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Devolved Agricultural System of Governance and Enhancement of Food Security in Uasin Gishu County, Kenya

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Abstract:
The main objective of this study was to examine the relationship between adoption of devolved agricultural system of governance and enhancement of food security in Uasin Gishu County. It was guided by the following specific objectives: to examine the relationship between the devolved agricultural extension services and enhancement of food security and to assess the relationship between devolved funds and enhancement of food security. A total of 383 households were used as the sample size for the study. Descriptive survey and the causal research design were used in this study. Primary and secondary data was used. Descriptive and inferential statistics were used in analysis. The results are agricultural extension services had ($\beta = .182$, $p = .000$, $\alpha < 0.01$) and devolved funds had ($\beta = .547$, $p = 0.000$, $\alpha < 0.01$). The study concludes that both agricultural extension officers and devolved funds contribute to enhancement of food security. The study recommends that there is need to invest in extension services in order to improve food security of the County.

Keywords: *Governance, food security, agricultural extension services, devolved funds*

1. Introduction

According to Mapesa and Kibua (2006), it is over the last 30 years in Kenya that there has been a renewed interest in decentralization programs as a way to reverse inequality and tackle poverty. Such decentralized programs that have been introduced over the last three decades are elaborated as follows: Devolution or decentralization which is the statutory granting of powers from the central government of a sovereign state to government at a sub-national level, such as a region, local, or state level. Devolution can be mainly financial or administrative. Devolution was poised as a perfect political and economic response to societal disparities, inequality, economic stagnation and inefficient use of public resources.

Article 10 (2) (a) of the constitution of Kenya, states that devolution and sharing of power are values and principles that guides our governance system. However, decentralization is not new in Kenya. The quest for this form of governance began as early as 1963 before the Country got its independence. According to Thulow, Kiringai and Gautum (2006) the Government of Kenya inherited a nation characterized by disparities in income and economic development as measured by economic standard indicators such as literacy level, infant and maternal mortality and life expectance, these disparities were found to exist by gender and region (Thulow, Kiringai and Gautum, 2006). The entire spirit of devolution was therefore to subdivide the country into 47 counties. This is according to article, 174. Where the ability to govern, and manage locally and coordinate inter locally will become more important. In Kenya, devolution is enshrined in Chapter 11 of the Constitution.

According to Section Six of the Kenyan constitution the two levels of government are distinct and they remain independent. Devolution has empowered citizens and they are able to hold leaders accountable in their performance. The counties in Kenya are under the jurisdiction of the governors who are elected by the people to serve for a term of five years and maximum of two terms according to the new constitution. Critics of devolution argue that it has propelled corruption, with county officials including Governors alleged to be involved in corruption malpractices that have seen counties fleeced substantial amount of money thus jeopardizing development activities including agricultural production resulting to food insecurity in a number of counties.

1.1. Devolution, Agriculture and Food Security

Devolution is a multi-dimensional approach that organizes governance and manages state power along multiple lines. It defines, distributes and constrains the use of state power along multiple lines by combining both vertical and horizontal dimensions. Devolution is a governance system that decentralizes power to smaller sub government units in order to ensure that all citizens equally enjoy the national cake. It is the statutory granting of powers from the central government to county government. In theory devolution means greater program and policy flexibility, responsibility and self- sufficiency for local governments. It also means fewer federal dollars flowing directly to city governments and greater oversight of local programs by states and state agencies (Cole, Hissong and Arvidson, 1999). Equitable economic development is the long-term goal of any government in achieving a sustainable GDP.

A better form of devolution is one that can be sustained in the long run, it should not be seen as an issue that periodically appears, catches fire for a short time then burn itself out (Cole et al., 1999). The concept of decentralization, presupposes a process or a system of administration in which political, financial and decision-making powers are transferred from the centre to the lower administrative units like local governments. Under this arrangement, the local governments are given more powers and autonomy and amount of powers, resources and functions that are devolved to local governments to manage their own affairs are determinants of the nature or form of decentralization. The form of decentralization includes devolution, de-concentration, delegation and privatization. The first three forms describe a process whereby the central government shifts responsibility to a greater or lesser degree to lower units or local governments.

