Fly-Paper Effect in Slovenian Municipal Finances

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The study investigates the existence of fly-paper effect in municipal financing in Slovenia. Namely, one of the drawbacks associated with decentralisation is that local authorities' own-source revenues may not be sufficient to finance the provision of goods and services, which gives a rationale for central government to pay transfers to the lower levels of government. It is the most common example of intergovernmental transfers, called financial equalisation. Nevertheless, one of potentially negative effects of financial equalisation is the so-called fly-paper effect, as the empirical findings have shown that lump-sum transfers of central government tend to have greater stimulatory effect on local government spending than the equivalent increase in the income of the median voter. In essence, this means that transfer money »sticks where it hits«. The results of an analysis performed for Slovenian municipalities tend to support the existence of the effect in municipal financing.

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1. Introduction

(Fiscal) decentralization is a contemporary concept of administrative reform, which in practice denotes a process of transferring resources and administrative powers to the lower levels of government, the anticipated effect being the increase in efficiency of goods and services provision. However, it should be acknowledged that issues related to the appropriate creation of local jurisdictions and their financing system are also very important in achieving efficiency gains related to decentralisation. Namely, decentralization also has certain potentially negative effects, one of them being associated with inappropriate financing system causing fly-paper effect. Fly-paper effect denotes a phenomenon of intergovernmental transfers, in particular from central to lower levels of government, inflating local government expenditures. In this context, the purpose of the paper is to assess the problems associated with decentralisation and the formation of local authorities. Further, the main goal of the paper is to empirically investigate the existence of fly-paper effect, one of the negative impacts of decentralisation associated with the presence of intergovernmental transfers, in the financing system of Slovenian municipalities, given the fact that intergovernmental transfers tended to play a very important role in financing. The paper is organised as follows: Chapter 2 describes the economic, political and fiscal effects of decentralised administration, Chapter 3 outlines the perspectives on local authority formation, and Chapter 4 discusses the financing of local authorities in the context of fly-paper effect. Chapter 5 briefly describes the system of municipal organisation and financing in Slovenia, whereas Chapter 6 presents the methodology and findings of empirical research on the existence of fly-paper effect in municipal financing, followed by brief concluding reflections and the list of references.

2. Economic, Political and Fiscal Effects of Decentralisation

Decentralization is a contemporary concept of how to change the operations of public administration in order to achieve greater efficiency. The process of decentralisation is in practice also related to certain socioeconomic factors, such as to the country's size and its economic development, cultural and ethnic diversity of society, the level of democracy, etc. (more in Panizza, 1997). Historically, countries have had widely different experiences with the introduction of the decentralisation concept.[1] In short, the anticipated effects of decentralization primarily include greater efficiency in providing services, greater political stability, and a stronger political role for marginalised social groups. However, there are also certain limitations that hinder the implementation of decentralisation in practice, usually the main obstacle being human factor (van der Walle, 2002). Namely, elected politicians and officials often dread decentralisation because of the potential danger of losing their decision-making powers; and wealthier classes are afraid of income redistribution and higher taxes, which are frequently associated with decentralisation.

Nevertheless, the literature portrays numerous advantages that decentralisation should foster and that can be generally described as achieving greater allocative efficiency. For instance, according to Oates' decentralisation theorem, decentralisation and the related establishment of local authorities should contribute to greater prosperity, as it (Pareto efficiently) decreases the deadweight loss of the consumer surplus (Bailey, 1999). The reason for greater efficiency also lies in the better knowledge and subsequent greater ability to fulfil diverse preferences. Moreover, the so-called "geographical proximity effect" states that the level of information on production costs of public goods and services is higher at the local level, and at the same time, the variance of marginal costs of public goods and services has a negative correlation with the size of local authorities (Gilbert and Picard, 1996), which should result in greater efficiency of decentralised administration. Finally, decentralisation should have a positive effect on the voters' political participation (Borck, 2002). The reason for this lies in the fact that at the local level, individual voters have greater influence on the outcome of the political decision-making because their votes carry relatively more weight. Consequently, greater political participation implicitly results in greater political accountability of the local authorities as well, because decentralisation increases the voters' control over the politicians and thus limits their political power and arbitrariness (more in Seabright, 1996). Besides, voters can evaluate the relative performance of policies in different regions or communities, which means

[1] For instance, strong administrative centralisation is typical of undeveloped countries, to a great extent owing to the past socioeconomic relations and development levels.

that voters can effectively reduce political rents by using retrospective voting strategies (Wrede, 2001).

