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EFFECTS OF FISCAL DECENTRALIZATION ON POVERTY REDUCTION IN KENYA

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Abstract

The Kenya government has instituted fiscal decentralization over the years to promote social economic development, reduce poverty and income inequality and ensure balanced regional development. Despite these efforts, poverty levels have remained high in Kenya. The literature on the relationship between fiscal decentralization and poverty has been rather inconclusive about the effects of fiscal decentralization on poverty. The main objective of this paper was to analyse the effects of fiscal decentralization on poverty in Kenya. Using cross-county panel data from 2002 – 2014 and published data from government agencies, UNDP reports and World Bank reports, the paper estimated various empirical models to analyse the effects intergovernmental transfers, sub-national own-source revenue and county expenditure on poverty in Kenya. The study established that the effect of fiscal decentralization on poverty depends on the nature of decentralization and the extent of fiscal decentralization as well as the county specifics. The paper therefore, recommends the need for for county governments to have adequate own-source revenue to finance their expenditure as opposed to relying on intergovernmental transfers from national government.

Key Words: Fiscal Decentralization, Poverty Reduction

1. Introduction

There is no consensus among the economists on the assignment of functions between the central and sub-national governments. Some economists have wished-for assigning more competencies to sub-national governments to promote economic development. The main argument is that fiscal decentralization increases overall government efficiency (Oates, 1972; 1999). Fiscal decentralization brings the government closer to the people and the local public officials are better informed about local needs and therefore more able to set optimal mix of local policies than are central government bureaucrats. The increase in efficiency contributes to economic growth and poverty reduction. Based on these ideas, many countries all over the world have started to allocate more and more competencies to sub-national jurisdictions. While the

theoretical justification for fiscal decentralization is sound, its practicability differs in federal systems, based on historical antecedents and culture.

In theory fiscal decentralization should have positive effects on poverty reduction since it is likely to make the voice of the poor better heard; improve their access to and the quality of public goods and services and reduce their vulnerability. Fiscal decentralization offers the opportunity to set up democratic institutions in which the poor can actively participate, decide and lobby for their interests. The proximity and information advantage of the local government may lead to a better matching of local needs and better policies. This will bring about efficiency gains, in particular in the area of service delivery in terms of access, quality and targeting. Enhanced efficiency in service delivery can directly improve access by the poor to basic services, such as education, health, water, sewage and electricity. Public participation and capacity of citizens to monitor local officials is higher in a decentralized system. Thus, there are opportunities for an increase in transparency and accountability leading to a reduction in corruption and an overall improvement in local governance. This is expected to help in reducing the vulnerability of the poor. Good governance has been found to improve a variety of outcomes, such as school achievement, quality of life indicators, or even GDP growth (Kaufmann et al. 2000).

However, according to Bardhan and Mookherjee (1998), these benefits of decentralized service delivery can depends on the level of capture by local elites and on the level and nature of local inequality. If there is local capture and the interests of the local political elites are not aligned with those of the local poor, decentralization may work against the wellbeing of the poor. According to OECD (2005) only one third of the analysed countries where fiscal decentralization had actually led to improvements in poverty reduction. In the majority of the countries, fiscal decentralization had no impact at all. In countries where the state lacks the capacity to fulfill its basic functions and in environments with high inequalities at the outset, there is a definite risk that decentralization will increase poverty, rather than reduce it (Bardhan & Mookherjee, 1998). This ambiguity suggests that the link between fiscal decentralization and poverty reduction is not clear-cut and that the outcome is largely influenced by country specificities, as well as by the structure and design of fiscal decentralization.

1.1 Fiscal Decentralization in Kenya

The history of fiscal decentralization in Kenya dates back to independence. Successive Kenya governments have attempted fiscal decentralization as a way of ensuring the country achieves equitable development across the many regions, economic growth and poverty reduction. The *Sessional Paper No. 10 of 1965* established the principle of State directed development and decentralization of planning based on local inputs as a means of improving socio-economic well being of rural communities (Republic of Kenya, 1965). In 1971, Kenya initiated integrated decentralized planning under Special Rural Development Programme (SRDP) that was managed by the Ministry of Finance and coordinated by the National Rural Development Committee (NRDC). This led to establishment of District Focus for Rural Development Strategy (DFRDS) in 1983 with the Rural Development Fund (RDF) to finance the initiative at District level.

In 1999 in order to improve service delivery by local government for poverty reduction, reduce regional disparity and to enable the local authorities to reduce their debts burden the government introduced Local Authority Transfer Fund (LATF) (Republic of Kenya, 1999) that transferred five percent of total income

tax to 175 local authorities. LAFT constituted the major source of revenue to Local Authorities (Las) and continued till 2013 when the LAs were replaced with the current system of devolved government. In 2003 the Constituency Development Fund (CDF) was established through an act of parliament with the primary objective of addressing poverty at grassroots level by dedicating a minimum of 2.5 percent of ordinary national revenue to constituencies. Republic of Kenya (2010 and 2012) made the County the focus of planning in Kenya. The Constitution of Kenya 2010 instituted devolved political system, explicitly requiring the national government to transfer certain powers to county governments and at least 15 percent of the national revenue be given to county governments.