Local Governments are that part of a Government which is most accessible to the average citizen that closely touches him and presents the most opportunities for the public service. Regional devolution is a complex and heterogeneous process. Consequently, conceptualizing devolution is far from simple. Donahue (1997) characterizes the process as being made up of three separate factors: legitimacy, the decentralization of resources and the decentralization of authority.

Any form of devolution implies some degree of sub-national legitimacy and some form of decentralization of authority and resources; consequently, any analysis of devolution should take these three factors into consideration. The devolved system of governance in Kenya is expected to lead to the practice of a more balanced system of fiscal federalism, more transparency, fiscal accountability and more devolution of power to lower units of government and hence more fiscal decentralization.

While a greater degree of decentralization would, no doubt, contribute to greater grassroots participation, generate more local development, increase efficiency and equity, create employment opportunity and promote poverty alleviation, it must not be done in such a way as to conflict with the national objective or unduly complicate it, according to Omolo (2010).

As per schedule four of the constitution, the national government plays a policy role in the agriculture sector. The role is important in ensuring that there is enough food in the country in order to meet the rights of the citizens. The Constitution of Kenya (2010) places emphasis on agriculture by stating that every person has the right to be free from hunger, and to have adequate food of acceptable quality (GoK, 2010). Agriculture as an activity contributes directly to availability of food in the country. The handling of agriculture at county level should focus beyond the county boundaries since counties differ from each other geographically and hence different agricultural activities require certain climatic conditions. Food security is a national function whose contribution should come from all the counties. It is in this regard that the study aims to establish the contribution of devolution of agricultural sector and food security.

1.2. Statement of the Problem

Despite devolving agricultural functions to the counties for close to four years, food security is still a major challenge and a problem to not just the leaders but the public in general. It is surprising that areas with high potential for agricultural production still report cases of hunger amongst citizens. Some counties especially in the high potential areas do have challenges in marketing their agricultural produce during peak harvest whereas in other counties their citizens are starving. According to the World Bank report 2015, about 30% of incidents of lack of food and near starvation have been highlighted by the media in the North Rift. This raises concerns on the leadership capability in the North Rift counties, and seemingly the leaders are not keen on revamping agriculture to feed its people.

2. Literature Review

2.1. Theory of Governance and Accountability and Enhancement of Food Security

This study was based on the theory of governance and accountability that was developed and discussed by Wesley *et al.*, (2008). They note that Governance is vital to the success of any organization from small domestic organizations to large international organizations. In its simplest form, governance refers to group decision-making that addresses shared problems. Within the context of agricultural sector, governance describes the processes and institutions that guide and restrain the collective activities taken by the sector and its directorates. In addition, governance is more about the process through which a decision is made, rather than the substance of the decision itself. In other words, governance is not necessarily about making the sector stronger; rather, governance describes the sector's rules and procedures that the sector uses to fulfill its goals of enhancing development and food security. Whatever ends the sector may decide to pursue, governance describes the mechanisms through which the sector implements its policies.

2.2. Review of Past Studies

2.2.1. Agricultural Extension Services

Rivera et al., (2001) postulates that agricultural extension works in a knowledge system that encompasses different components for example, research and agricultural education. The agricultural extension services involve the dissemination of agricultural information to the farmer which then the farmer absorbs and implements in their farming practices. A study by Rivera and Qamar (2003) elucidates that agricultural extension services if implemented cautiously facilitate food security as it revolves around transfer of mono crop technology to participatory problem solving educational approaches which reduces poverty and enhances food security. Rivera et al., (2001) postulates that governments of third world countries are characterized by new agricultural extension services uproars. Their findings are, there is a need to increase production to provide food security for all citizens, raising the income of the rural population and reducing poverty levels. There is also a need to effectively manage the natural resources in a sustainable way in a rapidly competitive world. Generally, the literature has not reached a consensus as to why extensions programs in Kenya have not been more successful.

