Impacts of Intergovernmental Transfers on Immigration in Brazil - Evidence from a Regression Kink Design

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Resumo

Litschig e Morrison (2013) encontraram evidências de que as transferências intergovernamentais causam uma redução da pobreza e um aumento da escolaridade *per capita* e da taxa de alfabetização. Assim, espera-se que a melhoria das condições educacionais e sociais provoquem um aumento na imigração para os municípios que recebem mais transferências. Este artigo analisa o impacto das transferências intergovernamentais sobre a imigração no Brasil, utilizando um estimador de sharp regression discontinuity design (RKD) com viés corrigido, proposto por Calonico, Cattaneo e Titiunik (2014), e dados sobre imigração da RAIS/MIGRA. Encontramos evidências de que as transferências causam um aumento na imigração.

Palavras-chaves: Migração, Gastos do Governo, Regressão Descontínua

Classificação JEL: O15, H72, C21

Área 5 - Economia do Setor Público

Abstract

Litschig and Morrison (2013) found evidence that intergovernmental transfers cause a reduction in poverty and an increase in per capita schooling and literacy rate. Thus, it is expected that improved educational and social conditions will lead to an increase in migration to municipalities receiving more transfers. This article analyzes the impact of intergovernmental transfers on immigration in Brazil, using a corrected bias regressor discontinuity design (RKD), proposed by Calonico, Cattaneo and Titiunik (2014), and RAIS/MIGRA immigration data. We find evidence that transfers cause an increase in immigration.

Keywords: Migration, Government Spending, Regression Discontinuity

JEL Codes O15, H72, C21

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1 Introduction

In Brazil, the federal government transfers part of its revenue to the cities. These transfers are called "fundo de participação dos municípios" (hereafter FPM). The volume of transfers depends only on population size, for municipalities with less than $156,216$ inhabitants. This rule was set exogenously and creates incentives for some municipalities to attract people so that they can increase the volume of transfers they receive (MATA, 2014). Thus it is expected that municipalities with smaller population and FPM transfers attract more immigrants. On the other hand, it is expected that municipalities with greater population and that receive a larger amount of transfers, end-up attracting more immigrants, since the extra revenue can be used to improve the public services, specially those related to health and education. Therefore, there is a controversy about the effects of the FPM on immigration. This paper aims to analyze the impact of FPM transfers on the number of people that migrates from one city to another, by exploring the discontinuities in the assignment of the FPM and using the regression kink design approach.

If one municipality has a greater population and receives more transfers than others, it can also attract corrupt politicians. Brollo et al. (2013) found a positve effect of FPM transfers on three corruption measures. The first, *broad corruption*, includes irregularities that could be defined as bad administration instead of corruption. The second, *narrow corruption*, includes severe irregularities. And finally, the third was called *narrow fraction of the amount* and is defined as the ratio between the total amount of funds involved in the detected violation and the total amount audited. They also found that the transfers caused a reduction in the quality of politicians, measured by the fraction of opponents with college degree and their average years of schooling. Thus, the increase in FPM transfers also causes an increase in political corruption. Therefore, greater revenues, may not necessarily be related to improved public services, like public health and education.

Transfers also help politicians to re-elect themselves. Litschig and Morrison (2012) uses discontinuities in the FPM transfers around the first three population cutoffs, over the period 1982-1985 to estimate the impact of transfers on re-election probability and per *capita* government spending using a sharp RDD estimator. They found evidences that extra fiscal transfers are linked to an increase in the re-election probability of local incumbent parties. Their results also showed that the transfers caused an increase of 20% in local government *per capita* spending.

Although the FPM transfers increase corruption, they have a positive impacts on development variables. Litschig and Morrison (2013) found that intergovernmental transfers cause an increase in schooling *per capita* and in literacy rates. Therefore, their analysis confirms that municipalities that receive greater transfers indeed tend to offer better public services.

On the other hand, Mata (2014) studied the impacts of the increase in intergovernmental transfers on housing markets and on city growth, and found that the housing sector grows faster in municipalities that are less dependent on federal grants. The treatment group comprises all municipalities that are on the right of each population threshold. Mata (2014) also studies the effects of FPM transfers on population growth, using it as an alternative measure of housing market and city growth. He finds a similar result in both analyses and concludes that locations with higher *per capita* FPM attract fewer people. Our analysis is closest to Mata (2014), but rather than using data on population growth we study the effects of FPM transfers on immigration using data from RAIS/MIGRA, which allowed us to calculate the number of immigrants in each municipality in Brazil for the years 2009 and 2010. The last Brazilian census was performed in 2010, which provide accurate data of the number of inhabitants in each municipality, thus we use population data for this year.

Another difference between this study and others is that they focus the analysis on the first cutoffs, for they argue that the variation in FPM transfers in the other cutoffs is too small to impact municipal budgets (LITSCHIG; MORRISON, 2013). In this paper, we focus on the $156,216$ cutoff, for municipalities above this threshold receive the same value of FPM transfer within the state (if they have similar population size) plus an additional value that municipalities below this threshold do not receive. This additional value was on average R\$ $252,708.00$ in 2010 currency units. We argue that this value is not too small and it can have a great impact on the municipalities with more than $156,216$ inhabitants. Figure 3 shows that there is a sharp increase in FPM transfers around this cutoff.

All municipalities are classified in three groups, according to the law nº 1.881/1981. Municipalities with more than $156,216$ inhabitants are classified as *municípios da reserva*, and receive on average more FPM transfers than the municipalities which are below this cutoff, which are called *municípios do interior*. The third group is formed by the state capitals, and is removed from our analysis, for all of them receive a very different amount of transfers.

