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International Journal of Management Sciences
Vol. 3, No. 1, 2014, 36-44

RESEARCH ACADEMY OF SOCIAL SCIENCES

Impact Assessment of Tanzania Social Action Fund intervention on Socio-economic Status of Vulnerable Groups

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Abstract
It is argued that globalization has increased the variability in socio-economic status of the vulnerable poor people. Although, development intervention is gradually reported as a panacea of the needy people, however little information based on appropriate methodological approach is available. This study was conducted to assess the livelihood impact of Tanzania Social Action Fund intervention on rural vulnerable groups in Makete and Rungwe Districts. This particular research analysed the impact of productive assets created on socio-economic activities of the recipients after intervention. A sample of 239 recipients and 115 non-recipients were collected through a stratified cross sectional quasi-experimental design. An instrumental variable / two stage least square approach was used to analyze cross-sectional data. Results showed that participation had positive significant effect ($p<0.05$) on socio-economic status. Based on these findings, it was concluded that involvement of target poor people in the established assets enhanced their socio-economic status.
Key words: Tasaf, impact assessment, poverty reduction, vulnerability, intervention, socio-economic status, Makete and Rungwe.

1. Introduction

Poverty has negative consequences on the vulnerable groups' livelihood at different times and places in their lives. For this reason, the Government of Tanzania (GoT) stressed the importance of development strategies after its independence in 1961 to address it. In 1967, the GoT launched the Arusha Declaration vision as a successor to the independence achievement. The declaration articulated a philosophy of socio-economic liberation based on socialism and self–reliance as the long-term national goal of Tanzania to fight against poverty (United Republic of Tanzania, 2000a). The strategy was based on the state-control of all major means of production as the principal engine of economic growth and development (United Republic of Tanzania, 2000a). Contrary to the expectation of success, this strategy did not sufficiently address the complexity and dynamic character of policies and incentives necessary to effectively drive the development process. Consequently, donor dependence and low capacity for economic management in the organization of production and ineffective implementation led to its failure (United Republic of Tanzania, 2000a). As a result, the poverty gap between rural and urban areas has increased persistently, triggering rapid rural-urban migration (Kombe & Limbumba, 2008). This has been accelerated by the limited off-farm employment opportunities in rural areas and the possibility of earning higher wages in urban areas (Kombe & Limbumba, 2008). Moreover, children have been indirectly forced to engage in informal street activities with the hope of having a better future (Johnson, Kisslinger, Oneko & Henser, 2005; Mkombozi, 2004 & Kopoka, 2000). Furthermore, Lau Jorgensen and Van Domelen (1999) argue that globalization has induced the increase in income variability combined with marginalization and social exclusion. Consequently, the rural growth rate of the agricultural sector which employs over 75% of economically active population (is about 4.5%) contrasts with the national population growth rate of 2.9, as a result the rural per capita income becomes small (United Republic of Tanzania, 2012; 2010). Thus, poverty is still a challenge in Tanzania particularly

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in rural areas where 38% of the population lives below the basic needs poverty line compared with 24% in urban areas (United Republic of Tanzania, 2009; 2010; Food and Agriculture Organization, 2008).

Statement of the Problem

In order to address the imbalance, the Government formulated the Tanzania development vision 2025 aiming at achieving a high quality livelihood for its people and develop a strong and competitive economy. The vision entails an active participatory of civil society in the articulation of its needs to fulfil societal responsibilities (United Republic of Tanzania, 2000a). To achieve the vision, the National Strategy for Growth and Reduction of Poverty (NSGRP I and II) aiming at enhancing growth and reduction of income poverty in rural areas were initiated in line with other poverty reduction strategies (United Republic of Tanzania, 2010; 2005a; 2001a, b & 2000b). Therefore, a multi-sectoral strategy, Tanzania Social Action Fund (TASAF) came into existence aiming at empowering vulnerable communities for effective and efficient utilization of the livelihoods assets created (United Republic of Tanzania, 2010; 2005a). The created assets termed as productive assets were physical properties that had an economic value in the recipients' livelihoods as they tend to enhance and sustain their earnings in their life time through participation.So, created productive assets included public works, dairy cattle, environmental conservation, poultry, carpentry and water projects. Hitherto, poverty reduction is often judged in terms of the impact of an intervention on income, consumption and net worth of the recipients. It takes into account the effect of the households' vulnerability and the impact on employment at the household level (Swan, 2004 &Kopoka, 2000). However, little information based on appropriate methodological approach is known on how created assets had an impact on socio-economic status of vulnerable target groups. Hence, this paper assessed the impact of created assets by TASAF intervention on socio-economic status of the recipients' in Makete and Rungwe Districts and informs policy makers and beneficiaries.

