DO INTERGOVERNMENTAL FINANCIAL TRANSFERS HAVE AN EFFECT UPON MUNICIPAL BORROWING? SUBSEQUENT EFFECT OF FLYPAPER THEORY IN MUNICIPALITIES IN TURKEY

[1]HAKAN YAS, [2]EMRE ATILGAN

[1]Finance, Banking and Insurance Department, Havsa Vocational School, Trakya University, Turkey
[2]Health Management Department, Faculty of Health Sciences, Trakya University, Turkey
E-mail: [1]hakanyas@trakya.edu.tr, [2]emreatilgan@trakya.edu.tr

Abstract- The postulate that intergovernmental financial transfers affect the increase in local government spending more than the own revenues do is taken as flypaper effect. If so, then a municipality, for instance, is expected to spend more not because of the increase in its own revenue sources but because the increase in financial transfers received from higher level authority. However, municipalities have also borrowing option to finance their own expenditures. Thus the present threefold relation between transfers, own revenues and expenditures need to be enhanced by borrowing. In the past decade, the borrowing amount of municipalities in Turkey have distinguishably leaped up higher levels, whereas grants from central government also rises. This study examines whether a causality exists between the growth of intergovernmental financial transfers and of borrowing in municipalities in Turkey. The results in our estimation presents that there is a long run causality in both financial sources. From a different view, the flypaper effect triggers the borrowing of municipalities in Turkey.

Keywords- Intergovernmental financial transfers, municipal borrowing, flypaper effect

I. INTRODUCTION

Municipalities have basically three types of revenue sources: own revenues, grants or financial transfers and borrowing (Jones, 2007, s. 12) (Peterson, 2000, s. 8) (Kopanska & Levitas, 2004, s. 34). (Maeltsemees, 2000, s. 83) (Gündüz, 2008, s. 11) (Beksta & Petkevicius, 2000, s. 195-196). Own revenues, such as local taxes, user charges, are revenues, base and rate of which are under municipal control (Norregaard, 1997) (Freire & Garzon, 2014). Most of the municipal revenues composed of tax revenues levied on particular tax bases such as property, motor vehicle and announcement and advertisement. In some countries, value added tax, sales tax or corporate tax may also be assigned to local governments (Güner, 2006, s. 63-67). Thus, local own revenues vary from taxes levying liabilities to user charges based on benefit received by people. Intergovernmental transfers are flow of revenues from higher to lower levels, aimed at shrinking imbalances between revenues and responsibilities assigned to subnational governments. Transfers are also instruments used for resolving vertical and horizontal inequalities in various levels of government (Bird & Smart, 2002, s. 900-901) (Ter-Minassian, 1997). Since local services may spill over to other authorities, these inequalities are considered to be tackled by transfers (Bird & Smart, 2002, s. 905). Generally, two varieties of transfers are considered in the literature: revenue sharing and grants. Revenue sharing arrangements can be designed as sharing of tax revenues, share by coefficients or fixed revenue-sharing arrangements. Grants can be grouped into two main categories: general purpose grants and specific purpose grants (Ter-Minassian, 1997). General purpose grants are unconditional grants, aimed at addressing vertical and horizontal imbalances (Brennan & Pincus, 1990, s. 132) (Ter-Minassian, 1997). Specific purpose grants which may be either open-ended or closed ended are conditioned to rules set by central government or laws. These conditional grants come into question when local governments provide, particularly, educational and health services (Bird & Smart, 2002, s. 904-905). As there are vertical and horizontal imbalances between the different levels of government, it must be addressed through intergovernmental transfers or borrowing (Ter-Minassian, 1997). The borrowing option can be used either domestic or foreign resources. Generally, local governments tend to borrow from domestic resources as they find it more efficient and simple than foreign ones (Miller & Hildreth, 2007, s. 111). The rationale of borrowing must be grounded on more and different reasons. Local governments can borrow in order to overcome the problem of inequitable burden of cost among tax payers. Second, an optimal allocation must be set between beneficiaries and payers of the project financed by borrowing. Longer projects must also be financed from borrowing as their benefits carry over next years. In addition to all these, local governments should not borrow to finance current expenditures but investment expenditures, known as "the Golden Rule" (Swianiewicz, 2004, s. 5-9). Some other arguments can also be suggested on the rationale of borrowing, however the reasons above remain outstanding.