Prior to estimating the regressions, we took two samples of our data. Sample I includes all municipalities with population size within the cutoffs created by the decree law nº 1.881/1981. We use sample I to estimate the effect of transfers on immigration in the first cutoffs as in Mata (2014). Sample II consists of municipalities with between $143,123$ and $168,511$ inhabitants, and we use it to verify the impact of FPM transfers on immigration around the $156,216$ cutoff. In sample II we designated the *municípios do interior* to the control group and the *municípios da reserva* to the treated group.

Our results show that the effect of the increase in intergovernmental transfers causes a change in the slope of the line that relates population and immigration by 6.238, near the $156,216$ cutoff. The effect of FPM on immigration in the first cutoffs (sample I) is small, but statistically significant. We perform some robustness checks and test the validity of our identification assumptions. The main contribution of this paper is to show evidences that an increase in FPM transfers causes an increase in immigration in municipalities with population size near the cutoff.

To our knowledge this is the first paper to analyze the impact of transfers around the $156,216$ cutoff, which separates two very different groups of municipalities in terms of transfers - the *municípios do interior* and *municípios da reserva* - although this groups are very similar in population and other characteristics. We argue that there are two reasons for the similarity of these municipalities. First, the rule that determines the transfers (decree law nº 1.881/1981) was exogenous to the control of municipalities, thus they did not choose the amount of transfers they receive, for it was chosen by the Federal Government. Second, we compare only the municipalities with population size around this cutoff, so we compare them based on fact that they were assigned to either group by a very small difference in population size. Therefore, this rule set by the government created a quasi-experiment.

The rest of this paper is structured as follows. After this introduction, we present the data and methods in the next three sections. Section 5 shows our results and section 6 concludes.

2 Data

We use data of migration from RAIS/MIGRA for the years 2009 and 2010 to find the number of immigrants in 2010 in each municipality. We remove from our sample the public sector workers, since they tend to migrate because of work requirements - specially the military personnel, who are a large fraction of public workers - or they migrate to work in a public job and then return to their home municipality after applying and receiving a location transfer. In this paper we test if the municipalities that are receiving more transfers, tend to receive more immigrants, so these peculiar situations of public workers are not according to the assumptions we make. We also exclude the retired workers.

The population data used is from the 2010 Census. The first threshold is $10,188$, the second is $13,584$, so the difference is $3,396$. For the sake of symmetry, sample I is restricted to municipalities with more than 6796 inhabitants as in Brollo et al. (2013). We aim to achieve symmetry in the upper thresholds, but at the same time we want to avoid the sample size to be too small. The interval between the last threshold and the last but one threshold is $13,584$, we restricted sample I to municipalities with less than $183,373$ inhabitants. The difference between this limit and the last cutoff is $27,168$, thus we believe that this limit is balance a between the goals of achieving symmetry and getting a sample size that is not too small.

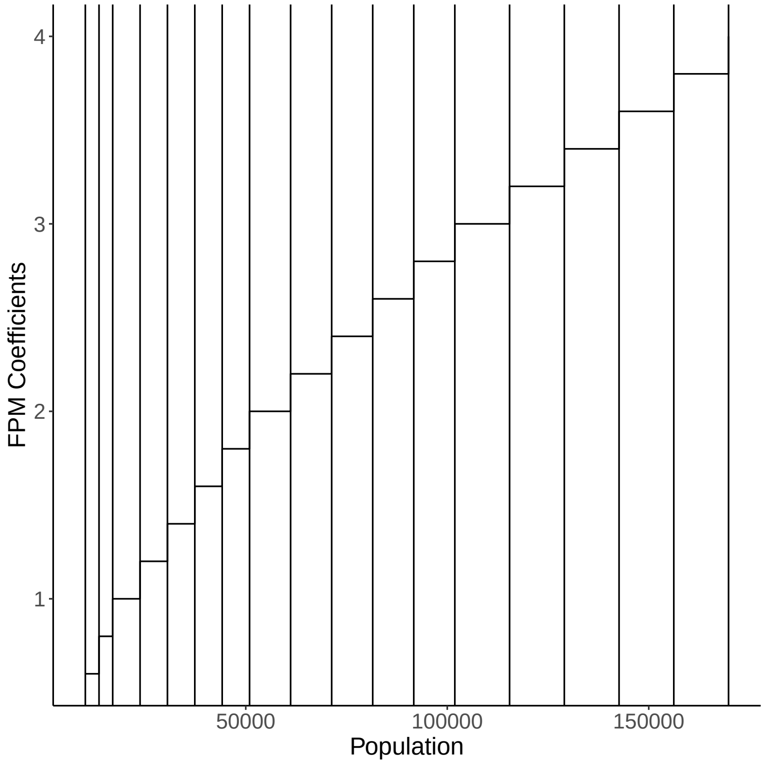
The top left graph in figure 2 shows that there are many municipalities with more than 156216 inhabitants receiving much more FPM transfers than the municipalities with less than 156216 inhabitants - the last threshold. Similarly, the top left panel of figure 3 shows that FPM increases substantially after the $156,216$ cutoff. This occurs because municipalities with more than $156,216$ inhabitants are called *municípios da reserva* and receive the FPM corresponding to coefficient 4 (the highest coefficient) plus an additional value based on *per capita* income and population size, relative to the state where it is located. Thus we restrict sample II to municipalities with between $143,123$ and $169,511$ inhabitants.

Table 1 shows the descriptive statistics of samples I and II. The average number of immigrants in sample II is much higher than in sample I, suggesting that the FPM transfers have a strong effect on immigration. The municipality with the highest number of immigrants among the two samples is Lauro de Freitas-BA, which had $163,449$ inhabitants in 2010, belongs to sample II, and is part of the *municípios de reserva* group. Carvalho et al. (2007) analyses immigration in Brazilian municipalities and find that Lauro de Freitas-BA is among the ten highest municipalities receiving immigrants among all Brazilian municipalities over one hundred thousand inhabitants in 2000.

