The Impact of Intergovernmental Transfers on Own Local Revenue Generation: A Comparative Study between Uganda and Egypt

تأثير التحويلات الحكومية على توليد الإيرادات المحلية الخاصة: دراسة مقارنة بين أوغندا ومصر

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Abstract:

The literature of fiscal Decentralization indicates how the design of intergovernmental transfer systems has a strong influence on the behavior of local governments. The Empirical results on the relationship between transfers at the central level and revenue mobilization incentives differ from country to country and depend on the structure and type of transfer system in each country. As a result of the lack of sufficient financial data at the local level, this type of study rarely includes developing countries. Using comprehensive financial, economic, social, demographic and political data on Ugandan and Egyptian local governments, this paper seeks to assess the effects of financial incentives for two types of transfers: unconditional transfers defined by a formula and conditional transfers for specific purposes. The results indicate a positive effect of unconditional and conditional transfers in Uganda, but a negative effect in Egypt, suggesting that the transfer system in Egypt suffers from a defect that does not make it able to create incentives for local governments to mobilize their revenues.

Keywords: Decentralization; Local public finance; local revenue; Fiscal incentives; Intergovernmental transfers; Uganda; Egypt.

المستخلص:

تشير أدبيات اللامركزية المالية إلى أن تصميم أنظمة التحويل الحكومية الدولية له تأثير قوي على سلوك الحكومات المحلية. تختلف النتائج التجريبية للعلاقة بين التحويلات على المستوى المركزي وحوافز تعبئة الإيرادات من بلد إلى آخر وتعتمد على هيكل ونوع نظام التحويل في كل بلد. نتيجة لنقص البيانات المالية الكافية على المستوى المحلي ، نادرًا ما يشمل هذا النوع من الدراسة البلدان النامية. باستخدام بيانات مالية واقتصادية واجتماعية وديموغرافية وسياسية شاملة عن الحكومات المحلية الأوغندية والمصرية ، تسعى هذه الورقة إلى تقييم آثار الحوافز المالية لنوعين من التحويلات: التحويلات غير المشروطة المحددة بواسطة صيغة والتحويلات المشروطة لأغراض محددة. وتشير النتائج إلى وجود أثر إيجابي للتحويلات غير المشروطة والمشروطة في أوغندا ، لكنه أثر سلبيًا في مصر ، مما يشير إلى أن نظام التحويل في مصر يعاني من خلل لا يجعله قادرًا على خلق حوافز للحكومات المحلية لتعبئة إيراداتها.

الكلمات الدالة: اللامركزية. المالية العامة المحلية ؛ عائدات محلية حوافز ضريبية التحويلات الحكومية الدولية؛ أوغندا ؛ مصر.

1. Introduction:

Although Decentralization has been adopted by both developed and developing countries, Fiscal decentralization is considered as an important tool to achieve development goals by exploiting the potential of local governments (Oates, 1972). Also Fiscal decentralization is an ideal tool to improve the performance of the public sector by raising the financial efficiency of local administration and providing services to individuals in a manner that suits their preferences. Bahi and Martinez, (2005) have shown that Fiscal decentralization also allows individuals to get more of their requirements, making them more willing to pay taxes and reduce the resistance to fees and thus increase local tax revenues. As

local governments have a deep knowledge of local tax bases, fiscal decentralization leads to an expansion of the tax base by bringing in individuals and companies not included in tax records (Bahi and Vazquez, 2006).

Decentralization wave emerged in many African countries since the 1960s as a tool to help colonies manage their internal issues after independence. By the mid-1970s and early 1980s, international donor institutions began to encourage newly independent states to decentralize for development goals. By the early 1990s, institutions started to enforce decentralization in developing countries as a part of its structure adjustment program (Shah and Thompson, 2004).

The main puzzle that has remained since the adoption of decentralization is that although, a lot of African States adopted the legal framework of decentralization and delegated powers to local authorities since the early 1990s, local governments' own revenues are still insufficient to cover large spending responsibilities, and they still rely heavily on transfers from the central governments. These transfers are often based on different formulas that are at the discretion of the central government (Dickovick and Riedl, 2010).

This paper deals with a major research problem that despite the growing interest in local systems in African countries and the application of decentralization in all its political, administrative and fiscal forms, the reality of local finance indicates that local governments rely heavily on central transfers. This problem raises a fundamental question about the impact of these transfers on the mobilization of local revenues. In this context, the study follows the deductive method through regression

analysis covers cross-section data for 27 Egyptian Governorate and 100 Ugandan districts.

Uganda and Egypt are ideal countries to study the relationship between intergovernmental transfers and local revenue generation for a number of reasons first, in both countries; intergovernmental transfers make up a high proportion of the local government budget. Second, they have a large database that allows to empirically testing the relationship between intergovernmental transfers and local revenue. Third: The two countries share many common features with the majority of developing countries, thus Uganda and Egypt are a representative cases of African countries.

The remainder of the paper is organized as follows: Section 2 indicates the theoretical framework for the relationship between intergovernmental transfers and revenue generation at the local level. Section 3 describes the literature review. Section 4 presents the local structure of Uganda and Egypt and describes the intergovernmental transfers system .Section 5 empirically investigates the effect of intergovernmental transfers on local own revenue. While Section 6 shows the result and discussion

2- **Theoretical framework for the relationship between intergovernmental transfers and local revenue generation**

In the decentralized system, the central government devolves some of their spending responsibilities to local governments, which often exceed their revenue capabilities, creating a vertical imbalance between the expenditures and revenues of local governments. On the other hand, due to the different costs of providing public services in addition to the weak administrative capacities of local governments a horizontal imbalance arises too (Brun and Khdrai, 2016). These vertical and/or horizontal

imbalances can be addressed either by giving local governments more revenue or by designing a modified transfer system capable of addressing these imbalances. The first choice is often difficult for two reasons: First, the tax capacity and rules vary among local governments and thus the horizontal imbalance between them increases. Second, the ability of the central government to administer and collect many taxes at the local level (Dahlby, 1996). Transfers from central to local governments are therefore best suited to fill these imbalances.