It should also be acknowledged that decentralisation has certain negative effects, which can be generally described as greater technical inefficiency of decentralised administration. For instance, the main drawback of decentralised administration lies in the potentially lost economies of scale (Bailey, 1999). In centralised administration, economies of scale are supposed to be created due to the possibility of production specialisation, as well as lower administrative costs.[2] Besides, the problem of the spill over effects and their internalisation arises in decentralised administration, which is typical for goods with important spatial externalities (e.g., health care and tertiary education). Local authorities are often unable to perceive the positive effects, meaning that they do not take them into account when making decisions (Gilbert and Picard, 1996). Moreover, given the idea that decentralisation should have a positive effect on the voters' political participation, it would therefore also have a negative effect on public finances. The size of the electoral base has a negative correlation with voters' participation at the elections, in which one must not overlook the fact that voting participation is a normal good[3] (Borck, 2002). In practice, this means that in a centralised system the participation of voters is smaller, and the ones voting are usually wealthier; implicitly, this suggests less of the desired redistribution and thus a smaller scope of public finance in a centralised administrative system. Finally, empirical literature stresses further potential weakness of decentralised administration in the form of 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 (more in Strumpf, 1998).

To summarise, there are two main approaches on the effects of decentralisation (Briem, 1998). The first is public choice approach based on Tiebout (1956) theory. This theory is based on the premise of »voting with feet«, meaning that voters select local jurisdiction, where their individual preferences in tax and service mix are best met. This should induce competition among local jurisdictions for taxpayers and finally result in more efficient provision of public services. In contrast, the competing theory

2 The economies of scale are particularly relevant for infrastructure intensive activities, such as for example water and sewerage (Fox and Gurley, 2006).

3 This means that the demand for voting participation increases with the voter's income.

stresses that excess fragmentation of government leads to inefficiencies in the provision of local public services, such as various duplications, problems in achieving economies of scale etc. In short, these competing views can be put in the context of Oates (1972), who states that the trade-off of decentralised government structure is between lost economies of scale and problems with internalisation of externalities and spill-over effects on the one hand, and better matching of services levels to preferences on the other.[4]

As already noted, decentralisation should also affect government spending. Basically, the effect of decentralization on the scope of public expenditures depends on whether the allocation efficiency exceeds the technological inefficiency. There are several main hypotheses in the literature with regard to the relation between political decentralization and the scope of public expenditure (de Mello, 1999). First, Wallis' hypothesis stresses that decentralisation increases the amount of expenditures of local authorities, since the emphasis on the local provision of goods and services increases the demand for public goods provided by the local authorities because the latter have a better knowledge of the local preferences.[5] Second, Brennan and Buchanan's decentralisation hypothesis states that greater decision-making autonomy is associated with greater autonomy of fixing tax bases and rates but, in imposing taxes, local authorities are limited by the mobility of production factors. In practice, this means that the local authorities' competition for mobile taxpayers and other economic resources limits the power of these authorities and encourages a more cost-efficient provision of public goods.[6]

Third, contrary to decentralisation hypothesis, Brennan and Buchanan's collusion hypothesis states that decentralisation encourages the "conspiracy" of the local authorities and increases their expenditures, if decentralisation does not support competition between local authorities. In this case, local authorities seek to finance local expenditures through a larger share of public expenditures of the central authorities, which ena-

4 In particular, Besley and Coate (2003) argue that centralised structure of government is preferred when the public good preferences of the median voter are similar across local jurisdictions and spill-over effects are large. Specifically, Konishi (2009) contemplates that centralisation is more viable if the efficiency gain from internalisation of cross-jurisdictional spill-overs outweighs the losses from uniform policy-making.

5 Hypothesis also envisages that the increased public expenditures of local communities result in a simultaneous decrease in expenditure of the central authorities.

