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STICKINESS OF LOCAL GOVERNMENT TRANSFER REVENUES IN SLOVENIA

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The problem of unequal response of local government expenditures on equal increase in local community income and lump-sum transfers has been observed in many empirical studies on cross-sectional variation in intergovernmental transfers to different local governments. This notion has been termed as the fly-paper theory of incidence, as money should stick where it hits. Nonetheless, the empirical evidence presented in this study suggests that the fly-paper effect could not be validated for intergovernmental transfer revenues of Slovenian municipalities. Potential explanation could be derived from the agenda control model of the fly-paper theory.

Keywords: Fly-Paper theory of incidence, Local authorities, Municipal transfer revenues.

Introduction

Decentralization is a contemporary concept of how to change the administration's operations in order to achieve greater efficiency. However, it should also be acknowledged that decentralisation has also certain negative effects. For instance, predominantly empirical literature interested in revenue sharing among different levels of government stresses potential weakness of decentralised administration in the form of the so-called "flypaper effect" (Brennan and Pincus, 1996), which refers to the fact that transfer payments to the local authorities have a greater effect on the scope of local finances than the equivalent increase in private production.[1]

This means that fly-paper effect actually contradicts traditional theory of grants-in-aid of exhaustive governmental expenditures (see Bradford and Oates, 1971; Bailey, 1999), which is based on median voter theorem of public choice. Namely, this theorem states that intergovernmental transfers and voter income should have identical effects on local government expenditure (Wyckoff, 1988). Nevertheless, empirical research has shown that local authorities tend to spend those transfers rather to pass such transfers to local residents in the form of tax cuts. In essence, this means that transfer money "sticks where it hits". Interestingly, Inman (2008) has regarded the fly-paper effect as puzzle or anomaly, since money tends to be fungible, therefore the revenue source should not affect the optimal allocation of resources.

[1] More on this see Strumpf (1998).

Fly-Paper Effect in Theoretical and Empirical Literature

Several possible theoretical explanations emerged in order to explain the fly-paper effect. For instance, Wyckoff (1985) has produced several potential data explanations of the effect, such as misinformation, improper classification of governmental aid programmes (causing simultaneous equation bias in which expenditures affect aid and vice versa), endogeneity of both grants and local expenditures variables in the empirical models, lower implicit expenditure effects of income (serves both as a pool of resources for consumption as well as a surrogate for certain unobserved factors in the production of public goods, which ultimately causes that fewer resources are needed to achieve a given level of achievement), persistence of agenda control (local spending is determined with exogenous reversion levels – if reversion levels are very large, income will have no effect on expenditures) etc. Yet, he has argued that the effect should be the consequence of all those factors, therefore single aspect approach to the problem should be rather limited.

Similarly, Inman (2008) has focused the explanation of the effect to four possible options. First possible explanation focuses on the data and states that intergovernmental transfers are miss-measured, since matching grants tend to be equalised with lump-sum aid.[2] Namely, the former has a price effect as it lowers the marginal price of public services, whereas the latter has only an income effect.[3] Second possible explanation sees the phenomenon basically as the consequence of econometric problem. Namely, the fly-paper effect should be the consequence of misspecifications of the technology and costs of providing services in the local level, which should occur due to the failure to correctly validate the possibility of citizen exit from high tax jurisdictions.[4] Third possible explanation focuses on the possibility of misspecification of citizen fiscal choices, as citizens may not understand the complexity of grant programmes. Finally, the last possible explanation sees the phenomenon as a consequence of politics. This explanation actually complements voter ignorance hypothesis in a sense that voters perceive aid's budgetary effects, yet they allocate public and private money through separate »mental accounts«; public budget is taken as the responsibility of government and private budget as individual responsibility. Consequently, fly-paper effect exists as a consequence of incentives of elected politicians and is thus influenced by political system.[5]

It is worth noting that fly-paper effect has been extensively addressed in the empirical literature. Namely, the problem of unequal response of local government expenditures on equal increase in local community income and lump-sum transfers has been observed in many

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[2] In other words, fly-paper effect may be observed when matching grants are mistaken with lump-sum transfers, as matching grants tend to have larger expenditure effects than lump-sum transfers. This indicates that caution should be taken when interpreting fly-paper effect. More on the possible grant misspecification see Bailey (1999).