Transfer system aims to achieve a set of objectives such as: i) vertical equality by reducing the deficit between expenditures and revenues at the local level, ,ii) horizontal equality by reducing the gap between rich and poor local units. ,ii) ensure a minimum level of public service delivery. And iv), correcting the imbalance that results from administrative weakness, particularly with regard to tax administration (Bahi, 2000).

Intergovernmental transfers can be classified into two types: conditional and unconditional transfers. Unconditional transfer, are those amounts transferred to local units without reference such that local units have the freedom to allocate them according to their priorities. There are four forms for determining the amount of transfers to the local level: (i) as a tax sharing transfer;, (ii) according to a formula based on some specific criteria;, (ii) cost reimbursement where central government cover expenditure responsibility that face local governments by providing some services;, and (iv) estimate the amount (Smoke and Schroader, 2002). But in practice most country use mix of these ways.

Conditional transfers are those provided for specific purposes, meaning that central government or higher local levels may offer financial

transfers to lower levels for the purpose of spending on a particular service, such as vaccination against a specific disease, or the establishment of a new school (Ebel and Yilmaz, 2004).

It should be noted that each type of transfers implies different level of control for local governments on their local revenue mobilization. The design of the transfers system has significant implications for the overall fiscal behavior of local governments, both on the spending or revenue side (Careaga and Weingast, 2003; Singh and Srinivasan, 2006).

On the spending side, there are two negative effects: the "fly leaf effect," which refers to the hypothesis that increases in offsetting transfers lead to more spending than comparable increases in domestic tax revenue (Hines and Thaler, 1995; Inman, 2008; Turnbull, 1998). And "gap filling effect" meaning that central government, in this case, gives local governments with large deficits an incentive to exaggerate expenditure figures and nullifies any incentives to increase local own-revenues.

On the revenue side, transfers may lead the inefficiency of local governments receiving remittances in the tax administration. Some literature suggests that transfers give local units poor fiscal incentives to increase local economic development (Tanzi, 1996; Zhag, 2013). Heavy dependence on transfers from central government hinders local government's ability to formulate its own policies and priorities reflecting preferences of their citizens (Masaki, 2016). The presence of these transfers will create an incentive for local governments to adjust its fiscal policy form that allows them to receive more transfers or at least not to lose these transfers (Bird, 2010 ;Weingst, 2009). Moreover, as these transfers are constantly changing and unstable and dependent on the

national financial situation, it will be difficult for local governments to predict these revenues and this makes planning difficult (Prichard, 2010).

On the other hand, central transfers can have positive effects on revenue generation at the local level. Transfers led to increasing local spending, This improves individual income, voluntary tax compliance and consequently local own revenue. Transfers also fill the financial imbalance of local governments in a way that improves their ability to provide goods and services and thus enhance their ability to raise taxes (Caldeira & Rota Graziosi, 2014).

3. Literature review

The impact of central transfer on local own revenues generation has been statistically investigated in developed countries, but due to the lack of sufficient economic and financial data for local governments, this type of study rarely includes developing countries. The empirical results about the relationship between central transfers and the incentives they create for revenue mobilization are differ from country to country and depend on the structure and type of transfer system in each country. Many studies (Bravo, 2013; Mogues et al, 2009) have found a negative relationship. (Correa and Stelner, 1999) find a disincentive effect of intergovernmental transfers on local tax effort. Liu and Zhao (2011) demonstrated that there is a negative impact of transfers on local tax efforts in China using a panel data from 1995 to 2007. Zhuravskaya (2000) analyses same relationship for Russian local governments and illustrates that any increase in local government's own revenue is almost entirely offset by lowering conditional shared revenues. Rajaraman & and Vasishtha 2000

Check the incentive effect of unconditional transfers on their own tax revenue. They found that central transfers are significantly negatively correlated with states own-revenue.

On the contrary, more recent studies (Masaki, 2016; Brun & and Khdari, 2016) are suggesting that transfers can have a positive effect on local revenue. Dahlberg et al. (2008) report a statistically significant zero effect of transfers on revenue and a positive effect on spending in Swedish municipalities. Also found positive effects by Caldeira and Rota-Graziosi (2014) for Benin through the analysis of the impact of unconditional central transfers shared on local own revenue.

Bradford and Oates (1971a;,; 1971b) introduced a "medium voter transfer model" that affect local governments. In their framework, they assumes that transfers is equivalent to any other source of revenue for local governments and therefore it can be allocated between public and private goods according to the Income elasticity of the median voter. In this context, transfers from central government to local governments are expected to reduce local taxes and fees because some of these grants are distributed as lower taxes and fees Caldeira and Rota-Graziosia, (2014). .

On the other hand, Skidmore (1999) identifies a positive (crowding-in) effect of central government transfers on locally generated revenues Skidmore (1999). Also, Masaki (2016) argues that transfers led to increasing public expenditure in the local governments and this contributes to increased local revenue through improved service delivery that in turn increases willingness to pay rates and fees.

Existing evidence is mixed and this could be attributed to the different results in the literature, is the formula used to calculate the amount of transfers. If the formula used to calculate the transfer has an incentive

component which transfers a higher amount for subnational governments that mobilize more own source revenues (Brun and Khdari, 2016). At the same time, local governments that already have higher own revenues, are likely to receive few transfers and therefore it is difficult to determine the direction of impact.