6 This notion is based on Tiebout (1956) theory, based on the premise of »voting with feet«, which should ultimately result in smaller overall size of government.

bles them to increase local revenues and expenditures beyond the limits achievable in a competitive environment. This hypothesis is also related to the fiscal illusion hypothesis, which portrays the negative effects of revenue sharing; if the financing of local authorities focuses on the revenue sharing, local authorities will probably tend to use their own funds to a lesser extent and increase the use of national funds.[7] The reason for this lies in the fact that the financing costs can be distributed nationally, whereas the benefits are allocated to a specific local community, which also brings additional political points to the local authorities. In this case, the dependence of local authorities on the transfer expenditures allocated by the central government causes the local authorities to inflate their expenditures because they are afraid of losing these funds. In other words, in this particular case, decentralisation itself creates a flypaper effect.

3. Decentralisation and Local Authority Formation

The previous chapter has demonstrated that decentralisation has both positive and negative effects. In general, one could claim that, despite everything, decentralisation is useful, but an optimal scope of decentralisation must be found in practice. This means that both excessive centralisation and decentralisation should be avoided. In reality, the optimal scope of decentralization depends on two elements – that is, the scope of uncertainty about the costs of public goods and the scope of uncertainty about the spill-over effects (the positive spatial externalities) of public goods (Gilbert and Picard, 1996). Moreover, the authors argue that the greater the accuracy of information on the positive externalities, the more desirable should be decentralisation in practice. Inversely, the greater the accuracy of the information on costs, the more desired should be centralization in practice. They explain the relation above completely intuitively: the more accurate the information on the costs of public goods and services, the smaller is the producers' information rent; that is why it is optimal to place greater emphasis on the internalisation of positive externalities, which can only be achieved through greater centralisation.[8]

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[7] This kind of »grant« provided by the state budget has a rather negative incentive effect on the local authorities securing their own funds.

[8] If the effects of positive externalities are less uncertain, it makes sense to place greater emphasis on the reduction of information rent, which can be achieved more easily through decentralisation. In addition, Gilbert and Picard (1996) also provide the example of

Moreover, the issue of optimal decentralisation is also related to local authority formation. Public economics theory can be useful in providing the framework for determining the optimal size of local units, although we should be aware that economic recommendations are based on modelling, which is again based on a number of limitations. Nevertheless, the main idea of the theory is to induce policy making by revealing and describing the factors that affect the optimal size of local jurisdictions. In particular, the existing economic literature on country formation and break-up is particularly relevant for formation and dissolution of local jurisdictions, especially the so-called marginalist models, which state that marginal adjustments in the borders of jurisdictions are based predominantly on economic factors (Drazen, 2000).

A specific question in local government economic theory is what determines the number of local jurisdictions. In this context, Alesina, Baqir and Hoxby (2004) argue that the number of local jurisdictions in positively related to both social and economic heterogeneity of society, meaning that citizens are obviously willing to sacrifice economies of scale to avoid heterogeneity in their local jurisdictions. Nevertheless, Baqir (2002) points out that the greater the number of local jurisdictions the larger the size of government, meaning that each additional unit of local government causes rise in overspending bias. Namely, as Holzer et al. (2009) describe, there is a non-linear relationship between the number (size) of local jurisdictions and their performance, since too large local units experience diseconomies of scale and too small units are not able to achieve economies of scale.[9] In particular, economies of scale are persistent in capital-intensive services of local jurisdictions, those being, for example, water provision and rural road maintenance, meaning that larger local government units can provide them more efficiently. In contrast, smaller local government units deliver labour-intensive services more efficiently (for example, police and fire protection, refuse collection, public educa-

educational system as a special form of (local) public good with significant positive externalities. They argue that in practice, centralisation of administration, especially the jurisdiction over capital expenditures, frequently increases from lower to higher levels of education as the higher levels of education have larger positive (spatial) externalities at the national level.

[9] They point out that the most efficient size of local units is in the range of population from 25 thousand to 250 thousand.

tion etc.), since those services do not exhibit significant economies of scale.[10]

Nonetheless, the issue of financial vulnerability of smaller municipalities, particularly in economically disadvantaged areas, should also be taken into consideration, given that generally the size of municipalities is relatively small in the majority of countries, and below the previously described optimal levels. This means that the costs of those municipalities are higher in per capita terms, thereby creating basis for grant allocation. These issues are thoroughly discussed in the following chapters.

