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IMPACT OF TOBACCO PRODUCTION ON POVERTY REDUCTION AT HOUSEHOLD LEVEL: A CASE OF URAMBO DISTRICT IN TABORA, TANZANIA

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ABSTRACT

This paper discusses the relationship between tobacco production and poverty reduction among the households particularly at Urambo District in Tanzania whereby more than 60% of the tobacco produced in Tanzania comes from Urambo. The study included 60 households growing tobacco. The study used two models in analyzing and presentation of data, which were STATA and SPSS software. The first model was Double-log function. This model analyzed factors affecting tobacco production that is the relationship between inputs and outputs. It found that R^2 was highly significant at 5% level with the value of 0.6393 which implies that 63% of the total variations in tobacco yield were explained by combining the influence of the all explanatory variables in the regression equation. The second model used was Binary (Binomial) Logic Model that analyzed the effects of income earned from tobacco production. It was found that about 92% of the total variations were significant at 5% level, that tobacco production has helped to reduce poverty among the households. The results of this study indicated clearly that tobacco production was the major source of income in Urambo District.

1.0 Introduction

Tobacco is an agricultural product processed from the fresh leaves of plants in the genus Nicotinic. It can be consumed, used as an organic pesticide, and in the form of nicotine tartrate. Also is used in some medicines (Smith, 1977). In consumption, it appears in the forms of smoking, chewing, snuffing, or dipping tobacco, or snus.

Tobacco has long been in use as an entheogen in the Americas. However, upon the arrival of Europeans in North America, it quickly became popularized as a trade item and as a recreational drug. This popularization led to the development of the southern economy of the United States until it gave way to cotton (International Labour Organization, 2002).

Tobacco is grown in more than 100 countries. The four leading tobacco producers include China, India, Brazil and USA, they contributes 62% of tobacco production in the World. But China alone accounts 37% of tobacco production. Other principal suppliers of tobacco are Turkey, Zimbabwe and Malawi. Tobacco products are consumed all over the world. Mostly, tobacco is used for smoking. Tobacco is the essential ingredient for cigarettes, pipes, cigars, roll-your-own, bidis, and kretek cigarettes. Tobacco is also used for smokeless tobacco such as snuff and chewing tobacco. Over 80 per cent of world tobacco is used for cigarettes (Gijsbert van Liemt, 2002).

World tobacco production is projected to reach over 7.1million tonnes of tobacco leaf in the year 2010. This is up from 5.9 million tons in 1997/99 (FAO, 2003). The increase in the export reflected the onset of the export season for most tobacco exports, while the increase in export prices is partly associated with the developments of tobacco at the world market (Daily News of 17.02.2010). Historically, tobacco is a highly attractive crop to farmers, providing a higher net income yield per unit of land than most cash crops and substantially more than food crops. Farmers also find tobacco an attractive crop for more practical reasons. First, the global price of tobacco is relatively stable compared with other crops. The stability allows farmers to plan ahead and obtain credit for other enterprises as well as tobacco farming. Second, the tobacco industry generally supplies farmers with strong in-kind support, including materials and advice. Third, the industry often gives farmers loans. Fourth, other crops may cause farmers problems with storage, collection, and delivery. Tobacco is less perishable than many crops, and the industry may assist with its delivery or collection; by contrast, late collection, late payment, and price fluctuations may blight other crops (http://www.worldbank.org/tobacco/chapter5.asp).

Tobacco is a cash crop that is grown widely in developing countries, where wealthy multinational companies owe its existence as growers, traders and manufactures at the expense of smallholder farmers despite worldwide restrictions and challenges against tobacco production and consumption (http://tobaccobamboo.org/index.php?DIP=12). The demand for tobacco continues to increase, although not at the pace set a few years ago. To achieve some stability in tobacco production and to ensure high quality leaf production, scientific advancements and plans to meet the new challenges must be continued more effectively and systematically in tobacco production.
(http://crop.scijournals.org/cgi/content/full/41/1/255).