Additional empirical findings on relationship between transfers and the local revenues depends largely on the different types of transfers used in the analysis, whether conditional or unconditional. Unconditional transfers (for general purposes) provide greater autonomy to subnational governments as opposed to conditional transfers (for specific purposes), which are often very restricted (Smoke &Schroeder, 2000). Using a panel data set of 77 communes in Benin, Caldeira &Rota-Graziosia (2014) find a positive and significant effect of unconditional transfers on own revenue. In the study of Brun &Khdari (2016) on the Moroccan municipalities, they consider both unconditional and conditional transfers in their analysis and find significant and robust positive effect of unconditional transfers on local revenue generation while conditional transfers have a positive but less robust effect. They argue that unconditional transfers encourage tax efforts and thus incentives local revenue generation. On the other hand, Bravo (2013) finds a negative relationship between unconditional transfers and generating local revenues by applying to 340 chilean municipalities from 1990 to 2007. He discusses that unconditional transfers create disincentives to collect revenue.

Masaki (2016) investigates the effect of transfers on rural district in Tanzania with low financial capacity and find a positive effect. In the same context, Bravo (2013) finds an effect that is close to zero and

statistically insignificant. Mogues, et al. (2009) investigates the effect of conditional transfers on 110 Ghana's districts from 1994 to 2004. They find a negative effect which they attribute to the limited of fiscal autonomy in the face of weak fiscal capacity. For South Africa, the Financial Fiscal Commission (2014) finds a positive effect of the intergovernmental transfers (local government equitable share) on rural municipalities' property rates tax collection efforts.

The literature suggests that many factors, other than transfers, can affect revenue generation at the local level have been used in empirical analysis. These factors are represented in some other financial variables, and political economy factors, in addition to other factors that affect the local tax revenue base and the ability to collect taxes at the local level, such as the social, economic and demographic characteristics of the local government. With regard to fiscal factors, the relationship between local own revenues and expenditures has been investigated by Dahlberg &Johansson (1998) in Sweden, Mogues &Benin (2012) in Ghana and recently by Brun &Khdari (2016) in Morocco. They concluded that local expenditures positively impact local revenue generation, as they might exert pressure to expand revenue in later periods of time, especially when the subnational government has a hard budget constraint.

The literature also indicates that political participation, party politics, and the political structure of local government influence revenue generation. Allers, de Haan, &Sterks (2001) in the case of the Netherlands, and Borge &Rattsø (1997) in the Norwegian context, reach that the political ideology greatly affects the level of local taxation: the more left-leaning the government, the more taxation. The following table summarizes some

of the studies that analyzed the impact of central transfers on revenue generation at the local level.

This paper differs from the other literature as it includes a variety of integrated financial, demographic, socioeconomic and political variables. Moreover, this analysis uses the effect of Leviathan hypothesis on local revenue. Because In Africa, due to the reliance of local budgets on transfers from the central government, and the centralized budgeting, the amounts of local expenditures and transfers from the central government to the local budgets are largely subject to the political elites represented in the parliament, which have bargaining power in the parliament and the central government Mala, (2002).

3 Egypt and Uganda' local revenue structure and transfers system.

Revenue mobilization at the local level is one of the most important development issues, especially in developing countries, where the own revenues of their local governments are not sufficient to cover the big spending responsibilities Ruddock, (1994). Egypt and Uganda provide a model for the majority of developing countries, whose local governments rely heavily on central transfers and have weak tax administration.

The local governance system in Egypt is a reflection of the principle of lack of concentration in public administration, which represents the minimum stage of decentralization. All local administration units act as agents and assistants of the central government Mayfield, (1996). According to the Egyptian's Local Administration Law No. 43 of 1979, the role of local units in allocating expenditures is limited to participation in the preparation of the preliminary draft of the plan and budget Shand, (2005).

Egyptian local revenue is divided into: i): shared taxes, where local units share the revenue from these taxes with the central government. ii) Non-tax revenue, which are the fees and expenses collected at the local level by local staff Abd El-Wahab, (1991). The figures indicate a decrease in tax revenues as a percentage of total revenues. For the fiscal year 2017/2018 to 2019/2020, tax revenues amounted to 3.9% of the total current revenues during the fiscal year 2019/2020 compared to about 10% in 2017 /2018. Analysis of the budgets of the Egyptian governorates during the period from 2016/2017 to 2018/2019 indicates that tax revenues have decreased to the total current revenues in about 94% of the Egyptian governorates.

The local governments in Egypt depend heavily on transfers from the central government, which amount to about 88% of the local total revenue. The philosophy of the transfer system in Egypt is based on "filling the gap" between total expenditures and revenues at the local level. These transfers are sent to local units in the form of quarterly payments. In the absence of legally defined criteria for the distribution of transfers, the transfers system in Egypt is characterized by a high degree of Lack of transparency. Amin (2005) analyzed is at the level of Egyptian governorates in order to reach the main determinants of the distribution of transfers to the governorates, the results of the analysis found that the current transfers system does not motivate the governorates to maximize their tax efforts.

In Uganda, the transfer of power from central government to local governments began with the enactment of the 1962 semi-federal Constitution. The main objective of this step was to develop self-governance; collection of taxes; land administration; rural water supplies;

management of local roads; primary and junior secondary education; and agricultural extension. The Ministry of Regional Administration was created to oversee these new local governance arrangements. The 1964 Urban Authorities Act and the 1967 Local Administrations Act created a uniform set of regulations that gave the Central Government control over local administration in each district. In 1987, the National Resistance Council (NRC) enacted the Resistance Councils and Committees Statute, which gave them political, administrative, financial, planning and judicial powers. On 2nd October 1992, H.E The President Yoweri Kaguta Museveni launched the Local Government Decentralization Programme Muhumuza, (2008).

