

# Effects of Fiscal Decentralization on Poverty Eradication in Egypt

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**Abstract-**It is generally assumed that by bringing decision-making about the provision of public goods and services closer to citizens, decentralization allows poor people to voice themselves more clearly, facilitates communication and information flows between local policy-makers and their constituents, and fosters improved accountability. The main objective of this study was to analyze the effects of fiscal decentralization on poverty eradication in Egypt. The study objectives included (i) Analyze the effects of revenue decentralization on poverty Head count in Egypt.

(ii) Analyze the effects of expenditure decentralization on poverty reduction in Egypt.

The Cross-Governorates panel data from 2018 – 2020 was used. The published data was from government agencies, United Nation Development Programme and World Bank used. Various empirical models were estimated to find out the effects of Governorates own-source revenue and Governorates expenditure on poverty reduction in Egypt. The study established that as the share of own local revenue of sub-national government in total revenue increases, poverty levels decline. Own-source revenue was found to reduce poverty at low levels below 54.37 per cent after which further increase in own source revenue would increase poverty head count. Arising from the study findings, it is important for Governorates governments to have adequate own-source revenue to finance their expenditure as opposed to relying on intergovernmental transfers from national government. The revenue dimension of fiscal decentralization has a strong bearing on the ability of and incentives faced by local government to address basic service delivery needs. Further the study established that an increase in the share of Governorates expenditure will initially increase poverty but beyond a certain threshold it will work to reduce poverty. The researcher recommended that the national government should support and encourage Governorates governments to enhance their own-source revenue to finance their expenditure as opposed to depending on intergovernmental transfers. Governorates government need to prioritize health care needs as an effort to improve poverty reduction outcomes and human development

**Key word:** Fiscal decentralization, Poverty eradication

## I. INTRODUCTION

Egypt is one of the few Countries in Africa to have reversed economic decline and to have begun implementing measures for poverty eradication. A number of important studies and think-pieces (among others, see [1] have underlined that decentralization, in and of itself, is not synonymous with poverty reduction – and that a wide range of “external” factors (e.g. central government’s political

commitment to poverty reduction, overall literacy rates, the strength and effectiveness of central government institutions and functions, gender sensitivity in public expenditure management, etc.) determine whether the outcomes of decentralization are pro-poor or not.

Fiscal decentralization is an issue facing many developing economies. It has been advocated by the World Bank [33] and the Organization for Economic Cooperation and Development (OECD). However, attention to fiscal decentralization has been mainly motivated by political motives [4]; [1]; [12]; [8]; [14]. Fiscal decentralization initiatives are also taking place in developing nations such as Mexico, Brazil, Bolivia, Belarus, South Africa, and Nigeria. The fiscal decentralization trend in developing countries is supported by the World Bank, which considers fiscal decentralization as a main part of its poverty reduction programs [35]. During the 1980s, the economic reforms in the developing countries focused largely on increasing the role of the market and improving the environment in which it operates [26]. Since the 1990s, fiscal decentralization and local government reform have become among the most widespread trends in development [35]. For developing countries, fiscal decentralization is believed to be a solution to all kinds of social, economic and political problems being faced such as income and wealth inequality, distributional inequities, poverty and regional marginalization. But fiscal decentralization can also lead to problems that offset its benefits [22]. Developing countries and transition economies have also embraced fiscal decentralization. State government borrowing from the central government has created serious fiscal stress for a number of states [34]. Proponents of decentralization believe that sub-national governments are generally in a better position than the central government to identify local needs (including those of the poor) and to deliver public services accordingly. However, when exploring the relationship between fiscal decentralization and poverty reduction it needs to be remembered that there are certain things that local governments are badly placed to do as part of a poverty alleviation strategy. The “subsidiarity” principle strongly suggests that income redistribution policies aimed at alleviating poverty should not be the responsibility of local governments, as they are poorly placed to carry out this function effectively.

In China the overall economic reform, macroeconomic and monetary policy, and problems of interregional imbalance interact with intergovernmental fiscal relations. One

fundamental aspect of Chinese reform has been the reduction of the role of state planning and control in the operation of the economy.