Table 1: Descriptive Statistics

	Sample I		Sample II	
Statistic	**Population**	**Immigrants**	**Population**	**Immigrants**
Mean	27,508.05	339.3	155,653.2	2,558.6
St. Dev.	27,445.140	880.259	7,836.2	4,950.7
Min	6,798	1	143,123	33
Max	183,373	26,450	169,511	26,450
N	3433	3433	28	28

Figure 1: FPM Coefficients and Population Cutoffs



Note: FPM Coefficients are used to compute the FPM received by each municipality (decree law nº 1.881/1981). Cutoffs are represented by the vertical lines.

3 Methods

In this paper, we use the regression kink design (RKD), which is similar to the regression discontinuity design (RDD). These methods can be used when a known assignment rule determines at least in part the policy variable of interest and they consist in estimating values near to the threshold value using local polynomial regressions. The main differences between them are: in the RDD there is a discontinuity in the assignment rule and it is estimated a shift in the intercept, while in the RKD the "policy rule is assumed to have a kink in the relationship between the policy variable and the underlying assignment variable"(CARD et al., 2017) and it is estimated a shift in the slope.

We use the kink in the relationship between the policy variable (fpm received in each municipality) and the underlying assignment variable (population), to estimate the causal effect of the fpm on migration to the municipalities, the outcome variable. The fpm received by the municipalities exhibit discrete jumps, and depends on the population.

3.1 Identification

Let FPM denote the *fundo de participação dos municípios* (the treatment variable of interest), V the population of the municipality (the assignment variable), U the error term and $Y = y(FPM, V, U)$ the number of migrants in the municipality (the outcome variable). We estimate the causal effect of an increase in FPM on Y. This effect corresponds to the partial derivative of y with respect to FPM, denoted by $y_{FPM}(FPM, V, U)$. FPM is a deterministic

Figure 2: Scatterplots of 2010 FPM Transfers versus Population and Cutoffs (vertical lines)