2. Literature Review

2.1 Theoretical Literature

This study was based on the theory of fiscal decentralization that examines the channels through which fiscal decentralization affects poverty and income inequality. Much of the underlying theory of fiscal decentralization is based upon Musgrave's (1939) functions of government. Musgrave (1939) defined the main economic role of government as threefold that is Allocation distribution and stabilization. According to Musgrave (1956) the role of government in maximizing social welfare through public goods provision (allocation) should be assigned to the lower tiers of government following the principal of subsidiarity also referred to as the efficiency criteria which states that goods and services should be provided at the lowest tier of the government.

Tiebout (1956) presented a model in which efficiency in public goods consumption is associated with competition among local jurisdictions, whereby individuals are sorted according to their preferences for public goods and services. Individuals will vote with their feet and locate to jurisdictions that offer the bundle of public services and taxes they like best. Pareto efficiency will be achieved without government intervention.

2.2 Empirical Literature

Von Braun and Grote (2000) conducted a cross-country analysis with a sample of 50 countries and concluded that decentralization served the need of the poor, as captured by the HDI. This study emphasized on the need to consider simultaneously political, administrative and fiscal aspect of decentralization process in order to truly assess its impact on the poor. Lindaman and Thurmaier (2002) also used cross-section analysis to examine the impact of fiscal decentralization on HDI and find evidence of positive and significant relationship between different measures of fiscal decentralization and basic needs in education and health. The key weakness of this study is that it never controlled for variables that have widely been established to be important determinant of regional inequality, especially within the context of developing countries like Kenya. Such factors are demographic characteristics of the household such as educational attainment, ethnicity and household size. The study also used a very small sample hence difficult to generalize the findings.

Galasso and Ravallion (2005) using Bangladesh's Food-for-Education program dataset concluded that pro-poor program benefits increased with decentralization. In a similar study, Bardhan and Mookherjee (2004) found that decentralized management advanced poverty alleviation goals in West Bengal, India.

Based on the literature review it is quite obvious that there are still knowledge gaps to be filled as far as the links between fiscal decentralization poverty is concerned. The existing literature on the relationship between fiscal decentralization and poverty does not provide any conclusive result. This ambiguity could be explained by the different empirical models used as well the cross-country data and the time periods studied. In addition, it is not expected that the results for particular countries and time periods need to hold true for other countries and time periods where decentralization may have taken very different forms and structure. In other words, the question of the effect of fiscal decentralization on regional inequality is very much empirical in nature and may vary according to the institutional and political structure of the country in question.

3. Methodology

The paper employed panel data for the period 2002 to 2013, collected from government and UNDP publications to analyse the effects of fiscal decentralization on poverty. Panel data analysis allows control for unobserved county heterogeneity. Moreover, it will help to decompose components of variance and to study the dynamics of change contained in both the endogenous and exogenous variables from the sample. Furthermore, the combination of time series with cross-sections enhances the quality and quantity of the data set in ways that would be impossible using only one of these two dimensions.

The paper adopted the model developed by Kanbur and Feroni (1991), Faguet (2004), Yao (2007) and Besley and Coate (2003), but will explicitly introduce the poverty and inequality dimension.

To determine the effect of fiscal decentralization on poverty reduction the following equations following Yao (2007) and (Sepulveda, 2010) were estimated.

$$P_{it} = \alpha_{i0} + \beta_1 FDT_{it} + \beta_2 E_{it} + \beta_3 TD_{it} + \beta_4 W_{it} + \beta_5 FR_{it} + \beta_6 N_{it} + \beta_7 Y_{it} + \beta_8 H_{it} + \varepsilon_{it} \dots (1)$$

$$P_{it} = \alpha_{i0} + \beta_1 FDR_{it} + \beta_2 E_{it} + \beta_3 TD_{it} + \beta_4 W_{it} + \beta_5 FR_{it} + \beta_6 N_{it} + \beta_7 Y_{it} + \beta_8 H_{it} + \varepsilon_{it} \dots (2)$$

$$P_{it} = \alpha_{i0} + \beta_1 FDE_{it} + \beta_2 E_{it} + \beta_3 TD_{it} + \beta_4 W_{it} + \beta_5 FR_{it} + \beta_6 N_{it} + \beta_7 Y_{it} + \beta_8 H_{it} + \varepsilon_{it} \dots (3)$$