In Africa, Ghana has a unique decentralized system of government introduced in 1988, when the Government embarked on the implementation of a comprehensive policy to decentralize [33]. Decentralized governments in Ghana are mainly financed through own revenues and central government transfers. The composition of sub-national government revenue in Ghana is as follows in percentage of total revenue: own taxes (22 percent), user fees (9 percent) and central government transfers (69 percent). This shows a heavy dependence on the transfers from central government. Rwanda's strategy for decentralization is another good example. According to the strategy, "the overall mandate of the decentralization is to ensure political, economic, social, administrative and technical empowerment of local populations to fight poverty by participating in planning and management of their development process" [27].

In South Africa, the Constitution of 1996 provides for three spheres of government national, provincial and local. All three spheres are evolving, and the role of both provinces and local governments has increased significantly [27]. This has empowered provincial legislatures; more clearly defined the role of provincial governments, and allowed them some degree of autonomy. The most important municipal services include water, sanitation (including solid waste), roads, storm water drainage, and electricity. Local governments are also granted a number of sources of revenue by the Constitution, and they are also given the right to borrow, except to finance a recurrent deficit.

The nature and practice of fiscal decentralization therefore, varies from one country to another. The fiscal responsibility and power of sub-national governments on expenditure, revenue and borrowing vary across countries. Even the intergovernmental transfer arrangement varies widely across countries. It is therefore, expected that the impact of fiscal decentralization will also vary from one country to another depending on the behavior of the sub-national government, level of influence exerted by the national government, level of development, the institutional and political structure of the country in question. The general objectives of decentralization within the wider context are to bring political power closer to local communities, to respond to local needs, to build local capacity, and to improve accountability

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 [24]. 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 [30].

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 [3]. 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.

#### *Statement of the problem*

Fiscal decentralization is an important cross-cutting thematic area with major implications for poverty reduction and the achievement of the Millennium Development Goals (MDGs). The Egyptian Government has instituted fiscal decentralization mechanisms in various forms since independence in order to; promote social and economic development; alleviate poverty; and ensure income and regional equality. Poverty in Egypt is persistent with rate around 20 percent during the last two decades. In 2018/19 poverty rate estimated at 21.6 percent with 16 million of population living in poverty. Income poverty deepened and the poverty gap widened between 2015 and 2018. poverty gap increased from 3% in 2015 to 4.1% in 2018. High percentage of near poor estimated at 20 percent rising the total poor to 42.6 percent. The government of Egypt has put in place a number of innovations in poverty eradication such as social welfare and development programs aimed at improving the standard of living in its poorest governorates and providing a permanent path out of poverty for future generations. Despite all such government's innovations the Egypt's poverty rate has continued to rise at a rate of 5% per annum. This motivated the researcher to investigate the effect of fiscal decentralization on poverty eradication in Egypt.

#### *Purpose of the study*

The main objective of this study was to analyze the effects of fiscal decentralization on poverty eradication in Egypt.

#### *Specific objectives*

The specific objectives of the study were to:

Analyze the effects of revenue decentralization on poverty Head count in Egypt.

Analyze the effects of expenditure decentralization on poverty reduction in Egypt.

## II. LITERATURE REVIEW

### 2.1 Theoretical literature

This study is 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 [16] functions of government. Musgrave [16] defined the main economic role of government as threefold that is: allocation, distribution and stabilization. According to [16], 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. The central government must also provide certain “national” public goods like national defense that provide services to the entire population of the country.

Decentralized levels of government should have responsibilities in the provision of goods and services whose consumption is limited to their own jurisdictions. This theory can be used to explain the current devolution in Egypt and particularly the assignment of functions and tax to the Governorates government.

[32] illustrated 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. According to [29] the inter-regional mobility of the population to jurisdictions where their wants are best satisfied and competition between jurisdictions for residents can enhance efficiency gains. Indeed, such a scenario would encourage the various regions to compete with one another by attracting possible migrants, making more efficient use of their resources, and promoting economic development and growth. Productive factors could be attracted to the regions with appropriate policies. This would create differences in regions, and result in fiscal competition pressures which can enhance the market system [32].

The basic assumptions of the Tiebout model are: no externalities from government activities; complete mobility of individuals; people have complete information; there are enough jurisdictions to satisfy each individual demands; public goods are financed by a proportional property tax; and jurisdictions can enact exclusionary zoning laws. Most of these assumptions are unrealistic in the real world. People are not perfectly mobile; there are probably not enough jurisdictions to accommodate each individual. In addition, in many jurisdictions there are massive heterogeneity hence different

desired levels of public service provision contrary to model implication. However, within most metropolitan areas residential segregation by income, exclusive zoning with varying level of public services is observed.