2.2.2. Devolved Funds

County Governments spending can be classified into two basic types of expenditures that is discretional and non-discretional and all these expenditures must be funded from both funds from national government and locally generated revenues. Discretional expenditures are those that are not mandatory to be made during the budget year while non-discretionary expenditures are those that must be made within the budget year as they have legal binding commitments such as loan repayments, salaries and compensations (Hazel, 2005). Users Charges for utilities such as power, water and telecommunication, rental or lease agreements for facilities utilized to provide basic services for the residents have to be made during the financial year hence the demand for growing local revenues. According to Khadingala and Mitulla (2004), discretional expenditures are expenditure that is not absolutely essential to the operations of local Government. This will include the expenditures such hiring more staff, committing to other expenditure that had not been factored at the beginning of the budget year. The thin line between discretional and non-discretional is equally blurred since the expenditure item can change over the year as policy change is implemented. The review of literature led to the following research hypotheses:

- H_{01}: Agricultural extension services has no effect on enhancement of food security.
- H_{02}: Devolved funds in Uasin Gishu County has no effect on enhancement of food security.

3. Research Methodology

Positivism research philosophy, descriptive and causal research design were used in the study. The population was clustered into 6 administrative units. Simple random sampling was applied to select the respondents. A sample size of 383 households was used in the study. Pretesting was done in chesumei sub county, Nandi County.

Factor analysis was performed to assess convergent validity. If all the individual loadings were above the minimum of 0.5 recommended by Hair *et al.,* (2007), then the instrument was good to be used. Reliability was tested using Cronbach`s alpha coefficient. Data was analyzed using descriptive statistics and inferential statistics. Probit model was used in modeling and its general representation is as elucidated below:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots\ldots\ldots + \beta_K X_K + \varepsilon_i$$

$$Y = X_i \beta + \varepsilon_i$$

Where: Y represents enhancement of food security; Xi represents the Staff

β_0 An β_{1-k} are estimable parameters; ε Is the error term

In this case:

Y = 1; if Food security enhancement increases as a result of the devolved functions, and

Y = 0; if otherwise

Therefore,

$$y_i = \begin{Bmatrix} 1 - if \ldots y_i^* > 0 \\ 0 - if \ldots y_i^* \le 0 \end{Bmatrix}$$

The probit model probability distribution function is given by:

$$P(Y=1/X) = F(XB) = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{XB} e^{\frac{-(XB)^2}{2}} dx$$

Where:

$X = (X_1, X_2, \ldots\ldots\ldots X_k)$

$\beta' = \beta_0, \beta_1, \ldots\ldots\ldots \beta_k)$

The cumulative distribution function is therefore given by:

$$Pr(Y=1/X) = \phi(X'B)$$

For this model, the probability estimated falls between 0 and 1. Therefore, the Study sought to determine the effect of devolved agricultural systems on food security in Uasin Gishu County. This was attained by determining the probability that Y =1 conditional to the value taken by the independent variables. As per the nature of the study four different empirical models were estimated as per the four devolved functions. In overall, for data analysis statistical package for social sciences software version 20 was used to carry out the analysis. Upon establishing the various effects discussion of the results were done in attempt to draw conclusions, policy implications and the possible recommendation arising from the results of the data analysis. Inferential statistics such as multiple linear regressions and correlation were used to establish the relationship between the selected variables and for hypothesis testing. The regression equation of y on x includes:

$Y = \beta o + \beta_1 x_1 + \beta_2 x_2 + e$

Where;

X_1 = Agricultural extension services; X_2 = Devolved Funds. Y is the dependent variable, e = error term; $\beta 0$ = y intercept; β_1, β_2 = coefficients of x_1, x_2 respectively.