[3] Nevertheless, several authors have argued that fly-paper effect still remains, even if matching grants and aid programmes are correctly classified (see Wyckoff, 1991).

[4] More on this see also Worthington and Dollery (1999).

[5] More on this see Hines and Thaler (1995). Consequently, this explanation stresses that fly-paper is not anomaly but rather reality of fiscal policies, as the equivalence between transfers and increases in local income should be rather exceptional (Roemer and Silvestre, 2002). In fact, as Rodden (2006) has argued in his revision of Hamilton's paradox, a negative effect of decentralised government finance is associated with the moral hazard problem, which is even inflated if sub-national governments are funded primarily through revenue-sharing and grants. In this case centre dominates the power to tax and takes on heavy obligations on funding of sub-national governments, which causes that officials of sub-national governments face weak incentives for fiscal discipline.

empirical studies on cross-sectional variation in intergovernmental transfers, although the majority of studies tend to focus on industrialised countries (Acosta, 2010). Nonetheless, two additional points have to be made regarding the research on the fly-paper effect. First, Becker (1996) has even argued that fly-paper effect is actually a statistical artefact, since inappropriate functional form of estimation may generate the illusion of fly-paper effect presence. Moreover, Gamkhar and Shah (2007) have added some other econometric issues causing the problems associated with the possible overestimation of the fly-paper effect (i.e., generation of the illusion that fly-paper effect actually exists), which include possible endogeneity of grant variables, ratchet effect in the expenditure changes or discrepancy between the short-run and the long-run effect of transfers on local spending (e.g., displacement effects etc.). Second, some studies were not able to confirm the validity of the effect (see, e.g., Worthington and Dollery, 1999; Knight, 2002).

The Analysis of Stickiness of Intergovernmental Transfers in Slovenia

The purpose of this study is to examine the "stickiness" (i.e., the magnitude of expenditure effects) of intergovernmental transfers and to test possible existence of fly-paper effect for a cross-section of 210 Slovenian municipalities in 2009 and 2010 fiscal years, which means that pooled data regression analysis will be utilised.[6] Regression analysis uses per capita municipal total expenditures as dependent variable (LEXP). Explanatory variables used in the analysis are per capita municipal transfer revenues received from central government budget (LTRANSFERS), per capita income (LINCOME)[7], which relates to idea that available income should be the other important prerequisite for municipal spending, consequently making the possibility to test the existence of fly-paper effect. All those variables are expressed in log terms in order to reveal magnitudes of income and grant elasticity, i.e. relative effects of income and transfers on municipal spending.

Besides, some other additional control variables are used in the analysis such as expenditures needs (LNEEDS)[8], total municipal population (POP),municipal population per squared kilometre of territory (DENS), proportion of population unemployed (UNEMP), proportion of population older than 65 years (65+) and proportion of population younger than 15

[6] It needs to be stressed that pooled data for only two fiscal years are used in the analysis. There are several reasons for using only those data: (1) there are problems with achieving consistent time series data for Slovenian municipalities, given the fact that their number has risen constantly and substantially in last 17 years, predominantly with devolutions of existing municipalities (in 2009 and 2010 the number of municipalities was stable); (2) given the previous observation, substantial changes in the legislation on municipal finances happened in last few years (the last modification appeared in 2008 and became valid for 2009 fiscal year), contributing to the fact that data comparison between different fiscal years could be problematic.

[7] Average yearly gross salary per employed person in i-th municipality is used as proxy for describing per capita income, since those data are available also at municipal level. Source of data for this variable is Statistical Office the Republic of Slovenia (2011).

[8] Basically, the expenditures on administrative operation, public utilities and education are used as a proxy for describing the core functions of the municipalities, and they are all expressed in per capita terms. The expenditures for local public utilities, education and administrative operation are the most important expenditures of municipalities in Slovenia, since the provision of those services and functions is particularly in the municipal domain. Source of data for this variable is Ministry of Finance (2011).

years (-15).[9] These control variables are integrated into the model, since the majority of them tend to be rather standard in the empirical literature on fly-paper effects (for instance, see Worthington and Dollery, 1999; Acosta, 2010 etc.). The results of the empirical analysis are presented in table below.

