

A History of Changes to the Calculation of the IGD-M

Reviewing regulatory revisions published online, the following list describes the major changes to the IGD since its inception, using the same notation as in the main text.

2006 – Portaria nº 148/2006 MDS: The original IGD calculation was:

$$IGD = \frac{1}{4} \left[\frac{C}{C*} + \frac{A}{C} + \left(\frac{I_E}{E} + \frac{I_H}{H} \right) \right]$$

where C^* represented the estimated target population for the Cadastro Único based on household survey data, rewarding municipalities that had high registration coverage relative to the federal government's expectations. There were no binary indicators or minimum requirements in this first version of the formula.

The revenue formula provided an incentive payment of R\$2.50 and doubled the payment for the first 200 registered families:

$$Revenue = (5 * 200 * IGD) + (2.5 * (A - 200) * IGD)$$

2008 – Portaria nº 220/2008 MDS: Introduced minimum values of 0.55 for the overall IGD and 0.2 in each of the component indicators before municipalities could receive revenue transfers.

2010 – Portaria nº 754/2010 MDS: Added the three multiplicative binary indicators to the formula, ensuring only municipalities that participate in SUAS, account for their expenses and receive approval for their accounts from the Municipal Council for Social Assistance, receive transfers.

$$IGD = \frac{1}{4} \left[\frac{C}{C*} + \frac{A}{C} + \left(\frac{I_E}{E} + \frac{I_H}{H} \right) \right] * \mathbb{1}_{SUAS} * \mathbb{1}_{Receipts} * \mathbb{1}_{Approval}$$

The doubled payment for the first 200 recipient families was removed.

2011 – Portaria nº 769/2022 MC: Payment value adjusted from R\$2.50 to R\$3.25.

2015 – Portaria nº 81/2015 MDS: The formula was adjusted to remove the term measuring the coverage of the Cadastro Único ($\frac{C}{C^*}$), producing the formula reported in the main text. Minimum requirements for rate of Cadastro Único updating increased from 0.2 to 0.55, and for the education and health conditionalities from 0.2 to 0.3.

2022 – Portaria nº 769/2022 MC: Payment value adjusted from R\$3.25 to R\$3.50.

2023 – Portaria nº 887/2023 MDS: Payment value adjusted from R\$3.50 to R\$4.00.

2024 – Portaria nº 1041/2024 MDS: Payment value adjusted from R\$4.00 to R\$3.25.

B Indicators of State Capacity

The state capacity measures used in Table 1 include income per capita as a measure of individual wealth, the broader Human Development Index capturing education and a healthy population, municipal revenue (per capita) as a measure of government resources, population as a proxy for scale, urbanization as a proxy for the availability of skilled labour and the efficient legibility of society, the IFGF measure of financial management (the index, available at <https://www.firjan.com.br/ifgf/>, captures fiscal self-sufficiency, ability to pay personnel costs, liquidity and investment level.), the ‘i-Gem’ Index of Municipal Management calculated by Qualigov (the index, covering dozens of technical and infrastructural indicators, is available at <https://qualigov.pro.br/igem-um-roteiro-para-capacidades-municipais-de-implementar-politicas.>), the number of municipal employees, or the proportion of higher educated employees (in 2018) to capture human resources and skills.

The narrower measures of state capacity directly tied to the execution of municipalities’ responsibilities for Bolsa Família are measured using administrative data collected by IBGE in 2009 on the CRAS (Centro de Referência de Assistência Social) facilities responsible for maintaining the Cadastro Único register and verifying conditionalities. They include measures of the social assistance budgets, employees, information systems and equipment used to track registered citizens.

C Coding of Ideology of Brazilian Political Parties

The paper follows the methodology outlined by Borges (2023) and further detailed in the document available at https://andreborges.org/wp-content/uploads/2023/11/Ideological-classification-of-Brazilian-parties_appendix.pdf. As demonstrated by Borges, quantitative ideological position estimates by Zucco and Power (2024) and others are very stable over time, permitting broad classification into the three ideological brackets of 'left', 'center' and 'right'. The analysis applies the party codings provided by Borges. In order to avoid selection bias arising from the exclusion of smaller parties not covered by this coding, a small number of parties that have held a very small number of municipalities are additionally coded using secondary data available online or from the parties that merged to form them, to place them in one of these three brackets. Specifically, the additional left parties are the PCB and PPL, the center parties the PMB, PST, Solidariedade and Cidadania, and the right parties the PAN, PATRI, PEN, DC, PRP, PSDC, PTN and Republicanos.

