Available online at www.jlls.org

JOURNAL OF LANGUAGE
AND LINGUISTIC STUDIES

ISSN: 1305-578X

Journal of Language and Linguistic Studies, 17(4), 2769-2786; 2021

FLYPAPER EFFECT AND PRECAUTIONARY SAVINGS IN PUBLIC SPENDING BY MUNICIPAL GOVERNMENTS IN PERÚ

García castro Erika Beatriz[a1], Vilca Mamani Andrés[b], Tisnado Chura Tomas[c], Yapuchura Saico Cristobal Rufino[d], Enriquez Mamani Vitaliano[e]

[a,b,c,d] *Professor of the Faculty of Economic Engineering of the National University of the Altiplano, Puno, Perú.*

[e] *Professor at the Professional School of Public Management and Social Development of the National University of Juliaca, San Román, Perú.*

[a]*ID: https://orcid.org/0000-0003-4183-8961;* [b]*ID: https://orcid.org/0000-0002-2141-2333;*

[c]*ID: https://orcid.org/0000-0001-7122-5950;* [d]*ID: https://orcid.org/0000-0003-1956-3922;*

[e]*ID: https://orcid.org/0000-0002-9858-2488*

Email: egarcia@unap.edu.pe

APA Citation:

García castro Erika Beatriz, Vilca Mamani Andrés, Tisnado Chura Tomas, Yapuchura Saico Cristobal Rufino, Enriquez Mamani Vitaliano (2021). FLYPAPER EFFECT AND PRECAUTIONARY SAVINGS IN PUBLIC SPENDING BY MUNICIPAL GOVERNMENTS IN PERÚ, *Journal of Language and Linguistic Studies, 17*(4), 2769-2786

Submission Date: 20/11/2021

Acceptance Date: 21/12/2021

DOI: 10.5489/jlls.5015917

ABSTRACT

The objective of the research was to determine the effect of an increase in fiscal transfers in relation to an equivalent increase in tax revenues on local public spending in local governments in Peru. The method used is causal, based on precautionary savings, the target population is 1874 local governments of Peru-2019, grouped into three categories. Using the local expenditure and precautionary savings model, the presence of the flypaper effect was determined at the national level and by municipal category. The flypaper effect was found to be present at the national level (0.78 empirical and 0.66 based on precautionary savings) and by municipal category, public spending is greater with an increase in total transfers than with an equivalent increase in tax revenues (by 0.84% and 0.06% successively), likewise the flypaper effect is greater in

[1] Corresponding author.
E-mail address: egarcia@unap.edu.pe

municipalities with medium and low budget size. The local governments of the country, seeing larger budgets coming from subsidies, prefer to finance public goods and services with intergovernmental transfers than with tax revenues, because they are free distortion money, while tax revenues demand more control and results from the rulers, besides, the rulers are first concerned in spending the subsidies than the tax revenues, keeping the private revenues as savings, for later periods.

Keywords: flypaper effect, local spending, tax revenues and intergovernmental transfers.

INTRODUCTION

Local governments are the best way to allocate public goods (Tiebout, 1956) that is why state decision making should be decentralized (Urrunaga et al., 2001) hence local fiscal autonomy (Bojórquez, 2011). But intergovernmental transfers possess fiscal effects on public spending (Pevcin, 2014) and on the one hand can obviate the need to generate local revenues undermining fiscal autonomy (Masaki, 2018).

Piffano et al. (1998) and Trujillo (2008) classify transfers into two types: the first is unconditional contributions and conditional contributions. This type of transfers is also issued in Peruvian municipalities, because the municipal budget base is mainly made up of transfers, municipal taxes and indebtedness (Alvarado et al., 2003). Local governments in Peru receive financial resources from canon and royalties, foncomun resources and municipal indebtedness, but at the same time collect their own revenues (Sánchez, 2016).

The literature mentions that an increase in subnational transfers can cause an expansion of local public spending greater than before an equivalent increase in own revenue in the local jurisdiction called the flypaper effect (Aragon, 2008; Besfamille et al., 2015; Deller & Maher, 2006; Korzhenevych & Langer, 2016; Quigley & Smolensky, 1992; Trujillo, 2008; Winer, 1983) and a crowding-in (Nilsson, 2009), and cause tax revenue to decrease (Bracco et al., 2015; Bravo, 2012; Mattos et al., 2011; Romo et al., 2010), the lower collection induces the absence of community control and oversight in fiscal spending decisions (Sanguinetti, 2010; Tiebout, 1956) .

Rulers seek to maximize their budget through subsidies in order to maximize their own utility by raising the assumption of a benevolent ruler, and the contributions induce public spending at an inefficiently large level far from the community's preferences (Niskanen, 1968), Some authors such as Dougan and Kenyon (1988) mention that the flypaper effect occurs due to pressure groups to increase spending on specific programs and political exchanges, and Quigley and Smolensky (1992) point out that the flypaper effect occurs in response when the local government assumes the transaction costs of modifying the tax legislature.

The flypaper effect is based on the median voter's utility function, which is a function of private income and local public spending (Aragon & Gayoso, 2005; Porto, 2002). Faced with an increase in transfers the benevolent government provides excess public good and reduces the amount of municipal taxes and thus maximizes the utility of the median voter (Acosta & Loza, 2001), because it is more efficient to spend the transfers received than private income, they are free distortion money (Vegh & Vuletin, 2016), and it is thus that the flypaper effect is a decreasing function between private income and fiscal transfers from the macroeconomic insurance point of view (Vegh & Vuletin, 2015).

Some authors mention that transfers have a greater positive impact on investment expenditures but do not have a significant impact on current expenditures (Korzhenevych & Langer, 2016; Rios & Da Silva, 2003). On the one hand, the flypaper effect is asymmetric, because local authorities do not respond in the same way to increases in transfers as they do to a reduction in transfers (Deller & Maher, 2006; Sour, 2016). Because a cut in transfers translates into higher arrears in spending commitments for public investments at the municipal level (Chiades et al., 2019).

Transfers also have a positive causality on long-term municipal indebtedness (Yas & Atilgan, 2016), on the other hand the flypaper effect can arise when distortionary taxes are used to finance at least part of their expenditures (Dahlby & Ferede, 2016). Also increased information available to the government may generate additional expenditures by cities and expected tax payments are lower (Epstein & Gang, 2019), similarly co-financing and lobbying may increase the provision of the public good, but co-financing may reduce rent-seeking through lobbying (Jussila & Mandell, 2019).