4. The Economic Characteristics of Intergovernmental Transfers and Fly-paper Effect

As already noted, one of the drawbacks of decentralisation is the possible existence of fly-paper effect. Namely, local authorities' own resources may not be sufficient to finance the provision of the services that certain authority is obliged to deliver. This provides a rationale for central government to pay transfers to the lower levels of government in order to prevent either too low levels of service provision at the local level, or to prevent local taxes from becoming too high. In general, central government transfers usually want to compensate for relatively high expenditure needs that are associated with relatively low taxable resources per capita, the purpose being to prevent fiscal stress. In this case, the most common example of transfers is associated with the concept of financial equalisation (Bailey, 1999).

Both economic and social rationale exist for introduction of financial equalisation, such as a relatively small size of local communities in many countries, which causes tax exporting and consequently, allocative inefficiencies, limited scope for user-charging due to the potentially negative social impacts and high collection costs, not to mention the directives of the European Charter of Local Self-Government (1985), which in Article 9 supports the institution of financial equalisation that ought to correct

[10] It should be noted that the literature points out that, on average, over 80 per cent of local jurisdiction services are of labour-intensive and routine nature (Katsuyama, 2003). Accordingly, the author stresses that allocative issues, such as management of resources, are more important than technical efficiencies, such as economies of scale.

the effects of unequal distribution of potential financial sources and burdens of local authorities. In theory, there are two distinct forms of financial equalisation: equalisation of local taxable resources per capita and equalisation of local expenditure needs per capita. The former perceives that uneven distribution of economic activities causes variations in the ability to collect local taxes, whereas the latter perceives that variations exist in the spending needs per capita due to the socioeconomic, demographic, geographic and other differences between local communities.[11]

Nevertheless, one of the potentially negative effects of financial equalisation is the so-called fly-paper effect, since the empirical findings have shown that lump-sum transfers of central government tend to have greater stimulatory effect on local government spending than the equivalent increase in the income of the median voter.[12] 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 than to pass them to local residents in the form of tax cuts. In essence, this means that transfer money sticks where it hits, and four possible explanations for this phenomenon have been provided in the literature (Inman, 2008). The 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. Namely, the former has a price effect as it lowers the marginal price of public services, whereas the latter has an income effect.[13] The second possible explanation sees the phenomenon basically as a consequence of econometric problem. Namely, the fly-paper effect should be the consequence of miss-specifications of the technology and costs of providing services at the local level, which should occur due to the failure to correct-

[11] In practice, the majority of European countries that have introduced financial equalisation plans equalise taxable resources per capita. Only few have adopted the so-called Robin Hood approach, which refers to transferring the resources from relatively rich to relatively poor communities. This system tends to better preserve local autonomy, but it causes disincentive effects on tax base maximisation and tax collection efforts (more in Bailey, 1999).

[12] This label was delivered by Okun (Hines and Thaler, 1995).

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

ly validate the possibility of citizens' exit from high tax jurisdictions. The third possible explanation focuses on the possibility of miss-specification of citizens' fiscal choices, as citizens may not understand the complexity of grant programmes. Finally, the last possible explanation, and perhaps the most promising, sees the phenomenon as a consequence of politics. This explanation actually complements voter ignorance hypothesis in a sense that voters perceive budgetary effects of aids and grants, 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, the fly-paper effect exists as a consequence of incentives of elected politicians and is thus influenced by the political system.[14]

Theory has provided three distinct approaches to the explain fly-paper effect. The median voter theory argues that the fly-paper effect should be the result of mistakes in research methods, whereas Leviathan model of budget maximising behaviour contemplates that fly-paper is the result of local politicians using their monopoly power over budget information to increase their budgets, either to deceive voters for gaining support for larger expenditures or to hide the intergovernmental grants from voters (Bae and Feiock, 2004). Finally, the last approach is based on the concept of »fiscal illusion«, since citizens tend to ignore that intergovernmental transfers lower the real price for the provision of public goods at the local level, which means that those funds could be implicitly refunded to them in the form of tax cuts (Sour and Giron, 2009). Thus, this concept predicts that the government actually produces the output demanded by the median voter, although this demand is based on miss-perceptions how the public goods are financed and what is their own share in bearing those costs of production (Widarjono, 2006).[15]

[14] More in Hines and Thaler, 1995. Consequently, this explanation stresses that fly-paper is not an anomaly but rather a reality of fiscal policies.