2. Methodology

An *ex-post* evaluation method for impact assessment depends on the nature of the intervention being evaluated (Asian Development Bank, 2006; Barnes & Sebstad, 2000). Although, randomization is a golden standard approach which removes at least on average any systematic differences between the groups (Adeoti, Barry, Namara & Kamara, 2009; Grossman, 2005; Spath, 2004; Wassenich & Whiteside, 2004; Ochieng, 2002; Power & Riddell, 1998). Yet, it is considered unethical or unacceptable (Hulme, 2000) as it may be difficult to assure that the assignment is truly random (Baker, 1999). However, quasi-experimental model is the only satisfactory way to proceed which can be done by statistically controlling the differences between groups during data analysis (Randler & Bogner, 2008; Grossman, 2005; Layfield & Flagg, 2004; Spath, 2004; Wassenich & Whiteside, 2004; Ochieng, 2002; Baker, 2000; 1999).

Notwithstanding, quasi-experiment requires analysis techniques to deal with the differences between groups. In order to isolate the net effect of the intervention and selection bias, statistics and econometric models including Heckman and instrumental variables (IV) / two stage least square (2SLS) models were considered (Grossman, 2005; Spath, 2004; Hulme, 2000; Baker, 2000; 1999; Power & Riddell, 1998). Despite, Greenstone and Gayer (2007) and Blondal (2007) contend that the use of Heckman model needs a correction factor (inverse mills ratio) whereas IV/2SLS solves the problem of selection bias and produces consistent results. Yet, this technique needs one or more variable(s) that matter for participation and not to outcomes given participation. Therefore, this identifies the exogenous variation in outcomes attributable to the programme recognizing that its placement is not random (Baker, 2000).

To date, intervention impact isolation using participants and non-participants explicitly focuses on livelihoods (Haidar, 2009). As a result, livelihoods assessment gains an understanding of the significance of the project to the livelihoods of project participants and other local residents (La Rovere& Dixon, 2007; Ashley & Hussein, 2000). Accordingly, a modified Department for international Development (1999) sustainable livelihood (SL) conceptual framework was adopted for intervention analysis. This study employed a quasi-experimental approach in which cross-sectional data were collected once at a given point

of time (Baker, 2003; Stocks & Watson, 2003; Wooldridge, 2001).For this reason, sample determination was based on precision rate of 5% and confidence level of 95% for an infinite population. Therefore the traditional formula (Power and Riddell, 1998):

$$n = \frac{1.96^2[p(1-p)]}{SE^2} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (1)$$

was applied, whereas "n" is a sample size (354) calculated, SE is the tolerable standard error (0.05), and p = (0.64) and (1-p) = (0.36) were the proportions of projects participants and non-participants, respectively. The figure 1.96 reflects the choice of a 95% confidence interval and the margin error of $\pm 5\%$ was tolerable. Since, all districts adopted TASAF intervention for heterogeneity needy groups, hence multistage and stratified sampling techniques were employed to obtain a representative sample in both districts.