Even the study by Köthenbürger and Loumeau (2016) points out that transfers can cause a double flypaper effect, because municipalities tend to spend additional revenue transfers where they already used to spend relatively more in the past. Furthermore increasing the resource subsidy for a specific public good does not expand local spending to a large degree, therefore these types of subsidies are useful to transfer resources, however these types of transfers lead to inefficiency and reduce welfare due to the absence of local oversight (Bruce et al., 2019).

Sub-national transfers in Peru, have increased considerably in recent years as a result of the boom in the prices of mining and oil natural resources, according to the Transparency Portal of the Ministry of Economy and Finance transfers for all sources of financing increased from 17.2 billion to 21.8 billion soles between 2016 and 2019, of which unconditional transfers (Foncomun) increased from 4.9 to 5.9 billion soles in said period, while resources from the canon and sobrecanon in 2019 represents 6.3 billion. Tax collection through municipal taxes had a minimal increase from 3.5 to 3.6 billion, while Directly Collected Resources increased from 3.8 billion to 3.9 billion between 2016 and 2019, the evolution of local spending was from 21.3 billion to 24.7 billion soles with efficiency indicator between 73.7% and 69.4%.

The present study is justified in evaluating how effective intergovernmental transfers have been in the behavior of local spending fiscal policies.

Given the importance that intergovernmental transfers seek to correct inequality in the distribution of resources, improve welfare and improve the level of local activity (Aguilar & Morales, 2005; Sanguinetti, 2010). Because a poor design of these compensation mechanisms could imply suboptimal decisions by local governments in the provision of public goods.

According to the problems described above, the objective of the study is to determine the effect of an increase in fiscal transfers in relation to an equivalent increase in tax revenues on local public spending in Peruvian local governments.

MATERIALS AND METHODS

A study was carried out following the hypothetical-deductive and causal method. The object of study is the local governments of Peru in 2019, 1874 district and provincial municipalities were taken. Likewise, the municipalities were grouped according to the hierarchical conglomerate in three categories based on budget size (canon transfers and Foncomun), the first group comprised municipalities with a high budget size, the second with a medium budget and the third with a low budget size. The conglomerate is calculated according to the Ward method, with the squared Euclidean distance. According to the hierarchical clustering for the local expenditure model, the groups are: category 01 comprises 401 municipalities, category 02 comprises 580 and category 03 comprises 893 municipalities.

The model

Expenditure model flypaper effect

The flypaper effect is given by $FP \equiv \Delta g^f - \Delta g^y$. where Δg^f y Δg^y indicate the change in public expenditure given a one monetary unit increase in private income and fiscal transfers, to determine this effect we used a local expenditure model which is given by:

$$log(G_{local}) = \beta_1 + \beta_2 log(Canon) + \beta_3 log(Foncomun) + \beta_4 log(Tx) + \beta_5 log(Credit) + \beta_6 Pcitizen + \beta_7 Inst_{gest} + \beta_8 Mcclocal + \beta_9 Techcapabilities + \varepsilon_i \quad (1)$$

The parameters β_2 y β_4 estimate the empirical flypaper effect $FP = \beta_2 - \beta_4$ of the canon and foncomun intergovernmental transfers. $FP = \beta_3 - \beta_4$.

Where G_{local} is local expenditure, while the explanatory variables express the following: $Canon$, Transfers from the canon resource, $Foncomun$, transfers from Foncomun, Tx, is the collection of municipal taxes and directly collected resources, $Credit$, are transfers for municipal indebtedness, $Pcitizen$, the following is citizen participation in budgetary matters, $Inst_{gest}$, are instruments for urban and/or rural management and development, $Mcclocal$, is the lack of technical capacity of the local coordinating council members, and

$Techcapabilities$, is the lack of technical capacities in results-based budgeting, project management and administrative procedures.

Flypaper effect saving caution

To estimate the flypaper effect, we followed Vegh and Vuletin (2015), who developed a method for estimating the flypaper effect based on precautionary savings, when own collection is greater than intergovernmental transfers $f < y$. Where f: represents fiscal transfers and y: is tax revenue. For the Peruvian case, Vegh and Vuletin's method was reconsidered for cases when lump-sum transfers are greater than municipal tax collection and directly collected resources ($f > y$). because Peruvian municipalities have their budget size made up of more than 50% from transfers.

Assuming that the welfare of the median voter is given by private consumption (c_1) and local public expenditure (g_1), represented by:

$$W = u(c_1) + v(g_1) + \beta \iint p(\varepsilon_y, \varepsilon_f)(u(c_2(\varepsilon_y, \varepsilon_f)) + (g(\varepsilon_y, \varepsilon_f)))d\varepsilon_y d\varepsilon_f \qquad (2)$$

where β > 0, is the discount factor, and $\rho(\varepsilon_y, \varepsilon_f)$ is the joint density distribution of ε_y y ε_f. For the consumption slope summary it is assumed that β=1/(1 + r), where r >0 is the real interest rate. The intertemporal constraint on the representative citizen's total income takes the form. $y_1 + f_1 + \frac{y_2(\varepsilon_y)+f_2(\varepsilon_f)}{1+r} = g_1 + c_1 + \frac{c_2(\varepsilon_y,\varepsilon_f)+f_2(\varepsilon_y,\varepsilon_f)}{1+r}$. The representative citizen chooses c_1y c_2 $(\varepsilon_{y,}\varepsilon_f)$, g_1, y g_2 $(\varepsilon_{y,}\varepsilon_f)$ to maximize welfare. By doing the development it is obtained that:

$\Delta g_1^y = \frac{1}{1+\theta} - \frac{1}{1+\theta}\Delta PS^y$ ... (3) y $\Delta g_1^f = \frac{1}{1+\theta} - \frac{1}{1+\theta}\Delta PS^f$ ... (4)