Table 1. Stickiness of intergovernmental transfer revenues – estimates[10].

DEP. / EXPL.	LTRANSFERS
LINCOME	0.1205 (0.0812)
LTRANSFERS	0.0684 (0.0156)
LNEEDS	0.6779 (0.0391)
POP	-0.0004 (0.0005)
DENS	0.0003 (0.0001)
UNEMP	-0.0002 (0.0060)
65+	0.0089 (0.0050)
-15	-0.0099 (0.0076)
CONSTANT	1.0461 (0.8671)
N	420
$R^2_{adj.}$	0.742
SEE	0.168
Durbin-Watson	1.917
F-stat.	151.87

These estimates obviously indicate that the existence of the fly-paper effect could not be confirmed. Evidently, if transfer revenues from central budget are taken into account, the results suggest that fly-paper effect could not be revealed, as income elasticity is approximately 0.12, whereas grant elasticity is approximately 0.07. This means that the magnitude of grant elasticity is lower compared to income elasticity. Interestingly, the magnitude of income elasticity is in the range predicted from the evidence in the literature, yet the impact of transfers is substantially lower.[11]

This actually suggests that anti fly-paper effect could be observed, as income generates larger expenditure effects than grants. Potential explanation for this phenomenon, maybe relevant in the context of local government expenditure determination, could be delivered from agenda control model initially developed by Filimon, Romer and Rosenthal (1982). Namely, this model predicts that local spending is determined with exogenous reversion level. In this case, if additional local spending is not approved, expenditure is set to a reversion level, usually mandated by the state. If reversion is less than or near the median voter's preferred level, anti-flypaper effect can occur (see also Wyckoff, 1985).

Since the municipal spending in Slovenia is mandated by the state (the so-called appropriate expenditures calculation) the foundations of agenda control model could be experienced. Namely, the Act on Local Finances (1998) introduced a system of appropriate expenditure in order to allow municipalities to carry out their constitutional and legal responsibilities. According to this system, last amended in 2007 fiscal year (Act on Local Finances ZFO-1,

[9] Source of data for these variables, except for the variable LNEEDS, is Statistical Office of the Republic of Slovenia (2011). As already mentioned, the source of data for variable LNEEDS, as well as for variables LEXP and LTRANSFERS, is Ministry of Finance (2011).

[10] Standard errors presented in parentheses are White cross-section standard errors and covariances (d.f. corrected).

[11] For instance, Case et.al. (1993) have pointed out that income elasticity should be in the range between 0.05 and 0.10, while the impact of transfers should be above 0.40. Similar impact of transfers has also been proposed by Gramlich and Galper (1973).

2006)[12], appropriate expenditure is calculated on the basis of a special equation, which includes correctional factors for diversity in municipalities for the purpose of achieving the equalisations (in comparison to national average), such as the spatial size of municipality, number of residents, number of residents aged below 15 and above 65 and the length of local roads. Therefore, municipal spending is more or less exogenously determined and, following, the existing median voter's preference map may actually lead to the anti-flypaper effect observed.

Concluding Reflections

The purpose of the paper is related to the investigation of stickiness of transfer revenues received from central government by Slovenian municipalities. Empirical findings presented in the paper indicate that the estimated magnitude of expenditure effect of intergovernmental transfers is substantially lower compared to results presented in some other international empirical studies. In fact, the elasticity of income with respect to expenditures is greater than the elasticity of transfers received. This means that the anti-flypaper effect can be observed, consequently favouring the agenda control model explanation of the fly-paper effect in the case of Slovenian municipal financing system.

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[12] Basically, the model of calculation of i-th municipality appropriate expenditure has been amended in the sense that weights of correctional factors have been changed and the average municipal costs per capita needed for financing of their tasks has been introduced as a basis for appropriate expenditure calculation. See the law for the exact formula.

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