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## Intergovernmental Fiscal Transfers and Fiscal Capacity

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### ABSTRACT

An intergovernmental fiscal transfer is an instrument used by governments to equalize fiscal capacity. However, with the large discrepancies in fiscal capacity among Local Authorities (LAs) in Kenya, it is evident that the intention of the instrument has not been met. These disparities lead to inequity as some LAs receive better services for their tax, while others do not.

Using panel data from 2001–2006 among 22 LAs, the Local Authority Transfer Fund (LATF) was found to be high in LAs that had substantial fiscal capacities. This suggests the need to revise the formula used in computing LATF.

### KEYWORDS

Fiscal capacity; intergovernmental fiscal transfers; local authorities; panel data; random-effects model

### JEL CLASSIFICATION

C230; G00; H20; H70

### Background

There are often substantial disparities in revenue-raising abilities or fiscal capacity across local authorities (LAs) (Broadway & Shah, 2007). According to Local Authority Transfer Fund (LATF) Annual Report FY 2004–2005, municipal and county councils have higher fiscal capacities of 41% each, followed by towns with 13%, and city councils with 5%. The need for intergovernmental transfers varies depending on the type of fiscal imbalance—vertical and horizontal. Vertical fiscal imbalance arises when revenues do not match expenditures between the central authorities and LAs. Horizontal fiscal imbalance, on the other hand, occurs when revenues do not match expenditures across different LAs within a country.

Equalization (horizontal) means achieving some degree of fiscal balance between the different LAs. The economic rationale for designing an equalization transfer system is to eliminate or reduce the differences in fiscal capacity disparities (Yilmaz, Hoo, Nagowski, Reuben, & Tannenwald, 2002). In a decentralized system, LAs acting independently may finance and deliver public services in ways that distort the inter-local allocation of resources. They may engage in self-destructive fiscal competition with one another. The lack of equalization system would lead to inefficiency and inequity in the economic system (Broadway, 2005).

Variations in fiscal capacity across LAs encourage fiscally induced migration of factors of production.

Labor and capital may move to areas with positive net fiscal benefits for fiscal considerations alone. Fiscally induced migration creates social and economic problems in resource-rich areas (Dahlby & Wilson, 1994). Factor movements in response to fiscal considerations alone create inefficiency and reduce social welfare (Shah, 1996).

Intergovernmental fiscal transfers form the cornerstone of LAs or LA's financing in most developing and transition economies (Bahl, 2000). For example in Kenya, the LATF which is designated for LAs comprised 5% of the national income tax collection in any year (Government of Kenya, 2001/2–2006/7). The LATF currently makes up approximately 24% of LA revenues. At least 7% of the total fund is shared equally among the country's 175 LAs, while 60% is disbursed according to the relative population size of the LAs. The balance is then shared out based on the relative urban population densities. LATF monies are combined with LA revenues to implement local priorities.

LAs in Kenya also operate in a highly competitive environment (Meadowcroft, 2013) for both residents and businesses that help to finance public services. In urban areas, LAs were required to provide a wide range of services than their rural counterparts. The costs of these services are heavily influenced by the characteristics of the environment in which LAs operate. In rural areas, it is more costly to provide public services and goods such as roads, water, sanitation, and utilities because they are sparsely populated than cities (Broadway & Shah, 2007). Rural areas are known to

be poor and tend to have smaller revenue-raising capabilities. Therefore, they demand a substantial intergovernmental transfer in order to provide basic public services education and social services (Broadway & Shah, 2007).

Apart from attracting a suitable population to aid finance public services and goods, geographical location, and incomes, the causes of fiscal capacity disparities can be explained by differences in tax bases or revenue sources. Differences in revenue factors (revenue sources) impact differently on fiscal capacity of LAs. Some of the LA revenue factors include property tax, contribution in lieu of rates (cilor), market fees, and single business permits, and other small revenue sources (i.e., game fees, cess fee, garbage fees, and parking fees). This study, therefore, examines the factors explaining the horizontal fiscal imbalances among LAs in Kenya.

## Literature review

Estimating the ability of LA to raise revenue from their own sources or fiscal capacity is considered difficult both conceptually and empirically (Broadway & Shah, 2007). There are two types of measuring fiscal capacity. First, macroindicators which have been criticized since they are not able to show the ability of LA to raise revenues from own sources. It does not capture fiscal inefficiency and fiscal inequity and the unavailability of accurate and timely data on LAs. Second, the use of representative tax system. It expresses fiscal capacity as a simple linear function of the size of the tax base. As such, a larger tax base would yield higher returns on tax revenue, given a larger number of taxable sources (Broadway et al., 2007).