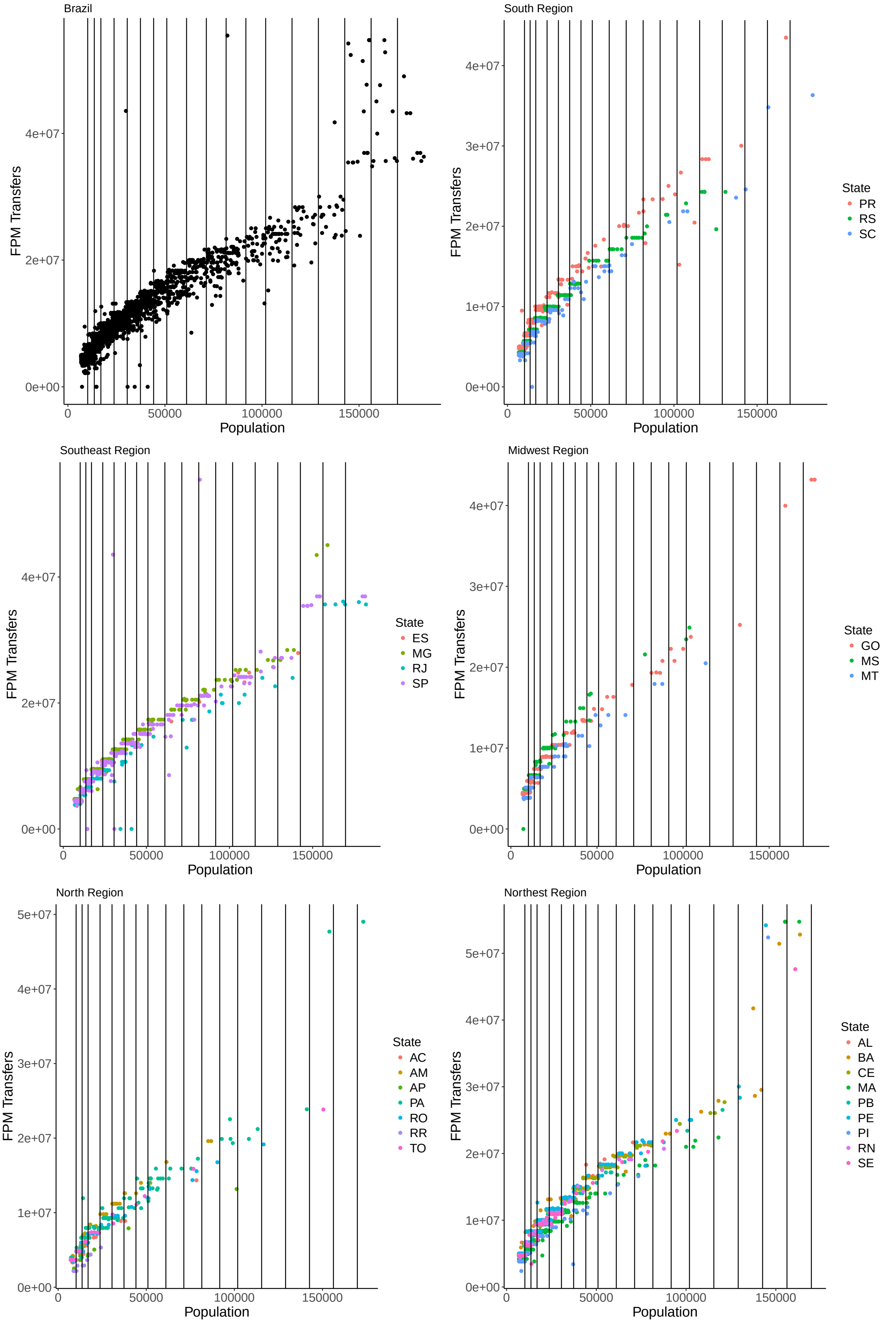
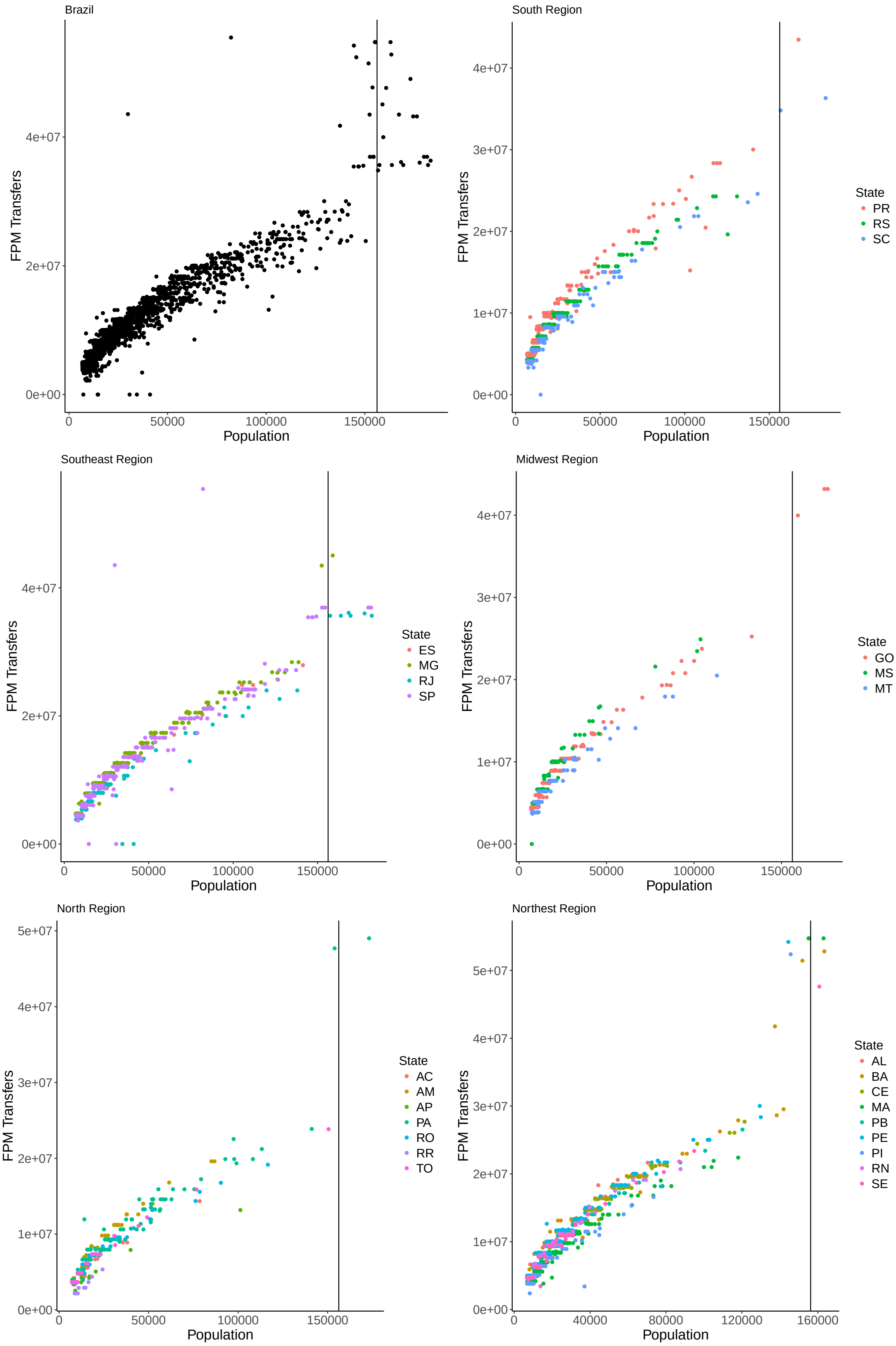


Figure 3: Scatterplots of 2010 FPM Transfers versus Population and the 156,216 Population Cutoff (vertical line)



function of V, under the "sharp" regression kink design, i.e, $PPM = b(V)$ with a slope change (kink) at the cutoffs, shown in table 5 in tha appendix, which can be normalized to zero (CARD et al., 2017).

The main assumptions of the sharp RKD design are: first, the marginal effect of FPM must be a continuous function of the observables and the unobserved error U; second, V can affect Y, but only if its marginal effect is continuous; third, the researcher knows the function $b(V)$, and that there is a kink in the relationship between FPM and V at the threshold $V = 0$, and the density of V ís positive around the threshold for a nontrivial sub-population; and fourth, the conditional density $f_{P|U=u}(v)$ and its partial derivative with respect to v, $\frac{\partial f_{P|U=u}(v)}{\partial v}$, are continuous (CARD et al., 2015). If the kink threshold is normalized to zero, and the assumptions hold, we have:

$$\tau = \frac{\lim_{p_0 \to 0^+} \frac{dE[Y|V=v]}{dv}|_{v=v_0} - \lim_{v_0 \to 0^-} \frac{dE[Y|V=v]}{dv}|_{v=v_0}}{\lim_{v_0 \to 0^+} \frac{db(v)}{dv}|_{v=v_0} - \lim_{v_0 \to 0^-} \frac{db(v)}{dv}|_{v=v_0}} = E[y_{FPM}(b_0, 0, U)|V = 0] \tag{1}$$

, where $b_0 = b(0)$.