II. FINANCIAL DATA ON TURKISH MUNICIPALITIES

In Turkey, power of taxation is solely and exclusively of legislative power constitutionally, so that local

governments cannot charge any tax or quasi-tax liabilities such as fees, dues, shares of expenditures. Municipal Revenues Law No. 2464 lists the own-revenues of local governments, and specifies the minimum and maximum ratios of these revenues. The rules for allocation of intergovernmental transfers by types of municipalities are designated in Law No. 5779. The main criterion in allocating the transfers is the population of municipality, by affecting the 80% of the share. The remaining 20% is bound up the rank of the municipality in the provincial development index which is specified by Ministry of Development. These transfers consist of revenue sharing amounts and grants from central to local level.

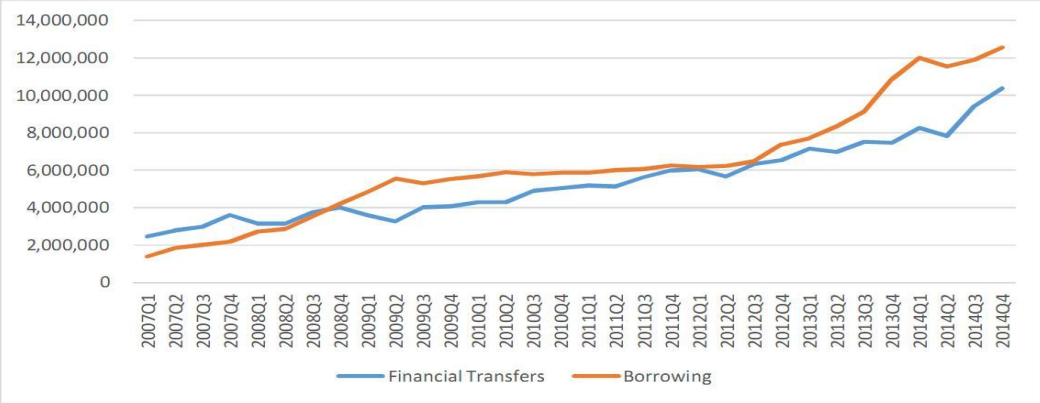


Figure 1: Change in Financial Transfer and Borrowing Amounts (2007Q1-2014Q4)

Figure 1 presents the change in the amounts (in Turkish Liras) of financial transfers and borrowing of the municipalities in Turkey. Municipal Law No. 5393 allows municipalities to borrow foreign or domestic in some limits. Up till today, no Turkish municipality run into a foreign debt. Therefore, the borrowing refers to short and long term credits received from domestic banking sector, more particularly İlbank Inc., the primary creditor of the municipalities, which is the only local government bank in Turkey for over eighty years. [1]



Figure 2: Change in Borrowing and Debt Stock Amounts (2007Q1-2014Q4)

As shown in the Figure 2, debt stock of municipalities has grown approximately two times in seven years. But the borrowing from banks increased much more in the same period, with a 798% rise. The main reason for this overgrowth is the low-level interest policy of İlbank Inc.

[1] Loans received by municipalities from İlbank Inc. adds up to %90 of total borrowing amount.

It has to be pointed out that a golden rule on local government borrowing does not exist in Turkey. Moreover, Municipal Law states "A municipality can borrow and issue bond in order to finance its expenditures required for its assignments and services…" Nothing but foreign borrowing is subject to such a golden rule; foreign borrowing is allowed only for financing projects included in investment programme. There is, however, some limitations demarked in Municipal Law, such as total amount of debt of a municipality including debt of its corporations and its affiliates shall not exceed their total budget receipts augmented by annual revaluation rate.

Allowance to borrow for financing current expenditures has had a booster effect on debt stock of municipalities.

III. THEORETICAL FRAMEWORK

Numerous studies have researched the degree of effect of both intergovernmental transfers and own-revenues on local spending, and most found that intergovernmental financial transfers have a greater degree in stimulating the increase in local government spending than the own-revenues do. Some studies claim local governments to be reluctant to raise their own revenues (Toth & Dafflon, 2006, s. 5) , which may be explained by the flypaper effect. Due to the effect, the subnational governments are expected to raise expenditures and reduce taxes (Kjaergaard, 2015, s. 535).