Several studies have applied the representative tax system method to measure fiscal capacity (Bell, Atkins, Curran, Wolman, & Cordo, 2005; Chernick, 1998; Luu, 2005; Yilmaz et al., 2002). These studies indicate that the potential of a region to collect revenues is influenced by the economic structure and by the availability of taxable resources or tax bases. Property taxes are the largest tax bases for financing local governments throughout the world (Fernholz, 2007; Green & Reschovsky, 1993; Rafuse & Marks, 1991). However, they tend to stagnate in real terms primarily because of inadequate collection/enforcement lags in maintaining tax base coverage and outdated valuations (Fernholz, 2007). Another form of tax base widely discussed in the literature is the business and commercial activities; it is a payment for the right to trade in a locality (Fernholz, 2007).

Apart from the revenue factors, there are other factors that explain fiscal disparities such as population. Dudely and Montmarquette (1992) found that the closer people

live and work together for given levels of urbanization, the lower the government costs of observing taxable activities. Hence, there is a high fiscal capacity as a result of low expenditure needs. Studies examining fiscal disparity also show that differences in the region play a critical role in estimating fiscal capacity. For instance, Bell et al. (2005) and Chernick (1998) found a weak fiscal capacity in the city, relative to most suburban jurisdiction.

Differences in expenditure needs may be the reason for fiscal capacity differences among LAs (Nagowski, 2007). Research by Bakhshi, Shakeri, Olfert, Patridge, and Weseen (2006) articulated that unequal fiscal capacities arise from an unequal distribution of revenue sources (and perhaps the cost of public services) among subnational units, leading to unequal fiscal burdens for otherwise equal citizens. In addition, fiscal disparities were attributed to fiscal distress that result largely from constraints beyond the control of LAs, which make them demand for intergovernmental fiscal transfers (Ladd & Yinger, 1989).

Summary of the literature shows that Akin and Auten (1976), Chernick and Reschovsky (2006), and Ladd and Yinger (1989) have analyzed horizontal imbalances. However, they had difficulties in measuring local fiscal capacity in an objective way. The appropriate way to measure the fiscal capacity was to include the tax bases of own source revenues in LAs, although there is daunting nature of the data requirements to fully implement this approach. Some revenue factors that influence fiscal capacity include property tax, cilor, market fees, single business permits, and other small sources (i.e., game fees, cess fee, garbage fees, and parking fees). Other factors include intergovernmental transfers, population, and the number of employees in the LA. The study contributes to literature by analyzing the effects and significance of both revenue and non-revenue factors on the fiscal capacity of LAs in Kenya using panel data model estimation. This study is thus able to control for local heterogeneity that was not accounted by earlier studies to analyze the determinants of fiscal capacity.

## Model specification

To measure the fiscal capacity of LAs, the study borrowed Martinez-Vazquez and Boex (1997) model and modified it as shown in Equation (1):

$$FC_{it} = \delta_0 + \sum_{j=1}^6 \beta_j RF_{it} + \sum_{j=1}^2 \lambda_j NRF_{it} + \varepsilon_{it} \quad (1)$$

where  $FC_{it}$  represents fiscal capacity;  $\beta_j$  are the slope coefficients;  $j = 1, 2, \dots, 8$ .  $RF_{it}$  represents revenue factors that are estimated using six variables

(contributions in lieu of rates, property rates, single business permits, market fee, other revenue sources, and intergovernmental transfers); and  $NRF_{it}$  represents non-revenue factors that are estimated using two variables (i.e., population of the LA, and number of employees working in the LA).

By inserting revenue factors and non-revenue factors into their respective proxies, Equation (1) can be broken down into Equation (2). This is the actual equation to be estimated which was analyzed using panel data.

$$FC_{it} = \delta_o + \beta_1 CILOR_{it} + \beta_2 PR_{it} + \beta_3 SBP_{it} + \beta_4 MF_{it} + \beta_5 OR_{it} + \beta_6 T_{it} + \beta_7 EMPS_{it} + \varepsilon_{it} \quad (2)$$

where  $FC_{it}$  is fiscal capacity variable, which was the total amount of own source revenues collected including transfers within the LA;  $CILOR_{it}$  is contributions in lieu of rates, which include total revenue received from central government for property occupied within a LA.  $PR_{it}$  is property rates which represent the total revenue collected from property rates,  $SBP_{it}$  is single business permits, total revenue collected from single business permits within a LA;  $MF_{it}$  is market fee, the total revenue collected from market fees;  $OR_{it}$  is other revenue sources, total revenue collected from other small revenue sources which may differ from one LA to another;  $T_{it}$  is the intergovernmental transfers (LATF), the total revenue from statutory allocation meant to boost the revenue base of LAs; and  $EMPS_{it}$  is the number of employees working in the LA.