Equation 1 states that the average treatment effect is the slope change in the outcome variable, given by the numerator, scaled by the change in the first stage, given by the denominator(CARD et al., 2017). This treatment effect parameter is a "weighted average of the treatment effects across the population, where individuals receive higher weights for having a higher likelihood of being at the threshold (p = 0)"(CARD et al., 2017). Ando (2017) explains that the numerator of τ ís the change in the slope of the conditional expectation function $E(Y|V = v)$ at the kink point ($v = 0$) and the denominator is the change in the slope of the deterministic assignment function $b(V)$ at the kink.

Britto (2016) explained the kink relationship between the treatment and the assignment variable when it equals 50, using graphs. The left side of figure 4 shows a linear assignment rule in which individuals receive a linearly increasing level of treatment. The right side of figure 4 shows three possible effects of the treatment on the outcome variable. The line, the dashed line and the dotted line represent the cases where there is no effect, a positive effect and a negative effect of the treatment on the outcome variable, respectively, around the kink point. In summary, the effect of the treatment is captured by the change of slope in the relationship between the assignment and the outcome variables.

Figure 5 shows some features of an RKD estimator. The effect of B on Y is described as the ratio of change from the line CD (the tangent at $v \to 0^-$) to the line $C'D'$ (the tangent at $v \to 0^+$).

4 Estimation and Inference

We estimate local polynomial regressions of order p to left and the right of the kink point, with bandwidth h and kernel K, to measure kinks in the outcome and treatment variable (CARD et al., 2015). We use the triangular kernel for it is boundary optimal (CHENG; FAN; MARRON, 1997), and a direct plug-in to select the bandwidth based on a mean squared error (MSE) expansion of the sharp RD estimators to obtain a MSE-optimal bandwidth (CALONICO; CATTANEO; TITIUNIK, 2014), given by:

Figure 4: Graphic Example RKD (Britto (2016))

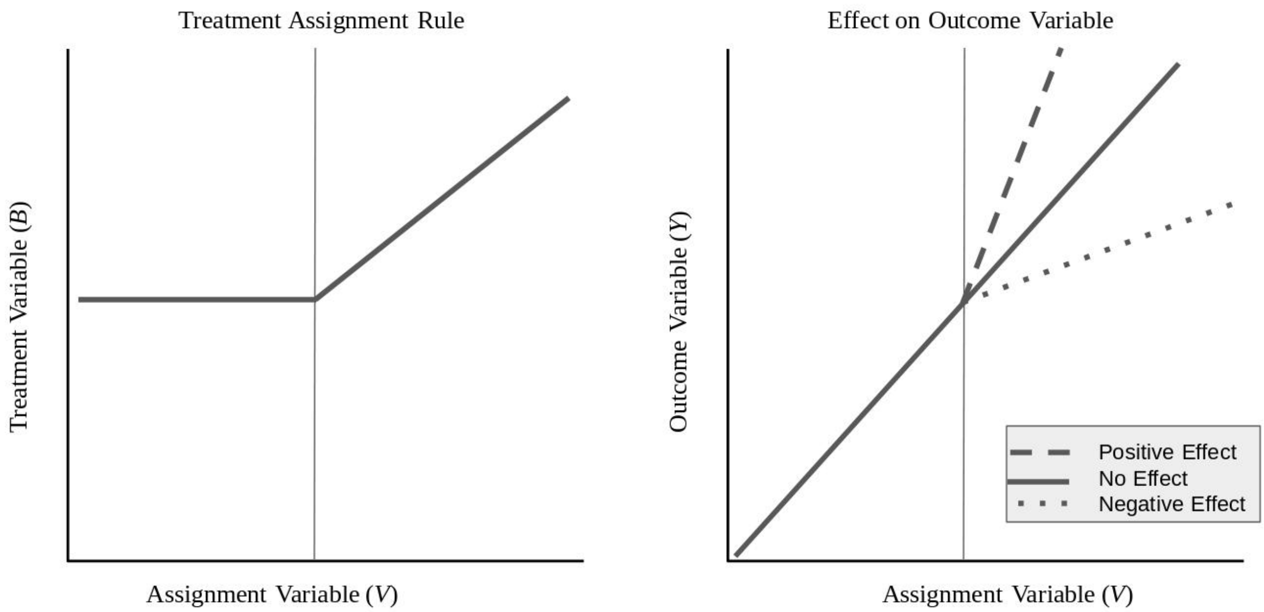
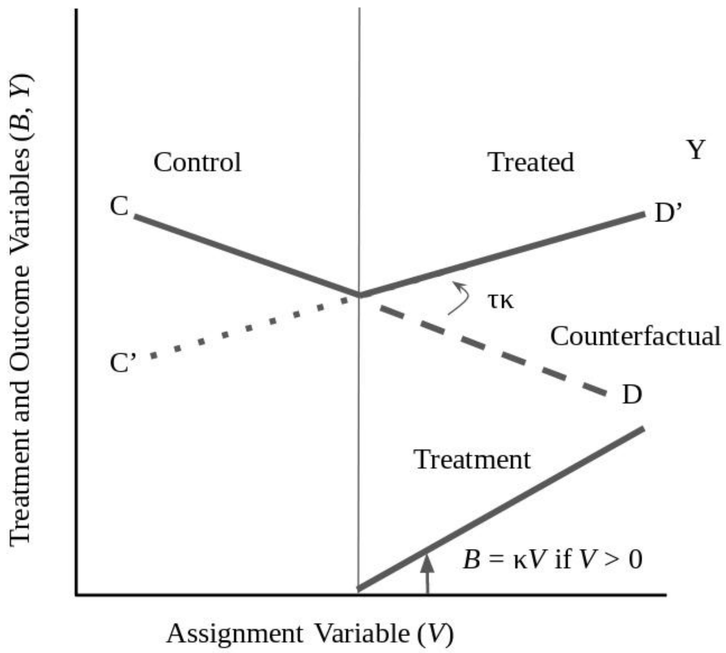