4. Empirical Results

Out of the 353 respondents issued with questionnaire in the study, 201were male while the remaining 152 were female. This accounted for 56.9% and 43.1% respectively. Most of the respondent ages ranged between 31- 40 years which comprised of 152(43.1%), 115(32.6%) were aged between 20 – 30 years, 64(40.5%) were aged 40-50 years, 6(1.7%) were below 20 years, 16(4.5%) were over 50 years.

Gender	**Frequency**	**Percent**
Female	152	43.1
Male	201	56.9
Total	353	100.0
Marital Status		
Married	199	56.4
Single	98	27.8
Divorced	19	5.4
Separated	21	5.9
Widowed	16	4.5
Total	353	100.0
Age		
Below 20	6	1.7
20 – 30	115	32.6
31 – 40	152	43.1
40 – 50	64	18.1
Above 50	16	4.5
Total	353	100.0
Education		
Never went to School	6	1.7
Nursery School	8	2.3
Primary School	37	10.5
Secondary School	84	23.8
Vocational Training	74	21.0
Diploma Level	61	17.3
University Degree	66	18.7
Masters Degree	17	4.8
Total	353	100.0
Livelihood		
Livestock Keeping	74	21.0
Farming	110	31.2
Business (Large Enterprise	33	9.3
Small Scale Trade	42	11.9
Formal Employment	65	18.0
Charcoal/ Firewood production	2	0.6
IGA/ Cooperatives	8	2.3
Daily Labour/	14	4.0
Others (Specify)	5	1.4
Total	353	100.0

Table 1: Descriptive analysis of bio data
Source: Survey data, 2017

Majority of the respondents had a secondary level of education. This was ascertained by 84(23.8%) of the respondents. 6(1.7%) never went to school, 8 (2.3%) nursery school, 74 (21.0) had vocational training, 61(17.3%) a diploma, 66 (18.7%) had a university degree and 17 (4.8%) had a master's degree. Majority of the respondents, 31.2 % (110) engaged in farming. 21.0% (74) practiced livestock keeping, 9.3% (33) owned large business enterprises, 18.0 % (65) practiced small scale trade, 0.6% (2) engaged in firewood or charcoal production, 2.3% (8) had cooperatives, 4.0 (14) were involved in daily labour while 1.4% (5) had other sources of livelihood. Correlation analysis of variable under study was conducted to establish where there was any significant relation between dependent and independent variables under study. This was then tested for significance at 1%. The result of the analysis is tabulated in Table 2 below. Food security was found to have a significant relationship with agricultural extension officers and devolved funds.

Correlations				
		Agric	Funds	Food sec
Agric	Pearson Correlation	1		
	Sig. (2-tailed)			
	N	353		
Funds	Pearson Correlation	.422**	1	
	Sig. (2-tailed)	.000		
	N	353	353	
Food sec	Pearson Correlation	.413**	.624**	1
	Sig. (2-tailed)	.000	.000	
	N	353	353	353
**. Correlation is significant at the 0.01 level (2-tailed).				

Table 2: Correlations between food security and devolved system of governance
Source: Survey data, 2017

4.1. Multiple Regression Analysis
Multiple regression analysis is a powerful technique used for predicting the unknown value of a variable from the known value of two or more variables also called the predictors. In this case, multiple regression analysis helped predict food security from agricultural extension services and devolved funds.

4.1.1. Model Summary
The results from multiple regression analysis are as displayed below;

Model Summary[b]					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.690[a]	.476	.470	1.40152	1.783
a. Predictors: (Constant), funds, Agric					
b. Dependent Variable: food security					

Table 3: Model summary
Source: Survey data, 2017

From the table above, the value of R-square is 0.476 which indicates that the model explains 47.6% of food security from the predictor variables (agricultural extension services and devolved funds). The Durbin-Watson's d tests the null hypothesis that the residuals are not linearly auto-correlated. The value of Durbin-Watson was at 1.783 which indicates no autocorrelation among the variables.