$$i = 1,.,.,.,n\ ;\ t = 1,.,.,.,T$$

Where P is poverty head count. FDT_{it}, FDR_{it} and FDE_{it}, were intergovernmental transfers, county own-source revenue and county expenditure respectively used one at a time, depending on the model specification. The study used several measures of fiscal decentralization constructed by Segarescus (2005) that allowed for various dimension of fiscal decentralization. This is because no single indicator is able to adequately capture the real level of fiscal decentralization of a country. E is Education indicator, W measure access to improved source of water, FR is fertility rate, N is population density, Y is per capital income, H is household size and TD is total age dependency ratio., ε_{it} is the idiosyncratic disturbances, *n* is the number of cross-sectional units (counties) and T is the number of time periods (years).

4. Empirical Findings

4.1 Descriptive Statistics

Descriptive statistics were used to show the basic characteristics of the data used in this study. These included the percentages of fiscal decentralization indicators, mean, variance and standard deviation of main variables used in this study. Table 4.1 presents summary of descriptive statistics for key study variables.

Table 4.1: Summary of Descriptive Statistics

Variable			Measure of Dispersion			No. of Observations
	Mean	Median	Minimum	Maximum	Standard Deviation	
Share of Intergovernmental Transfers (%)	2.127	1.75	0.319	15.412	1.63	329
Share of own county Revenue (%)	37.72	40.89	0.759	90.17	23.39	329
Share of county expenditure (%)	0.146	0.059	0.006	1.424	0.209	329
Headcount poverty (%)	41.27	39.1	17.6	87.5	12.96	329
Per Capita Income (PPP)	978.99	841	170	4038	614.39	329

Source: Study Data (2016)

The data presented in table 4.1 shows that on average from 2002 to 2014, each county received 2.127 per cent of total intergovernmental transfers, with a range of between 0.319 per cent and 15.412 per cent. The descriptive statistics also shows that the share of county own revenue in total county revenue ranged from 0.759 per cent to 90.17 per cent with a mean of 37.72 per cent. This observation suggested that the proportion of own-source revenue collected by the county governments is low compared to overall revenue. This is below the UNDP recommendation of 50 per cent plus or minus 10 per cent of the total sub-national government financial resources. This could be attributed to weak local revenue base and weak revenue administration in most counties in Kenya. Therefore, county governments in Kenya have very little control over their revenues.

On the side of expenditure decentralization, the share of county government expenditure in total government expenditure ranged from 0.006 per cent to 1.424 per cent with a mean of 0.145 per cent over the study period. The wide range between the maximum and the minimum values for all the variables suggests a large heterogeneity across the counties. The standard deviation for all the variables which is the standard summary statistics for variations over time indicates adequate variable variation over the study period and across the panel supporting regression analysis.

The descriptive statistics of fiscal decentralization indicators, poverty and human development index by county are presented in the table 4.2.

Table 4.2: Descriptive Statistics from 2002 - 2014

COUNTY	Share of Inter-governmental transfers (%)		Share of County own Revenue (%)		Share of County Expenditure (%)		Poverty Head Count (%)	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Baringo	1.6707	0.1639	33.6628	20.5858	0.0898	0.1020	43.9714	6.4020
Bomet	1.6804	0.1208	37.1945	23.7816	0.1052	0.1153	43.2857	10.3075
Bungoma	2.9328	0.1289	29.8311	17.8633	0.1549	0.1597	37.7714	9.0728
Busia	1.9917	0.2037	36.1391	20.1383	0.1015	0.1079	45.4000	10.9854
Elgeyo-Marakwet	1.2247	0.1491	32.2654	20.9198	0.0625	0.0779	43.6000	7.2991