[15] Actually, the fly-paper effect was one of the main concerns in the earlier literature on intergovernmental transfers. Modelling of the fly-paper effect has been based on various assumptions, such as voters facing fiscal illusion and absence of political competition, self-interest of politicians and imperfections in the political system etc. Actually, the early literature has pointed three different hypotheses on the reasons for fly-paper effect: fiscal illusion hypothesis, monopolistic local government hypothesis and efficient government hypothesis. More recent literature supplements fly-paper effect with efficiency and equity considerations, which are developed in various additional models that take into account soft budget constraints, fiscal competition, moral hazard etc. More on the literature review on the topic of fly-paper effect in Gamkhar and Shah, 2007.

5. A Brief Description of the Municipal Financing System in Slovenia

Currently, there are 212 municipalities in Slovenia.[16] There are large differences in the size of municipalities, and there is no intermediate level of local government (regions). Slovenia is a relatively centralised country, given the fact that approximately nine tenths of total government spending is allocated by the central government (Government Office for Local-Self Government and Regional Policy, 2006).[17] According to the Local Self-Government Act (2007), municipalities perform local tasks of public interest in order to meet the needs of their residents. Specifically, municipalities manage the municipal assets and organise municipal administration, develop conditions for economic development of the municipality, provide spatial development plans and create conditions for housing, manage and regulate local public utilities and the provision of local public services, provide social services (in particular pre-school and primary school education, social, cultural and recreational activities etc.), organise local road maintenance, fire safety etc.[18]

The Act on Local Finances ZFO-1 (2006) stipulates that municipalities finance their activities from the following resources: 35 per cent of personal income tax paid by municipal residents,[19] inheritance and gift taxes, taxes on profits from lotteries and gaming, taxes on real estate business transactions, administrative fees and duties, special tax on the use of slot machines outside casinos, property tax, compensation for the use of building land, local tourist taxes, municipal communal rates, various fees, indemnities due to a change of land use of agricultural land or forest, compensation and indemnity for the degradation and pollution of the environment, administrative revenue, and revenue defined by other acts. Local Self-Government Act (2007) stipulates that municipalities must raise their own revenue. Financially disadvantaged municipalities, unable to fully perform their duties, are eligible to receive additional financial

[16] The number of municipalities increased from 58 in 1995 to 212 in 2011. See, e.g., Vlaj (2004) on the description of local government system in Slovenia.

[17] See also, e.g., Dubajić (2011) on the discussion related to current issues in decentralisation in Slovenia, such as the formation of regions etc.

[18] See the Act for a detailed description of municipal tasks.

[19] This source tends to be the most important one in practice (see Ministry of Finance, 2010).

assistance from the state in accordance with the principles and criteria prescribed by the law.

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, appropriate expenditure was calculated on the basis of a special equation, which included correctional factors for diversity in municipalities for the purpose of achieving the equalisations (in comparison to national average), such as the territorial size of municipality, the number of residents, the number of residents aged below 15 and above 65 and the length of local roads.[20] It needs to be stressed that this Law was amended by the Act on Local Finances ZFO-1 (2006), which was subsequently introduced in 2007 fiscal year.[21]

Basically, several problems of the old system were the reasons for amending the Act. For instance, the old system of financing fostered pressures for establishment of new municipalities, since the system of financing was particularly in favour of smaller municipalities as the principle of financial equalisation provided reasonable financial sources even for economically disadvantaged municipalities (Rop, 2006). Besides, relatively large differences in appropriate expenditure valuation between municipalities existed, combined with relatively large dependency on resources derived from income tax. This has ultimately led to overspending bias.

Furthermore, financial equalisation caused disincentive effects on the mobilisation of municipal own-source revenues, and it also provided disincentive effects on the promotion of developmental issues in municipalities (Government Office of Local Self-Government and Regional Development, 2006). In essence, throughout the period 1999-2006, the number of self-financed municipalities substantially decreased, and consequently only 17 municipalities did not receive financial equalisation in 2006, which amounted to almost €190 million according to the Ministry

[20] See the source for the exact formula for the system of appropriate expenditure calculation.

[21] 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 have been introduced as a basis for appropriate expenditure calculation instead of (national) appropriate expenditure per capita, which was used in the previous system. See the law for the exact formula. Moreover, see Brezovnik, Oplotnik and Železnik (2006) for the simulations on the effect of old and new system of municipal financing. Given the fact, that the purpose of the paper is related to the verification of fly-paper effect, the financing system is not discussed more in detail.

of Finance (2010) (see also Table 1 below). Financial autonomy of municipalities almost disappeared, and the aim of the law amendment was to reduce the dependency of municipalities on financial equalisation in order to achieve their greater autonomy.