4.1.2. Analysis of variance
Analysis of variance was employed to measure the differences in means between food security and its predictor variables. The results are shown in the Table 15 below;

ANOVA[b]						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	620.561	4	155.140	78.981	.000[a]
	Residual	683.564	348	1.964		
	Total	1304.125	352			
a. Predictors: (Constant), funds, Agric						
b. Dependent Variable: food security						

Table 4: ANOVA
Source: Survey data, 2017

The F-ratio was 78.981 at 4 degree of freedom which is the variable factor. This represented the effect size of the regression model and the model is significant at 99% confidence level (p=0.000) indicating that food security can be predicted from the aforementioned independent variables.

4.1.3. Coefficient Analysis

Coefficient analysis from multiple regression analysis is as shown below;

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	1.941	.680		2.856	.005					
	Agric	.085	.021	.182	4.033	.000	.413	.211	.165	.822	1.217
	Funds	.332	.027	.547	12.149	.000	.624	.545	.496	.822	1.217
a. Dependent Variable: food security											

Table 5: Coefficient analysis
Source: Survey data, 2017

As aforementioned, the model was found to be statistically significant. Further, the regression model can be outlined as follows;
Food security = (1.941) $+X_1$(.182) $+X_2$(.547) + .680
The study had proposed the null hypothesis $H_0$1: Devolved agricultural extension services in Uasin Gishu County have no effect on enhancement of food security. The results of multiple linear regressions showed (β = .182, $p<0.01$). This implies that devolved agricultural extension services have a significant effect on food security and it explained negative 18.2% change in the enhancement of food security. The current study is in agreement with the findings of Rivera, *et al.*, (2001), (Gundu, 2005) who postulate that an effective extension information service is one that meets the farmers' needs and the content of the information is specific, simple, and useful. The null hypothesis $H_0$2 was rejected implying that devolved funds have significant effect on enhancement of food security. The beta coefficient of .547 implies that devolved funds explained 54.7% change in a food security in Uasin Gishu County. This study agrees with the findings postulated by Thiessen (2001), Ezcurra & Pascal (2008) and Oates (2009) that devolution of funds contributes to food security.

5. Conclusion

From the foregoing discussions, the following conclusions were drawn from the study. Intelligence gathering through devolved extension services enables devolved staff and county government make informed decisions that boosts food security in the county. Unified database provides a platform for data analytics for better decision thus improving food security. Control systems such as promotion of climate friendly agricultural production systems and land use policies at a scale helps to mitigate climate change. Management of funds increases the supply of food sustainably. Proper skills, offering good remuneration wages and funding helps protect rural, low-income families from food insecurity in the county. Incentives to farmers such as farmers' market incentives improve food security in the county. Increase in food security funded projects increases agricultural productivity and the availability and accessibility of safe and nutritious food. Offering incentive vouchers enhances the purchasing power of low income households.

6. Recommendations

Based on the findings and conclusions from the study, the researcher came up with the following recommendations: The study recommends that both the national and county government should come up with good policies such as guidelines on devolutions of agricultural system. There is need to invest in extension services in order to improve food security of the County. The county government should support farmers in developing diversified and resilient eco agriculture systems for provision of critical ecosystem services in the county.

Food security and nutrition indicators should be used for forecasting and careful monitoring of food prices, rainfall levels, and crop production losses guides policymakers in the county to act early to minimize the impact of the food crisis.

Allocation of funds should be prioritized for eligible non-profits and food program service providers in need of a onetime infusion of assistance for projects that promote self-sufficiency and food security. The Kenyan government should build a platform to promote dialogue and cooperation among relevant institutions and programmes in all sectors with the aim of developing an extension and information services network for food security.

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