COUNTY	Share of Inter-governmental transfers (%)		Share of County own Revenue (%)		Share of County Expenditure (%)		Poverty Head Count (%)	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Embu	1.5502	0.0798	41.2342	23.7423	0.0899	0.0919	31.3929	6.0612
Garissa	1.6850	0.3465	22.0737	14.7601	0.1011	0.1465	47.6000	9.1928
Homa Bay	2.4414	0.2155	27.9936	17.7791	0.1221	0.1349	43.8000	3.2244
Isiolo	0.7409	0.2662	59.5715	37.8368	0.0663	0.0701	49.1714	11.1898
Kajiado	1.4275	0.1741	43.6967	21.0471	0.0987	0.1053	35.9714	6.6314
Kakamega	3.8600	0.2724	31.9128	18.7529	0.1824	0.1728	41.1286	5.8585
Kericho	1.6786	0.0528	43.4479	24.4581	0.1040	0.0965	32.0857	6.5193
Kiambu	3.6791	0.5395	52.0254	22.0522	0.2690	0.1788	23.1286	3.4884
Kilifi	2.6582	0.1436	39.4751	22.4098	0.1618	0.1619	47.1714	8.8366
Kirinyaga	1.3984	0.0727	46.3165	26.8544	0.0793	0.0635	27.5000	2.4549
Kisii	2.8800	0.1602	32.5357	20.1127	0.1520	0.1609	36.5357	12.0304
Kisumu	2.3188	0.5872	36.2626	19.2016	0.1862	0.1153	39.7714	4.8321
Kitui	2.5312	0.2641	34.1343	20.5297	0.1325	0.1544	51.3429	6.5742
Kwale	1.6203	0.2103	30.8407	17.8775	0.0901	0.1117	49.4571	15.6509
Laikipia	0.9749	0.3396	56.2818	22.4838	0.0983	0.0743	38.6571	8.6002
Lamu	0.5861	0.1312	32.5260	20.8171	0.0283	0.0393	37.6000	3.9119
Machakos	2.6945	0.1438	52.7801	24.1503	0.2003	0.1734	40.9286	7.4049
Makueni	2.1660	0.1731	28.8929	17.3342	0.0979	0.1093	45.1714	11.3648
Mandera	1.7220	1.0334	21.5601	14.5774	0.1314	0.2114	60.8714	19.9897
Marsabit	1.3231	0.4108	31.9385	21.6170	0.0761	0.1098	60.4000	12.4121
Meru	2.9432	0.1981	34.2451	19.5958	0.1415	0.1396	33.3786	1.9418
Migori	2.1383	0.1393	34.3529	19.9278	0.1218	0.1299	42.9071	4.8791
Mombasa	3.5465	1.2981	55.2815	16.7135	0.3252	0.0856	31.6286	4.9138
Murang'a	2.2802	0.1988	44.4056	24.2205	0.1307	0.1279	34.4929	0.9436
Nairobi City	10.6809	4.1333	66.0357	12.5900	1.2684	0.1132	23.4714	5.1729
Nakuru	3.7484	0.5379	49.1682	18.8598	0.2578	0.1537	30.4714	4.1121
Nandi	1.6816	0.1266	29.7606	17.3089	0.0897	0.1066	37.4143	3.3608
Narok	1.5786	0.2884	70.9232	30.7474	0.1932	0.1331	44.2429	2.4946
Nyamira	1.4174	0.1353	18.8316	11.3470	0.0736	0.0912	38.8714	10.3532
Nyandarua	1.7396	0.1847	41.3945	25.2662	0.0980	0.0937	32.6143	4.8988
Nyeri	2.0922	0.1778	47.7996	24.8393	0.1394	0.1197	26.9429	3.8375
Samburu	0.8983	0.2841	53.6684	32.7264	0.0738	0.0755	59.5857	9.3498
Siaya	2.0759	0.1648	26.5150	16.4584	0.0924	0.0927	39.2857	3.5097
Taita Taveta	1.2267	0.0918	44.3639	26.7712	0.0720	0.0804	38.4714	8.7346
Tana River	1.0489	0.2934	23.4541	15.6033	0.0416	0.0579	58.9000	11.5009

COUNTY	Share of Inter-governmental transfers (%)		Share of County own Revenue (%)		Share of County Expenditure (%)		Poverty Head Count (%)	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Tharaka Nithi	0.9952	0.1999	34.3018	21.2407	0.0626	0.0724	36.1857	3.5503
Trans Nzoia	1.6213	0.1797	37.3899	22.0961	0.0997	0.0986	34.6286	5.3807
Turkana	2.1824	1.4226	12.1964	7.8714	0.1454	0.2048	62.5714	18.3609
Uasin Gishu	2.1834	0.2352	49.2104	24.8100	0.1537	0.0939	28.8571	6.9258
Vihinga	1.5220	0.1173	27.2807	16.3546	0.0770	0.0877	34.5143	5.4771
Wajir	1.7053	0.6671	18.8880	12.8974	0.1193	0.1758	62.8857	15.0193
West Pokot	1.2395	0.2959	19.1834	11.8144	0.0783	0.1099	53.8000	10.6532
All	**2.1273**	**1.6307**	**37.7286**	**23.3888**	**0.1455**	**0.2094**	**41.2731**	**12.9606**

Source: Republic of Kenya (various issues) & UNDP (various issues)

Table 4.2 shows that on average Nairobi City County received the lion share of intergovernmental transfers of 10.68 per cent per year compared to Lamu County that received the least share of 0.586 per cent of total government transfers. On the share of own-source revenue, on average, Narok County had the highest share of own-source revenue which constituted 70.9 per cent of its total revenue followed by Nairobi City County and Isiolo with 66.04 per cent and 59.57 per cent respectively. Turkana County had the least proportion of own source revenue of 12 per cent of its total revenue. This implies that Turkana County depended on National government intergovernmental transfers to finance 88 percent of its expenditure.