Replacing (3) and (4) in $FP \equiv \Delta g^f - \Delta g^y$ we obtain:

$$FP = \frac{1}{1+\theta}\left[\frac{\theta}{2(2+r)(1+\theta)}\right]\left[(1+\alpha B)\sigma_{\varepsilon y}^2 - (1+B)\sigma_{\varepsilon f}^2 + B(1-\alpha)\sigma_{\varepsilon y}\sigma_{\varepsilon f}\rho\right]$$

$$FP = \frac{1}{1+\theta}A\left[(1+\alpha B)\sigma_{\varepsilon y}^2 - (1+B)\sigma_{\varepsilon f}^2 + B(1-\alpha)\sigma_{\varepsilon y}\sigma_{\varepsilon f}\rho\right] \quad ... (5)$$

Where $A \equiv \frac{\theta}{2(2+r)(1+\theta)}$ y $B \equiv 2\emptyset\bar{X}$ are positive constants and $\alpha \equiv (1-\emptyset)/\emptyset$ is between 0 and 1. Where: FP: Flypaper effect, θcaptures public expenditure preferences, r: Interest rate, ∅r: Proportion of total initial revenue corresponding to fiscal transfers, $(1-\emptyset)$is the proportion corresponding to revenues, $\sigma_{\varepsilon y}^2$Variance of own municipal revenues, $\sigma_{\varepsilon f}^2$Variance of transfers, $\rho$is the correlation between revenue collection and transfers, εf y εy : are the average conservation margins of each soles received by the median voter from fiscal transfers and revenues, f e y are the initial levels of transfers and revenues. Also to see the change of the flypaper effect of the theory with respect to the empirical analysis of the observed flypaper is determined by the following proposition.

$$\Delta \boldsymbol{FP_{f,y}} = \frac{FP_{(\sigma_y^2,\, \sigma_f^2, \rho \neq 0, r, \theta)} - FP_{(\sigma_y^2 = \sigma_f^2, \rho = 1, r, \theta)}}{\Delta g^f - \Delta g^y} \qquad \ldots (\mathbf{6})$$

Where, $\Delta FP_{f,y}$ measures the change in the flypaper effect based on precautionary savings (fiscal execution balances) with respect to the flypaper observed in the expenditure model.

RESULTS

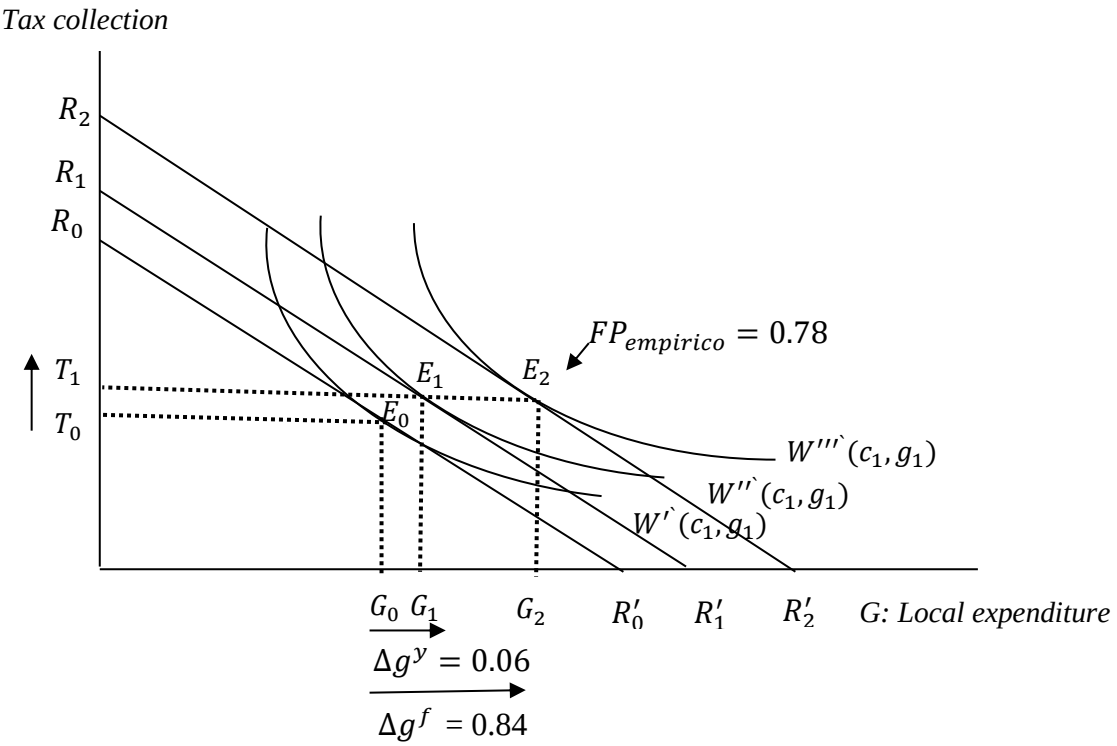
Transfers received by local governments in Peru in 2019 amount to 21.8 billion soles, of which the sum of 6.2 billion soles corresponds to canon resources, surcanon and royalties, while foncomun resources represent 5.8 billion soles, canon resources had a decrease with respect to previous years, but there were periods where subsidies increased considerably.

On the other hand, municipal tax collection amounted to 3.6 billion soles, while Directly Collected Resources (RDR) amounted to 3.9 billion soles. The national average public expenditure efficiency indicator was 69.4%, which is the proportion of accrued expenditure with respect to the Modified Institutional Budget (PIM).

Empirical Flypaper

According to the results obtained (table 1, column 2) in the local expenditure model, on average at the national level, the existence of the flypaper effect ($FP = \beta_f(0.84) - \beta_y(0.06)$) for all sources of transfers (total sum of transfers) and municipal tax collection (municipal taxes plus Directly Collected Resources) by 0.78%, which indicates that with a 1% increase in transfers received by the local government, public spending increases by 0.84%, while with the same 1% increase in tax collection, public spending increases by only 0.06%, with the expansion of public spending being greater with the increase in transfers.