The traditional theory of fiscal federalism is sceptical about the assignment of redistribution functions to sub-national governments [16]; [17]; [19]. This is built on efficiency ground and the national government is considered the most able to make interpersonal comparisons of individuals' well-being over the national territory. According to this approach, the pursuit of an overall horizontal equity principle calls for the withdrawal of decentralization, since local governments are likely to follow their own equity targets independently from each other resulting to unfavourable effects on the overall income distribution within the country leading to some kind of “different treatment of equals” [5]. Thus, it's only central government that can satisfy the horizontal equity criterion following equality principles [16]. In other words, fiscal decentralization is likely to weaken the capacity of the central government to play an equalizing role across individuals through social and territorial transfers. This in turn reduces the ability of the country to achieve a more balanced distribution of income across citizen.

Fiscal decentralization will increase the degree of efficiency in the allocation of resources because sub-national governments have an information and proximity advantage over central governments when it comes to responding to the needs and preferences of local citizens. Especially in the case of a nation with heterogeneous regions, decentralized officials are in a better position to meet local demands more efficiently [17].

Decentralization theorem upholds that in case there are different preferences for public goods between jurisdictions the uniform provision of these goods by the national government will achieve a lower level of efficiency than one that can be attained by a decentralized provision that allows for diversity across jurisdictions.

These efficiency gains will be further enhanced by the mobility of the population. This theory is applicable in Egypt due to diversity of Governorates and other administrative and political units though mobility of people is somewhat imperfect. However, this theory is much applicable in Egypt particularly in explaining why some Governorates are likely to do better than others. As result, the price of the redistributive programs would tend to increase while the tax base of the jurisdiction would tend to erode, making the program ineffective and unsustainable. The case against active redistributive role of sub-national governments clearly depends on the inter-jurisdictional mobility of the population and productive factors. If mobility is present, inefficient outcomes are likely. This fiscally induced migration causes economic distortions and inefficiencies in public sector.

However, with imperfect or cost mobility sub-national governments may become more effective and even efficient in

the implementation of redistributive policies. [20] showed that under limited mobility not only that the size of redistributive programs increases with decentralization, but also the redistributive performance of sub-national governments is superior to that of central government. In addition inter-jurisdictional mobility itself can have important consequences on poverty and income inequality. As individuals seek to increase their real income they sort out themselves among jurisdictions offering different bundles of public goods/services and tax burdens which may alter poverty and redistribution of income. Mobility also affects the supply of productive factors and thus also their marginal productivity and return [32] Interjurisdictional mobility can also affect poverty and income distribution since it can plausibly alter the tax and expenditure policies by sub-national governments.

According to [28], the preferences of individuals living in the same country are likely to be quite similar, and lack of coordination among sub-national governments could undermine the degree of efficiency of public intervention. Likewise, the presence of spatial spillovers might result in an inadequate level of provision of some public goods [13]. [22] and [21] affirmed that the fiscal decentralization could have regressive effects on redistributive, as a result of the weakening of the equalization role of central government. [22] argued that a centralized public sector generates a more balanced spatial distribution of income by channeling resources from richer regions to poorer ones. Therefore, it is national government that can only satisfy the horizontal equity criterion following equality principles (see also [16] and [11], since fiscal decentralization weakens the capacity of the national government to play an equalizing role across individuals and regions through social and territorial transfers; this in turn reduces the ability of the country to achieve a more balanced distribution of income across citizens. These views are consistent with Keynesian theory that weaker central state would play a less crucial role in redistributing income among regions, and could not use demand side policies, such as public investment, to promote economic growth in the poorer regions. Again more diffusion in social policies such as education and health could also lead to an increase in disparities among decentralized countries.

Within the framework of the second generation models of fiscal federalism, [31] and [23] and [10] stressed the incentive effects of regional competition following fiscal decentralization. Their arguments rested on the premise that the behaviour of sub-national governments is conditioned by the need to represent citizens and to preserve markets. Thus, the ability of regional and local governments to stay in power depends decisively on their performance in attaining a level of development and economic growth similar to that enjoyed by the rest of the country [25]. In this scenario, the poorer regions might reduce their development gaps by offering more flexible labour markets and/or less generous welfare provisions than richer regions. "Jurisdiction competition can therefore reduce regional inequality without centrally-mandated redistribution" [23] & [31]. [15] highlighted the

relevance of fiscal competition when it comes to explaining the process of regional convergence that took place in the United States after the Second World War [9]. This was also a crucial contributing factor in the striking economic dynamism displayed by Ireland during the 1990s, which allowed that country to overcome the disadvantages arising from its peripheral location in the European context [9].