Tanzania has been engaging in tobacco production in order to earn foreign exchange through export. According to UNCTAD, (2000) about 15 percent of tobacco produced in Tanzania was exported in 1997. Tobacco industry employs about 5000 workers (Corrao, Guindo, Sharma and Shokool, 2000). According to the International Monetary Fund (IMF) report in 1996, coffee accounted for 17.7 percent of Tanzania's total export. Cotton was the second which amounted for 16.3 percent of total export, followed by cashew nuts 12.7 percent, tobacco 6.4 percent, Tea 2.9 percent and Sisal 0.7 percent (http://www.nationsencyclopedia.com/economies/africa/tanzania_AGRICULTURE.html).
Today tobacco is emerged as the top country' major cash crop with over 36 percent which contributes in foreign currency earnings from traditional export, this is according to the BoT monthly economic review at the end of 2009. Cotton ranked second with 21.4 percent, 15 points less than tobacco, followed by cashew nuts 10.2 percent, tea 5.8 percent and cloves at 3 percent (Daily News of 17.02.2010).

Tobacco has a higher gross margin compared to a good number of agricultural products and its profitability that can enhance household security and poverty reduction (http://act.tobaccochina.com/englishnews/content.aspx?id=13274). Also tobacco production, in general is no doubt an important player in improving people's livelihood by generating patterns of development that are employment-intensive and benefit both rural and urban areas (OECD, 1999 and OECD 1997).

It is generally agreed that among development practitioners, poverty is a complex and multifaceted problem, which has no single remedy. This is partly because it has diverse causes and partly there is no consensus on certain causes of poverty (Barker, 1992).

According to (OECD 2001), the concept of poverty includes different dimensions of deprivation. In general it is the inability of people to meet economic, social and other standards of well being. There are many indicators of poverty. The indicators of poverty include the following; low per capita income, prevalence of sickness, indebtedness, inadequate supply of food, lack of assets lack of food (Chambers, 1998). Other indicators of poverty includes the followings; life expectancy, lack of human lights, poor basic sanitation, high room densities, illiteracy, lack of skills, unemployment and high dependency ratios (Chambers, 1998).

Poverty is one of the three declared enemies of Tanzania since Independence in 1961, when the country regained its sovereignty. The other two enemies are ignorance and disease. Accordingly Tanzania has been struggling to alleviate poverty since then which seems to be very elusive (Burkery, 1996).

The World Bank has defined poverty and extreme poverty as denoting those living on less than a real purchasing power parity measurement of USD 1 per day (or about TShs 15,000 per month at 1993/94 prices in Tanzania), and USD 0.75 per day (or Tshs. 11,250 per month), respectively for Tanzania (UNDP, 1995). Using this definition it is noted that in Tanzania poverty is largely a rural phenomenon. The poor represented, in the early to mid-1990s, about 59% of all rural households and 39% of urban households excluding Dar es Salaam, where the poor represented about 9% of all households. Rural villages accounted for 90% of those living in extreme poverty (Mtatifikolo F and Mabele R, 2009).

Within the context of agricultural performance, tobacco cash production has a key role to play. Export crops are defined as those cash crops, which are often traded on international commodity markets and/or are grown primarily for export markets (Shepherd and Farolfi, 1999). Development of smallholder export crop production has the potential to bring direct benefits to a large number of farm households, hence contribute to poverty reduction initiatives. Even households that do not benefit directly may reap indirect benefits through the increased demand for hired labour, often a valuable source of income for the poorest. The 1998 OECD report claims that failure to recognize export cropping as the engine for growth has led to overall economic distress and jeopardized the success of Tanzania's hard fought and painful structural adjustment efforts.

2.0   Methodology
2.1   Model Formulation
2.1.1   Double Logarithmic Function
The study employed double logarithmic function analysis model to determine the factors that influence tobacco production. Dependent variable (Y) was regressed on the independent variables to find the standard regression coefficient (β_s) weight of each of the variable, considered to account for more of the variation in the dependent variable and the error term. Regression model was expressed as follows;

$$LnY_i = \beta_0 + \beta_1 lnX_1 + \beta_2 lnX_2 + \beta_3 lnX_3 + \beta_4 lnX_4 + D + \varepsilon_i$$

Where;

Y_i = Total annual tobacco production in kg

β_0 = Constant coefficient

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6$ are parameters and all the signs were expected to be positive

ε_i = Error term or disturbance term

X_1 = Labour employed in tobacco production that is hours worked by households ($\beta_1 \geq 0$)

X_2 = Amount of credit accessed in shillings ($\beta_2 \geq 0$)

X_3 = Land size in hectares ($\beta_3 \geq 0$)