Table 1 lists the studies in Turkey sought the flypaper effect. All figures show that financial transfers affect municipal expenditures more than the own-revenues do, which means that the flypaper effect exists in municipalities in Turkey.

Table 1: Some Estimates of the Flypaper Effect on Turkish Local Governments

Author	Sample	Coefficients	
		Financial Transfer	Own-revenue
(Sağbaş & Saruç, 2004)[2]	Cross Section - Panel Data	0.81 1.02 1.75	0.008 0.02 0.001
(Yaş & Akduğan, 2015)	Regression Analysis	2.3319	1.4509
(Aytaç, 2015)	Cross Section - Panel Data	0.369861	0.000397

Despite numerous studies on flypaper effect, we did not encounter a paper aimed at seeking a causality between transfers and borrowing in our literature review. There are some studies suggesting that fiscal dependency ratio –the share of intergovernmental transfers and grants in total local government revenues– causes to higher borrowing costs and burden (de Mello, 2001). So, the paper seems to be among initials on researching the said causality.

3.1. Research Design and Data

In the paper, the causality between the financial transfers and borrowing (bank credits) of Turkish municipalities (BC) is evaluated using Panel Co-integration method. In the analysis, the quarterly data of the Turkish municipalities are evaluated for the period 2007 – 2014. As there is no data at the unit level, the data of the municipalities are aggregated in three subsets, i.e. metropolitan municipalities, non-metropolitan provincial municipalities and district municipalities. Thus, the analysis is made with three cross-sections and 32 time periods, in sum with a total number of 96 observations. Data are of constant price Turkish Lira (TL) that was taken from Turkish Ministry of Finance General Directorate of Public Accounts. In the analysis the relationship between the financial transfers and the bank credits of Turkish municipalities is assessed within two dimensions, i.e. by the discrimination the bank credits into short run bank credits and long run bank credits. The regarding variables are named as SRBC and LRBC respectively. The variable that represents the financial transfers from the central government to the municipalities is named FT. In the estimations, all variables are used in natural logarithms. Therefore, the results present the relationship between the growth of financial transfer to the municipalities and the growth of short and long-run bank credits that are used by the municipalities. The empirical analysis is built on three steps. In the first step, the stationarity properties of the variables are tested by using (Im, Pesaran, & Shin, 2003) and (Levin, Lin, & Chu, 2002) unit-root tests. In the second step, the long run relationships between the variables are analyzed with the panel co-integrations tests that were proposed by (Pedroni, 1999) and (Pedroni, 2004), which are extended from the (Engle & Granger, 1987) co-integration test. The framework of Pedroni co-integration analysis has several testing methods that are the panel v-statistic, panel Rho-statistic, panel PP-statistic, panel ADF statistic, group Rho-Statistic, group PP-statistic and group ADF statistic. The co-integration of variables implies a causality between the series but it does not indicate the direction of the causal relationship. Thus, in the third step of the analysis, the VECM method is used to determine the Granger causality of the variables by using the following equations:

$$\Delta LRBC_{i,t} = \alpha_{1,i} + \varphi_{1,i} ECT_{i,t} + \sum_{j=1}^{k} \gamma_{1,j,i} \Delta FT_{i,t-j} + j{=}1k\theta 1,j,i\Delta LRBCi,t{-}j{+}\varepsilon 1,i,t \quad (1)$$

$$\Delta FT_{i,t} = \alpha_{2,i} + \varphi_{2,i} ECT_{i,t} + \sum_{j=1}^{k} \gamma_{2,j,i} \Delta FT_{i,t-j} + j{=}1k\theta 2,j,i\Delta LRBCi,t{-}j{+}\varepsilon 2,i,t \quad (2)$$

$$\Delta SRBC_{i,t} = \alpha_{3,i} + \varphi_{3,i} ECT_{i,t} + \sum_{j=1}^{k} \gamma_{3,j,i} \Delta FT_{i,t-j} + j{=}1k\theta 3,j,i\Delta SRBCi,t{-}j{+}\varepsilon 3,i,t \quad (3)$$

$$\Delta FT_{i,t} = \alpha_{4,i} + \varphi_{4,i} ECT_{i,t} + \sum_{j=1}^{k} \gamma_{4,j,i} \Delta FT_{i,t-j} + j{=}1k\theta 4,j,i\Delta SRBCi,t{-}j{+}\varepsilon 4,i,t \quad (4)$$