In terms of expenditure Nairobi City County had the highest share of county expenditure to total government expenditure with an average 1.2684 per cent over the study period. The poverty head count shows that Kiambu and Nairobi Counties were least poor with a poverty head count averaging 23 per cent over the study period. Turkana and Wajir Counties were the poorest with an average of 63 per cent of their population below poverty line over the study period. Nairobi City County had the highest Human Development Index (HDI) with a mean of 0.69 over the study period followed by Nyeri County with a mean of 0.62 over the study period while Turkana County had the lowest HDI with a mean of 0.295 over the study period. It can be seen that counties with greater own source revenue are fairing well in terms of human development compared to those that are highly dependent on intergovernmental transfers to finance their functions, an observation that is consistent with the second-generation literature on fiscal federalism (McKinnon, 1997; Qian & Weingast, 1997; Goerl & Seiferling, 2014).

4.2 The Panel Unit Test Results

The estimation was preceded by a pretest of panel unit root. This paper employed the -Pesaran-Shin (IPS) and Levin Lin Chu panel unit root tests to test stationarity of the series. The *t-bar* statistics reveal that all the variables except the share of county expenditure in total government expenditure (expenditure decentralization) were stationary at levels. However, after first differencing expenditure decentralization attained stationarity. The implication is that while all other variables were integrated of order zero, the expenditure decentralization was integrated of order one. To avoid spurious result this variable was first differenced in the estimation models thus captured as a growth of share of county expenditure in total government expenditure.

Diagnostics Tests Results

Before interpretation of the results of the study models, various diagnostic tests were conducted on each model. This was in order to find out the best estimation method and also to validate the results. It is a prerequisite that for a classical linear model, the error term be normally distributed, with a zero mean and constant variance (Gujarat, 2004). Likewise the residuals should be free of heteroskedasticity and autocorrelation. The diagnostics tests that were conducted were Hausman test in order to ascertain the most appropriate model and method of estimation between; Fixed Effects Model (FEM) and Random Effects Model (REM), Multicollinearity test, Heteroskedasticity test and serial correlation test were also performed.

4.3 Results

To analyze the effects of fiscal decentralization on poverty incidence, the study regressed poverty headcount index on three fiscal decentralization indicators one at time and other independent variables. In the first empirical specification, fiscal decentralization was captured by the share of intergovernmental transfers to county government, in the second, it was captured by the share of county own revenue and in the third, it was captured by the share of county expenditure in total government expenditure. The first, indicator of fiscal decentralization the share of intergovernmental transfers to sub-national government was used to capture the effects of central government grants to counties. The transfers are designed to play an equalizing role and to reduce differences in fiscal capacity across jurisdictions (OECD, 2009). However, they reduce the sub-national government policy autonomy.

The second indicator the share of county own revenue in total county revenue captured the degree of autonomy and discretion of county governments in revenue and expenditure responsibilities, and finally the share of county expenditure in total government expenditure captured the spending responsibilities of county governments. The three fiscal decentralization indicators were used in this manner because no single indicator is able to adequately capture the real level of fiscal decentralization of a country (Sacchi & Salotti, 2011). In addition, the three dimensions of fiscal decentralization are implemented simultaneously in Kenya. To account for the effects that other socio-economic factors might have on poverty the study included per capita income, total dependency ratio, fertility rate, education, household size, population density, access to improved water source, number of constituencies in a county and dummy for marginalized counties as control variables as derived from the literature review. The estimated models are presented in table 4.3.

Table 4.3: Effect s of Fiscal Decentralization on Poverty Head count

Independent Variables ▼	Dependent Variable: Poverty (Headcount)		
	(1)	(2)	(3)
Share of intergovernmental Transfers in total Intergovernmental Transfers (%)	5.0179** (1.9686)		
Share of intergovernmental Transfers in total Intergovernmental Transfers Squared	-0.1362* (0.0695		
Share of county *i* own revenue in total county *i* Revenue (%)		-0.6048**	