X_4 = Capital employed in tobacco production in shillings ($\beta_4 \geq 0$)

2.1.2   Logit Model

Is a function is an estimation technique for equations with dummy dependent variables that avoids the unboundedness problem of the linear probability model using a variant of the cumulative logistic function (Studenmund A.H, 1970 and http://www.ats.ucla.edu/stat/stata/dae/ologic.htm). In addition to descriptive statistics, logistic Regression model was used to investigate the factors for the increase in welfare indicators or effects of income earned from tobacco production like purchase of food, clothing materials etc. In the regression model, the status of poverty was treated as dependent variable by taking 1 if households head income is above poverty line and 0 if household's income is below poverty line. The functional relationship between the probability of improvement in income and explanatory variables was specified as follows;

$$Y = f(X_i, U_i)$$

Where; Y = Average yearly income of respondents

X_i = is a vector of explanatory variables

U_i = Error term

Binary Logistic Regression model was used for its manageability, simplicity and appropriateness (Maddala, 1983). While specifying the distribution of the model, steps followed by Gujarati (1992) was considered as shown below;

$$P = 1/1 + e^{-zi}$$
$$Z_i = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \ldots\ldots + \beta_n x_n$$
$$P_i = 1/1 + e^{-(\beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \beta_5 x_5 + \beta_6 x_6 + \beta_7 x_7 + \beta_8 x_8 + \mu)}$$

Where;

P_i = Probability of improvement in income; 1 if households income is above poverty line ($ 1 per day) and 0 if households income is below poverty line.

e^{zi} = irrational number to the power of zi

zi = A function of n explanatory variables (i = 1,2,3,..............,etc)

βs = explanatory variables

X_1 = House construction

X_2 = Purchasing of food

X_3 = Health services
X_4 = Education
X_5 = Clothing materials
X_6 = Home utensils and furniture
X_7 = Savings
X_8 = Dummy variable for tobacco production is 1 otherwise 0

2.2   Sample Size

According to Kothari C.R, 2007 for a sample size to be representative must be not less than 10 percent of the population. According to (URT, 2002), the population of Kondamoyo ward was 9,711 with 600 households producing tobacco. In this study, the sample size of 60 respondent/tobacco producers were drawn from four villages in Kondamoyo ward based on simple random sampling out of 26 wards. Also multistage was used to select respondents from the four villages at Kondamoyo Ward.

From each village 15 households growing tobacco were selected by using simple random sampling for the interview. Only four villages in Kondamoyo ward were selected to enable the researcher to reach all respondents during the collection of data. Also geographically Urambo District had not improved her road transportation, so this makes difficult to the researcher to reach all places within a time. Large sample size needed a lot of money and the researcher had a limited fund to cover the research, so by drawing larger sample size would not fulfill the requirement of the researcher.

Both primary and secondary data were collected from different sources, whereby data obtained were used to gather information needed for the analysis of this study. Open and closed ended questionnaire were used to get different comments and opinions from the respondents/tobacco producers. Direct observation was used by the researcher to collect the information by observing physical elements like housing quality, clothing material and household equipments.

The researcher conducted focus group discussion for community members who engaged in tobacco production by using interview guided in order to come up with the information obtained from the group. Interviews and informal discussion with household/tobacco producers, government leaders and other stakeholders like Tanzania Tobacco Leaf Company involved in tobacco production were also used to assess the impact of tobacco production in poverty reduction among the households who were growing tobacco.

Both descriptive and quantitative statistics were employed basing on the objective and hypotheses which were tested. Quantitative data was analyzed by using STATA software for Double Logarithmic Function and for Binomial Logic Model in line with the study. Descriptive statistics such as the use of frequencies and percentages were employed. Cross tabulation was used to establish the relationship between variables.

The information obtained was first been edited, coded and then grouped into different groups, each having data of the same characters but different from that of the other group. The purpose was to get meaningful relations. With the help of Double Logarithmic Function regression equation, STATA computer software was used for data analysis and

for the regression of Binomial (binary) Logic Model. To make people understand the information easily, tables and charts were used in presenting the statistical information.

3.0   Results
3.1   Data Analysis
3.1.1   Demographic Information
This chapter presents findings and discussions of the study which was conducted at Urambo District in Tabora Region. The pattern of tobacco production among the household was examined and their effects of income earned from tobacco on households consumption for addressing poverty reduction strategy at household income level was also examined. Factors that influence the production of tobacco in the study area and measures to improve tobacco production in the study area have been recommended.