Uganda has one of the most highly developed local systems in all east and central Africa based on decentralization which adopted on 1999. The decentralization and devolution were formally adopted following the promulgation of the 1995 Constitution. Schedule 2 of the Constitution provided for the first time, a clear distinction between Central and Local Governments' roles. The local structure consists of five administrative levels from villages to districts Boger, (2013). This structure seeks to transfer administrative, political and financial responsibilities from central to local level. The national constitution outlines the roles and responsibilities of local councils and dedicates a whole chapter to Ugandan's decentralization policy Mpaata et al., (2015).

The Constitution and the Local Governments Act allowed Local Governments to collect revenue from a number of specified sources, formulate plans and budgets, allocate expenditure, and make investments in a wide range of services. Due to insufficient local own revenue to cover expenditure responsibility, Local governments rely heavily on

transfers from the central government Sarzin, (2007). As Table 2 shows, the tax revenue of all Ugandan local governments is about 1.1% as a percentage of total local revenues in FY2013 / 2014; this figure increased to 1.3% in FY2015 / 2016 and reached 1.4%. In FY 2017/2018. Consequently central transfers formed about 96.5% of total local revenues in FY2013 / 2014 and reached to 95.7% in FY 2017/2018.

Table (1): Local government revenue by type for FY 2013/14 – 2017/18
(UGx. Million)

Revenue items	2013/ 2014	2014/ 2015	2015/2016	2016/2017	2017/2018
Taxes revenues	26,967	32,720	34,895	42,581	42,036
Central Transfers	247,357,5	2,480,466	2,528,445	2,871,595	2,892,646
Other revenues	62,267	66,952	61,432	89,290	87,770
Total revenues	2,562,809	2,580,137	2,624,772	3,003,465	3,022,452

Source: Uganda Bureau of Statistics
Note: Local government revenue is a summation of Districts revenue and Municipalities revenue.

The financial structure of the different levels of local government reveals, that districts and municipalities rely more on transfers from the central government than town councils Steiner, (2006). For districts revenue structure, the central transfers for the fiscal year 2017/2018 amounted to 2,576,776 million shillings, which is equivalent to about 98% of the total revenues of the districts, which amounted to 2,609,073 million shillings. Almost the same percentages in municipalities, where the proportion of central transfers amounted to about 95.7% of the total revenue. While, transfers from the central government as a percentage of total revenues in town councils amounted about 72.8%.

Article 193 of the Constitution of the Republic of Uganda provides for intergovernmental transfers (grants) to local governments. Table 2 shows the types of transfers as well as the contribution of each type of transfers as a percentage of total remittances to local governments.

Table (2) Central Government transfers to Local Governments (UGX Billions)

Transfers to local government	2013-2014	2014-2015	2015-2016
conditional transfers	1,733.15	1,926.39	1931.49
unconditional transfers	221.20	247.26	244.08
Equalization transfers	3.49	3.59	3.59
Total	1,957.48	2,177.24	2,179.16

Source: local government finance commission (LGFC)

Table 2 reveals that there are three types of transfers in Uganda Ziria, (2000): unconditional transfer, which specified in the Seventh Schedule to Constitution and present about 11% of total central transfers. Also, conditional transfer, consist of monies given to local governments to finance programmers agreed upon between the Government and the local governments and shall be expended only for the purposes for which it was made and in accordance with the conditions agreed upon, it is constitute about 88% of total central transfers. Furthermore, Equalization transfer, which is given to some development targets. Its forms a very small percentage bout 1% of total central transfers. Article 193 (5) of the Constitution states that, "district councils shall be obliged to indicate how conditional and equalization grants obtained from the Government are to be passed onto the lower levels of local government."

5 Methodology

5.1. Econometric model and estimation technique

Heavily depending on transfers from central government compromises local government autonomy to set policies in accordance local preferences. In the same time insufficient local revenues to meet spending needs, especially in rural local units, has a negative impact on the

efficiency of the provision of social and economic services. This theoretical contradiction r is the reason for empirical analysis.

The analysis focuses on the highest local level for both countries, which is the Governorate level for Egypt, and districts levels for Uganda. The total number of Egyptian governorates is 27, while the number of Ugandan districts has devolved from 16 districts in 1959 to 121 in 2017. Because of the lack of data on all Ugandan districts, Empirical analysis covers cross-section data for 27 Egyptian Governorate and 100 Ugandan districts.

To analyze the impact of transfers on local own revenue, the following empirical model is estimated

$$Log\ OwnRevenue_i = \beta_0 + \beta_1 \log TRANS_i + \beta_2 \log EXP_i + \beta_3 \log X_i + \varepsilon_i$$

From Equation 1, own revenue denotes district revenue for Uganda/Egypt. $TRAN\,Si$ denotes the size of intergovernmental transfers from center government (log-transformed); $\log EXP_i$is the log expenditures of local governments. $log\,X_i$ is a vector of several explanatory variables commonly used in the literature on the determinants of local revenue. These include variables on socio-economic, demographic and political variables. $\varepsilon_i$is the error term.

5.2. Data resources and expected results

The database used in the analysis contains comprehensive and integrated financial, socio-economic, demographic and political data on Ugandan

and Egyptian local governments. For Egypt, data on governorates were compiled from financial data related to own revenues and local expenditure as well as transfers from the central government to the governorates were collect from the budget figures for the fiscal year 2018-2019 from the Ministry of Finance. Data on socioeconomic and demographic variables at local level were obtained from the Central Agency for Public Mobilization and Statistics (CAPMAS), which provides a comprehensive survey of the Egyptian governorates in terms of population, education, health, poverty rate, unemployment, and urbanization. Also, data dealt with the political variable, which is the number of seats allocated to parliamentarians within each governorate according to the latest elections in 2015 was obtained from the Ministry of Local Development.