		(0.0584)	
Share of county *i* own revenue in total county *i* Revenue Squared		0.0068**	
		(0.0008)	
Δ Share of county *i* expenditure in total government expenditure (%)			4.3605**
			(1.4049)
Δ Share of county *i* expenditure in total government expenditure Squared			-9.3708
			(5.0797)
Per Capita Income	-0.0052**	-0.0055**	-0.0047**
	(0.0012)	(0.0012)	(0.0014)
Total Dependency (%)	0.0356	0.0003	-0.0187
	(0.0432)	(0.0390)	(0.0476)
Fertility Rate	-2.7838*	0.8446	-3.0216
	(1.4324)	(1.3776)	(1.6458)
Household Size	-1.0309	0.7322	0.0708
	(0.9202)	(0.8517)	(1.0362)
Education (%)	-0.1980**	-0.1822**	-0.2198**
	(0.0441)	(0.0400)	(0.0507)
Access to Improved water Source	-0.0965**	-0.0824**	-0.1096**
	(0.0321)	(0.0400)	(0.0378)
Population Density	-0.0037	-0.0054**	-0.0092*
	(0037)	(0.0027)	(0.0039)
No. of Constituencies in County	2.8200**	1.5801	1.9199**
	(0.4617)	(0.4315)	(0.4890)
Marginalization Dummy*Share of Intergovernmental Transfer	7.8672**	-0.1972**	5.3790**
	(2.1648)	(0.0351)	(1.02310
Constant	53.6385**	60.7727**	70.1411
	(10.3949)	(8.1665)	(10.8369)
Observations	329	329	282
Adjusted R-Squared	0.7803	0.8205	0.7790
F- statistic	21.4432**	27.3099**	18.3769**
Prob(F-statistic)	0.0000	0.0000	0.0000
Durbin-Watson stat	1.6519	1.4641	1.5807
Hausman Test	127.8079**	54.0815**	33.0270**
Turning point of the intergovernmental effects (%) when MD = 0	18.42%	44.47%	0.23

*Robust Standard errors in parentheses; ** significant at 1%; * significant at 5%; Δ refers to change*

The fixed effect robust option results for the effects of inter-government transfers, own source Revenue and county expenditure on poverty incidence are presented in table 4.3 column (1), column (2) and column (3) respectively. The Hausman Chi-square statistic obtained were all statistically significance at one per

cent level of significance. This implied that fixed effects model was the most appropriate. To control for heteroskedasticity, heteroskedasticity robust standard errors were used.

The results show the share of intergovernmental transfers to county government had a positive and statistically significant coefficient at one percent level of significance. While the square of the share of the intergovernmental transfer (quadratic specification) had a negative and statistically significant coefficient at one percent level of significance. The results suggest that increase in the share of intergovernmental transfers to counties would increase the poverty if implemented at very low levels in the county but if above 18.42 percent it will reduce poverty head count. Thus, the effects of intergovernmental transfers on poverty will depend on the extent of intergovernmental transfers. Given the quadratic nature of the effects of intergovernmental transfers on poverty head count, marginal analysis would imply that the effect of intergovernmental transfers on poverty depends on the extent of intergovernmental transfers. This could partially explain the mixed results on the relationship between fiscal decentralization and poverty reduction outcomes from the empirical literature (Bardhan & Mookherjee, 1998; OECD, 2005; Galasso & Ravallion, 2005).

The findings suggest that the share of intergovernmental transfer is likely to contribute to increasing the extent of poverty but at a decreasing rate. Implying that there is a certain critical level, beyond which any further increase in the share of intergovernmental transfers to sub-national governments may actually lead to decline in poverty levels in Kenya. The coefficients show that a one percentage point increase in the share of intergovernmental transfers to county *i* increases the overall poverty headcount in county *i* by [5.0179-2(0.1362)(FD_T)+7.8672MD] *ceteris paribus*. For example, on average level of share of intergovernmental transfer a one percentage point increase in the share of intergovernmental transfer will increase poverty by [5.0179-2(0.1362)(2.127)+7.8672MD] This transit to 12.3057 and 4.4385 percentage points in marginalized and other countries respectively *ceteris paribus*. 2.127 is the mean value of the share of intergovernmental transfers in the study sample.

The critical level of intergovernmental transfer beyond which the sign of the marginal effect is reversed, is obtained by simply taking the partial derivative of poverty equation with respect to share of intergovernmental transfers, equating to zero and solving for FD_T.

$$\frac{\partial P}{\partial FD_T} = 5.0179 - 2(0.1362)FD_T + 7.8672MD = 0 \rightarrow FD_T^* = \frac{5.0179 + 7.872MD}{2(0.1362)}$$

$$= 18.42\% \; given \; MD = 0$$

Specifically, an increase in intergovernmental transfers increases the poverty up to a critical intergovernmental transfer threshold equal to approximately 18.42 per cent for non-marginalized counties. Deepening intergovernmental transfers beyond 18.42 per cent will reduce poverty levels in Kenya. All counties were found to be below this threshold with exception of Nairobi City County before the year 2013. This finding supports the traditional theory of fiscal federalism according to which sub-national governments should play a minimum role in redistributive policies, which are in fact better accomplished by the central governments for better equity and efficiency reasons (Tiebout, 1956; Stigler, 1957; Musgrave, 1959; Oates, 1972). The results are also supported by others empirical studies such as Martinez-Vazquez (1982), Beramendi (2003), Enikolopov and Zhuravskaya (2003), Neyapti (2006), Sepulveda and Martinez-Vazquez (2010), Saachi and Salotti (2011).