This article adopted panel data estimation techniques in capturing the impacts of revenue factors and non-revenue factors on fiscal capacity. This is because panel data consist of both cross-sectional and time-series dimensions; hence it was expected to give unbiased parameter estimators, since it controls for individual-specific effects.

A one-way error model was estimated which means that  $\varepsilon_{it}$  is decomposed into individual-specific effects and the error term (i.e.,  $\varepsilon_{it} = \delta_i + U_{it}$ ). Equation (2) becomes:

$$FC_{it} = \delta_o + \beta_1 CILOR_{it} + \beta_2 PR_{it} + \beta_3 SBP_{it} + \beta_4 MF_{it} + \beta_5 OR_{it} + \beta_6 T_{it} + \beta_7 EMPS_{it} + \delta_i + U_{it} \quad (3)$$

where  $\delta_i$  is the individual-specific effect which varies across LAs or the cross-sectional unit but is constant across time, and may or may not be correlated with the explanatory variables. It is also noted that  $U_{it}$  varies unsystematically (i.e., independently) across time and LAs.

The assumption made about the individual effects determines whether a random or a fixed effect is used. For random effects,  $\delta_i$  is uncorrelated with independent variables, while for the fixed effects,  $\delta_i$  is correlated with dependent variables.

### Data types and sources

The article was based on secondary panel data. Data collected covered the period of 2001–2006. The study covered a total of 22 LAs including Nairobi city council, nine municipal councils, nine county councils, and three town councils. The criteria used in selecting the LAs included: geographical distribution to cover all the eight provinces of Kenya; categories of LAs to include the four types of the LAs in the country; and impact of LATF in terms of magnitude of LATF allocation between various types of LAs. A large portion of the LATF was spent in the municipalities and county councils.

The 22 LAs selected are from the eight provinces. Nairobi province had the Nairobi city council which was the only LA. In Central province, Kirinyanga county council, and Nyeri and Kiambu municipal councils were selected. Mariakani town council, Kilifi county council, and Mombasa municipal council were selected from Mombasa province. In Eastern province, Embu municipal council, Makueni county council, and Mwingi town council were selected, while in North Eastern Garissa municipal council, Wajir county council and Mandera town council were chosen. Gusii county council, Migori municipal council, and Siaya county council were selected from Nyanza province, while the ones selected from Rift valley province were Kitale municipal council, Nakuru county council, and Bomet county council. Finally, in Western province, there was Kakamega municipal council, Bungoma county council, and Busia municipal council.

The pooled database had 132 data sets. Data on the various tax bases such as transfers, contributions in lieu of rates (cilor), property rates, single business permit, market fees, other small revenue sources, and number of employees employed within a LA was collected from the LATF annual reports available at the Ministry of Local Authority (Government of Kenya, 2001/2-2006/7). Data on population and area was collected from the various District Development Plans and Kenya Statistical Abstracts (Government of Kenya, 2000-2007; 2002-2008).

The STATA statistical software was used to analyze the data. Hausman specification tested whether to estimate the pooled data using a fixed-effects model or a random-effects model.

## Results and discussions

The descriptive statistics presented in Table 1 include the mean, standard deviation, minimum, and maximum.

The results show that the variable fiscal capacity has a minimum value of Ksh 26.47 and a maximum value of Ksh 3971.91 with a mean value of Ksh 637.76. The fiscal capacity is highly dispersed as shown by the standard deviation of 664.66; implying high variation in the fiscal capacity revenues across LAs; this result is consistent with that of Bell et al.'s (2005) study that was carried out in the United States.

Contributions in lieu of rates, property rates, single business permits, market fees, and transfers have a minimum value of Ksh 0 and varying maximum value, because each year, some LAs do not collect revenue from these sources.

Contributions in lieu of rates had a standard deviation of 24.54, which is much lower than other revenue sources. This implies that the contributions in lieu of rates exhibit the least amount of disparity compared to rest of the revenue sources within the LAs.