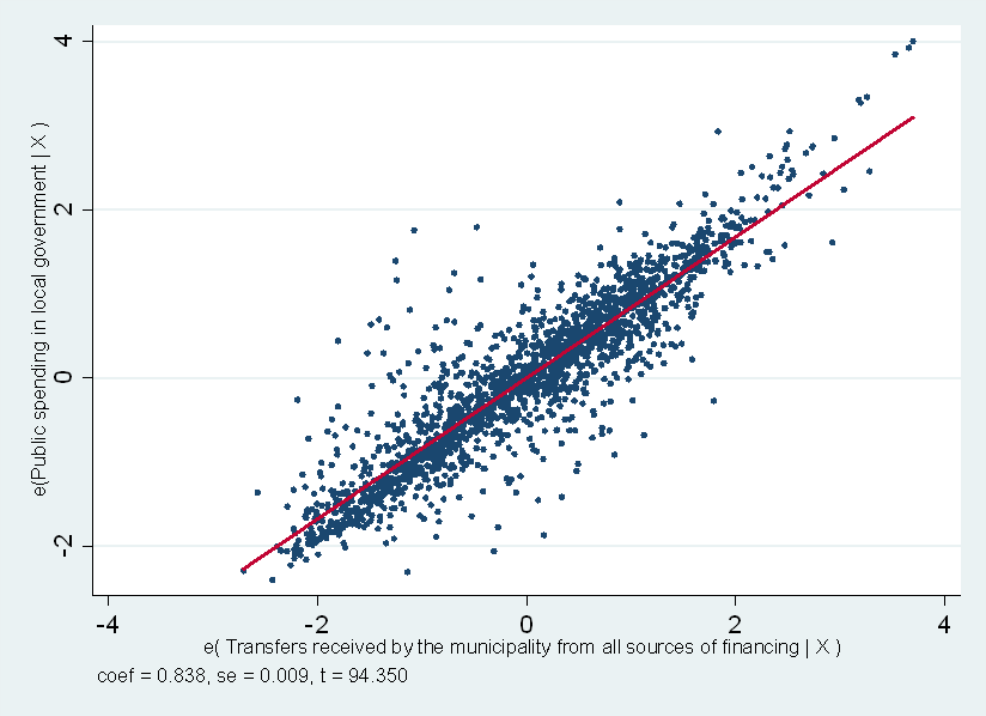
Figure 1. *Flypaper effect of transfers by all sources of financing and tax collection in local governments.*



In figure 1, the indifference curves $W'(c_1, g_1)$, $W''(c_1, g_1)$ y $W'''(c_1, g_1)$ correspond to the representative citizen (median voter). The budget line R_0 y R_0' corresponds to an initial context without transfers, with a slope of -1, which means the possibility of transforming S/ 1 of municipal tax collection into S/ 1 of public goods and services. The representative citizen's preference is equilibrium $E_0$where public spending (G_0) is financed with T_0 local tax collection. On the other hand, when the collection of municipal revenues increases by 1% from T_0 a T_1 (municipal taxes plus Directly Collected Resources), the straight line of the municipality's budget is shifted from R_1 y R_1', this causes public spending to move from G_0 a G_1, making the new equilibrium at E_1but when transfers also increase by 1%, public spending is shifted by a larger proportion from G_0 a G_2, making the new equilibrium at E_2.

Thus, the study showed that with a 1% increase in transfers, local spending increases by =0.84% and when the tax burden also increases by 1%, local spending barely increases by =0.84%. Δg^f=0.84% and when the tax burden also increases by 1%, local spending increases by only 0.84%. $\Delta g^y = 0.06$%The flypaper effect is therefore close to 1 (FP=0.78). This shows that bureaucrats and representative citizens prefer to vote for a larger public budget from subsidies to finance public goods and services and opt for a smaller share of local taxation, thus allowing for an increase in private consumption (Piffano et al., 1998).

Figure 2. *Estimated parameters of local public spending and lump-sum transfers*

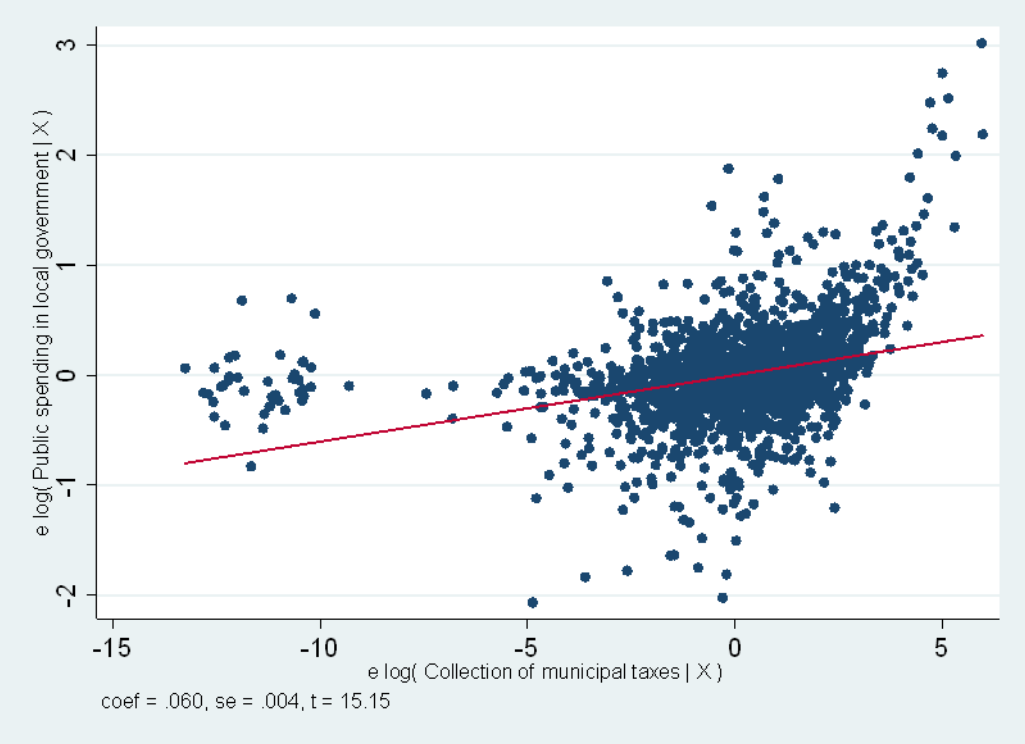


A 1% increase in canon resource transfers expands local spending by 0.10% on average at the national level, while the same percentage increase in tax collection expands public spending by only 0.08%, so the flypaper effect is 0.025% (Figure 2 and Figure 4).

While a 1% increase in foncomun transfers increases local spending by 0.66%, the flypaper effect for this item is 0.62% (Figure 3).