Possible explanation why increase in the share of intergovernmental transfers to county increases poverty could be because an increase in intergovernmental transfers to sub-national governments reduces the ability of national governmental to deal with pro-poor programs. Again, the mere presence of fiscal decentralization might also negatively affect the national preferences for poverty reduction and other outcomes like economic growth, macroeconomic stability and regional disparities which could in turn contribute to increasing the extend of poverty (Sepulveda and Martinez-Vazquez, 2010). Secondly, sub-national governments received transfers which otherwise could be devoted to poverty reduction by national government, and they may be using those funds for different purposes. In addition, most intergovernmental transfers are conditioned to specific functions such as wages for sub-national government public servants, special projects and programmes such as health and infrastructure that have long-run social benefits to society. Thus, sub-national government could be restricted on utilization of those funds and therefore cannot use it in implementing pro-poor programs. Thirdly sub-national governments are less effective than the central government in the implementation of pro-poor programs (Oates, 1972). According to Enikolopov and Zhuravskaya (2003) weak institutions at sub-national government that presents opportunity for elite capture and exploitation by sub-national bureaucrats and elites could also be another explanation.

The estimated coefficient of share of county own-source revenue was negative and statistically significant at one per cent level of significance. The coefficient of its square is positive and statistically significant at one percent level of significance. The results suggests that increasing the share of own revenue will lead to reduction of poverty but at a decreasing rate up to some critical point. The marginal effect of the share of own revenue on poverty given by the partial derivative of the poverty equation with respect to share of own county revenue is therefore given by $[(FD_R). \frac{\partial P}{\partial FD_R}]$ shows that the effect of the share of county own revenue on poverty depends on the level of county own revenue share. The results also suggest that, there is a critical threshold beyond which the effects of share of county own revenue on poverty is reversed. This is determined at the level of own revenue share at which the marginal effect is equal to zero according to first order conditions. The solution gives FD_R^* equal to 58.97 per cent and 44.47 per cent for marginalized counties and other counties respectively. Thus, increase in the share of own county revenue beyond 44.47 per cent leads to increase in poverty in non-marginalized counties.

The finding suggests that poverty is likely to be reduced when the fiscal decentralization process involves real increase in local governments' autonomy, increasing that autonomy of sub-national governments over the revenue and expenditure is important in poverty reduction.

As share of own local revenue of sub-national government in total revenue increases, poverty levels decline. This is because when constituents contribute to county revenue they are more likely to demand transparency and accountability from the county government which might lead to efficient use of resources. The larger the share of sub-national expenditure that is financed via own local revenue collections, the more accountable sub-governments becomes to their constituents, who apparently would correctly evaluate the performance of sub-national government and either punish or reward elected officials in the voting booth. This accountability mechanism in turn serves as an incentive for local governments to make more responsible and efficient tax and spending decisions towards raising the welfare of the constituents.

Alternatively autonomy of sub-county governments is improved as more own local revenue is raised and therefore the sub-county governments are more likely to meet their constituents preferences. In Kenya county governments do have autonomy and discretion on the use of own source revenue most of which is spend on transfer programs such as bursary funds, construction of houses for elderly, youth programs among other programs which impacts positively on households' income and welfare thus reducing poverty. The findings on the effects of own source revenue on poverty is consistent with Sepulveda (2010) that found a negative effect of revenue decentralization on poverty headcount using a cross-country data. However, the findings contradict the traditional normative recommendation in the theory of fiscal federalism that redistributive policy should be exclusively the function of central governments (Tiebout, 1956; Masgrave, 1959; Oates, 1972). One reason for this departure is that the key assumption of household mobility behind the normative recommendation is not met in reality in Kenya. This is because the direct distributive policies of sub-national governments in Kenya do not differ much from jurisdiction to jurisdiction, in which case no significant migration movements are induced (richer households from and poorer households into jurisdictions with more redistribution). In addition, traditional fiscal federalism theory is based on perfect and costless inter-jurisdiction mobility which is also not met in reality in Kenya. With imperfect or cost mobility sub-national governments may become more effective and even efficient in the implementation of redistributive policies. Thus, positive redistribution outcomes are feasible and sustainable at the sub-national level when sub-national autonomy is present to a large extent.

This finding supports the second generation theory of fiscal federalism that pointed out that fiscal decentralization may give rise to a more balanced distribution of resources across space (Gil et al., 2004; McKinnon, 1997; Qian & Weingast, 1997), to such an extent that it may even offset the effects of the loss of redistributive power by the central government (Prud'homme, 1995).