The other revenue sources had a minimum value of Ksh 7.79 and a maximum value of Ksh 2850.11. It also had the highest standard deviation of 393.90 in contrast with the rest of the revenue sources, and with a mean value of 277.77. This means that the other revenue source had the highest amount of disparity, when compared to the rest of the revenue sources within the LAs.

The other revenue sources such as game park fees and parking fees have the highest contribution of revenue with 44% followed by intergovernmental transfers with 24%. Contributions in lieu of rates have the lowest input with 3%. The minimum number of employees within the LAs is 28 employees and a maximum of 18,000. It also had a standard deviation of 3503.77, implying a wide variation in the number of employees within LAs. LAs' employees range from 100 to 199 employees consisting of 29.6% of the total employees.

**Table 1.** Descriptive statistics of the variables.

Variable	Mean	Std. Dev.	Minimum	Maximum
Fiscal capacity	637.762	664.6615	26.47	3971.91
Contributions in lieu rates	16.97455	24.54144	0	128.32
Property rates	71.22379	135.9922	0	786.74
Single business permits	59.50091	61.38243	0	270.74
Market fee	43.53932	49.23786	0	242.15
Other revenue sources	277.7712	393.9021	7.79	2850.11
Intergovernmental transfers	148.1517	89.33829	0	351.11
Number of employees	1226.5	3503.77	28	18000
City council	0.045455	0.209092	0	1
Municipal council	0.409091	0.493539	0	1
County council	0.409091	0.493539	0	1
Town council	0.136364	0.344482	0	1

LAs with 400–499 employees use fewer and contribute 3.8% of the total employees.

## Regression results

Given the short time dimension of the panel data, the study estimated a one-way error component model taking into account LA-specific effects. The Hausman (1978) specification test was used to test whether to estimate a random-effects or fixed-effects model. The results of this test are presented in Table 2.

Based on the results, the null hypothesis cannot be rejected; therefore, the preferred model is the random-effects model. This is expected given that only a sample of LAs was used. The dependent variable is the fiscal capacity, while the *t*-statistics are in the parentheses.

The contribution in lieu of rates has a positive coefficient, which is significant at 1%. This means that 1 unit change in lieu of rates increases fiscal capacity by 0.75 units. The contributions in lieu of rates had the least amount of disparity compared to other sources of revenue within the LAs. This implies that contributions in lieu of rates as a source of local government revenue can be used to reduce the differences in fiscal capacities among LAs at the same time increasing their size of fiscal capacity.

The coefficient for property rates is about 1.11 and is significant at 1% level. This variable has a *t*-statistic of 20.14, meaning that a 1 unit change in property rates significantly improves the fiscal capacity by about 1.11

**Table 2.** Random-effects model parameter estimates.

Variable	Coefficients
Contributions in lieu of rates	0.7479256** (5.12)
Property rates	1.114821** (20.14)
Single business permits	1.239271** (13.13)
Market fees	1.188279** (16.43)
Other revenue sources	0.9738146** (88.84)
Intergovernmental transfers	1.028395** (24.34)
Number of employees	0.0042304 (1.03)
City council	-54.09729 (-1.16)
Municipal council	23.2742* (2.30)
County council	15.62603 (1.37)
Constant	-13.98258 (-1.40)
<i>R</i> -squared	0.9985
Wald chi2 (11)	72594.86
Prob > chi2	0.0000
Hausman tests:	
Chi(8)	8.17
Prob > chi2	0.4171

\*Significant at the 5% level.

\*\*Significant at the 1% level.

units. The existence of business activities within a LA may highly influence the contribution of property rates to fiscal capacity arising from the high correlation between single business permit and property rates. This may explain why LAs such as Nairobi city council with high single business permits have also high property rates.

Single business permit has a positive coefficient, which is significant at 1%. A 1 unit change in single business permit increases fiscal capacity by 1.24 units. A single business permit is the highest revenue source contributor to the fiscal capacity among LAs compared to the other revenue sources. This may be due to the high relationship it has with the property rates and the other revenue sources.

The coefficient for market fees is found to be positive, which is significant at 1% level. This implies that 1 unit change in market fees generates about 1.19 units change in the fiscal capacity. The presence of a market in the LA attracts other revenue sources such as garbage fee, water fee, and premises (stalls) fee, which increase the LA revenue collection.

Other revenue source has a coefficient of about 0.97, which is significant at 1%. This means that a 1 unit change in other revenue sources increases fiscal capacity by about 0.97 units change in the fiscal capacity. LAs with other revenue sources in addition to the contributions in lieu of rates, property rates, single business permits, market fee, and intergovernmental transfers may have high revenue collection.