[30] stated that an optimal model of fiscal federalism requires a context in which all levels of government can simultaneously maximize their welfare function without falling into the problem of "incompatible distributional objectives". This scheme allows for a successful fiscal decentralization of the redistributive function as each level of government is engaged in the redistributive activity to meet the conditions of interpersonal equity that provide the maximum social welfare. Thus, a more equal distribution of income within the country may be enhanced only if there is no cross-border mobility that permits effective within region redistribution. If, by contrast, interregional mobility is costless, the relocation of potential recipients and donor-tax payers could lower the effectiveness of local redistribution.

[11] and [10] developed a theoretical model to explain the responsiveness of local government to the provision of public goods. [4] and [7] found that decentralization enhances welfare in the absence of spillover effect, while [10] showed that the tradeoff between central and local government provision depends on the relative advantage over information and technical capacity of each level of government. [12] "devolution will increase equality if resources are utilized more efficiently than under a more centralized system".

To conclude, the theoretical contributions on the effects of fiscal decentralization on poverty reduction and income inequality is ambiguous. Thus, its evaluation seems to be an empirical issue.

## 2.2 Empirical Literature

In relation to poverty alleviation, decentralization has political and economic dimensions through which the poor can benefit [11]. Politically, decentralization will enhance popular participation in local decision-making processes, from which they have hitherto usually been excluded through lack of adequate representation or organization.

[24] used a panel data comprising of 97 countries both developed and developing countries over the period 1975 – 2000 to examine effects of fiscal decentralization on poverty. The study found that a statistically non-linear relationship between fiscal decentralization and poverty. however, the study used only one dimension of poverty and ignored the revenues and intergovernmental transfers aspects.

[11] using Bangladesh's Food-for-Education program dataset, concluded that pro-poor program benefits increased with decentralization. In a similar study, [3] found that decentralized management advanced poverty alleviation goals in West Bengal, India. These results were contrasted by [1]

study that examined the effect of fiscal decentralization toward regional income inequality in Colombia using interdepartments data panel set. The study found strong evidence that fiscal decentralization process increased regional income inequality. While [2] found that it is the achievement of autonomy by fiscal

decentralization that negatively affects regional disparities, while the mere share of expenditure or revenue share in fiscal decentralization has no effects.

[5] 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.

Improving local government revenue collection is part of UNDP's capacity development efforts in many countries. Although a core element of this has traditionally been to strengthen the local administrative capacity for revenue collection (in order to finance local government service delivery), more attention is currently being paid to the impact of local revenue collection on poverty and the distribution of income. Recent studies, for example, have shown that poor people often spend a disproportionately larger share of their income (than the less poor) in paying local taxes and user fees. This may indicate that local user fees need to be made more progressive. However, care should be taken not to throw out the proverbial baby (the benefits of local revenue autonomy) with the bathwater (inequitable outcomes). Instead, and whenever possible, equity concerns should be addressed through improvements in the local revenue system (for instance, through local property tax exemptions for poor households) or other creative local revenue solutions (such as the introduction of differential user fee structures, such that poorer households pay lower user fees). A special case of

inequitable local resource mobilisation lies in the conventional practice of requiring 'community contributions' to match outside investment funding – here too there is some evidence that the outcomes may often be regressive. Decentralization is expected to contribute to development by empowering the people and institutions at every level of society including public, private and civic institutions; improving access to basic services; increasing people's participation in decision-making; assisting in developing people's capacities; and enhancing government's responsiveness, transparency and accountability.

### III. METHODOLOGY

This study falls under the purview of diagnostic and hypothesis-testing research design as it seeks to investigate relationships between variables. The study employed non-experimental research design involving use of longitudinal panel data. The main strength of longitudinal research design was its power to study change and development [22] This study used the cross-Governorates panel data for the period 2018 to 2020, collected from government and UNDP publications. Panel data analysis allowed control for unobserved Governorates heterogeneity. Moreover, it decomposed components of variance and studied the dynamics of change contained in both the endogenous and exogenous variables. Furthermore, the combination of time series and cross-sections data enhanced the quality and quantity of the data set.