3.1.2   Households Head Characteristics
Characteristics of all respondents interviewed have some important in social and economic wise in addressing tobacco production via poverty reduction among the households in the study area. So this section intends to describe characteristics of respondents selected against age, sex, marital status, family size, level of education and number of household working in tobacco farms.

3.2 Sex of the Respondents
In the study area both male and female were engaged in tobacco production. But the degree of participations was not equal. Majority of the participants in tobacco production were male while female participations lagged behind. In Kondamoyo village, households headed by male constituted 87.7% of the sample size, while 13.3% of the respondents were headed by female. In Ifuta village about 73.3% of the surveyed household was under the head of males and about 26.7% were headed by a female. In Tumaini village household headed by male were 66.7% while 33.3% were headed by a female and in Kamalendi village about 60% of the household surveyed were headed by a male, while 40% were headed by a female.

3.3 Age of the Households Head
In a society Age category is very important in decision making. Households were grouped into different categories of ages for the four villages in the study area. The distribution of the household head into age wise showed that, majority of the households engaged in tobacco production were in the age of 31-42 for Kondamoyo village which is 46.7%, Tumaini village 40%, while for the villages of Kamalendi and Ifuta were in the age of more than 54 with 33.3% and 40% respectively. The overall, majority of the of the respondents about 27.5% were in the age category of 18-30 years, 26.5 % were in the age category of 31-42 years, 25.5% were in the age category of 43-54% years and about 20% were in the category of above 54 years.

3.4 Education Level of the Respondents
In the study are, the surveyed results showed that, the level of village wise indicates that, household head with primary education was 86.7%, 60%, 53.3% and 80% for Tumaini, Kamalendi, Ifuta and Kondamoyo. By comparison Kamalendi village has the largest proportion of the household about 33.3% with none formal education followed by Ifuta

village with 20%, Kondamoyo village with 20% and the last village is Tumaini with the proportion of 6.7%. Households with secondary education were very low with 20% for Kamalendi village and 6.7% for Kondamoyo, Ifuta and Tumaini respectively. None of the villages has a household head with University education engaged in tobacco production.

3.5 Marital Status

Households head engaged in tobacco production according to marital status showed that, about 73.3% of the households head were in Kondamoyo village, 66.7% in Tumaini village, 60% in Ifuta village and about 46.7% in Kamalendi village. Household's head who are single, Kondamoyo village with 26.7% followed by Ifuta village with 20%, Tumaini village with 13.3% and Kamalendi was the last ones with 6.7%. Kamalendi village leads in households head who were widows and it accounts with 20% followed by Tumaini and Ifuta villages each with 13.3%, while Kondamoyo village had no households head were widows.

3.6 Households Head by Family Size

According to the household head family size, Tumaini village had a larger number of family sizes with 60% which ranged between 2-4 followed by Kamalendi with 40%, Ifuta with 33.3% while Kondamoyo had a small family size with 26.7%. There was no household head at the four villages which had more than 10 family sizes. Household head that had no family at the four villages according to ascending are Kondamoyo and Ifuta villages each with 20% while Tumaini and Kamalendi each had 6.7%. At the family size of 5-7 category at Kondamoyo and Kamalendi had a larger family each with 33.3%. Also Tumaini and Ifuta had the same number of family size of 5-7 categories.

3.7   Empirical Results
3.7.1   Factors that Influence Tobacco Production

Theoretically inputs like capital, labour, land and capital are factors which determine outputs in agricultural production. As far as tobacco production concerned, a researcher tested these factors of tobacco production tobacco if there is any correlation between outputs and production factors.

3.7.1.1 Correlation Factor

Regarding to correlation between dependent variable which is tobacco production output and explanatory variable (independent variable) land, farm size, credit and capita, all had positive correlation. This indicated that all variables were a key factors in tobacco production, but credit and extension 0.9552 were strongly correlated showed that these variables are very important in raising tobacco production and it was statistically significant at 5 percent level. Credit and extension services had a strong correlation that indicated the presence of multicollinearity. Other explanatory variables have low correlation regarding in tobacco production (Table 3.1).

