	23	23	17	23
26	MA	0,127	26	25	25	20	27	24	22
27	AC	0,122	23	20	27	25	20	16	27

legend
North
Northeast
Southeast
South
Midwest
BR Average
N Top 5
N Last 5

Source: INPI, General Coordination for Economics and Innovation (INPI, 2025).

Stylized trend #10. *The Brazilian innovation landscape exhibits a mild decentralization, with Santa Catarina (SC) and Paraná (PR) being the states that have most significantly reduced their distance from the national leader – São Paulo (SP) – over the past decade*

Fig.12. Comparative Analysis (2015 vs. 2025) of the Distance Between Brazil's Most Innovative Economies and the National IBID Leader, São Paulo



Source: INPI, General Coordination for Economics and Innovation (INPI, 2025).

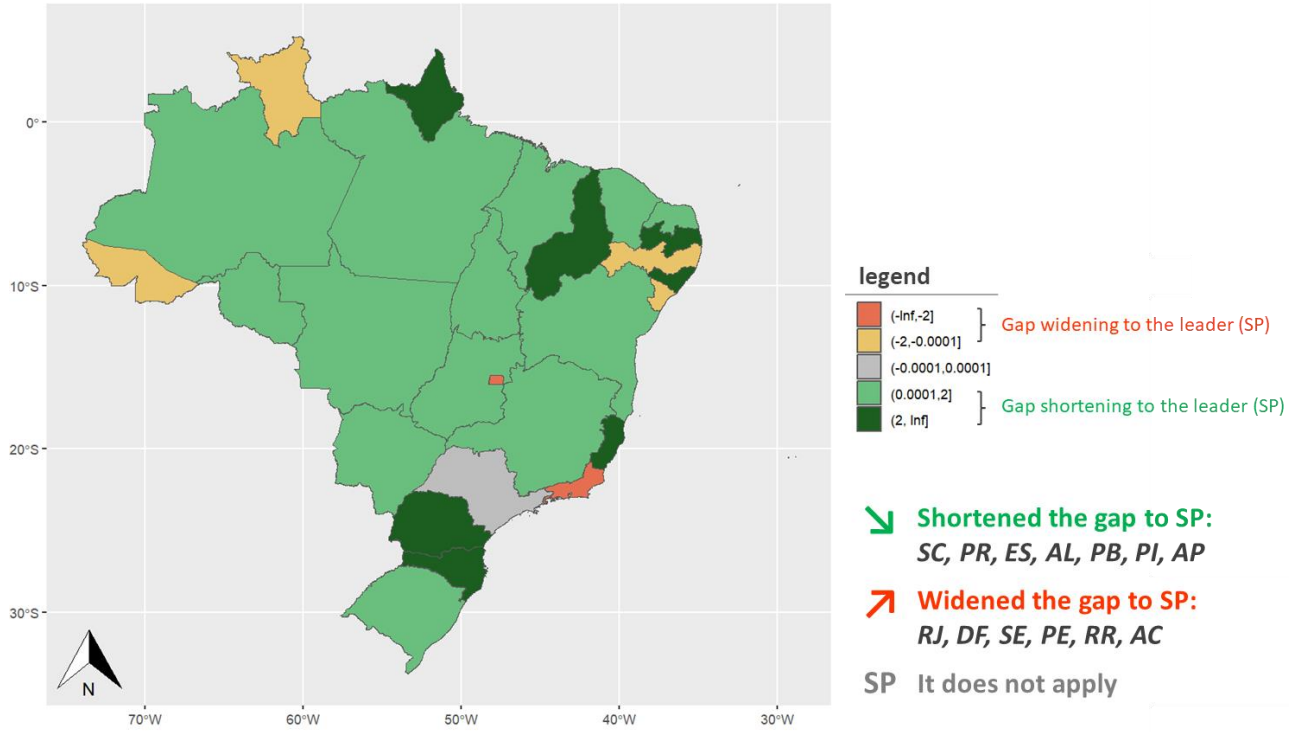
- In 2015, the average score of the federative units corresponded to 28% of São Paulo's performance, the national innovation leader. By 2025, this proportion increased slightly to 29%, indicating a modest but consistent trend toward decentralizing innovative activities across the country.
- Although still incipient, this progress suggests that some states have improved their relative performance, gradually narrowing the gap with São Paulo's economy.
- Among the seven leading states in the IBID ranking from 2015 to 2025, comparisons with São Paulo (SP) – an absolute leader throughout the period – show that Santa Catarina (SC), Paraná (PR), Rio Grande do Sul (RS), and Minas Gerais (MG) have reduced their relative distance.
- Santa Catarina (SC) and Paraná (PR) stand out, each closing the gap by six percentage points relative to São Paulo (SP).

- In contrast, Rio de Janeiro (RJ) and the Federal District (DF) did not follow this convergence trend, widening their relative distance and reflecting a loss of innovative dynamism compared to the national leader.

- Between 2015 and 2025, the states that most reduced the gap with São Paulo's IBID score were Santa Catarina (SC) and Paraná (PR) at the top of the ranking; Espírito Santo (ES) and Paraíba (PB) in the mid-range; and Alagoas (AL), Piauí (PI), and Amapá (AP) at the lower end. These advances reflect greater adaptability and strengthening of local innovation ecosystems, even amid diverse economic contexts.

- Conversely, Rio de Janeiro (RJ) and the Federal District (DF) (upper range), Pernambuco (PE) (mid-range), and Sergipe (SE), Roraima (RR), and Acre (AC) (lower range) widened their gap relative to the leading economy. This trend signals a relative loss of competitiveness and greater difficulty in converting inputs into consistent innovation outcomes.

Fig.13. Evolution of States' Relative Distance to the National IBID Leading Economy, São Paulo, from 2015 to 2025



Source: INPI, General Coordination for Economics and Innovation (INPI, 2025).

APPENDIX

Federation Units and Macroregions of Brazil: acronyms and administrative map

N = North Region

TO = Tocantins
AM = Amazonas
RO = Rondônia
RR = Roraima
PA = Pará
AP = Amapá
AC = Acre

NE = Northeast Region

RN = Rio Grande do Norte
PE = Pernambuco
CE = Ceará
BA = Bahia
SE = Sergipe
PB = Paraíba
PI = Piauí

Regional map Brazil

Source: IBGE

AL = Alagoas
MA = Maranhão

SE = Southeast Region

SP = São Paulo
RJ = Rio de Janeiro
MG = Minas Gerais
ES = Espírito Santo

S = South Region

SC = Santa Catarina
PR = Paraná
RS = Rio Grande do Sul

MW = Midwest Region

DF = Federal District
GO = Goiás
MS = Mato Grosso do Sul
MT = Mato Grosso

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