Likewise, the flypaper effect of the foncomun transfers turned out to be greater than that of the canon. This is due to the fact that the canon is a conditional transfer subject to financing or co-financing expenses of public investment projects, for maintenance expenses of public goods generated by investment projects, as well as for pre-investment study expenses. The budget execution of the canon item is subject to public management skills on the part of the governors, because the budget execution of the canon item includes public contracting processes, transforming a S/ 1 of the canon item into S/1 of public goods will depend on the public management skills of the local governors. Local spending is more pronounced as an effect of foncomun transfers because the budget from this source is unconditional, which can finance current and capital expenditures, implies more agile budget execution processes, aimed at municipalities with weak tax bases, remote and depressed rural and marginal urban areas of the country, and with redistributive criteria.

Figure 3. *Estimated parameters of local public spending and tax revenues*



The flypaper effect in municipal categories 2 and 3 turned out to be lower than in category 3, and the flypaper effect for the foncomun item for category 3 was lower than in categories 2 and 3 (table 2). This shows that municipalities with low budget size are more dependent on transfers than on tax revenues for the provision of public goods and services. These results are ratified by citizen participation through the members of the local coordination council, which also had a positive impact on local public spending.

Table 1: *Results of the estimation of the local expenditure model*

Local expenditure (Dependent variable)	Total municipalities	Total municipalities	Category 01 Municipalities	Category 02 Municipalities	Category 03 Municipalities
	(1)	(2)	(3)	(4)	(5)
Transfers of royalties	0.104***		0.261***	0.044**	0.029**
	(14.24)		(13.34)	(3.06)	(2.68)
Foncomun transfers	0.661***		0.390***	0.490***	0.756***
	(40.16)		(13.99)	(12.75)	(18.29)
Municipal revenues	0.079***	0.060***	0.163***	0.088***	0.048***
	(12.79)	(15.15)	(11.20)	(9.56)	(5.83)
Municipal indebtedness	0.030***		0.008**	0.025***	0.049***

	(13.94)		(2.68)	(8.13)	(15.36)
Citizen participation	0.018*	0.026***	0.017	0.035**	0.014
	(1.73)	(3.80)	(1.12)	(2.30)	(0.87)
Management tools	-0.027**	-0.026***	-0.011	-0.027**	-0.027*
	(-2.72)	(-4.07)	(-0.77)	(-2.04)	(-1.72)
Members of the Local Coordinating Council (MCCL)	0.013**	0.016***	0.007	0.031***	0.018*
	(2.61)	(4.70)	(1.32)	(3.47)	(1.84)
Technical capabilities	-0.013*	-0.001	-0.007	-0.000	-0.010
	(-1.70)	(-0.11)	(-0.60)	(-0.03)	(-0.95)
Lump sum transfer		0.839***			
		(94.35)			
_cons	3.806***	1.988***	4.497***	6.903***	3.609***
	(15.41)	(12.97)	(8.00)	(9.92)	(5.85)
N	1874	1874	401	580	893
r2	0.74	0.89	0.73	0.45	0.46
F	679	2477	133	57	96

t statistic in parentheses

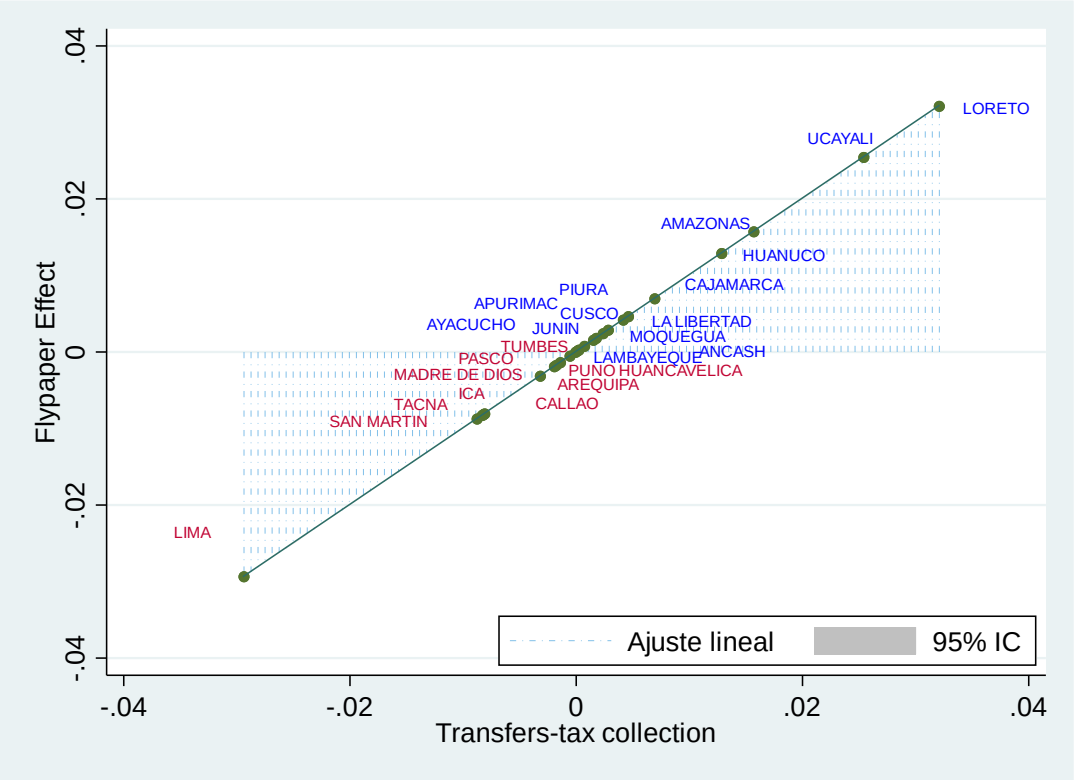
* p<0.10, ** p<0.05 and *** p<0.001

Note: p is the significance level

On the other hand, the lack of technical capacities in results-based budgeting, administrative procedures and management of public investment projects were inversely associated with local public spending by -0.013% on average at the national level and by municipal category. This is due to the fact that many times when bureaucrats begin their term in office, they surround themselves with officials with little experience in public management, in view of the fact that in 2019, the municipalities begin with new governors.