Therefore, stratified list of participants: food insecure (FI); community development investment (CDI); vulnerable groups (VGs); and service poor (SP) projects were used as the sampling frame. Accordingly, 239 recipients and 115 non-recipients including key informants and project coordinators were interviewed. Therefore, IV / 2SLS was employed as the model because it discards the variation in the potential outcomes (Greenstone and Gayer, 2007). However, the key assumption was that, IVs correlates with the treatment (endogenous) variable independent of potential outcomes to produce consistent results (Wooldridge, 2004; Greenstone and Gayer, 2007; Blondal, 2007) expressed as:

$$y = \beta_0 + \beta_1 y_1 + \beta_i x_i + u_i \ldots\ldots\ldots\ldots\ldots\ldots \quad (2)$$

Where: y = Socio-economic status (dummy variable); β_0 = constant term; β_1 = coefficient of endogenous explanatory variable y_1 (participation); β_i =coefficients of exogenous variables x_i (location, project operation time, female household head, beneficiary age, marital status, education level, women participation, women association, frequency of loans disbursed, women decision making, youth dependency, income generating activities, HIV and reproductive health services and projects created) as shown in equation (5); and u_i = error term for all $i = 2,3,\ldots\ldots\ldots,n$ terms.

Moreover, expectations of the results on the estimated coefficients were:

i. $\beta_1 > 0$, participation has an impact on socio-economic activities, or otherwise.

ii. $\beta_i > 0$, factors / projects have positive influence on socio economic impacts, or otherwise.

However, the endogeneity test showed that the endogenous explanatory variable was statistically significant (p<0.01) when ordinary least square (OLS) was compared by two stage least square (2SLS), therefore, the use of IV/ 2SLS procedures was necessary to solve the problem as ordinary least square (OLS) could yield inconsistent estimates (Stock & Watson, 2003). Then, the endogenous explanatory variable was transformed into IV to obtain consistent estimators (Stocks & Watson, 2003) whereas an observable IV z_i (target groups: able-bodied; chronic diseased; elders; HIV infected; orphans; and widowers) was introduced and correlated with y_1 (participation) and not u specified as:

$$y_1 = \alpha_0 + \alpha_1 z_1 + \alpha_2 z_2 + \alpha_3 z_3 + \alpha_4 z_4 + \alpha_5 z_5 + \nu \quad \ldots\ldots\ldots\ldots\ldots\ldots \quad (3)$$

Whereby: $Cov(z_i, y_1) \neq 0$; $E(\nu) = 0$; $Cov(z_i, \nu) = 0$; α_i in (3) are unknown statistics for all $i = 1,\ldots\ldots,5$ and $\alpha_i z_i$ was uncorrelated with the error term.

Regressing y_1 on z_i, fitted values were obtained:

$$\hat{y}_1 = \hat{\alpha}_0 + \hat{\alpha}_1 z_1 + \hat{\alpha}_2 z_2 + \hat{\alpha}_3 z_3 + \hat{\alpha}_4 z_4 + \hat{\alpha}_5 z_5 \ldots\ldots\ldots\ldots\ldots\ldots \quad (4)$$

Accordingly, $\hat{y}_1$ was used as the IV for y_1 and z_i (target groups) was causally associated with y_1 (participation) as shown by the endogeneity test (Cameron and Trivedi, 2005; Wooldridge, 2004). Thus far, R^2 and Wald-statistic were useful guides (Bound, Jaeger & Baker, 1995) to the quality of IV estimate. In order to avoid specification error and variance of estimates, model fit (RAMSEY RESET) and heteroscedasticity tests were tested. However, both tests were statistically insignificant reflecting that the model had no specification errors and variances were constant. Also, the Wald-statistic test was statistically significant meaning that instruments were relevant and adequately correlated with endogenous-explanatory variable. Therefore, the model was suitable (pseudo R-squared =24.6%) for data analysis for the impact of productive assets created on socio economic status (Y_{SES}) of recipients after the TASAF adoption was analyzed based on equation(Table 1):

$$Y_{SES} = \beta_0 + \beta_1 Partic + \beta_2 Locat + \beta_3 propertime + \beta_4 Femhhd + \beta_5 Benage + \beta_6 Mstatus + \beta_7 Educ + \beta_8 Wompart + \beta_9 Womassnu + \beta_{10} Loansdisb + \beta_{11} Womdecis + \beta_{12} Youthdep + \beta_{13} Iga + \beta_{14} Hivrhserv + \sum_{i=1}^{5} \beta_i projects + e \quad \ldots\ldots\ldots\ldots\ldots \quad (5)$$

Expectation of variables included was: ($\beta_1 > 0$) participation has positive influence on socio economic status; ($\beta_{3,5,7-13} > 0$) factors have positive influence on socio-economic status; and that ($\beta_i > 0$) project(s) had a direct effect (s) on socio economic activities. Thus, pseudo R-squared, Ramsey RESER test, and Breusch-Pagan model estimators were used.