Table 1: Financial equalisation in the Slovenian municipal financing, 2003–2009[22]

Year	Appropriate expenditure (thousand EUR)	Financial equalisation (thousand EUR)	Municipalities not receiving financial equalisation[1]
2003	751.641	156.693	27
2004	779.394	161.667	24
2005	858.693	193.685	20
2006	899.385	186.306	17
2007	938.462	9.179	104
2008	976.240	10.169	103
2009	1.084.093	54.699	19

As it can be observed in Table 1, the new system substantially decreased the number of municipalities receiving financial equalisation as well as the total amount of financial equalisation. Nevertheless, the number of municipalities receiving financial equalisation substantially increased again in 2009, which should be partially attributed to the economic slowdown, which was particularly severe in Slovenia. Namely, municipal financing largely depends on income tax as revenue source and this tax has a very important cyclical component.

6. Research Design, Methodology and Findings

[22] The source of data is the Ministry of Finance (2010). The data after 2007 were not directly comparable with the data before due to the stated changes in the system of appropriate expenditure calculation. Moreover, the data for 2003 were converted from SIT to EUR using average central bank exchange rate for 2003, whereas for 2004-2006 period central exchange rate was used.

Numerous studies have tested the existence of fly-paper effect in local authority financing.[23] Consequently, the purpose of this study is to test the existence of fly-paper effect in the financing of Slovenian municipalities, in particular in those municipalities that have received financial equalisation from the central government. The empirical model is based on exposition given in Worthington and Dollery (1999) as well as in Amusa, Mabunda and Mabugu (2008), which specifies an expenditure function for the goods provided by the government as:

$$EXP = f\,(REV, TAXPRICE, NEEDS),$$

where EXP is the level of expenditure on goods provided by the government, REV is the total amount of resources available for funding such expenditures, TAXPRICE describes the relative tax price of expenditures, and NEEDS defines institutional and other factors that effect municipal expenditure outcomes.

The following study uses municipal expenditure and revenue data for the 2006 fiscal year for 193 Slovenian municipalities existing at that time.[24] In this study, the dependent variable, EXP, is the level of total municipal expenditures per capita by i-th municipality, which should be more appropriate and comparable measure of provision of goods by municipal authorities, given the variations in the size of municipalities. In order to test the existence of fly-paper effect, variable REV is divided into two

[23] For example, see Hines and Thaler, 1995; Becker, 1996; Turnbull, 1998; Bailey and Connolly, 1998; Worthington and Dollery, 1999; Knight, 2002; Inman, 2008; Sour and Giron, 2009, just to name a few out of vast array of research in this field. For instance, Inman (2008) reported that until 2008 more than 3,500 papers had been written dealing with the issue of fly-paper effect. Yet, it needs to be acknowledged that some studies were not able to confirm the validity of effect. For instance, 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.

[24] Cross-sectional data are used in the analysis, particularly in relation to 2006 fiscal year. There are several reasons for using those data: (1) several other existing empirical studies have used cross-sectional data (more in Amusa, Mabunda and Mabugu, 2008); (2) there are problems with achieving consistent time series data for Slovenian municipalities, given the fact that their number has risen constantly and substantially in the last 17 years, predominantly with devolutions of the existing municipalities; (3) fiscal year 2006 seemed to be a critical one, since in this year more than 90 per cent of all municipalities received financial equalisation from the central government, which meant that they were not able to finance municipal expenditures by themselves (ultimately, this led to the amendments to the Act on Local Finances); (4) given the previous observation, data from 2007 onwards, in particular for financial equalisation, could not be directly compared with the data from previous years due to the aforementioned amendments.

distinct components: (1) grant money per capita for i-th municipality (with this purpose, two distinct variables are used in the analysis: financial equalisation and total revenues of municipalities received through intergovernmental transfers); (2) income per capita,[25] which relates to idea that available income should be the other important prerequisite for municipal spending. Another explanatory variable is TAXPRICE, which describes relative tax price of goods and services provided by municipalities, and should describe the ability of municipalities to derive revenues from the assigned tax bases. As a proxy for describing relative tax price, sources consisting of tax, non-tax and capital revenues of municipalities are used, since they reflect the ability of municipalities to collect revenues on their own. Finally, the variable NEEDS describes the assessed expenditure need of the i-th municipality, and denotes its ability to meet the demands for the provision of local public goods. Basically, the expenditures on administrative operation, public utilities and education are used as a proxy for describing the core functions of municipalities, and they are all expressed in per capita terms.[26] Descriptive statistics of the variables included in the analysis is presented in Table 2.