The model included three types of explanatory variables that illustrate the financial, socioeconomic, demographic, and political characteristics of Egyptian governorates to reflect their ability to generate local revenue. For financial characteristics: The log of Current and capital spending for each governorate is included to explore the relevance of the intertemporal budget constraint. The dynamic relationship between local revenues and expenditures has been investigated by Dahlberg & Johansson (1998) in Sweden and recently by Mogues & Benin (2012) in Ghana. Their results indicated that expenditures are positively related to own-source revenues. Also the model explores the relevance of socioeconomic and demographic variables to explain local own-revenue mobilization. The population number was included in the regression to control for the size of each governorate. Also, demographic variables such as total population and urbanization level are expected to be positively correlated with

generating local revenue. The unemployment rate was included in the analysis to express the level of purchasing power of the local citizens. The high unemployment rate means that the purchasing power of local citizens is low and their ability to participate in local revenue generation is weak. Thus, this variable is likely to be negatively correlated with the generation of local revenues. The health and educational level of the local citizen was expressed using the number of currently enrolled in secondary schools 2018 and Infant Mortality Rates, Rate per 1000 live births 2018 (CAPMAS, 2018) , where these two variables were included in the analysis to express the extent of the ability of the local citizen to participate in generating local revenue. The improvement of the educational level and health of the local citizen, gives them the ability to pressure local government officials and increase efficiency in a way that makes them more willing to pay local taxes, so the level of education and health is expected to be positively associated with revenue generation at the local level. The poverty rate is used as proxy for income levels because information on income is unavailable at local level. The income base for taxation is likely to be lower in governorates with a larger poverty therefore this variable is expected to have a negative effect on revenue mobilization Mogues & Benin, (2012).

To take into account the political structure of the Egyptian local governments, and due to the centralization of the preparation of local budgets, a political variable has been included in the analysis that reflects the number of seats allocated to members of parliament within each Egyptian governorate. The increase in the number of Parliament members representing the Governorate, leads to increased negotiating power and thus decisions that would expand the tax base or search for new sources

of local revenues. Thus, this variable is likely to correlate positively with local revenue generation Allers, de Haan, & Sterks (2001).

Data for Uganda was collected from Ministry of Finance, Planning and Economic Development (2019), National Population and Housing Census 2014, which includes a complete survey of population, number of households and urbanization rate, and Uganda Bureau of Statistics, which provides many statistics on central and local Ugandan governments; and the Ministry of Education and Sports. Data for the political variable, linked to the results of the local elections held in 2016, were obtained from the Ministry of Local Development.

Variables that reflect the financial characteristics of the Ugandan districts have been expressed as Tax and non-tax revenues for each district according to the local budget figures for the year 2018-2019, conditional and unconditional transfers from central government, and Current and capital spending for each district. The district poverty rate was measured as a number of households without electricity in each district. Also education level was measures as a net enrollment rate in secondary schools.

The number of lower level administrative units in each district was concluded in the model to reflect the degree of expansion of the tax base. An increase in the number of lower local levels could lead to an expansion of the tax base and consequently an increase in local revenues, so this variable is therefore likely to be positively associated with increased tax revenues. According to the Leviathan hypothesis, which says that governments with low levels of competition are more likely to extract higher taxes, the analysis has included a dummy variable describing the last local elections (2016) on the seat of district

chairperson, which take zero if the candidate wins without opposition and 1 if there is competition in the elections. A political variable that less competition means that the government is less obligated to trade its preferences against the preferences of the average voter. Less competition implies that the government is less compelled to trade off its own preferences against those of the median voter, so this variable is therefore likely to be positively associated with increased tax revenues Brennan & Buchanan (1989).

5.3. Descriptive results and correlation analyses.

Table 3, 4 presents the summary statistics for the key variables used in the analysis. The local units in Uganda data considering revenues, transfers, expenditure and population are more consistent than those for Egypt, as indicated by the lower coefficient of variation. However, the variation in poverty rate among local units in Egypt is lower than Uganda.

Table (3) Descriptive statistics for Egypt

Variables	(1) N	(2) mean	(3) Sd	(4) Min	(5) Max	(6) C.V
Revenue	27	5.534	0.315	4.884	5.866	6%
Transfers	27	6.676	0.306	5.976	6.910	5%
Expenditure	27	6.675	0.2917	5.948	6.912	4%
Population	27	3.533	0.532	2.017	3.818	15%
Urbanization	27	1.609	0.254	1.255	1.993	16%
Area	27	3.954	0.683	2.959	4.797	17%
Education	27	5.966	0.540	4.491	6.272	9%
Health	27	1.113	0.123	0.949	1.276	11%
Unemployment	27	1.075	0.134	0.778	1.245	12%
Poverty	27	1.492	0.244	0.880	1.737	16%
Seats	27	1.505	0.369	0.602	1.568	25%

Source: The table was calculated by STATA 11

Table (4) Descriptive statistics for Uganda

Variables	(1) N	(2) Mean	(3) Sd	(4) Min	(5) Max	(6) C.V
Revenue	100	7.426	0.161	7.033	7.752	2%
Unconditional transfer	100	6.568	0.127	6.303	6.838	2%
Conditional transfer	100	7.260	0.198	6.681	7.631	3%
Expenditure	100	7.336	0.176	6.881	7.677	2%
Population	100	5.400	0.264	4.686	5.841	5%
Urbanization	100	1.102	0.287	0.278	1.563	26%
Area	100	3.204	0.325	2.339	3.727	10%
Education	100	1.301	0.268	0.301	1.633	21%
Poverty	100	1.044	0.333	-0.154	1.528	32%
Lower level	100	0.301	0.213	0	0.698	71%

Source: The table was calculated by STATA 11

From the correlation matrix for Egypt data, the correlation between explanatory variables and the dependent variable is moderately good. Also From the correlation matrix for Uganda data, the correlation between explanatory variables and the dependent variable is moderately good. And there are no evidence of serious multicolinearity problem between independent variables since the correlation between them is not exceeded 0.8, except for expenditure which excluded from the model to avoid the multicolinearity problem.