D Descriptive Statistics of Key Variables

Table 1: Descriptive Statistics for Numeric Variables

Description	Mean	Std. Deviation	Minimum	Maximum	% NA
IGD	0.778	0.147	0.000	1.000	0.038
Adjusted IGD	0.811	0.083	0.000	1.000	0.038
% of Education Conditionalities Verified	0.878	0.101	0.000	1.000	0.038
% of Health Conditionalities Verified	0.760	0.213	0.000	1.000	0.038
% of Registry Updated	0.787	0.117	0.000	1.000	0.038
Income per capita	18,090.296	22,479.738	-1,459.830	920,833.970	15.825
Population	35,862.759	211,358.337	771.000	12,396,372.096	15.825
HDI 2000	0.523	0.104	0.208	0.820	0.090
Beneficiaries per capita	0.093	0.056	0.000	0.606	15.827
Total Revenue per capita	3,011.899	2,268.306	0.000	223,774.744	22.646
% Revenue from Transfers	0.881	0.119	0.000	1.000	11.957
Co-partisan President	0.102	0.302	0.000	1.000	8.173
Mayoral Election Winning Margin	16.302	16.374	0.000	100.000	8.173
Inequality 2000	0.547	0.069	0.300	0.870	0.090
Ethno-linguistic Fractionalization 2000	0.465	0.119	0.017	0.707	0.090
Number of Employees	1,092.169	3,720.833	0.000	167,331.000	21.084

E Robustness Check with Sample Restricted to Municipalities in the Bottom two quintiles of the 2000 Human Development Index

Table 2: Results for Effect of Cadastros per capita on IGD

	Cross-section		Within		First Differences	
	(1)	(2)	(3)	(4)	(5)	(6)
Transfer Revenue-Dependence	-0.019*	-0.019	0.073***	0.073	0.050***	0.050***
	(0.008)	(0.010)	(0.011)	(0.064)	(0.009)	(0.014)
BF Beneficiaries per capita	0.110***	0.110	0.564***	0.564**	1.067***	1.067***
	(0.018)	(0.058)	(0.032)	(0.182)	(0.045)	(0.277)
Income per capita (log)	-0.008***	-0.008***	0.049***	0.049*	0.022***	0.022
	(0.001)	(0.002)	(0.002)	(0.017)	(0.003)	(0.014)
Population (log)	-0.011***	-0.011***	0.058***	0.058	0.184***	0.184*
	(0.001)	(0.002)	(0.010)	(0.038)	(0.016)	(0.092)
Revenue per capita	0.000	0.000	0.000	0.000	0.000***	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Number of municipal employees	0.000*	0.000	0.000***	0.000*	0.000***	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Co-Partisan President	0.002	0.002	-0.001	-0.001	0.000	0.000
	(0.001)	(0.002)	(0.002)	(0.004)	(0.002)	(0.004)
Win Margin	0.000*	0.000*	0.000*	0.000	0.000*	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
HDI 2000	0.008	0.008				
	(0.013)	(0.032)				
Inequality 2000	0.002	0.002				
	(0.008)	(0.013)				
Ethnic Diversity	-0.032**	-0.032*				
	(0.008)	(0.012)				

* $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$

F Robustness Check including Quadratic Functional Form for Income per capita

Table 3: Results for Effect of Cadastros per capita on IGD, including a Quadratic Term for Income per capita

	Cross-section		Within		First Differences	
	(1)	(2)	(3)	(4)	(5)	(6)
Transfer Revenue-Dependence	0.016** (0.004)	0.016 (0.008)	-0.066** (0.022)	-0.066 (0.076)	0.040*** (0.005)	0.040 (0.023)
BF Beneficiaries per capita	0.327*** (0.013)	0.327** (0.082)	0.801*** (0.028)	0.801** (0.221)	1.106*** (0.032)	1.106*** (0.329)
Income per capita	0.000 (0.000)	0.000 (0.000)	0.000*** (0.000)	0.000** (0.000)	0.000 (0.000)	0.000 (0.000)
Income per capita^2	0.000 (0.000)	0.000 (0.000)	0.000*** (0.000)	0.000** (0.000)	0.000 (0.000)	0.000 (0.000)
Population (log)	-0.013*** (0.001)	-0.013*** (0.001)	0.127*** (0.006)	0.127* (0.047)	0.165*** (0.011)	0.165 (0.114)
Revenue per capita	0.000 (0.000)	0.000 (0.000)	0.000* (0.000)	0.000 (0.000)	0.000** (0.000)	0.000 (0.000)
Number of municipal employees	0.000 (0.000)	0.000 (0.000)	0.000*** (0.000)	0.000 (0.000)	0.000* (0.000)	0.000 (0.000)
Co-Partisan President	0.001 (0.001)	0.001 (0.001)	-0.002 (0.001)	-0.002 (0.005)	0.003** (0.001)	0.003 (0.004)
Win Margin	0.000 (0.000)	0.000 (0.000)	0.000*** (0.000)	0.000 (0.000)	0.000** (0.000)	0.000 (0.000)
HDI 2000	0.031*** (0.007)	0.031 (0.021)				
Inequality 2000	0.013* (0.005)	0.013 (0.011)				
Ethnic Diversity	0.008 (0.004)	0.008 (0.010)				

* p \num{i 0.05}, ** p \num{i 0.01}, *** p \num{i 0.001}