Table 2: Descriptive statistics of variables used in the empirical analysis[27]

Variable	Total expenditures	Income	Financial equalisation	Transfer revenues	Tax price	Expenditure needs
Mean	835	1116	203	276	482	504
Median	783	1100	193	252	453	492
Std. Dev.	287	138	108	179	200	156
N	193	193	170	193	193	193

The results of the empirical analysis are presented in Table 3 below. In Model 1, the existence of fly-paper effect is investigated with the use of

[25] Gross average monthly salary per employed person in i-th municipality is used as proxy for describing per capita income, since those data are available also at the municipal level.

[26] 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.

[27] Sources of data are Statistical Office of the Republic of Slovenia (2011) for the variable *Income*; and Faculty of Administration (2009) for other variables used in the analysis, related to municipal revenues and expenditures.

data on financial equalisation, whereas in Model 2 the existence of fly-paper effect is investigated with the use of data on total intergovernmental transfers, obtained by individual municipality. The results obviously indicate that the existence of fly-paper effect could be observed, since the semi-elasticity of financial equalisation is greater than the semi-elasticity of income regarding their effect on total municipal expenditures, not to mention the fact that the value of the income coefficient is even not statistically significant in either of the models. Similarly, the semi-elasticity in Model 2 also indicates the larger effect of transfers on total municipal expenditures compared to income (coefficient is also not statistically significant). Furthermore, the effect of grant money is also larger than the effect of municipal own-source revenues in both instances, as both semi-elasticity coefficients tend to be larger. It should also be mentioned that this method helps to explain approximately one third to two fifths of variance in the total municipal expenditures per capita, which is lower than expected, although we should recognise that Slovenian municipalities tend to be very diverse, so the results of cross-sectional modelling seem to be reasonably acceptable.

Table 3: Modelling the fly-paper effect in Slovenian municipalities[28]

Dependent var. / Explanatory var.	Total municipal expenditures per capita (1)	Total municipal expenditures per capita (2)
Intercept (Constant)	5.72660 (0.2049; 27.95)***	5.85219 (0.14349; 40.79)***
Income	0.00010 (0.00013; 0.79)	0.00012 (0.00013; 0.89)
Grant money (financial equalisation / transfer revenues)	0.00178 (0.00033; 5.38)***	0.00106 (0.00014; 7.71)***
Tax price	0.0012 (0.0001; 7.57)***	0.00095 (0.00013; 7.23)***

28 Log-linear regression models are estimated, since they tend to be structurally stable in both instances. Namely, log-linear model is not structurally stable for Model 2, whereas linear model is not stable for estimation 1. Notwithstanding, results do not vary considerably regardless of he model being used. Furthermore, given the revealed presence of heteroscedasticity, t-values include White heteroscedasticity-consistent standard errors (standard errors and values of t statistics are in parentheses; *** means p<0.001).

Expenditure needs	-0.000071 (0.00026; -0.27)	-0.000086 (0.00022; -0.39)
N	170	193
$R^2_{adj.}$	0.3380	0.4080
SEE	0.2135	0.2013
Durbin-Watson d	2.11	1.86
Ramsey (p)	0.235	0.054
F-stat (sig.)	22.57 (0.000)	34.09 (0.000)

8. Conclusion

The purpose of the study presented in the paper is related to the investigation of fly-paper effect in municipal financing in Slovenia. Namely, the issue of fly-paper effect has been widely addressed in literature and is nowadays not taken as an anomaly in public finances anymore, but rather as the existing effect. Basically, this effect states that intergovernmental transfers, which tend to be used as a source of revenue for financially disadvantaged municipalities, tend to have greater effect on municipal expenditures than the equivalent increase in available income. The results of the analysis performed for Slovenian municipalities for 2006 fiscal year tend to support the existence of the effect in Slovenian municipal financing. Consequently, transfers should also inflate the total municipal expenditures. This issue should be addressed further, in particular in empirical research, as the existence of the effect is indicative of the inefficiencies in municipal expenditure system management.