Figure 5: Features of a the Regression Kink Design (Based on Ando (2017))



$$h_{MSE,p,\nu} = C_{MSE,p,\nu} n^{-\frac{1}{2p+3}}, C_{MSE,p,\nu} = \left(\frac{(1+2\nu)V_{\nu,p}}{2(p+1-\nu)B^2_{\nu,p}} \right)^{\frac{1}{2p+3}} \tag{2}$$

The fuzzy RKD estimator is defined as

$$\hat{\tau} = \frac{\hat{\beta}_1^+ - \hat{\beta}_1^-}{\hat{\kappa}_1^+ - \hat{\kappa}_1^-}, \tag{3}$$

where $\hat{\kappa}_1^+$ and $\hat{\kappa}_1^-$ are the first-stage slope estimators above and below the threshold. $\hat{\beta}_1^+$ and

$\hat{\beta}_1^-$ denote the outcome slope estimators. The sharp RKD estimator is a special case in which $\hat{\kappa}_1^+$ and $\hat{\kappa}_1^-$ are equal to the known slopes in the first stage: $\hat{\kappa}_1^+ = \lim_{p\to 0^+}$ and $\hat{\kappa}_1^- = \lim_{p\to 0^-}$.

5 Results

In this section we present the results of the estimation of the effect of FPM transfers on immigration in Brazilian municipalities. Another objective of this section is to test the validity of the estimates of these effects. We check the validity of the identifying assumptions, by performing the density test suggested by McCrary (2008). We check the robustness of the results by performing a placebo test, changing the true cutoffs given by the the Federal Decree 1,881/81 for fake ones created by using the midpoint between two nearest cutoffs.

5.1 Effect of FPM transfers on Immigration

The right side of table 2 shows the RKD estimates using data of sample I, which consists of municipalities with less than $183,373$ and more than $6,796$ inhabitants. We found positive effect of FPM transfers on Immigration, so near the cutoffs an increase in FPM transfers has a causal relationship of changing the slope of the line that relates population and immigration by 0.013 on average across all cuttoffs, according to the bias corrected RKD estimator. The causal effect is significant but small.

The left side of table 2 shows the estimates using data of sample II, which consists of municipalities with between $143,123$ and $168,511$ inhabitants. The effect of the increase in intergovernmental transfers a change in the slope of the line that relates population and immigration by 6.238.

Table 2: RKD estimates of Immigration Responses to FPM Transfers in 2010

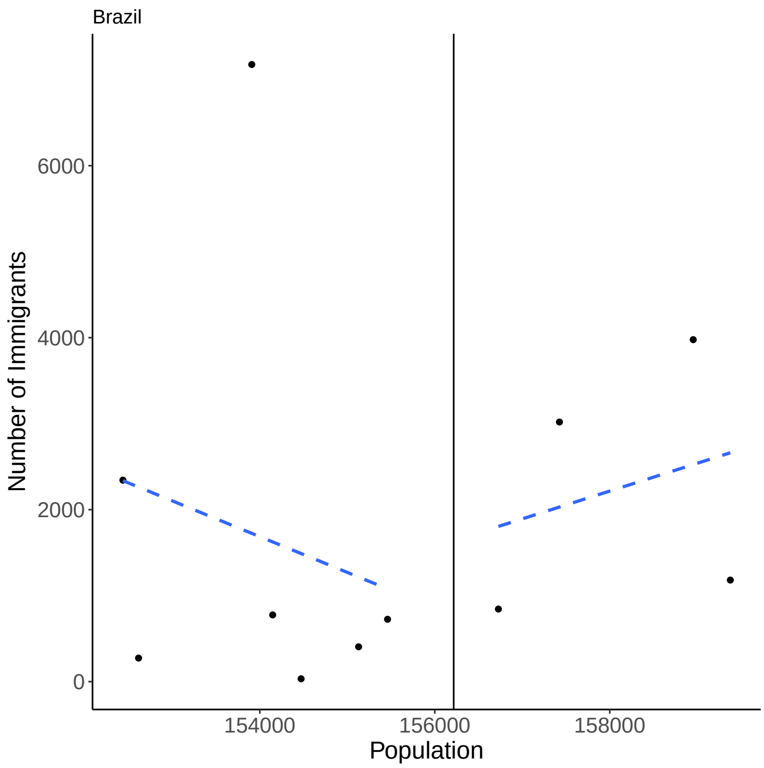
	Sample I		Sample II	
	Estimate	**Bandwidth**	**Estimate**	**Bandwidth**
$\tau_{standard}$	0.007	6356.236	1.785	4109.311
	(0.002)		(1.292)	
$\tau_{biascorrected}$	0.013	5894.150	6.238	6042.689
	[0.0048]		[3.982]	
N	3433		28	

Note: Standard errors for the estimates are in parentheses and robust standard errors are reported between brackets. The dependent variable is number of immigrants during the period from 2009 to 2010. The running variable is population size. Sample I comprises municipalities with between 6792 and 183384 inhabitants, and with cutoffs given by table 5. Sample II comprises municipalities with between 142632 and 169800 inhabitants, and the cutoff is $156,216$ inhabitants.

Mata (2014) main result is that *per capita* FPM in 1982 has an negative impact on housing markets during the 1980 decade. The increase in *per capita* FPM transfers by R$ 100 is associated with a 2.2 percent decrease in housing growth. The results also show evidences of a similar impact of FPM *per capita* on population growth between 1980-1991. The impact on immigration, measured by the population growth, is similar, because there is a great correlation between housing growth and population growth in Brazil.