3.7.1.2 Regression Results of Factors of Production

Table 3.1: Estimation Results for Tobacco Production
(12 vars, 60 obs pasted into editor)
. regress lnq lnk lnm lnn lnla

Source	SS	df	MS			
Model	17.510404	4	4.37760099			
Residual	9.87763615	55	.179593384			
Total	27.3880401	59	.46420407			

Number of obs = 60
F(4, 55) = 24.38
Prob > F = 0.0000
R-squared = 0.6393
Adj R-squared = 0.6131
Root MSE = .42378

lnq	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
lnk	.4196055	.1599344	2.62	0.011	.0990898	.7401211
lnm	.511668	.1271512	4.02	0.000	.2568512	.7664847
lnn	-.0837943	.1290442	-0.65	0.519	-.3424047	.174816
lnla	.2694499	.1557875	1.73	0.089	-.0427552	.5816549
_cons	.307846	1.549399	0.20	0.843	-2.79722	3.412912

Source: STATA Data Analysis 2010

$$LnY_i = 0.307846 + 0.4196055X_1 + 0.511668X_2 - 0.0837943X_3 + 0.2694499 X_4$$

Double- log function estimation was employed in the analysis of input- output data to measure the contribution of each input in tobacco production, when the inputs interacted together to produce tobacco outputs. All the coefficients except the coefficient associated with credit was opposite with the expectations of the researcher with a negative sign. The level of tobacco output varied positively with capital, farm size and labour. About 63 percent of the variations or goodness of fit in yield of tobacco output was explained by the specified factor inputs as indicated by the R^2.

The coefficient of capital (x_1) was positive and statistically significant at 5 percent. The positive coefficient of the capital suggests that a unit increase in the variable on tobacco production when other explanatory variables are held constant, outputs increased by 0.4196055 units. This is consonance with the prior expectation. Ceteries paribus, increased in capital means more inputs would be utilized and consequently more output expected to be increased.

The coefficient of farm size (land) (x_2) was found to be positively related to tobacco production with 0.511668 statistically significant at 5 percent. This showed that if farm size (land) changed by one unit, then tobacco outputs increases by 0.511668 units while holding other variables constant. The positive value of farm size is in line with the expected sign in the output of tobacco production. In the study area majority of the farmers were still using tradition tools (hand hoes), which indicated that if farmers were using tractors or Ox-Plough their production would be doubled by increasing farm size.

The coefficient of labour (x_3) was positive with 0.2694499 and statistically significant at 5 percent and proving the expectation of the researcher sign of the variable prior the regression the data. The positive coefficient is the same as the expectation of the researcher and implies that as the amount of labour increased at one unit, the output of tobacco production increases by 0.2694499 units.

The coefficient of credits (x_4) was negative with 0.837943 and statistically insignificant at 5 percent. It indicates the lack of relationship between agrochemicals applied and output. Likely reasons for the insignificance of the coefficient of credits and agrochemicals applied were credits provided via supplying of fertilizers and pesticides by Tobacco Company on loans to farmers. The costs of NPK was Tshs.73, 000/= per bag while costs for CAN Tshs.54, 000/= per bag. Pesticides like Confidor the costs was Tshs.6000/= per packet and alsafat costs of Tshs.25, 000/= per liter. So these costs were higher compared to the level of production. Another possible reason was the insufficient use of agrochemicals, due to the fact that extension services were only provided by Tobacco Company while the government did not provide extension services. Other farmers could not get this service because of the insufficient number of extension officers.

The regression model is statistically significant at 5 percent as shown in Table 4.13 by F statistic. The R^2 of 0.6393 indicates that 63 percent of the variability on the output of tobacco production is accounted for by the various independent variables used. The regression coefficients in the Double-log function are elasticity associates. The output of tobacco is inelastic with respect to capital, farm size, labour and credit.

3.7.2 Effects of Income Earned from Tobacco Production on Poverty Reduction
3.7.2.1 House Construction
All the four villages surveyed showed that, part of the income earned by the households head was used in house construction. At Ifuta village 60 percent of the income earned from tobacco production was used in house construction while 100 percent was used for the same mission in Tumaini village, 73.3 percent for Kamalendi village and 26.7 percent for Kondamoyo village. House construction regarded by those houses constructed by using burn bricks and erected by using iron sheet while poor houses regarded as those houses built by using un burnt bricks and erected by using glasses or built by using muddy.