The flypaper effect of municipalities for the departments of Loreto, Ucayali, Amazonas, Huánuco and Cajamarca is higher than the national average. This shows that local governments located above zero save more tax revenues, planning to use these balance balances in subsequent periods, but the savings from transfers are much lower. The provision of public goods and services with transfers is much higher than with the municipality's own revenues in the face of equivalent increases. On the other hand, municipalities in departments such as Lima, San Martin, Ica, Callao and Arequipa have lower local public savings in transfers and tax collection, and therefore are groups of municipalities that provide public goods and services in the same magnitude in the face of equivalent increases in these resources (Figure 4).

Figure 4: *Average flypaper effect of municipalities by department*



Flypaper saving caution

Assuming first that the correlation $\rho = 1$under uncertainty and taking the average of variance $\sigma_y^2 = \sigma_f^2 = 1.5$. The flypaper effect based on fiscal execution balances (precautionary saving), replacing it in equation (5) is:

$$FP\ |_{\sigma_y^2 = \sigma_f^2 = 1.5;\ \rho = 1;\ r = 1.8\%;\ \theta = 0.78;} = 0.336$$

In this case the flypaper effect is 0.336, but it does not explain even the precautionary saving, the flypaper effect when it is different from 1, as is the Peruvian case. ρ is different from 1, as is the Peruvian case, the correlation between transfers and tax precaution is 0.47, hence we can calculate it by replacing in equation (5).

$$FP\ |_{\sigma_y^2 = 1.5;\ \sigma_f^2 = 7.9;\ \rho = 0.47;\ r = 1.8\%;\ \theta = 0.78} = 0.658$$

The average flypaper effect at the national level based on precautionary savings (tax execution balances) is 0.658, which confirms the result of the empirical flypaper effect. As the flypaper effect approaches 1, public savings from tax collection are much higher as opposed to savings from transfers. In this case, the result of the flypaper effect exceeds 50%, thus showing that municipalities first prefer to execute the resources from transfers, while the resources from municipal taxes and Directly Collected Resources prefer to keep them as a reserve (savings), thinking to allocate these resources to the provision of public goods and services in

the following periods. Therefore, local governments prefer to provide public goods and services with transfers rather than with the municipality's own revenues.

To see how much the flypaper effect explains the precautionary savings effect we replace the results in equation (6) as follows:

$$DS = \frac{0.658 - 0.336}{0.839 - 0.06} = 0.41$$

From this result it can be seen that the precautionary flypaper saving effect explains 41% of the empirical flypaper effect for Peruvian municipalities.

Table 2 *Empirical flypaper effect and precautionary savings at the national level and by category of local governments in Peru.*

	Total municipalities	Total municipalities	Category 01 Municipalities	Category 02 Municipalities	Category 03 Municipalities
$FP = \beta_{canon} - \beta_{ingresos}$		0.025	0.098	-0.044	-0.019
$FP = \beta_{fcm} - \beta_{ingresos}$		0.623	0.227	0.402	0.709
Flypaper effect Flypaper effect saving canon precaution		0.118	0.037	-0.050	-0.038
Flypaper effect saving foncomun precaution		0.330	0.073	0.152	0.197
$FP = \beta_{tfr} - \beta_{ingresos}$	0.778				
Flypaper effect saving precaution by total transfer sum (f)	0.658				
Remarks	1874	1829	401	580	893

The flypaper effect with respect to canon and foncomun is 0.025 and 0.623 respectively, the flypaper effect of foncomun was greater than that of canon, as was the empirical flypaper effect. Looking at the results by municipal category, the flypaper effect is much higher in categories 2 and 3, being of medium and low budget size, as these are the municipalities with the highest fiscal dependence on transfers.

DISCUSSION

The results show the presence of the flypaper effect in Peruvian local governments both at the national level and by municipal category for the study period, as a consequence of the increase in lump sum fiscal transfers, as well as canon transfers and foncomun transfers. These results are consistent with previous research, that in the face of an increase in fiscal transfers, public spending increases more than in the face of an equivalent increase in the municipality's own revenue (Acosta & Loza, 2001; Aragon, 2008; Aragon & Gayoso, 2005; Besfamille et al..., 2015; Bracco et al., 2015; Bradford & Oates, 1971; Buchanan, 1952; Deller & Maher, 2006; Mattos et al., 2011; Niskanen, 1968; Rios & Da Silva, 2003; Trujillo, 2008; Winer, 1983). But the flypaper effect is larger in foncomun transfers than that of the canon, the result resembles the study of Sour (2016; Vilca et al., 2020).

This indicates that the specific or conditional transfers are useful to allocate resources to the municipalities, in addition to the foncomun transfers are freely allocable in current and capital expenditures. But this type of transfers makes the municipalities more fiscally dependent on subsidies; what should be sought is long-term budgetary sustainability. In addition this type of transfers does not favor the welfare of the community due to the absence of local oversight (Bruce et al., 2019), the other cause is that it can fall into the problem of fiscal laziness. As indicated by Garcia (2020), bureaucrats prefer to maximize their budget through transfers by not levying taxes.

Likewise, the Peruvian flypaper effect is double that of the municipalities of Canton Vaud in Switzerland 2011-2014, the reason being that municipalities tend to spend the additional revenue transfers where they used to spend relatively more in the past (Köthenbürger & Loumeau, 2016). On the other hand the flypaper effect of Peruvian municipalities would be consistent with the research of Korzhenevych and Langer (2016) and Pevcin (2014). Because their results indicate the presence of the flypaper effect, where transfers induce higher spending but do not reduce taxes.

Local governments in the country prefer to finance public investment with intergovernmental transfers rather than tax revenues. in view of the fact that transfers are freely distorting, while tax revenues require more community control. Moreover this would crowd out private consumption (Niskanen, 1968), moreover co-financing the public good reduces rent seeking through lobbying (Jussila & Mandell, 2019). Rulers prefer to maximize the municipal budget through subsidies than to levy taxes, so as to maximize their own utility, because increasing the tax rate implies political costs, because they are always thinking about future political appointments.

Financing public goods with subsidies is more efficient than financing with private revenues, because they are free-distorting money (Vegh & Vuletin, 2016), moreover financing local spending with local taxes requires more control by the population.

Also, municipal indebtedness had a positive effect on local spending, the increase in transfers falls on the increased indebtedness to finance the increased spending on projects and programs. Because voters do not care how much the municipality is indebted, but they do care about the taxes they pay, therefore voters prefer the municipality to be indebted. (Yas & Atilgan, 2016).