Table 1: Variables specified in the socio-economic status analytical model

Variable	**Definition**
Partic (Participation =1 or otherwise)	Taking part in the intervention activities or not is a key indicator for respondents to have access to assets created or otherwise. A positive or negative coefficient is expected as participation may enhance or hinder other socio-economic activities .
Location (Makete / Rungwe =1 or otherwise)	The site or position where an intervention is established to serve needy communities is determined by climatic variation. Thus a positive /negative relationship between location and socio-economic status was anticipated
Benage(Beneficiary age) (Years)	The age is an important indicator for recipients to participate in certain created assets. Vulnerability of participants was associated with age, thus a positive or negative relationship with socio-economic status was predicted.
Mstatus (Marital status, married =1 or otherwise)	The indicator of being unmarried, married or formerly married determines the extent of participation. Thus positive/negative relationship between married participants and socio-economic status was expected.
Edulevel (Education level) (Number of years)	Better education is assumed to improve projects created. It was expected that better educated participants perform better in created assets, thus a positive relationship between educated recipients and socioeconomic status was expected.
Femhhd (Female household head =1 or otherwise)	The sex of the household head was also an important factor for determining the effects of participation in TASAF intervention. A positive or negative coefficient was anticipated since their participation is a trade-off between family and community commitments.
Youthdep(Youth dependency)1= increased or otherwise	The tendency of physical or financial support for youth is assumed as an indicator of the costs of the burden to the society. A positive /negative relationship between youth dependency and socio-economic status was expected, implying success or failure of intervention to quench youth wants.
Womassn(Women association	The number of formal or informal groups of women is an indicator for self- help. This study assumed that, the increased number of self-help groups was positively related to

number) 1= Increased or otherwise	socio economic status of recipients.
Womdecis (Women decision =1 or otherwise)	Ability to choose or decide in a definite way after considering other possible choices without hesitation or delay was chosen as an indicator for the extent of empowerment through participation, thus a positive coefficient was anticipated.
Wompartic(Women participation=1 or otherwise)	Women taking part in TASAF community activities is assumed to be an indicator for project success. A positive relationship between women participation and socio-economic status was predicted.
Iga (Income generating activities) (1=Yes, 0=No)	Planned activities over a period of time that creates money as a payment for work, goods or services was a key indicator for the effects of TASAF assets on socio-economic status, thus a positive coefficient was expected.
Loansdisb (Loans disbursed) (1=Yes, 0=No)	Amount of money given to a recipient on the condition that it will be paid back is an indicator of financial empowerment through participation in created assets and a positive coefficient was expected.
Hivrhserv (HIV and reproductive health services = 1 or otherwise)	Services in all matters related to HIV and reproductive system is an indicator for positive association between TASAF projects and socio-economic activities. However, a positive /negative relationship between health services and socio-economic status was anticipated.
Socio-economic status(1=Improved or otherwise)	Improvement in economic activities and social factors determines the positive effect of TASAF assets, thus a positive outcome was expected.
Projects	Planned activities were expected to have variable effects on participants livelihood
Properatime(Project operation time, years)	Period of involvement in a given activity from inception to the eventual survey time was expected to have a positive relationship with socio-economic status.