From the results, at higher degree of own county revenue share beyond the critical threshold, sub-national governments may pursue different redistribution policies that may undermine the redistributive power of the national government thus increasing the extent of poverty. Alternatively, it could be that beyond the critical threshold further decentralization might trigger a race-to-the-bottom competition across jurisdictions leading to tax rates that are too low compared to the social optimum (Keen & Kotsogiannis, 2002). This may lower revenues available to promote redistribution policies within each county resulting to increasing poverty levels. Finally taxes raised by sub-national governments are mainly indirect taxes which tend to be more regressive and property taxes which are generally less progressive than the tax mix used by the central government. Thus as sub-national governments strive to raise more these taxes mitigate progressivity of the national tax system burdening poor more.

The results in table 4.3column (3) indicate that the coefficient of the growth of the share of sub-national government expenditure in total national government expenditure was positive and statistically significant at one per cent level of significance while the coefficient in the quadratic specification was negative and statistically significant at one per cent level of significance. This implies an inverted U shape relationship between poverty and expenditure decentralization. That is an increase in the share of county expenditure will initially increase poverty but beyond a certain threshold it will work to reduce poverty. Starting from no fiscal decentralization ($FD_E = 0$), a move towards fiscal decentralization will first increase poverty, up to critical threshold where more fiscal decentralization appear to have a positive effects on poverty reduction. The critical threshold of expenditure decentralization is 0.52 per cent and 0.23 per cent for marginalized counties and other counties respectively. This implies that, on average, when sub-national

government expenditure growth is above 0.52 per cent it will reduce poverty in marginalized counties. These results support the previous findings using the inter-governmental transfers.

This is because sub-national governments do not get more directly involved in the provision of services that most immediately help the poor but at higher levels of expenditure decentralization, sub-national government could use their proximity advantage to effectively implement anti-poverty programs. In addition, sub-national governments may face perverse incentives and pursue imprudent expenditure policies. If unchecked, county leaders could use their offices to benefit powerful subgroups or interests. From a political economy point of view, county governments may be more prone to elite capture and less willing to trade-off narrow local interests for national greater good (Keen & Kotsogiannis 2002). Moreover, it is possible that different results on the expenditure side could be obtained with a more detailed disaggregation of county expenditures considering the expenditure composition and which type of expenditure is decentralized. For example, health, welfare, education, agriculture among others. Considering this, further research focusing on the expenditure composition and which type is decentralized is strongly encouraged.

The result supports the traditional theory of fiscal federalism (Tiebout, 1956; Stigler, 1957; Musgrave, 1959; Oates, 1972). According to this theory sub-national governments should not play any role in redistributive policies, which are in fact better accomplished by the central governments for better equity and efficiency reasons. The result are also similar to those of Sepulveda and Martinez-Vazquez (2011) who found that the coefficient of the expenditure decentralization to be positive and statistically significant. However, these results contradict Sacchi and Salotti (2011) who found that the coefficient of the expenditure decentralization to be statistically insignificant. This difference in finding could be due to the nature and the manner in which the fiscal decentralization is implemented coupled with differences in institutional and legal framework on which the decentralization is anchored.

Typically, since increased sub-national government own revenue is good for poverty reduction, it is logical to expect same for expenditure. Interestingly, the reverse is the case. By implication, there seem to be a missing link between public revenue generation and spending at sub-national government levels in Kenya. There are various explanations for this which could be: public fund misappropriation at sub-national government; the local bureaucrats lacks the prerequisite knowledge in executing public policies and thus end up embarking on white-elephant projects that will not improve the welfare of the people; fiscal indiscipline; exclusion and local elite capture; weak institutions and legal framework within which local bureaucrats operates.

5. Conclusion

This paper analysed the effects of fiscal decentralization on poverty reduction in Kenya. Since fiscal decentralization in Kenya is implemented in various forms such as intergovernmental transfers, own source revenue assignment and expenditure decentralization, the effects of each of these were analyzed. The conclusions from the findings are presented in the following paragraphs.

From the findings related to intergovernmental transfers the study concludes that intergovernmental transfers increase poverty incidence at low levels below 18.42 per cent. Beyond 18.42 per cent intergovernmental transfers would reduce poverty headcount. On the effects of own source revenue the study concludes that increase in own revenue at levels below 44.47 percent leads to reduction in poverty

levels. In the case of expenditure decentralization, share of county expenditure was shown to initially increase poverty incidence at low levels below 0.52 per cent. Beyond 0.52 per cent share of county expenditure would reduce poverty incidence. The study shows that there are differences in the effects of fiscal decentralization on poverty incidence between marginalized counties and other counties, with the effect on poverty incidence being higher for marginalized counties compared to other counties.

Based on the above empirical findings, this study concludes that fiscal decentralization has distributive effects. The effect of fiscal decentralization on poverty reduction outcomes and human developments depends on the nature and design of fiscal decentralization, the extent of fiscal decentralization and county specifics.

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