

# Testing regional intergovernmental transfers effects in Uruguay

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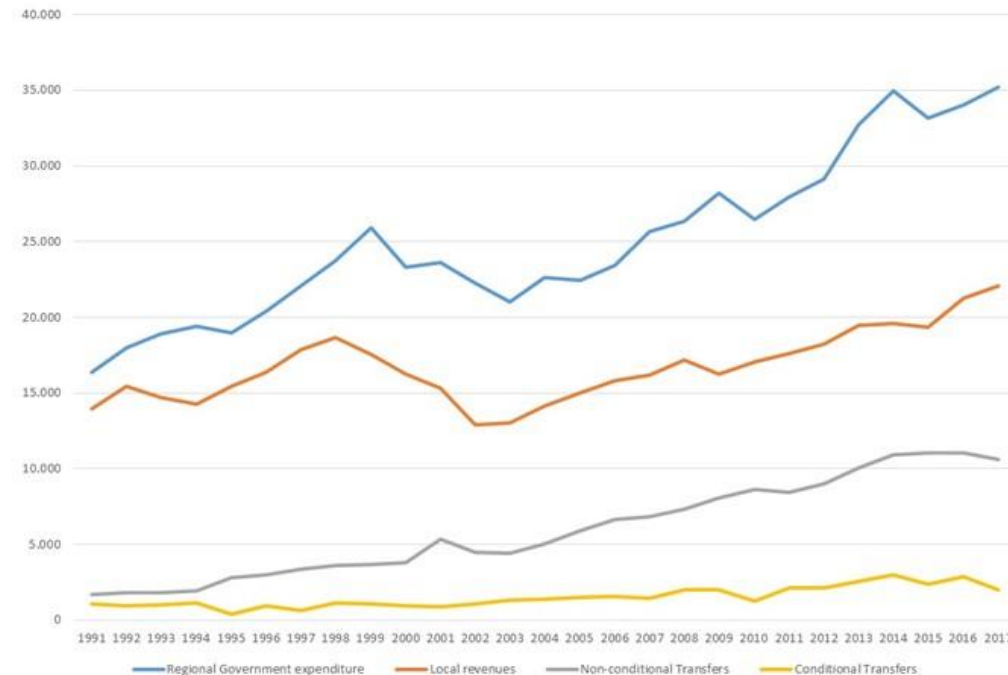
Desarrollo económico regional y descentralización política y fiscal en Uruguay

# Motivation

- In recent decades' numerous countries have been engaged in the reallocation of political power and fiscal responsibilities from national to sub-national governments.
- The role of intergovernmental public transfers on the sub-national finances and the overall fiscal policy has become much more relevant in the new setting.
- While the expanded resources may help local government attaining important policy objectives (i.e.: regional fiscal equalization), they would also alter the fiscal behavior of the recipient creating situations in which the expected benefits might even vanish:
  - Fly-paper effect
  - Asymmetric effects

# Motivation

- In Uruguay, the policy interest in regional public finances has followed from the increasing level of transfers from the central to the sub-national entities and the enhanced autonomy that the Constitutional Reform of 1996 has granted to sub-national authorities.



- Null attention has been paid to the empirical research seeking to understand thoroughly regional government expenditures and the way in which they are influenced by intergovernmental transfers.

# Objective

- This work seeks to contribute to this discussion by exploring the flypaper effect in 18 Uruguayan regional finances over 1991-2017, a period of significant variations in the local taxation policy, both in rates and in tax-base levels.
- Two specific effects:
  - Firstly, to identify the magnitude of the response of regional government expenditures to a change in private income and compare it to the reaction to unconditional transfers.
  - Secondly, to test whether the effect is symmetrical by focusing on the sign of the variation in transfers (cuts versus increases).

# Main results

- Empirical results show a significant and sizeable flypaper effect but not asymmetry effects.
- Political economy factors play an important role in the regional budgeting processes:
  - Local spending is subject to electoral cycles, and that the increase of votes intra-cyclical volatility (passage of votes from one party to another between national and regional elections) has positively impacted the level of regional spending.