In the same way, making a comparison with the previous study by Vegh and Vuletin (2015), the flypaper effect saving precaution for the Peruvian case is greater than the provinces of Argentina, this shows that the municipalities of Peru are more dependent on subsidies and what does not happen in the municipalities of Argentina. Then, public savings from tax revenues are much higher and savings from transfers are lower than in the provinces of Argentina. What happens in Argentina is the opposite, firstly, municipalities have their budgets made up of more than 50% from tax revenues, secondly, savings from private revenues are much lower than in Peru compared to equivalent increases in private revenues and transfers. Undoubtedly, this must change in the local governments of our country; budgetary sustainability must be sought and not fiscal dependence. In addition, Peruvian municipalities are first concerned with spending subsidies rather than tax revenues, thinking to keep them in reserve and thus use the resources in later periods.

What happens is that bureaucrats, seeing larger budgets coming from transfers, prefer to provide public goods and services with subsidies rather than with tax revenues, and thus the bureaucrat maximizes his utility.

CONCLUSIONS

The flypaper effect was found to be present at the national level and by municipal category based on the expenditure and precautionary savings model. Public spending is higher with an increase in lump-sum subsidies, as well as canon and foncomun contributions, with an equivalent increase in tax revenues.

The results of the flypaper effect of precautionary savings exceed 50% (FP=0.658), which shows that there are greater public savings from tax revenues than from transfers in the municipalities. Therefore, local governments prefer to first execute the resources from transfers, while the resources from municipal taxes and Directly Collected Resources are kept as a reserve (savings), with the intention of using them in later periods. Likewise, the flypaper effect is greater in the municipalities of the departments of Loreto, Ucayali, Amazonas, Huánuco and Cajamarca. Likewise, the flypaper effect is greater in small municipalities, due to the fact that the budgetary base is more dependent on subsidies than on their own revenues.

Therefore, local governments in the country prefer to finance public goods and services with intergovernmental transfers rather than with tax revenues. The rulers prefer to maximize the municipal budget through subsidies rather than taxes, because it is more efficient, they are free distortion money, in

order to maximize their own utility, because providing public goods and services with tax revenues implies increasing tax collection and this implies administrative costs and political costs.

It is recommended that reforms be made to the economic autonomy of local governments; what should be sought is the long-term budgetary sustainability of municipalities, and not fiscal dependence.

BIBLIOGRAPHIC REFERENCES

Acosta, P., & Loza, A. (2001). *Burocracia y federalismo fiscal: Un marco teórico para el análisis del efecto flypaper*. http://www.scielo.org.co/scielo.php?script=sci_nlinks&ref=000144&pid=S0120-35922008000100014000003&lng=en

Aguilar, G., & Morales, R. (2005). *Las Transferencias Intergubernamentales, El Esfuerzo Fiscal y el Nivel de Actividad* (N.º 144; 42). http://www.iep.org.pe

Alvarado, B., Rivera, B., Porras, J., & Vigil, A. (2003). *Transferencias Intergubernamentales En Las Finanzas Municipales Del Peru* (N.º 1). http://repositorio.up.edu.pe/handle/11354/266

Aragon, F. (2008). *The Flypaper Effect Revisited* (Número November 2008, pp. 1-14). STICERD, London School of Economics. https://www.researchgate.net/publication/228163316_The_Flypaper_Effect_Revisited

Aragon, F., & Gayoso, V. (2005). *Intergovernmental transfers and fiscal effort in Peruvian local governments*. http://mpra.ub.uni-muenchen.de/2108/

Besfamille, M., Grosman, N., & Sanguinetti, P. (2015). *The flypaper effect is not a puzzle* (N.º 464). https://economia.uc.cl/publicacion/the-flypaper-effect-is-not-a-puzzle/

Bojórquez, A. L. (2011). *Instituciones y Autonomía Municipal en México : Incentivos Institucionales para la Autonomía Fiscal de los Municipios de Yucatán* [Universidad Complutense de Madrid]. https://eprints.ucm.es/12069/1/T32671.pdf

Bracco, E., Lockwood, B., Porcelli, F., & Redoano, M. (2015). Intergovernmental grants as signals and the alignment effect: Theory and evidence. *Journal of Public Economics*, *123*(2015), 78-91. https://doi.org/10.1016/j.jpubeco.2014.11.007

Bradford, D. F., & Oates, W. (1971). Towards a Predictive Theory of Intergovernmental Grants. *The American Economic Review*, *61*(2), 440-448. https://www.jstor.org/stable/1817026

Bravo, J. (2012). *Essays on Effects of Intergovernmental Transfers* [Pontificia Universidad Católica de Chile]. http://economia.uc.cl/wp-content/uploads/2015/01/tesis-docto-bravo1.pdf

Bruce, D. J., Carruthers, C. K., Harris, M. C., Murray, M. N., & Park, J. (2019). Do in-kind grants stick? The department of defense 1033 program and local government spending. *Journal of Urban Economics*, *112*(May), 111-121. https://doi.org/10.1016/j.jue.2019.05.007

Buchanan, J. M. (1952). Federal Grants and Resource Allocation. *The Journal of Political Economy*, *60*(3), 208-217.

Chiades, P., Greco, L., Mengotto, V., Moretti, L., & Valbonesi, P. (2019). Fiscal consolidation by intergovernmental transfers cuts? The unpleasant effect on expenditure arrears. *Economic Modelling*, *77*, 266-275. https://doi.org/10.1016/j.econmod.2018.09.008

Dahlby, B., & Ferede, E. (2016). The stimulative effects of intergovernmental grants and the marginal cost of public funds. *International Tax and Public Finance*, *23*(1), 114-139. https://doi.org/10.1007/s10797-015-9352-5

Deller, S. C., & Maher, C. S. (2006). A model of asymmetries in the flypaper effect. *Publius*, *36*(2), 213-229. https://doi.org/10.1093/publius/pjj005

Dougan, W., & Kenyon, D. (1988). Pressure Groups and Public Expenditure: The Flypaper Effect Reconsidered. *Economic Inquiry*, *26*(1), 159-170. https://doi.org/10.1111/j.1465-7295.1988.tb01676.x