### IV. RESULTS AND DISCUSSION

The effect of revenue decentralization on poverty in Egypt

To assess the effects of the revenue decentralization on poverty, the study regressed poverty head count against the share of Governorates own revenue in total Governorates revenue and other control variables. The results from the fixed effects model estimation is presented in table 1.

Table 1 Effects of Governorates own-Source Revenue on Poverty Head count

Independent Variables	Dependent Variable: Poverty (Headcount)			
	Coefficient	Robust Standard errors	Z-Statistics	P-Value
Share of Governorates i own revenue in total Governorates i Revenue (%)	-0.5948**	0.0394	-11.3567	0.0000
Share of Governorates i own revenue in total Governorates i Revenue Squared	0.0058**	0.0008	8.7637	0.0000
Per Capita Income	-0.0065**	0.0022	-5.0995	0.0000
Total Dependency (%)	0.0004	0.0590	0.0073	0.9942
Fertility Rate	0.7546	1.3676	0.7131	0.5413
Household Size	0.8432	0.8517	0.7597	0.3907
Education (%)	-0.2832**	0.0400	-4.5762	0.0000
Access to Improved water Source	-0.0824**	0.0290	-2.8449	0.0048
Population Density	-0.0054*	0.0027	-1.8978	0.0467
No. of Constituencies in Governorates	1.4801**	0.5315	4.6620	0.0003

Marginalization Dummy* Share of Governorates i own revenue in total Governorates i Revenue	-0.1972**	0.0351	-5.6129	0.0000
Constant	60.7725**	8.1865	7.5416	0.0000
Observations	329			
Adjusted R-Squared	0.8306			
F- statistic	26.409			
Prob(F-statistic)	0.0000			
Durbin-Watson stat	1.4641			
Turning Point of the intergovernmental Effects	54.37% when MD=0			

\*\* Significant at 1%; \* significant at 5%,  
Source: Study Data (2020)

The Adjusted R-Squared was 0.8306, which indicated that 83 per cent of the total variations in the dependent variable were correctly explained by the independent variables included in the model. The remaining of 18 per cent of the total variations were explained by other predictor variables not included in the model. This goodness of fit as given by Adjusted R-Squared of 83 per cent was considered satisfactory for this study. The ability of the independent variables is also supported by F-statistic for the joint statistical significance of all the explanatory variables of the model which was 26.409 with a p-value of 0.0000 which is statistically significance at one percent level of significance. This suggested rejection of null hypothesis that coefficients of all the explanatory variables are equal to zero. Therefore, the adjusted R-Squared and F-statistic demonstrated that the above study regression model provided a good fit to the data set of this study.

The estimated coefficient of share of Governorates 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 Governorates revenue is therefore given by [(FDR) shows that the effect of the share of Governorates own revenue on poverty depends on the level of Governorates own revenue share. The results also suggest that, there is a critical threshold beyond which the effects of share of Governorates 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 \* equal to 58.97 per cent and 54.37 per cent for marginalized Governorates and other Governorates respectively. Thus, increase in the share of own Governorates revenue beyond 54.37 per cent leads to increase in poverty in non-marginalized Governorates.

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 Governorates revenue they are more likely to demand transparency and accountability from the Governorates 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-Governorates governments is improved as more own local revenue is raised and therefore the sub-Governorates governments are more likely to meet their constituents preferences. In Egypt Governorates 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 [14] 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 [29]; [16]; [18]. One reason for this departure is that the key assumption of household mobility behind the normative recommendation is not met in reality in Egypt. This is because the direct distributive policies of sub-national governments in Egypt 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 Egypt. 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 subnational 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 ( [15]; [23] & [31] to such an extent that it may even

offset the effects of the loss of redistributive power by the central government [22].

From the results, at higher degree of own Governorates 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 central government. Thus as sub-national governments strive to raise more these taxes mitigate progressivity of the national tax system burdening poor more.

*Effect of expenditure decentralization on poverty in Egypt*

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 [7]). This may lower revenues available to promote redistribution policies within each Governorates 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 generally less progressive than the tax mix used by the

To assess the effects of the expenditure decentralization on poverty, the study regressed poverty head count against the share of Governorates expenditure in total national public expenditure and other control variables. The results of the fixed effects model are presented in Table 2.