Table (5) correlation results for Ugandan variables

. correlate
(obs=100)

	revenue	expend~e	uncond~l	condit~l	area	popula~n	urbani~n	poverty	lowerl~l	election	educat~n
revenue	1.0000										
expenditure	0.9242	1.0000									
unconditio~l	0.7444	0.6928	1.0000								
conditional	0.9028	0.9945	0.6198	1.0000							
area	0.1329	-0.0490	0.0840	-0.0605	1.0000						
population	0.6947	0.7364	0.5670	0.7256	0.0809	1.0000					
urbanization	0.2508	0.2240	0.1335	0.2216	-0.1147	0.2403	1.0000				
poverty	0.2762	0.3120	-0.0231	0.3389	0.0509	0.3464	0.4833	1.0000			
lowerlevel	0.4272	0.3902	0.1716	0.4069	0.1940	0.4249	0.0942	0.3299	1.0000		
election	0.1043	0.1083	0.1112	0.1038	-0.1093	-0.0203	-0.1119	-0.1493	-0.1207	1.0000	
education	0.1736	0.3204	0.0378	0.3480	-0.4354	0.1947	0.2626	0.3588	0.1472	-0.1191	1.0000

Source: The table was calculated by STATA 11

5.4. Estimation results and discussion.

Various country specific models are estimated as a double log model and the results are presented in Tables 6, 7. However, before the models estimation, the data properties are analyzed to establish their normal distributions and other data properties. First the model is estimated based on 27 observations for Egypt and 100 for Uganda. The R-squared reveal that about 84% and 73% of the variation in the local revenue collection is attributed to the key factors included in the estimated modes for Egypt and Uganda, respectively.

Table (6) the impact of central transfers on Egyptian local revenue

VARIABLES	Model (1)	Model (2)
Transfers	**-3.200**** (0.001)	**-4.308***** (0.0000)
Expenditure	**3.320**** (0.001)	**3.963***** (0.000)
Population	-0.434 (0.217)	
Urbanization	**0.4911*** (0.025)	
Area	0.055 (0.341)	
Education level	0.139 (0.603)	
Health level	-0.171 (0.545)	
Unemployment	**-0.6513*** (0.044)	0.0483 (0.808)
Seats		**1.0316***** (0.000)
Poverty level		-0.1120 (0.295)
R-squared	0.848	0.864

*** p<0.01, ** p<0.05, * p<0.1
Sources: See Appendix 1, 2.

The results show that transfers have a significant decreasing effect on the local revenue mobilization. The findings means that a percentage increase

in the transfers reduces local revenue mobilization by 3.2 percentage points (model 1) and by 4.3 percentage points (model 2). Our finding implies that there is need for measures to reduce transfers will enhance local revenue collections and this will build the local government capacity for self-revenue collection. Our findings are in line with previous authors (Bravo, 2013; Liu and Zhao 2011; Mogues et al, 2009; Correa and Stelner, 1999) who found that transfers negatively affect local government capacity for local revenue collection.

Also these findings are in line with previous authors (Brun and Khdari, 2016), who suggest that the effect of intergovernmental transfers depend on the formula used to calculate the transfer. In Egypt there is no transfer's formula that sets specific criteria for the distribution of transfers and the only criterion is to close the gap between revenues and expenditures, which removes any incentive for these local governments to increase and mobilize local revenues. Also there is a positive impact of local expenditure on local revenue generation in both models, which is consistent with the theory and with previous authors Dahlberg &Johansson (1998), Mogues &Benin (2012), Brun &Khdari (2016) who found a positive relationship between intergovernmental transfers and local expenditure.

The political variable shows that increasing the number of seats allocated to members of parliament in each governorate has a strong positive impact on generating domestic revenue, which is consistent with the theory. But it should be noted here that the ability to influence government decisions that increase local revenues may not be related to numbers but rather to the personal abilities of these members.

There are some variables that express a non-significant relationship with local revenues generation in the first model such as education, population, and health level. Although this is not consistent with theory, but using school enrollment as an indicator to measure the education level may not reflect the degree of awareness among local citizens that can increase accountability and efficiency in revenue collection. On the other hand, using the number of people who are over 65 years old may better reflect the burden on local governments than the total population. Also, the first model shows positive effect of urbanization on local revenue generation and a negative impact of unemployment, which is consistent with the theory.

Table (7) presents four models explaining the results of the relationship between transfers and local revenue generation for 100 Ugandan districts. The first and second models deal with the impact of unconditional transfers, while the third and fourth models address the impact of conditional transfers.