Figure 6 shows the RKD evidence of the effect of FPM transfers on immigration. This figure shows the relationship between the number of immigrants arriving in a municipality during 2010 and its population in 2010 around the kink 156, 216. The sharp change in the slope of this relationship provides supportive evidence for the effect of FPM transfers on the number of immigrants arriving in a municipality.

Figure 6: RKD Evidence of the Effect of FPM Transfers on Immigration



Note: The graph shows evidence of a kink in the relationship between population size and number of immigrants (the outcome) at the threshold. The dashed lines show the predicted values of the linear regressions with a discontinuous shift.

We noted that the sample II size is small, when compared to sample I. This is due to the fact that in Brazil most of municipalities have less than 100,000 inhabitants. The total number of cities in Brazil is above 5,000, but only a little more than 300 have a population above 100,000 inhabitants.

5.2 Robustness checks

When we apply fake population cutoffs (midpoints between real population cutoffs) into the RKD estimator in sample I, we find that the effect decreases from 0.013 to 0.0044. This result is significant but is very small (see table 3). Therefore we conclude that the estimates in sample I does not pass this robustness check, although the estimates are nearly zero.

Next we perform this robustness check on sample II, by choosing two fake cutoffs. The first one is the midpoint between the 142, 632 and the 156, 216 cutoffs. The second one is symmetric to the first and is 163, 008. The estimates were not significant, therefore we conclude that the estimates of the causal effect of FPM transfers on immigration are robust when we use data from sample II.

Table 3: Placebo Test Effects of FPM Transfers on Immigration using Sample I

	Fake Thresholds			
	Estimate	**Bandwidth**	**CI Lower**	**CI Upper**
$\tau_{standard}$	0.004290435	6024.789	0.0018	0.0067
	(0.001244155)			
$\tau_{biascorrected}$	0.004481519	7279.803	0.002	0.0069
	[0.002973216]			
N	3433			

Note: Standard errors for the estimates are in parentheses and robust standard errors are reported between brackets. The dependent variable is number of immigrants during the period from 2009 to 2010. The running variable is population size. True thresholds are given in table 5. Fake thresholds are the midpoint between the real population thresholds.

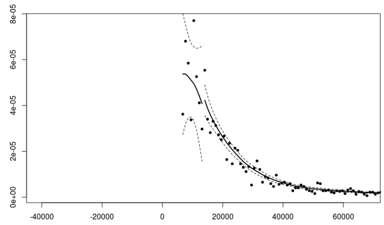
Table 4: Placebo Test Effects of FPM Transfers on Immigration using Sample II

	Fake Thresholds			
	Threshold I (149424)		Threshold II (163008)	
	Estimate	**Bandwidth**	**Estimate**	**Bandwidth**
$\tau_{standard}$	-0.421	5105.861	-1.339	8303.681
	(1.106)		(1.584)	
$\tau_{biascorrected}$	-0.593	9536.976	-1.953	14236.777
	[1.848]		[2.451]	
N	28		28	

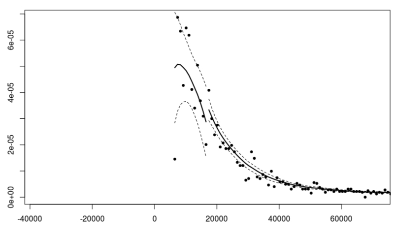
Note: Standard errors for the estimates are in parentheses and robust standard errors are reported between brackets. The dependent variable is number of immigrants during the period from 2009 to 2010. The running variable is population size. True threshold is 156216. Fake threshold I is the midpoint between $156,216$ and $142,632$, and fake threshold II is the midpoint between $156,216$ and $169,800$, the real population thresholds.

Finally, we perform the density test proposed by McCrary (2008) to verify potential discontinuities of the conditional expectation of counterfactual outcomes in the running variable. This test fails if agents are able to manipulate the running variable. In our case the agents are the municipalities. Figure 7, in the appendix, shows the density estimates for all 17 cutoffs, except cutoff 1 (see a more complete explanation in the figure note). In the figure there are no clear discontinuities.