Epstein, G. S., & Gang, I. N. (2019). Taxation and social protection under governance decentralisation. *European Journal of Political Economy*, *60*, 101743. https://doi.org/10.1016/j.ejpoleco.2018.08.007

Garcia, E. B. (2020). Incidencia de la asignación de transferencias en la recaudación fiscal local en los municipios del Perú. *Revista de Investigaciones de la Escuela de Posgrado*, *9*(2), 1503-1517. https://doi.org/http://dx.doi.org/10.26788/riepg.2020.2.167

Jussila, J., & Mandell, S. (2019). Economics of Transportation Local government co- fi nancing of the central government ' s transport infrastructure investment. *Economics of Transportation*, *18*, 40-49. https://doi.org/10.1016/j.ecotra.2019.03.001

Korzhenevych, A., & Langer, S. (2016). *The Flypaper Effect in Germany: An East-West Comparison* (10/16). http://www.qucosa.de/fileadmin/data/qucosa/documents/21362/CEPIE_WP_10_16-1.pdf

Köthenbürger, M., & Loumeau, G. (2016). *The Flypaper Effect in Municipal Finance: A Regression Kink Design*. KOF Konjunkturforschungsstelle / KOF Swiss Economic Institute. https://lagv-2016.sciencesconf.org/file/198954

Masaki, T. (2018). The impact of intergovernmental transfers on local revenue generation in Sub-Saharan Africa: Evidence from Tanzania. *World Development*, *106*, 173-186. https://doi.org/10.1016/j.worlddev.2018.01.026

Mattos, E., Rocha, F., & Arvate, P. (2011). Flypaper effect revisited: evidence for tax collection efficiency in Brazilian municipalities. *Estudos Econômicos (São Paulo)*, *41*(2), 239-267. https://doi.org/10.1590/S0101-41612011000200002

Nilsson, H. L. (2009). *How Local are Local Govern- ments ? Heterogeneous Effects of Intergovernmental Grants* (2009:15).

Niskanen, W. A. (1968). American Economic Association. *The American Economic Review*, *58*(2), 293-

305. http://www.jstor.org/stable/1831817

Pevcin, P. (2014). Expenditure Effects of Intergovernmental Transfers – the Case of Slovenia. *Central European Public Administration Review*, *9*(4), 31-46. https://doi.org/10.17573/cepar.v9i4.190

Piffano, H. L. P., Sanguinetti, J., & Zentner, A. (1998). *Las finanzas provinciales y el ciclo economico*. Foro de Instituciones Fiscales, Centro de Estudios para el Desarrollo Institucional. https://www.yumpu.com/es/document/read/19259301/federalismo-fiscal-en-argentina-ideas-y-propuestas-sobre-el-

Porto, A. (2002). *Microeconomía y Federalismo Fiscal Microeconomía y Federalismo Fiscal*. Universidad Nacional de La Plata. https://www.researchgate.net/publication/286871449

Quigley, J. M., & Smolensky, E. (1992). Conflicts among Levels of Government in a Federal System. *Journal Public Finance*, *47*(1), 202-215. https://escholarship.org/uc/item/8dh839wq#author

Rios, M. E., & Da Silva, J. (2003). O Efeito Flypaper nas Transferências para os Municípios Portugueses. *Revista Portuguesa de Estudos ais*, *8*, 85. https://dialnet.unirioja.es/servlet/articulo?codigo=4611214

Romo, M. R., Chauca, P. M., & Gómez, R. (2010). Las Transferencias Condicionadas y el Efecto de Pereza Fiscal: El Caso del Gobierno Municipal de Morelia, Michoacán, México. *Revista de Investigación en Ciencias y Administración*, *5*(9), 37-67. http://www.inceptum.umich.mx/index.php/inceptum/article/view/101/0

Sánchez, L. (2016). Transferencias gubernamentales e inversión en capital en municipios peruanos: el caso de las rentas por recursos naturales. *Semestre Económico*, *19*(41), 55-86. https://doi.org/10.22395/seec.v19n41a3

Sanguinetti, P. (2010). *Canon Minero y Decisiones Fiscales Subnacionales en el Perú* (2010/01). https://www.caf.com/media/3180/201001SanguinettiFebrero2010.pdf

Sour, L. (2016). Una revisión del "efecto flypaper" mexicano (1990-2012). *Revista Mexicana de Análisis Político y Administración Pública*, *5*(2), 9-28. https://dialnet.unirioja.es/servlet/articulo?codigo=5858942

Tiebout, C. M. (1956). A Pure Theory of Local Expenditures. *Journal of Political Economy*, *64*(5), 416-424. http://www.jstor.org/stable/1826343

Trujillo, L. P. (2008). Transferencias intergubernamentales y gasto local: Repensando la descentralización fiscal desde una revisión de la literatura. *Gestión y Política Pública*, *17*(2), 451-486. http://www.scielo.org.mx/pdf/gpp/v17n2/v17n2a6.pdf

Urrunaga, R., Hiraoka, T., & Risso, A. (2001). *Fundamentos de Economía Pública* (1.ª ed.). Universidad del Pacifico. file:///C:/Users/andre/Downloads/UrrunagaRoberto2014.pdf

Vegh, C. A., & Vuletin, G. (2015). Unsticking the flypaper effect in an uncertain world. *Journal of Public Economics*, *131*, 142-155. https://doi.org/10.1016/j.jpubeco.2015.09.001

Vegh, C. A., & Vuletin, G. (2016). *Unsticking the Flypaper Effect Using Distortionary Taxation* (N.º

22304). https://doi.org/10.3386/w22304

Vilca, A., Calancho, E., & García, E. B. (2020). Gasto público y el efecto flypaper en los gobiernos locales de la región de PUNO. *SEMESTRE ECONÓMICO*, *9*(1), 60-82. https://doi.org/10.26867/seconomico.v9i1.405

Winer, S. L. (1983). Some Evidence on the Effect of the Separation of Spending and Taxing Decisions. *Journal of Political Economy*, *91*(1), 126-140. http://www.jstor.org/stable/1840433

Yas, H., & Atilgan, E. (2016). Do Intergovernmental Financial Transfers Have an Effect Upon Municipal Borrowing ? Subsequent Effect of Flypaper Theory in Municipalities in Turkey. *International Journal of Management and Applied Science*, *2*, 23-27. https://www.researchgate.net/publication/306092217