Table (7) Impact of central transfers on Ugandan local revenue

VARIABLES	Unconditional transfers		Conditional transfers	
	Model (1)	Model (2)	Model (3)	Model (4)
Unconditional transfers	**0.703***** (0.000)	**0.8754***** (0.000)		
conditional transfers			**0.738***** (0.000)	**0.7521***** (0.0000
Area	0.038 (0.243)		**0.0815**** (0.001)	
Population	**0.144**** (0.003)		0.121 (0.730)	
Urbanization	0.0294 (0.421)	0.0276 (0.462)	**0.0719**** (0.005)	**0.0622*** (0.018)
Poverty level	0.0527 (0.141)	**0.0969**** (0.005)	-0.0448 (0.060)	-0.0278 (0.253)
Lower levels	**0.13518**** (0.006)	**0.1893***** (0.000)	0.039 (0.246)	0.064 (0.060)

Elections	**0.0489*** (0.056)	0.0420 (0.113	0.0117 (0.518)	
Education level	0.0447 (0.282)		-0.047 (0.111)	**--0.1013* ** ** (0.000)
R-squared	0.0.730	0.697	0.870	0.851

*** p<0.01, ** p<0.05, * p<0.1
Sources: See Appendix 3,4,5,6..

The results show that there is a strong positive effect of unconditional and conditional transfers on local revenue generation The findings means that a percentage increase in the unconditional and conditional transfers increase local revenue mobilization by 0.70 percentage points (model 1) , by 0.87 percentage points (model 2), by 0.73 percentage points (model 3) and by 0.75 percentage points (model 4). Our finding are in line with previous authors Skidmore (1999), Skidmore (1999), Masaki (2016) who found a positive effect of central government transfers on locally generated revenues, but are not in line with previous authors Smoke &Schroeder, (2000), Caldeira &Rota-Graziosia (2014), who found a positive effect of unconditional transfers and a negative effect of condition transfers on own revenue.

Total population has appositive relation with local revenue, which can be explained by the increase in the population leads to the expansion of the tax base for local units. Education level shows a negative relationship with local revenue generation in fourth model. Although this finding contradicts the theory, but it can be explained that the reason for not attending education may be for work, which positively affects the increase in local revenues, but only in the short term.

Regarding the local structure, the analysis indicates that an increase in the number of lower local leads to an increase in revenue generation at the local level, which is in line with theory. The political variable shows a

positive effect on local revenue generation in the first model, and a non-significant relationship with local revenues the second and third model.

By comparing the results between Egypt and Uganda, it is clear that: intergovernmental transfers have a negative impact on local revenues generation in Egypt, and a positive impact in Uganda. This is consistent with the nature and structure of the transfers system in both countries, because the Egyptian transfers system does not contain a specific formula for transfers that could create incentives for local governments to mobilize local revenues. Also, there is no impact of demographic variables such as population and total area on the generation of local revenues in Egypt, while a significant relationship in Uganda. Urbanization level shows a positive impact on local revenues in Egypt and Uganda.

With regard to socioeconomic variables, the education variable showed a negative relationship in Uganda and non-significant in Egypt, also the poverty variable, which shows a positive relationship in Uganda and non-significant in Egypt.

It should be noted that the political variables have a strong statistical significance in influencing the generation of local revenue in Egypt and Uganda. This finding are in line with previous authors (Allers, de Haan, & Sterks (2001), Borge &Rattsø (1997) who found that political structure greatly affects the level of local taxation.

6. Concluding remarks.

In any decentralized system, intergovernmental transfers are an important element in the relationship between the central and lower levels of government. The literature confirms that the design of the transfers system has a significant impact on the behavior of local governments, and

therefore policy makers must pay great attention to the design of the transfers system to take advantage of decentralization by giving enough autonomy to local governments in generating their own revenue.

Using integrated public finance dataset on Egyptian and Ugandan local governments, this paper estimated empirically the effects of intergovernmental transfers on local revenue generation by using OLS techniques. The findings support the existence of a positive incentive effect of unconditional and conditional transfers in Uganda, but a negative incentive effect in Egypt, suggesting that the transfer system in Egypt suffers from a defect that does not make it able to create incentives for local governments to mobilize their revenues. These results are somewhat consistent previous findings in the literature on incentive effects of intergovernmental transfers.

The paper indicated that transfers represent a large proportion of local government financing in both Egypt and Uganda, amounting to 80%, and in Uganda, conditional transfers represent about 88% of the total remittances. The heavy reliance of local governments on transfers to finance their projects make their motives for collecting revenues less, and increasing the proportion of conditional transfers makes them more sensitive to political m anipulation and local bargaining.

Our study finding has several policy implications. First, to reduce the dependence on transfers, especially the conditional ones, and to use these resources to increase local governments' capacity or at least the general-purpose transfers, to give local governments more autonomy in handling local issues.

Secondly, the results indicate that there is need to the design a formula used for unconditional transfers. This formula should include a tax effort

indicator and other indicators that can create incentives for local governments to increase their own revenue.

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Appendix 1: The impact of Intergovernmental Transfers on Local Revenue Generation Using Egyptian Data

```
. regress revenue transfer expenditure population urbanization area education health unemployment
```

Source	SS	df	MS	Number of obs =	27
Model	2.19974867	8	.274968583	F(8, 18) =	12.61
Residual	.392522471	18	.021806804	Prob > F =	0.0000
				R-squared =	0.8486
				Adj R-squared =	0.7813
Total	2.59227114	26	.099702736	Root MSE =	.14767

revenue	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
transfer	-3.200466	.776959	-4.12	0.001	-4.832796	-1.568135
expenditure	3.320447	.8862451	3.75	0.001	1.458515	5.182379
population	.434547	.3397672	1.28	0.217	-.2792774	1.148371
urbanization	.4911299	.2012127	2.44	0.025	.0683977	.913862
area	.0553143	.0565875	0.98	0.341	-.0635715	.1742002
education	.1395009	.2633869	0.53	0.603	-.4138544	.6928562
health	-.1710137	.2773989	-0.62	0.545	-.7538072	.4117799
unemployment	-.6513511	.3043473	-2.14	0.046	-1.290761	-.0119412
_cons	2.367132	1.816985	1.30	0.209	-1.450212	6.184477