# Sub-national public finances: local services

- Economic principle of the fiscal federalism literature argues that “finance follows function”:
  - “...both the amount of revenues a sub-national government needs as well as its optimal choice of financing sources depend on the specific expenditure responsibilities assigned to the regional entities and their cost...” (Bahl 1999)
- Expenditure allocations might be used by the local governments according to their discretionary decisions or might be compromised beforehand to fulfill the responsibilities delegated by the central government, which involve non-discretionary decisions:
  - When the delegated functions are just implemented by sub-national authorities, the ultimate responsibility over these functions still falls upon the central government.
  - Sub-national autonomy is required if and only if an expenditure function has been assigned as an exclusive responsibility to the sub-national level.

# Sub-national public finances: local revenues

- **Key issue: how lower-level governments are financed.**
- The presence of fiscal vertical imbalances typically implies that sub-national expenditures are larger than their revenue collections. So, the central government must provide additional resources in the form of intergovernmental transfers:
  - There is a range of non-discretionary (delegated) expenditure responsibilities that should be financed by conditional intergovernmental transfers. If the central government is committed with achieving certain national standards, then it should provide the funds required to ensure that those standards are met nationwide.
  - Also a very significant percentage of the intergovernmental transfers are devoted to finance the sub-national government own responsibilities. This financing must be unconditional to allow for discretionary sub-national decisions.

# Sub-national public finances: Effects of non-conditional transfers

- Based on the **median voter theory**: an increase in unconditional transfers will have the same effect on the demand for regional public services as a change in the local private incomes.
- The standard fiscal federalism approach predicts that non-conditional fiscal transfers to local governments are equivalent to expansions in the local community private income.
- A large body of empirical literature has produced results that are at variance with these predictions. The analyses have shown that non-conditional transfers stimulate more local public expenditure than equal increases in local private income. This result is known as “flypaper effect” (Henderson 1968; Gramlich 1969).
- The idea is that “money sticks where it hits”: just as private income tends to be allocated to private consumption, the recipient government will spend fiscal transfers rather than rebate it back to citizens.



# Effects of non-conditional transfers: Fly-paper effect – empirical arguments

- Attempts to provide rationality to the so-called flypaper effect can be divided into empirical and theoretical arguments.
1. The empirical explanations are based on two types of views:
    - a. *Data problems*: researchers might miss-classify non-fungible conditional fiscal transfers as grants though they include some matching elements leading to a greater stimulatory impact than pure lump sum transfers.
    - b. *Model miss-specification*: omitted variables biases could falsely support the flypaper effect if unobserved community characteristics were systematically related with citizen private income.

# Effects of non-conditional transfers: Fly-paper effect.

## Theoretical arguments

- Theoretical explanations are based on the incentives and interests of local citizens, bureaucrats and politicians:
  1. The *fiscal illusion* argument: when local governments receive a grant, they can raise the level of public services, keeping the tax price voters pay unchanged (Gramlich 1977; Courant et al. 1979; Dollery and Worthington 1996).
  2. The regional fiscal literature has provided a novel explanation for the flypaper effect based on the *role of local bureaucrats* who try to maximize their monetary and non-monetary income (King 1994), the higher is the bureaucratic complexity of a local government, the higher the autonomy of the local bureaucrats in the definition of the local public spending.
  3. Another line of arguments is based on the *politician behavior*:
    - McGuire (1975) argued that seeking to stay in power the politicians increase the level of public spending at the lowest possible political cost.
    - Flypaper effect is a consequence of an inability of citizens to write complete “political contracts” with their elected officials (Chernick 1979; Knight 2002)

# Effects of non-conditional transfers: Asymmetric response

- Together with the arguments behind the flypaper effect, another important discussion takes place around the *asymmetric response* of local governments to the sign of the variation of intergovernmental transfers (cuts versus increases).
- Overall, scholars observe that transfer losses may be partly compensated by local governments willing to preserve expenditures by raising additional local taxes: this is the “*fiscal replacement*” (Gramlich, 1987).
- Alternatively, local governments may magnify the spending response to cuts in grants by lowering their own revenues as well: this gives rise to the “fiscal restraint” type of asymmetry, also called “*super-flypaper effect*” (Gamkhar and Oates, 1996).

# Regional public finances: The Uruguayan case

- The country is still fiscally-centralized. Over the period 1991-2017, more than 90 percent of the national public expenditure was directly executed by the central government.