In the equations, $i\,(i = 1, \dots, n)$ denotes the municipality groups (Metropolitan municipalities, non-metropolitan provincial municipalities and district municipalities) and $t\,(t = 1, \dots, T)$ represents the time, where j is the optimum lag of the variables considering Schwarz Bayesian Criterion (SBC). On the other hand, Δ is the difference operator and ECT represents the error-correction term derived from the long-run co-integration relationship, where φ_1, φ_2, $\varphi_3$and φ_4 are the adjustment coefficients. In the equations, $\varepsilon_{1,i,t}$, $\varepsilon_{2,i,t}$, $\varepsilon_{3,i,t}$ and $\varepsilon_{4,i,t}$ are the disturbance terms assumed to be uncorrelated and white-noises.

3.2. Results

The unit root tests of the variables are presented in Table 2. The results of both Im, Pesaran and Shin unit root test and Levin, Lin & Chu unit root test suggest that all the variables are I (1), which mean that the variables are stationary after first differencing, thus the variables are integrated of order (1).

Table 2: Unit Root Tests

Im, Pesaran and Shin W-stat					
Variable	Level	Prob.	First Diff.	Prob	Result
FT	1.934	0.973	-10.280	0.000	I(1)

LRBC	0.082	0.533	-7.364	0.000	I(1)
SRBC	-1.359	0.087	-6.353	0.000	I(1)
Levin, Lin & Chu t*					
Variable	Level	Prob.	First Diff.	Prob	Result
FT	1.018	0.846	-8.047	0.000	I(1)
LRBC	-1.322	0.093	-5.547	0.000	I(1)
SRBC	-1.609	0.054	-4.329	0.000	I(1)

The panel co-integration test results are presented in Table 3. The results indicate that there exists a co-integration relation between the variables FT and LRBC. Likewise, the majority of the test statistics indicate that there is a co-integration relation between the variables FT and SRBC as well. As the existence of a co-integration relationship does not give any information on the causality relationship between the variables, in a VECM frame work, the Granger causalities between variables are tested for the critical values at %5.

Table 3: Panel Co-integration Test Results

	FT vs LRBC		FT vs SRBC	
Test Statistics	Statistic	Prob.	Statistic	Prob.
Panel v-Statistic	-0.255	0.601	1.222	0.111
Panel rho-Statistic	-3.279	0.001	-2.629	0.004
Panel PP-Statistic	-4.447	0.000	-3.447	0.000
Panel ADF-Statistic	-3.582	0.000	-2.928	0.002
Panel v-Statistic (Weighted)	-1.036	0.850	2.124	0.017
Panel rho-Statistic (Weighted)	-3.648	0.000	-2.403	0.008
Panel PP-Statistic (Weighted)	-4.901	0.000	-3.312	0.001
Panel ADF-Statistic (Weighted)	-4.137	0.000	-2.513	0.006
Group rho-Statistic	-1.233	0.109	-0.778	0.218
Group PP-Statistic	-5.084	0.000	-4.328	0.000
Group ADF-Statistic	-0.432	0.333	0.132	0.553

The short-run Granger causalities (Granger weak causality) between variables are evaluated using F-statistics by testing the null hypothesis $H_0: \gamma_{1,j} = 0$, $H_0: \theta_{2,j} = 0$, $H_0: \gamma_{3,j} = 0$ or $H_0: \theta_{4,j} = 0$ in equations 1, 2, 3 and 4 respectively, for all i and j. The Granger long-run causalities are identified by testing the ECTs' coefficients with the null hypothesis $H_0: \varphi_{1,i} = 0$, $H_0: \varphi_{2,i} = 0$, $H_0: \varphi_{3,i} = 0$ and $H_0: \varphi_{4,i} = 0$ in equations 1, 2, 3 and 4 respectively. In the final stage of the causality analysis, the joint of both Granger short-run and Granger long-run causalities (Granger strong causality) are checked by using F statistics for the null hypothesis $H_0: \gamma_{1,j} = 0$ or $H_0: \varphi_{1,i} = 0$ for the equation 1, $H_0: \theta_{2,j} = 0$ or $H_0: \varphi_{2,i} = 0$ for the equation 2, $H_0: \gamma_{3,j} = 0$ or $H_0: \varphi_{3,i} = 0$ for the equation 3 and $H_0: \theta_{4,j} = 0$ or $H_0: \varphi_{4,i} = 0$ for the equation 4. The results of the panel causality tests are presented in Table 4.