Appendix 2: The impact of Intergovernmental Transfers on Local Revenue Generation Using Egyptian Data

```
. regress revenue transfer expenditure unemployment seats poverty
```

Source	SS	df	MS	Number of obs =	27
Model	2.24211216	5	.448422433	F(5, 21) =	26.89
Residual	.350158974	21	.016674237	Prob > F =	0.0000
				R-squared =	0.8649
				Adj R-squared =	0.8328
Total	2.59227114	26	.099702736	Root MSE =	.12913

revenue	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
transfer	-4.308905	.6236606	-6.91	0.000	-5.605879	-3.011932
expenditure	3.963631	.6871455	5.77	0.000	2.534634	5.392629
unemployment	.0483877	.1961652	0.25	0.808	-.3595602	.4563357
seats	1.031615	.229156	4.50	0.000	.5550591	1.508171
poverty	-.1120266	.1042935	-1.07	0.295	-.3289167	.1048636
_cons	6.653955	1.649353	4.03	0.001	3.223937	10.08397

Appendix 3: The impact of Intergovernmental unconditional Transfers on Local Revenue Generation Using Ugandan Data

```
. regress revenue unconditional area population urbanization poverty lowerlevel election education
```

Source	SS	df	MS
Model	1.89591083	8	.236988854
Residual	.700448814	91	.00769724
Total	2.59635965	99	.026225855

Number of obs = 100
F(8, 91) = 30.79
Prob > F = 0.0000
R-squared = 0.7302
Adj R-squared = 0.7065
Root MSE = .08773

revenue	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
unconditio~l	.7038652	.0896342	7.85	0.000	.525818	.8819125
area	.0384537	.0327538	1.17	0.243	-.0266076	.103515
population	.1443273	.0472163	3.06	0.003	.0505378	.2381167
urbanization	.0294474	.0364249	0.81	0.421	-.0429061	.1018009
poverty	.0527885	.0355809	1.48	0.141	-.0178886	.1234656
lowerlevel	.1351226	.0480769	2.81	0.006	.0396237	.2306215
election	.0489117	.0256214	1.91	0.059	-.001982	.0998054
education	.0447229	.0412861	1.08	0.282	-.0372868	.1267327
_cons	1.695119	.4848731	3.50	0.001	.7319779	2.65826

Appendix 4: The impact of Intergovernmental unconditional Transfers on Local Revenue Generation Using Ugandan Data

```
. regress revenue unconditional urbanization lowerlevel election poverty
```

Source	SS	df	MS
Model	1.80954904	5	.361909808
Residual	.786810607	94	.008370326
Total	2.59635965	99	.026225855

Number of obs = 100
F(5, 94) = 43.24
Prob > F = 0.0000
R-squared = 0.6970
Adj R-squared = 0.6808
Root MSE = .09149

revenue	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
unconditio~l	.8754384	.0754758	11.60	0.000	.7255794	1.025297
urbanization	.0276617	.037431	0.74	0.462	-.0466584	.1019819
lowerlevel	.1893047	.0470443	4.02	0.000	.0958971	.2827122
election	.0420398	.0262773	1.60	0.113	-.0101344	.0942139
poverty	.096993	.0337951	2.87	0.005	.029892	.164094
_cons	1.475828	.4890102	3.02	0.003	.504887	2.44677

Appendix 5: The impact of Intergovernmental conditional Transfers on Local Revenue Generation Using Ugandan Data

```
. regress revenue conditional area population urbanization poverty lowerlevel election education
```

Source	SS	df	MS		
Model	2.25975028	8	.282468785	Number of obs	= 100
Residual	.336609368	91	.003699004	F(8, 91)	= 76.36
				Prob > F	= 0.0000
				R-squared	= 0.8704
				Adj R-squared	= 0.8590
Total	2.59635965	99	.026225855	Root MSE	= .06082

revenue	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
conditional	.7385945	.0490571	15.06	0.000	.6411487	.8360403
area	.0815016	.0225885	3.61	0.001	.0366322	.1263709
population	.0121897	.0352527	0.35	0.730	-.0578354	.0822149
urbanization	.07198	.0249325	2.89	0.005	.0224546	.1215053
poverty	-.0448299	.0235447	-1.90	0.060	-.0915985	.0019387
lowerlevel	.0394406	.0338051	1.17	0.246	-.027709	.1065902
election	.0117641	.0181092	0.65	0.518	-.0242076	.0477358
education	-.0474634	.0294806	-1.61	0.111	-.106023	.0110961
_cons	1.762658	.2697874	6.53	0.000	1.226759	2.298558

Appendix 6: The impact of Intergovernmental conditional Transfers on Local Revenue Generation Using Ugandan Data

```
. regress revenue conditional urbanization poverty lowerlevel education
```

Source	SS	df	MS		
Model	2.21004701	5	.442009401	Number of obs	= 100
Residual	.38631264	94	.004109709	F(5, 94)	= 107.55
				Prob > F	= 0.0000
				R-squared	= 0.8512
				Adj R-squared	= 0.8433
Total	2.59635965	99	.026225855	Root MSE	= .06411

revenue	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
conditional	.7521731	.0380297	19.78	0.000	.6766643	.8276819
urbanization	.0622569	.0259406	2.40	0.018	.0107511	.1137626
poverty	-.0278312	.0241995	-1.15	0.253	-.0758799	.0202174
lowerlevel	.0649003	.034132	1.90	0.060	-.0028696	.1326702
education	-.10131	.0267361	-3.79	0.000	-.1543952	-.0482247
_cons	2.053919	.261691	7.85	0.000	1.534325	2.573512