Table 2: Effects of Governorates Expenditure on Poverty Head count

Independent Variables	Dependent Variable: Poverty (Headcount)			
	Coefficient	Robust Standard errors	z-Statistics	P-Value
Δ Share of Governorates expenditure government expenditure (%) in total	5.3635**	1.3069	3.2038	0.0022
Δ Share of Governorates i expenditure government expenditure Squared in total	-9.4708	5.0797	-1.7458	0.0644
Per Capita Income	-0.0067**	0.0014	-3.4960	0.0008
Total Dependency (%)	0.0187	0.0476	0.3934	0.6944
Fertility Rate	-3.0416	1.7458	-1.7360	0.0577
Household Size	0.0708	1.0362	0.0684	0.9456
Education (%)	-0.2198**	0.0507	-4.3362	0.0000
Access to Improved water Source	-0.1096**	0.0378	-2.9013	0.0041
Population Density	-0.0092*	0.0039	-2.3747	0.0184
No. of Constituencies in Governorates	1.9199**	0.3890	3.9263	0.0001
Marginalization Dummy*Δ Share of Governorates i expenditure in total government expenditure	5.3890**	1.0231	5.6577	0.0000
Constant	70.1411	10.2654	6.7321	0.0000
Observations	282			
Adjusted R-Squared	0.8690			
F- statistic	17.9749**			
Prob(F-statistic)	0.0000			
Durbin-Watson stat	1.6807			

\*\* Significant at 1%; \* significant at 5%;

Source: Study Data (2020)

The Adjusted R-Squared was 0.8690, which indicated that 86 per cent of the total variations in the dependent variable were correctly explained by the independent variables included in the model. The ability of the independent variables is also supported by F-statistic for the joint statistical significance of all the explanatory variables of the model which was 17.9749 with a p-value of 0.0000 which was statistically significant at one percent level of significance. This suggested rejection of null hypothesis that the coefficients of all the explanatory variables are equal to zero. Therefore, the adjusted R-Squared and F-statistic demonstrated that the study

regression model provided a good fit to the data set of this study.

The results in table 2 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 Governorates expenditure will initially increase poverty but beyond a certain threshold it will work to

reduce poverty. Starting from no fiscal decentralization (FDE = 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 0.56 per cent and 0.23 per cent for marginalized Governorates and other Governorates respectively. This implies that, on average, when sub-national government expenditure growth is above 0.56 per cent it will reduce poverty in marginalized Governorates. 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, subnational governments may face perverse incentives and pursue imprudent

expenditure policies. If unchecked, Governorates leaders could use their offices to benefit powerful subgroups or interests. From a political economy point of view, Governorates governments may be more prone to elite capture and less willing to trade-off narrow local interests for national greater good[8]. Moreover, it is possible that different results on the expenditure side could be obtained with a more detailed disaggregation of Governorates 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 [29]; [16]; [18]. 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 [24] who found that the coefficient of the expenditure decentralization to be positive and statistically significant. However, these results contradict [31] 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 Egypt.

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.

#### *Influence of other variables on poverty levels in Egypt*

The study included various control variables to account for the effects that other socioeconomic factors might have on poverty. It was observed that the signs and significance of the control variables included in the poverty model are robust to the choice of the fiscal decentralization indicator used.

The sign and the significance of the control variables are not affected by the choice of fiscal decentralization indicator. Per capita income, education and access to improved water source had negative and statistically significant coefficient at one per cent level and even their size are almost equal. The only exception is population density which has a negative sign in all models but statistically insignificant coefficient in table 2. This implies that densely populated Governorates have low poverty levels.

As expected per capita income, education and access to improved water source were associated with a reduction of poverty and their coefficients were statistically significant at one per cent level of significance in all the models. A unit increase in per capita income reduces poverty head count by 0.005 percentage points approximately. Governorates with higher per capita income have more capacity to meet their daily necessities thus reducing poverty. The results are consistent with studies by [24] and [27] and [28]

Education had a negative and statistically significant coefficient at one per cent level of significance. Specifically from table 4.18 an increase of overall school enrolment by one percentage point holding other things the same, poverty head count reduces by 0.198 percentage points. This meant that education is a major factor that influences poverty in Egypt. As much, in order to reduce poverty access to education is important. Higher education is usually related to better-paid jobs and lowers the poverty rates. However, this would be the case only if the greater [23],[26] and [20]

The coefficient of access to improved water source was negative and statistically significant at one per cent level of significance. An increase in the access to water by one percentage point reduced poverty by 0.1 percentage points holding other factors constant. Access to improved water source a proxy for health is associated with poverty reduction.