**Composition of General Government expenditures (1991-2017), selected years (in percentages)**

	<b>1991</b>	<b>1995</b>	<b>2000</b>	<b>2005</b>	<b>2010</b>	<b>2017</b>	<b>Average 1991-2017</b>
<b>Central Government</b>	93.1	92.7	92.3	92.2	93.3	93.5	92.7
<b>Regional Governments</b>	6.9	7.3	7.7	7.8	6.7	6.5	7.3
<b>General Government</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

# Empirical background

- The effects of intergovernmental transfers on local government fiscal behavior are generally analyzed with models where a representative local citizen maximizes her utility depending on private consumption and local government spending ( $g$ ) subject to her total income. This, in turn, is defined as the sum of her private income ( $y$ ) and her share of fiscal transfers ( $f$ ).
- The flypaper effect (FP) can be defined as:

$$FP = \Delta g_f - \Delta g_y$$

# Empirical background

Author	Data	Sample	$\Delta g_f$	$\Delta g_y$	Flypaper effect	Asymmetry effects
<b>High-income countries</b>						
Levaggi and Zanola (2003)	18 Italian regions	1989-1993	0.56-0.84	0.01-0.02	0.55-0.82	Significant (Super flypaper effect)
Deller and Maher (2006)	US Wisconsin municipalities'	1990 -2000	5.838	0.046	5.792	Significant (fiscal replacement)
Lago-Peñas (2008)	313 Galician municipalities Spain	1985-1995	0.88-0.96	0.001-0.009	0.87-0.96	Significant (fiscal replacement)
Genari and Messina (2014)	8.000 Italian municipalities	1999-2006	0.79-1.43	0.02-0.06	0.77-1.43	Not significant
<b>Middle-income countries</b>						
Melo (2002)	32 Colombian regional governments	1980-1997	1.13	0.11	0.40	Not significant
Espinosa (2011)	31 Mexican states	1993-2003	1.563	0.082	1.48	--
Vegh and Vuletin (2015)	23 Argentinian provinces	1972-2006	1.69-1.95	0.063-0.065	1.63-1.90	--

# Empirical methodology

- The empirical strategy applied to an unbalanced panel data of 18 departments during the period 1991 to 2017, is aimed at evaluating the sensitiveness of regional budgets to transfers by measuring two types of asymmetries.
- For the sake of comparison, we follow previous works in the literature, and estimate a reduced form equation on the expenditure side, which can be derived from the analytical framework:

$$G_{it} = \beta_0 + \beta_Y Y_{it} + \beta_F F_{it} + \beta_A A_{it} + \sum_h \beta_h X_{h,it} + \varepsilon_{it}$$

$$A_{it} = D(F_{it} - F_{it-1})$$

# Empirical results: baseline models

	OLS		2SLS		GMM	
	(1)	(2)	(3)	(4)	(5)	(6)
	FE	RE	FE	RE	GMM-FD	SYS-GMM
Lagged regional government expenditure	--	--	--	--	0.072** (0.043)	0.066** (0.043)
$\beta_f$	0.683*** (0.156)	0.720*** (0.138)	1.117*** (0.253)	1.100*** (0.190)	0.639*** (0.121)	0.661*** (0.121)
$\beta_y$	0.026*** (0.002)	0.026*** (0.002)	0.032*** (0.002)	0.032*** (0.002)	0.025*** (0.002)	0.025*** (0.002)
Electoral cycle	1103.028*** (93.129)	1111.756*** (106.559)	1041.647*** (84.024)	1050.954*** (90.928)	1025.712*** (150.851)	1032.100*** (150.576)
Pedersen index	86.465*** (15.811)	92.610*** (16.217)	76.898*** (13.795)	81.952*** (12.990)	64.315** (30.584)	66.261** (30.509)
Local bureaucracy	0.470 (1.403)	0.157 (0.197)	0.059 (1.388)	0.123 (0.146)	2.282* (1.331)	1.846 (1.293)
Income inequality	201.081*** (68.118)	93.113* (55.453)	157.621** (72.461)	72.383 (53.874)	224.285*** (91.369)	224.883*** (90.736)
Asymmetry	-0.257* (0.128)	-0.291*** (0.112)	1.263*** (0.277)	1.240*** (0.216)	-0.111 (0.167)	-0.131 (0.167)
<b>Observations</b>	<b>469</b>	<b>469</b>	<b>450</b>	<b>450</b>	<b>450</b>	<b>450</b>