Table 4: Panel Causality Test Results*

Dependent Variable	Source of Causation (explanatory Variable)				
	Long-Run	Short-Run		Joint (short-run/long-run)	
	ECT(-1)	ΔLRBC	ΔFT	ΔLRBC, ECT(-1)	ΔFT, ECT(-1)
ΔLRBC	-3.031**	–	1.047	–	2.352**
ΔFT	0.920	0.238	–	0.326	–
	ECT(-1)	ΔSRBC	ΔFT	ΔSRBC, ECT(-1)	ΔFT, ECT(-1)
ΔSRBC	-1.900	–	1.350	–	1.896
ΔFT	0.946	0.155	–	0.402	–

*All values given in the table are calculated F statistics

** Significant at 5%

According to the causality test results in Table 4, there is a long-run causality from FT to LRBC but the vise-versa is not exists. The results also indicate a strong Granger causality from FT to LRBC as the joint (short-run/long-run) test statistics is significant at %5 level. On the other hand, any of the long-run, short-run and joint (short-run/long-run) is not observed between the variables SRBC and FT.

These results indicate that a rise in the financial transfers made to municipalities causes a rise in the long-run bank credits of the municipalities, but this relationship does not exist for the short run bank credits received by municipalities.

CONCLUSIONS

Given the fact that the flypaper effect exists in municipalities in Turkey, and that they cannot determine or design their own-revenues, then borrowing remains the merely option for municipalities to meet the increasing spending. To state in other words, because of the flypaper effect, local spending increases whereas the own-revenues are out of control for municipalities. Municipalities, therefore, need to borrow in order to defray the increasing expenditures. As estimated in the hypothesis test, intergovernmental financial transfers

from central government to municipalities is the reason of long-term borrowing of municipalities in the case of Turkey.

As the borrowing of the municipalities in Turkey is subject to relatively simple procedure, they tend to borrow when the financial transfers and own-revenues are inadequate to meet the expenditures. It is avowable that municipalities in Turkey have a relatively large degree of borrowing autonomy. But the overgrowth in borrowing can lead to a moral risk. Generally, voters do not care how much the municipality run into debt, but do care how much they pay tax. The ignorance of the voters can whet municipalities' appetite for borrowing. As a result, in the case of Turkey, it is suggested that borrowing of municipalities must be bound to a set of fiscal rules, at a minimum such a golden rule.

REFERENCES

[1]. Aytaç, D. (2015). Türkiye'de Yönetimler Arası Transferler Sinek Kağıdı Etkisi Yaratıyor Mu? Ampirik Bir İnceleme. Yönetim ve Ekonomi Araştırmaları Dergisi, 13(2), 166-180.

[2]. Beksta, A., & Petkevicius, A. (2000). Local Government in Lithuania. T. M. Horvath içinde, Decentralization: Experiments and Reforms (s. 165-216). Hungary: Local Government and Public Service Reform Initiative Open Society Institute.

[3]. Bird, R. M., & Smart, M. (2002). Intergovernmental Fiscal Transfers: International Lessons for Developing Countries. World Development, 30(6), 899-912.

[4]. Brennan, G., & Pincus, J. (1990). An Implicit Contract Theory of Intergovernmental Grants. Publius, 20(4), 129-144.

[5]. de Mello, L. (2001, March). Fiscal Decentralization and Borrowing Costs: The Case of Local Governments. Public Finance Review, 29(2), 108-138.

[6]. Engle, R. F., & Granger, C. W. (1987). Co-integration and error correction: representation, estimation, and testing. Econometrica: journal of the Econometric Society, 251-276.