3. Results and Discussion

Survey findings (Table 2) show that participation had a positive significant influence at ($p<0.05$) level on socio-economic status. Meaning that participants' socio-economic status was more improved than non-participants. This difference could be attributed to the gained knowledge, skills and income through involvement in assets created. Also, results showed that health and reproductive services had negative statistically significant effects ($p<0.01$) on socio-economic status of recipients. This indicates that both intertwined services reduced socio-economic status of participants by 27.2%. Therefore, this effect can be contributed by inadequate provision of both services in the study area which affected their participation in created assets. Equally, findings obtained by Ugwu (2009) observed that the impact of HIV/AIDS on the farm women experienced loss of feminine agricultural labour supply, reduced household income and agricultural production.

Moreover, findings (Table 2) showed that there were a positive significant correlation among women associations ($p<0.01$), women participation and income generating activities ($p<0.05$) with socio- economic status. Results proposed that, formation of women associations increased socio-economic effects by 33.3% whereas the established sources of income improved socio-economic outcomes by 12.6%. Therefore, participation of beneficiaries in the established projects was likely to be a kick-start that enhanced their livelihoods and reduced poverty vulnerability. Current results agree with Hashim, Alam and Siraj (2010); Husain, Mukerjee and Dutta(2009); Kopoka (2000), Snetro-Plewman, Tapia, Uccellani, Brasington and McNulty (2007) and Swan (2004) that participation in created assets facilitate a greater pool of knowledge and supplement their meagre family income.

On the other hand, study results (Table 2) showed that female headed household had an inverse significant ($p<0.05$) relationship with socio-economic status. This advocated that a 1% increase in female head participation in projects reduced its socio-economic effects by 0.156% than male household heads participants. Probably, their participation in projects kept them away from other socio-economic activities. Thus, they had less access to productive resources than their counterparts as a result they were more likely to be poor than men. United Republic of Tanzania (2006) supports that women do not usually own assets and rarely have the ability for autonomous decision making on socio-economic activities for their livelihoods.

Table 2: Instrumental variables (2SLS) regression of impact of assets created on socio-economic status

Variables	Coef.	Std. Err.	z	P>|z|	dy/dx
Instrumented					
Participation	0.353	0.170	2.070	0.038**	0.078
Instruments					
Rungwe (Location)	0.015	0.079	0.180	0.854	-0.042
Project operation period	-0.011	0.035	-0.320	0.746	0.036
Female household head	-0.165	0.063	-2.620	0.009***	-0.156
Beneficiary age	-0.003	0.002	-1.670	0.094	-0.003
Marital status	0.056	0.062	0.910	0.364	0.013
Education level	-0.008	0.032	-0.250	0.803	-0.002
Women participation	0.211	0.087	2.430	0.015**	0.229
Women associations	0.333	0.055	6.010	0.000***	0.323
Loans disbursement	0.084	0.058	1.450	0.148	0.093
Women decision	0.060	0.069	0.870	0.386	0.070
Youth dependency	0.027	0.052	0.520	0.600	0.023
Income generating activities	0.126	0.055	2.270	0.023**	0.104
HIV reproductive health services	-0.272	0.057	-4.750	0.000***	-0.255
Public works	-0.098	0.106	-0.920	0.357	-0.005
Dairy cattle project	-0.232	0.142	-1.640	0.101*	-0.034
Environmental conservation proj	-0.278	0.145	-1.920	0.054	-0.081
Poultry project	-0.190	0.148	-1.280	0.199	-0.029
Carpentry project	-0.070	0.263	-0.270	0.788	0.153
Constant	0.281	0.173	1.620	0.105	

Significance levels: *, ** and *** are $p<0.1$, $p<0.05$ and $p<0.01$, respectively.

4. Conclusion and Recommendations

Based on the findings that participation on assets created had positive influence in socio- economic status of recipients, it was concluded that formation of associations and creation of sustainable sources of income had a likelihood of reducing poverty. On the contrary, it was concluded that inadequate provision of both health and reproductive services reduced the expected socio-economic outcomes. Therefore, it was recommended that the government should put into effect formation of associations and sustainable sources of income. Also, the government should put into effect equitably health and reproductive health services provision to reduce both income and non income poverty. Lastly, the government should device assets that enable female head households participation without foregoing other socio-economic activities to sustain their livelihoods.

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