Table 3.2 Distribution Pattern of House Construction

Village	Modern house construction in percent (%)	
	Constructed of modern house	Not constructed modern house
Kondamoyo	26.7	73.3
Ifuta	60	40
Kamalendi	73.3	26.7
Tumaini	100	0

Source: Field Survey Data 2010

3.7.2.2 Purchasing of Food

Tobacco production is the main source of income for the people living at Kondamoyo Ward in Urambo District whereby almost of the households head living in this area depends on it. Income earned from tobacco production helped them to purchase other requirements like food for family consumption. They used the income earned from tobacco in purchasing other food crops like rice, maize, cooking oil and beans for feeding their families. At the village level, the results showed that about 100 percent of the households producing tobacco at Kondamoyo and Tumaini village used the income earned from tobacco production in purchasing food, while about 93.3 percent for Ifuta village and 53.3 percent for Kamalendi used it to purchase food.

Table 3.3: Distribution of Food Purchased

Village	Food purchased by households in %	
	Managed to purchase food	Not managed To purchase food
Kondamoyo	100	0
Ifuta	93.3	6.7
Kamalendi	53.3	46.7
Tumaini	100	0

Source: Field Survey Data 2010

3.7.2.3 Education

Households head engaged in tobacco production were able to finance their children in schools by using income earned from tobacco, paying tuition fees in secondary and University level. Although primary education is offered free some costs must be incurred by their parents like purchasing exercise books, pens, study materials and supplementary books. Other costs are contributions paid to school watchmen salaries. Tumaini and Kondamoyo village leads in payment for education whereby 86.7 percent of the households interviewed in each village responded that tobacco production had helped to finance their children in primary school, secondary and university. In Ifuta village 73.3 percent of the households responded that tobacco production enabled them to get income for financing their children in primary education, secondary and university. Kamalendi village was the last one with 66.7 percent of the households managed to pay for their children at primary, secondary and university.

Table 3.4: Contribution of Income Earned from Tobacco Production in Financing Education

Village	Number of household head (%) managed to finance children at Education level	
	Managed. to pay for Education	Not managed to pay for Education
Kondamoyo	86.7	13.3
Ifuta	73.3	26.7
Kamalendi	66.7	33.3
Tumaini	86.7	13.3

Source: Field Survey Data 2010

3.7.2.4 Clothing Materials

Ability to pay for clothing considered as an important for human being as among the basic needs for human beings. The study revealed that, the respondent had the ability to pay for clothing materials for their families. Respondents indicated that, clothing materials purchased were shoes, khanga, vitenge, trousers, shirts, skirts, coats and others which seems to be very interesting to them. At Tumaini village100 percent of the households interviewed respondent that their income used in clothing materials. Also the study revealed that 86.7 percent of the households at Ifuta village's respondent that, the crop helped them to get high income that used in clothing materials, while for Kondamoyo village was 80 percent. At Kamalendi village 40 percent of the household's respondent that tobacco production helped them to acquire clothing materials.

**Figure 3.1: Distribution of Households Responded to Clothing Materials in %**
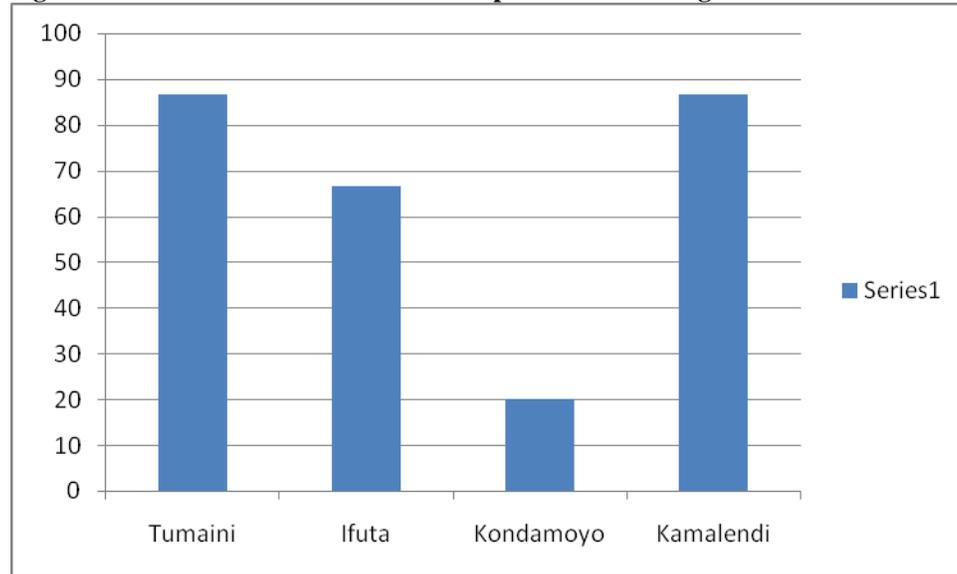
Source: Field Survey Data 2010