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FLY-PAPER EFFECT IN SLOVENIAN MUNICIPAL FINANCES

Summary

Decentralization is a contemporary concept of administrative reform, which in practice denotes a process of transferring resources and administrative powers to the lower levels of government, with the anticipated effect of the increase in efficiency of the provision of goods and services. However, it should be acknowledged that issues related to the appropriate creation of local jurisdictions and their financing system are also very important in achieving efficiency gains related to decentralisation. Namely, decentralization also has potential negative effects, one of them being associated with inappropriate financing system causing fly-paper effect. Local authorities' own-source revenues may not be sufficient to finance the provision of services that certain authority is obliged to deliver. This provides a rationale for central government to pay transfers to the lower levels of government in order to prevent either too low level of service provision at the local level or to prevent local taxes from being too high. The most common example of transfers is associated with the concept of financial equalisation. One of the potentially negative effects of financial equalisation is the so-called fly-paper effect, which denotes a phenomenon of intergovernmental transfers, in particular from the central to the lower levels of government, inflating local government expenditures. Empirical findings have shown that lump-sum transfers of central government tend to have greater stimulatory effect on local government spending than the equivalent increase in the income of the median voter. In essence, this means that transfer money »sticks where it hits«. Financial equalisation tended to be very important revenue source for Slovenian municipalities, as their own-source revenues were not sufficient to finance the provision of local goods and services, since in some fiscal years around 90 per cent of those municipalities received it. The results of an analysis performed for Slovenian municipalities for 2006 fiscal year, tend to support the existence of the effect in municipal financing.

Key words*: decentralisation, local authorities, local public finance, intergovernmental transfers, financial equalisation, fly-paper effect, Slovenian municipalities*

EFEKT MUHOLOVKE U SLOVENSKIM LOKALNIM FINANCIJAMA

Sažetak

Decentralizacija je suvremeni koncept upravne reforme koji znači proces prenošenja sredstava i upravnih ovlasti nižim razinama vlasti. Očekivani mu je učinak povećanje učinkovitosti u pružanju javnih dobara i usluga. Oblikovanje djelokruga lokalnih samoupravnih jedinica te lokalnog financijskog sustava važno je radi postizanja takvog učinka decentralizacije. Decentralizacija može, naime, imati i negativne učinke, među koje se ubraja i neadekvatni sustav lokalnih financija koji uzrokuje efekt muholovke. Sredstva iz vlastitih prihoda mogu biti nedovoljna za financiranje usluga koje bi određene lokalne vlasti trebale pružati. Takvo stanje daje osnove središnjoj vlasti da daje subvencije lokalnim jedinicama radi sprečavanja da razina lokalnih usluga padne ispod određene razine ili radi sprečavanja uvođenja previsokih lokalnih poreza. Najčešći primjer transfera povezan je s konceptom financijskog poravnanja. Jedan od potencijalno negativnih učinaka financijskog poravnanja je tzv. efekt muholovke, takva pojava u sustavu financijskih transfera među različitim razinama vlasti, naročito kod transfera sa središnje razine na lokalne jedinice, koja povećava potrošnju lokalnih vlasti. Empirijska istraživanja pokazuju da transferi nenamjenskih subvencija (lump-sum) od središnje prema lokalnoj razini imaju veći stimulirajući učinak na trošenje od strane lokalnih jedinica nego ekvivalentni rast dohotka prosječnog glasača. U osnovi, to znači da se subvencije »lijepe tamo gdje padaju«. Financijsko poravnanje se pokazuje vrlo važnim izvorom prihoda slovenskih jedinica lokalne samouprave, budući da njihovi prihodi iz vlastitih izvora nisu dovoljni da bi financirale pružanje lokalnih dobara i usluga – u određenim je fiskalnim godinama čak oko 90 posto jedinica lokalne samouprave primalo subvencije temeljem financijskog poravnanja. Rezultati analize provedene za 2006. fiskalnu godinu podupiru zaključak da postoji efekt muholovke u financiranju jedinica lokalne samouprave u Sloveniji.

Ključne riječi: *decentralizacija, lokalne vlasti, lokalne javne financije, financijski transferi među razinama vlasti, financijsko poravnanje, efekt muholovke, jedinice lokalne samouprave u Sloveniji*