The number of constituencies in a Governorates which was included to help account for the cultural diversity of the Governorates, which affects the political process, institutional framework, and overall attitudes toward poverty and inequality [5] The number of constituencies had a positive and statistically significant coefficient at five per cent level. All the demographic variables included such as (total dependency,



fertility rate, household size and population density) had insignificant coefficients at standard levels of significance, thus they do not appear as relevant determinants of poverty in Egypt.

Overall, three important observations were made from these set of estimation results. First, the effect of fiscal decentralization on poverty reduction outcomes is statistically significant and non-linear. This relationship holds irrespective of the type of fiscal decentralization indicator used in the study regression model. However, there are differences in the sign of effect with intergovernmental transfers and Governorates expenditure exhibiting a positive sign on poverty head count while the share of Governorates own revenue had a negative sign on poverty head count. Second, the nonlinear (quadratic) relationship between fiscal decentralization and poverty suggests that there is a critical threshold of fiscal decentralization beyond which its sign of effect on poverty may be reversed. This is an indication that fiscal decentralization, if used optimally, can be an important policy tool for poverty reduction strategies in Egypt and especially in marginalized Governorates, where poverty is more prevalent. Lastly, the effects of fiscal decentralization on poverty will depend on the extent of fiscal decentralization. This could partially explain the mixed results on the relationship between fiscal decentralization and poverty from the empirical literature as discussed in the literature review.

#### IV. CONCLUSION

This study analyzed the effects of fiscal decentralization on poverty reduction outcomes, income inequality and human development in Egypt. Since fiscal decentralization in Egypt 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. In terms of poverty reduction outcomes, intergovernmental transfers increases overall school enrolment rates but does not have any significant effect on the proportion of underweight children below five years. There is also no effect on income inequality. However, on human development, intergovernmental transfers lead to improved human development at levels below 8.97 per cent after which the human development deteriorate with further increase in intergovernmental transfers.

On the effects of own source revenue, the study concludes that increase in own revenue at levels below 54.37 percent leads to reduction in poverty levels. However, it has no significant effect on overall school enrolment and proportion of underweight children below five years. Own sources revenue

was also found to have no significant effect on income inequalities and human development in Egypt.

In the case of expenditure decentralization, share of Governorates expenditure was shown to initially increase poverty incidence at low levels below 0.53 per cent. Beyond 0.53 per cent share of Governorates expenditure would reduce poverty incidence. In relation to poverty reduction outcomes, Governorates expenditure was found to have no significant effect on overall school enrolment and underweight children under five years. In addition, Governorates expenditure had no significant effect on income inequality and human development index in Egypt.

The study shows that there are differences in the effects of fiscal decentralization on poverty incidence between marginalized Governorates and other Governorates, with the effect on poverty incidence being higher for marginalized Governorates compared to other Governorates.

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 Governorates specifics.

#### V. RECOMMENDATIONS

The national government should support and encourage Governorates governments to enhance their own-source revenue to finance their expenditure as opposed to depending on intergovernmental transfers. This is because Governorates own-source revenue was found to have a positive effect on poverty reduction in Egypt. This can be achieved by increasing the share of own-source revenue in total Governorates revenue and shifting part of the conditional grants. This would not only improve efficiency by providing more fiscal autonomy to Governorates governments, but it would also have a positive impact on reducing poverty.

The donor and the international community should consider supporting the Governorates governments on local revenue enhancement and expanding their own source revenue tax base. This would ensure that adequate resources are available for Governorates governments to effectively and efficiently provide their mandated and discretionary services. This is because own source revenue was found to have a positive effect on poverty reduction.

Governorates governments should identify and enhance sustainable sources of own source revenue. This increases Governorates own-source revenue that was found to have a positive effect on human development.

Governorates government need to prioritize health care needs as an effort to improve poverty reduction outcomes and human development. Investment in health infrastructure which is related to labour force productivity is key to increasing Governorates tax base. This will not only improve

health outcomes but also increase Governorates own revenue by attracting economic activities thereby improving per capita income which was found to reduce poverty and income inequality

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