Equalization versus redistribution: Empirical evidence for transfers in Brazilian local governments.

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1. Introduction

Intergovernmental transfers constitute the major source of fiscal revenue for municipalities in Brazil. They represent on average 65% of local jurisdictions total revenue. The main components of these transfers are the devolution of local value added tax (ICMS, in Portuguese) and the redistribution of federal tax revenues to municipalities (FPM, in Portuguese). Meanwhile the first follows a simple return rule where local jurisdictions obtain back a fixed proportion of the value added tax collected at the local level, the latter follows a redistributive rule in which transfers amount varies according to population and income per capita.

According to FPM distribution rules, municipalities with smaller populations and lower per capita income tend to receive higher per capita transfers. That criteria of redistribution has lead a lot of discussion about the redistributive characteristic of FPM grants in Brazil. Mendes, Miranda and Cosio (2007) point that FPM per capita resources are higher for municipalities with higher Human Development Index (HDI) and less habitants. Next, they propose that FPM distributive rules should be improved to address fiscal equalization and not only fiscal redistribution.

This discussion is also fundamented in public finance literature where there is a trade-off between redistributive versus equalization aspect of transfers to local governments. In general, the literature considers fiscal capacity and fiscal needs indices to build a measure of fiscal equalization (Dafflon, 2007). The first considers the local capacity of collecting resources and the latter corresponds to the local demand for public provision. The fiscal gap can be computed by subtracting each other.

We propose to consider a standardization method (O'Donnell, Van Doorlsaer, Wagstaff, 2007) to evaluate whether the actual FPM grants can be considered redistributive or equalization transfers. This method aims to control for the fiscal need of the local governments as well as their partial correlation to other control variables in order to decompose differences of average fiscal gap by FPM ranges. Smaller (larger) differences between expected and standardized values denote that the FPM is (not) promoting horizontal equalization and it is, in fact, a redistributive transfer.

2. Empirical implementation

To evaluate equalization, we describe fiscal gap distribution by FPM ranges (quintiles) conditional on needs. Next, in order to standardize, we select fiscal gap (local fiscal capacity minus fiscal demand) as the dependent variable. With this methodological framework, the fiscal gap depends on fiscal needs variables and other covariates related to fiscal needs. Since we set the covariates value to their means of the period, we should neutralize their effect over the standardized estimation, and we control for their partial correlation to the need variables. We note that this methodological analysis can not have causal interpretation.

To compute fiscal need we use local jurisdictions HDI, the share of young and share of older. We expect that the first incorporates local demand for education while the latter captures the local demand for health. As covariates, we include local density (proxy for public provision cost) and local per capita GNP (income). In order to obtain the expected need value of fiscal gap,

we run Ordinary Least Square (OLS) regression over individual values of fiscal need measures on the sample means of all covariates to obtain the estimated parameters.

Next, we use the actual distribution of fiscal gap minus the expected distribution plus the sample average in order to obtain the estimate of the standardized fiscal gap. That standardized distribution controls for the different distribution of fiscal need variables across FPM transfers. Therefore one is able to compare the expected fiscal gap distribution with the standardized fiscal gap across FPM transfers. We provide a standardized distribution of fiscal gap by FPM quintiles.

3. Results and discussion

Using data from 2010, our main results are summarized in Table 1. We compute two different fiscal need and standardized distributions. In the first we consider only IDH, share of young and share of older as explanatory variables for fiscal need in each municipality. In the second, we include per capita values of state tax reimbursement (mostly state tax devolution to local jurisdiction), per capita federal government transfers for health (Sistema Único de Saúde - SUS resources) and for education (Fundeb in Portuguese, resources) to local jurisdictions.

TABLE 1 - Distributions of Actual, Standardized and Need-predicted Fiscal Gap (Average annual per capita in R$)

Quintiles	Actual	Standardized		Need-predicted		Difference		
		Controls1	Controls2	Controls1	Controls2	Actual-Need1	Standard1-Need1	Standard2-Need2
Poorest	(821.7)	(959.1)	(999.8)	(1,096.6)	(1,058.0)	(274.9)	(137.5)	(58.2)
2º	(979.8)	(1,035.7)	(1,099.2)	(1,178.8)	(1,117.3)	(199.0)	(143.1)	(18.1)
3º	(1,048.9)	(1,037.9)	(1,137.2)	(1,247.6)	(1,148.5)	(198.7)	(209.7)	(11.2)
4º	(1,269.3)	(1,226.0)	(1,245.3)	(1,279.3)	(1,261.4)	(10.0)	(53.3)	(16.1)
Richest	(2,058.3)	(1,929.1)	(1,688.8)	(1,364.8)	(1,604.0)	693.4	564.3	84.8

Notes: number of observations is 5,203. R$ stands for the Brazilian currency (Reais)

Results show that after the standardization, the difference between annual per capita actual FPM transfers minus fiscal need transfers drops around 50% in the lowest FPM quintile (from R$ 274.9 to R$ 137.5) and around 19% in the highest FPM quintile (from R$ 693 to R$564). After we include the second group of need variables, the difference is rather thin and it drops 78% and 87% in the lowest and highest FPM per capita quintile, respectively.

Thus, results suggest that FPM grant distribution scheme (based on inverse per capita income and population ranges criteria) is much less redistributive than conventional wisdom supports, and can be described as an equalization transfer for fiscal gap. That result is reinforced if one considers that health and educational transfers from federal governments are lower for municipalities with higher FPM per capita. Another contribution of this method is that we are able to incorporate HDI as need variable, and its inclusion reinforces the equalization aspect of FPM.

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