# Empirical results: static models

	2SLS		2SLS		2SLS	
	IV: First stage	IV: Second stage	IV: First stage	IV: Second stage	IV: First stage	IV: Second stage
	Regional transfers	Regional spending	Regional transfers	Regional spending	Regional transfers	Regional spending
Department Population	-0.271 (0.264)	--	0.120 (0.429)	--	-0.174 (0.375)	--
Regional GDP	0.015*** (0.001)	--	0.015*** (0.001)	--	0.015*** (0.000)	--
Poverty	-18.564*** (6.554)	--	-18.552*** (6.952)	--	-18.373*** (6.852)	--
Political Alignment	--	--	-234.681 (154.878)	--	--	--
Switch Department	--	--	--	--	-32.635 (80.970)	--
$\beta_f$	--	0.323** (0.156)	--	0.335** (0.158)	--	0.328** (0.163)
$\beta_y$	--	0.029*** (0.002)	--	0.028*** (0.002)	--	0.028*** (0.002)
Electoral cycle	--	1097.923*** (82.947)	--	1097.350*** (82.945)	--	1098.207*** (84.339)
Pedersen index	--	90.061*** (11.336)	--	90.061*** (11.345)	--	89.804*** (11.325)
Local bureaucracy	--	0.524 (1.416)	--	-0.029 (0.093)	--	0.531 (1.417)
Income inequality	--	204.238*** (66.784)	--	203.588*** (66.445)	--	205.019*** (66.905)
Asymmetry	--	-0.026 (0.093)	--	-0.029 (0.093)	--	-0.028 (0.093)
<b>Observations</b>	<b>469</b>	<b>469</b>	<b>469</b>	<b>469</b>	<b>469</b>	<b>469</b>

# Empirical results: dynamic models

	GMM-FD	SYS-GMM	GMM-FD	SYS-GMM	GMM-FD	SYS-GMM
	(1)	(2)	(3)	(4)	(5)	(6)
Lagged regional government expenditure	0.110*** (0.044)	0.103** (0.044)	0.109*** (0.044)	0.104** (0.044)	0.110*** (0.045)	0.104** (0.044)
$\beta_f$	0.316** (0.173)	0.326** (0.172)	0.325** (0.173)	0.333** (0.173)	0.316** (0.180)	0.328** (0.180)
$\beta_y$	0.027*** (0.003)	0.027*** (0.003)	0.027*** (0.003)	0.027*** (0.003)	0.027*** (0.003)	0.027*** (0.003)
Electoral cycle	970.479*** (153.383)	977.081*** (156.193)	970.206*** (156.378)	976.794*** (156.190)	971.968*** (157.285)	977.944*** (157.094)
Pedersen index	58.940** (31.563)	61.910** (31.510)	58.931* (31.566)	61.955*** (31.512)	58.390** (31.774)	51.569** (31.722)
Local bureaucracy	2.424* (1.374)	1.890 (1.341)	2.431* (1.374)	1.885 (1.341)	2.435* (1.380)	1.891 (1.347)
Income inequality	219.712** (94.847)	213.957** (94.234)	219.472** (94.852)	213.492** (94.241)	220.648** (95.141)	214.863** (94.522)
Asymmetry	0.180 (0.162)	0.163 (0.161)	0.178 (0.162)	0.161 (0.161)	0.178 (0.162)	0.161 (0.161)
Observations	<b>450</b>	<b>450</b>	<b>450</b>	<b>450</b>	<b>450</b>	<b>450</b>

# CONCLUSIONS

- Empirical results have highlighted a remarkable standard flypaper effect for local authorities, mostly in line with previous studies for European countries. However, it was not finding evidence on the asymmetric behavior of expenditures with respect to the direction of changes in transfers.
- Estimations show that local spending is subject to electoral cycles, while the increase of voters' intracyclical volatility has positively impacted the level of regional spending.
- Due to the list of variables used in the different expenditures estimates we could argue that the presence and size of the flypaper effect does not seem to be entirely attributable to a mismatch between local bureaucracy, policymakers and population. Demand-side factors, such as the *fiscal illusion*, or behavioral phenomena as aversion to losses, appear to be determinant in the case of Uruguay.
- Two important policy recommendations:
  - Local public budgets be made more transparent so that local citizens are better informed about the cost of providing the local public services.
  - It is considered pertinent to elaborate fiscal rules at the sub-national level in order to contain exaggerated variations in local public spending.