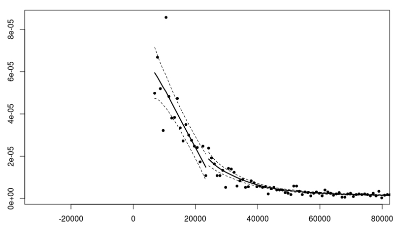
Figure 7: McCrary Density Tests



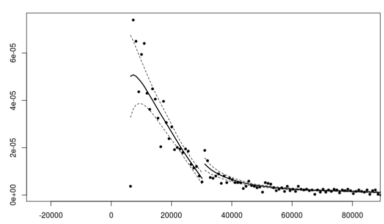
(a) Cutoff 2



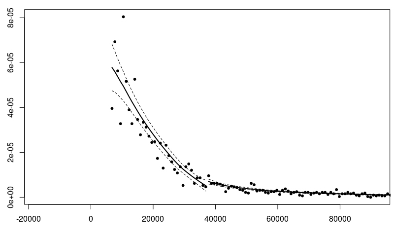
(b) Cutoff 3



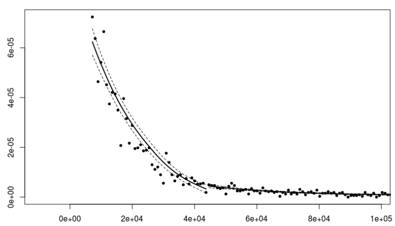
(c) Cutoff 4



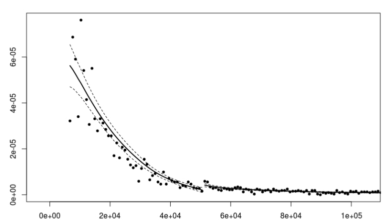
(d) Cutoff 5



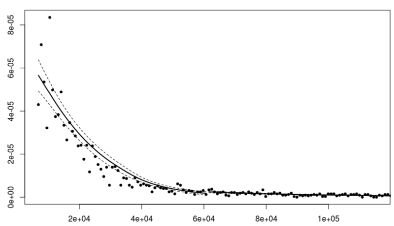
(e) Cutoff 6



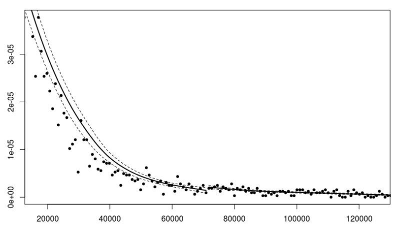
(f) Cutoff 7



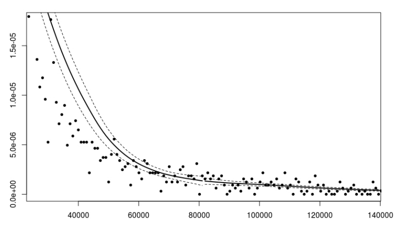
(g) Cutoff 8



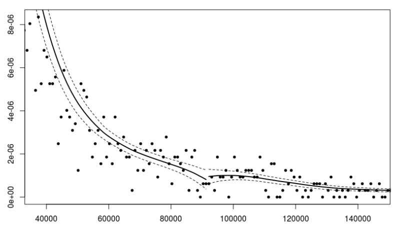
(h) Cutoff 9



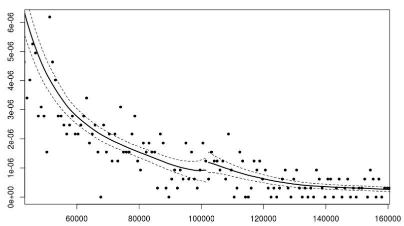
(i) Cutoff 10



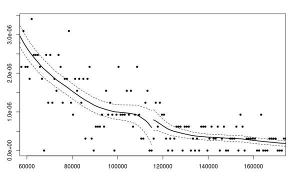
(j) Cutoff 11



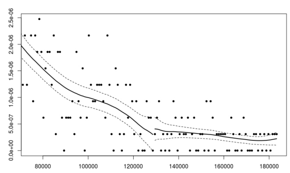
(k) Cutoff 12



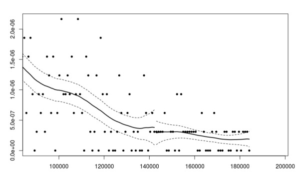
(l) Cutoff 13



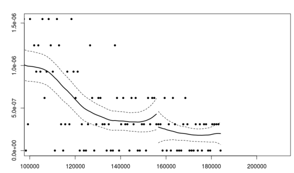
(m) Cutoff 14



(n) Cutoff 15



(o) Cutoff 16



(p) Cutoff 17

Notes: The density test is described in McCrary (2008). The data on population is from the 2010 Brazilian Census. The cuttofs are given by the FPM distribution rule - comprising 17 population cutoffs - described in the Federal Decree 1,881/81. The test could not be performed on the first cutoff, for it is too low with respect to the data.

6 Conclusion

The municipalities with more than $156,216$ inhabitants receive more transfers than municipalities below this cutoff, and the difference is on average R\$ $252,708.00$ in 2010 currency units. We found that intergovernmental transfers to these municipalities cause an increase in the number of immigrants arriving in them. This result is consistent with the the findings of Litschig and Morrison (2013), for they concluded that intergovernmental transfers cause an increase in schooling *per capita* and in literacy rates. Thus these municipalities end-up attracting more people. We check the robustness of our results by performing several tests. Our results shows that when in focus on the first cutoffs, the effect of FPM on immigration is very small, but statistically significant.

Our results differ from those found by Mata (2014), for we use a very different data set. We use data on RAIS/MIGRA, while he uses data on population growth to calculate the number of immigrants in each municipality. He uses data from the municipalities of the state of *São Paulo*, while we use data from municipalities in all states of Brazil. Mata (2014) focused on the first cuttoffs, while we study the first cutoffs and the $156,216$ cutoff.

One limitation of this paper is that we use a sharp RKD estimator, while most authors use a fuzzy RDD estimator to study the causal effect of FPM transfers on the outcome variable. Litschig and Morrison (2012) uses discontinuities in the FPM transfers around the first three population cutoffs, over the period 1982-1985 to estimate the impact of transfers on re-election probability and per *capita* government spending using a sharp RDD estimator. We decided to follow Litschig and Morrison (2012) because it is much simpler than to create a variable to measure theoretical transfers, compere between this measure and the actual transfer and decide which municipalities are not complying to the decree law, since the values transferred depend on state data, so it is very difficult to create reliable values for the theoretical transfers.

In this paper we used the robust regression kink design estimator proposed by Calonico, Cattaneo and Titiunik (2014). To our knowledge, this is the first paper to estimate the impact of FPM transfers on immigration using data from RAIS/MIGRA and the regression kink discontinuity design. We hope that in the near future, several other variables that have a causal relationship with FPM transfers can be identified.

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Appendix

Table 5: FPM Coefficients

Population	FPM Coefficient
10188	0.6
13584	0.8
16980	1
23772	1.2
30564	1.4
37356	1.6
44148	1.8
50940	2
61128	2.2
71316	2.4
81504	2.6
91692	2.8
101880	3
115464	3.2
129048	3.4
142632	3.6
156216	3.8

Note: FPM Coefficients are used to compute the FPM received by each municipality (decree law n° 1.881/1981)