[7]. Freire, M. E., & Garzon, H. (2014). Managing Local Revenues. C. Farvacque-Vitkovic, & M. Kopanyi içinde, Municipal Finances. Washington: The World Bank.

[8]. Gündüz, İ. O. (2008). Yerel Yönetimlerin Bir Borçlanma Yöntemi Olarak Tahvil İhracı (unpublished PhD thesis b.). İstanbul: Marmara Üniversitesi Sosyal Bilimler Enstitüsü.

[9]. Güner, A. (2006). Yönetimler Arası Gelir Bölüşümü: Temel İlke ve Uygulamalar. A. Güner, & S. Yılmaz içinde, Mali Yerelleşme: Teori ve Uygulama Üzerine Yazılar (s. 59-82). İstanbul: Güncel Yayıncılık Yayın No. 266.

[10]. Im, K. S., Pesaran, M. H., & Shin, Y. (2003). Testing for unit roots in heterogeneous panels. Journal of Econometrics, 115(1), 53-74.

[11]. Jones, R. (2007). Financial Accounting and Reporting. E. Shah içinde, Local Public Finance Management (s. 7-32). Washington DC: The World Bank.

[12]. Kjaergaard, M. (2015). The Flypaper Effect: Do Political Institutions Affect Danish Local Governments' Response to Intergovernmental Grants? Local Government Studies, 41(4), 534-552.

[13]. Kopanska, A., & Levitas, T. (2004). The Regulation and Development of the Subsovereign Debt Market in Poland: 1993-2002. P. Swianiewicz içinde, Local

[14]. Government Borrowing: Risks and Rewards: A Report on Central and Eastern Report (s. 25-78). Budapest: Local Government and Public Service Reform Initiative Open Society Institute.

[15]. Levin, A., Lin, C. F., & Chu, C. S. (2002). Unit root tests in panel data: asymptotic and finite-sample properties. Journal of Econometrics, 108(1), 1-24.

[16]. Maeltsemees, S. (2000). Local Government in Estonia. T. M. Horvath içinde, Decentralization: Experiments and Reforms (s. 61-114). Hungary: Local Government and Public Service Reform Initiative Open Society Institute.

[17]. Miller, G. J., & Hildreth, W. B. (2007). Local Debt Management. A. Shah içinde, Local Public Financial Management (s. 109-155). Washington: The World Bank.

[18]. Norregaard, J. (1997). Tax Assignment. T. Ter-Minassian içinde, Fiscal Federalism in Theory and Practice. Washington: International Monetary Fund.

[19]. Pedroni, P. (1999). Critical values for cointegration tests in heterogeneous panels with multiple regressors. Oxford Bulletin of Economics and statistics, 61(1), 653-670.

[20]. Pedroni, P. (2004). Panel cointegration: asymptotic and finite sample properties of pooled time series tests with an application to the PPP hypothesis. Econometric theory, 20(3), 597-625.

[21]. Peterson, G. (2000). Building Local Credit Systems. Urban & Local Government Background Series: Municipal Finance. Washington DC: The World Bank.

[22]. Sağbaş, İ., & Saruç, T. (2004). Intergovernmental Transfers and the Flypaper in Turkey. Turkish Studies, 5(2), 79-92.

[23]. Swianiewicz, P. (2004). The Theory of Local Borrowing and the West-European Experience. P. Swianiewicz içinde, Local Government Borrowing: Risks and Rewards: A Report on Central and Eastern Report (s. 1-24). Budapest: Open Society Institute.

[24]. Ter-Minassian, T. (1997). Intergovernmental Fiscal Relations in a Macroeconomic Perspective: An Overview. T. Ter-Minassian içinde, Fiscal Federalism in Theory and Practice. Washington: International Monetary Fund.

[25]. Toth, K., & Dafflon, B. (2006). Managing Local Public Debt in Transition Countries: An Issue of Self-Control? 14th Annual Conference of the Network of Institutions and Schools of Public Administration in Central and Eastern Europe (NISPAcee) (s. 1-19). Ljubljana: NISPAcee.

[26]. Yaş, H., & Akduğan, U. (2015). Türkiye'de Belediyelere Yapılan Mali Transferlerin Flypaper Effect Çerçevesinde İncelenmesi. Maliye Dergisi(168), 49-68.

★★★