The coefficient of intergovernmental transfer is positive and found to be significant at 1%. A 1 unit change in property rates significantly improves the fiscal capacity by about 1.03 units. When LA transfer fund was allocated to LAs, the size of their fiscal capacity increased. Though there was improvement in their revenue incomes, fiscal capacities differences continued to widen because the LATF policy is not designed to reduce the fiscal disparities among LAs.

The results show that revenue variables have the expected effect on fiscal capacity and are all significant. These results are consistent with those of Martinez-Vasquez and Boex (1997) and Nagoswki (2007) who indicated that the potential of a LA to collect revenues or fiscal capacity is influenced by the availability of taxable resources (tax bases), and a positive relationship was expected between the tax bases and fiscal capacity. LAs with various (numerous) tax bases have a higher contribution to the total revenue collected; in this case Nairobi city with its diversified revenue sources is able to fetch higher revenues.

The dummy variable for town council is our reference (base). The dummy variables for county

council and city council are found to be insignificant. The dummy variable for municipal council had a significant coefficient. These results imply that relative to town council the municipal council tends to collect more revenue. The results also mean that there is no significant difference in revenue collected between town council, county council, and the city council. The dummy variable for city council had a negative coefficient, implying that relative to town council, the city council tends to collect less revenue. This result supports Rafuse and Marks (1991), Green and Reschovsky (1993), and Campbell and Sacks (1967), who noted that city council is less able to collect revenue compared to its surrounding suburb.

## Conclusions

The research article has analyzed the horizontal imbalances in revenue collection among LAs in Kenya. In this article, the fiscal capacity argument set forth by Dahlby and Wilson (1994) and Martinez-Vasquez and Boex (1997) is employed to test a modified efficiency of fiscal capacity based on optimal tax theory. Unlike many prior studies that analyze only cross-sectional differences between LAs, this article has examined the fiscal capacity behavior of LA using panel data. Revenue factors and non-revenue factors determining fiscal capacity were used in the analysis, where time-series cross-sectional analysis on 132 LAs over a period of 6 years was employed.

Based on the Hausman (1978) specification test, the Random-effects model had the most consistent and efficient estimators. All revenue factors are found to be positively related to fiscal capacity as expected. This implies that the various tax bases a LA has, as source of revenue, the higher the fiscal capacity.

There are wide differences in horizontal imbalances among LAs, with municipal councils having higher fiscal capacities than other councils. Contributions in lieu of rates, property rates, single business permits, market fee, other small revenue sources, and intergovernmental transfers are found to be important factors affecting fiscal capacity. The results indicate a lesser fiscal capacity in the city council than other councils. This result supports Campbell and Sacks (1967), Akin et al. (1976), and Rafuse and Marks (1991) who found cities have less fiscal capacities than their surrounding suburbs. Intergovernmental transfers are also found to be positively related to fiscal capacity. This is because intergovernmental transfer was not primarily allocated to offset differences in fiscal capacity as stipulated in LATF policy.

## Policy implications

The following policy recommendations are based on the findings of this article. The analysis shows that municipal council has high fiscal capacities compared to the other councils. The results also reveal that LAs with high intergovernmental transfers tend to have higher fiscal capacities. It is now clear that compensating LAs with low fiscal capacity through increased intergovernmental fiscal transfers will increase their fiscal capacities. Following this, the article recommends LATF policy be redesigned to offset the differences in fiscal capacity among LAs.

The root cause of horizontal imbalance or fiscal disparities is the fact that each LA has a unique economic base since economic activity is not spread out across space in an even manner. In addition, different regions may also have differing abilities to collect taxes as a result of difference in economic structures; a rural, agricultural LA, for example, may be less able to collect taxes than an urban LA, with a large manufacturing sector. The Ministry of Local Authority should also come up with policies that will set revenues equal to expenditures, using a high revenue effort and low actual expenditures. The revenue effort can be achieved by having taxes that are properly assessed, billed, collected, and enforced.

Property rates increased by 16% in 2005/2006, but they have the potential to increase even further, especially if all LAs could improve on collecting property rates, become rating authorities, and carry out property valuation in the areas of their jurisdiction. The Local Government Act, the Rating Act, the Valuation for Rating Act, and the Regional Assembly Act should be redesigned to cater for enforcements aimed at improving property rate collections and empowering LAs to become rating authorities with the ability to carry out property valuation in their respective LAs.

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