3.7.2.5 Health Services

Majority of the households interviewed respondent that part of the income earned from tobacco production used to purchase medicine for their family's treatment and for paying other health services. The common diseases which were common in the study area were malaria and diarrhea which appeared to attach children and pregnant women. Findings revealed that 86.7 percent of the respondents at Tumaini village used the income for health services. About 66.7 percent of the households at Ifuta village, 46.7 percent at Kondamoyo village and only 20 percent at Kamalendi village used that income for the same purposes as Tumain village.

Figure 3.2: Distribution of Households Responded to Health Services in %
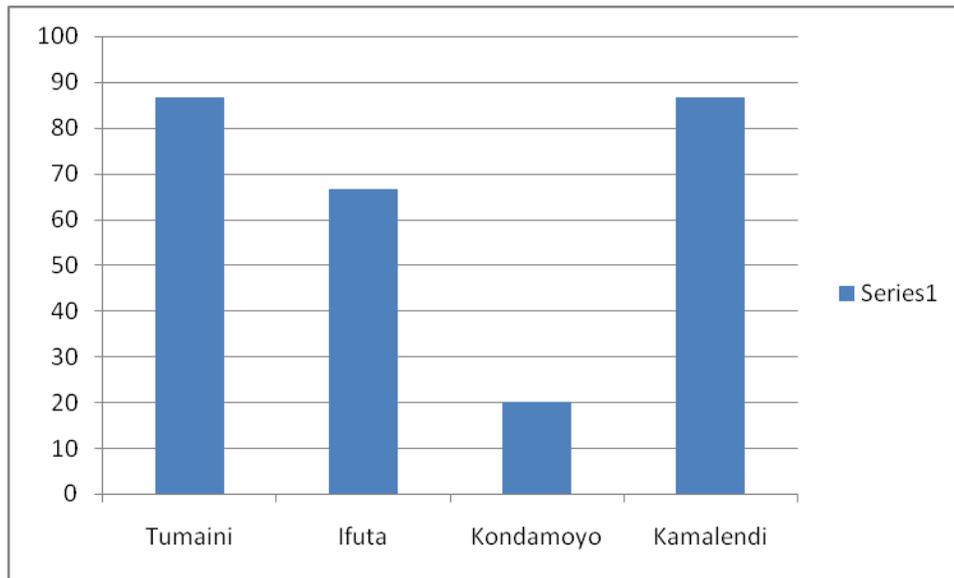
Source: Field Survey Data 2010

3.7.2.6   Purchasing of Home Utensils and Furniture

Households managed to purchase home utensils like bowls, cooking materials and furniture. Other materials purchased were chairs, tables, beds, mattresses, TV, Radio cassette, generators and sewing machines. About 100 percent of the households interviewed at Tumaini village responded that, purchased home utensils and furniture by using the income produced from tobacco, while Ifuta village was 93.3 percent, Kondamoyo 80 percent and Kamalendi village with 66.7 percent.

Table 3.5 Home Utensils and Furniture Purchased

Villages	Households respondents in percent n=15	
	Purchased Home Utensils	Not Purchased Home Utensils
Kondamoyo	80	20
Ifuta	93.3	6.7
Kamalendi	66.7	33.3
Tumaini	100	0

Source: Field Survey Data 2010

3.7.2.7   Savings

Households were managed to save some amount earned from tobacco production to Banks for future use. The average income savings at Tumaini village were Tshs.736, 000/=, at Kondamoyo village were Tshs.400, 000/=, at Kamalendi village were Tshs.1, 585,000/= and Ifuta village the average savings were Tshs.755, 300/=. Majorty of the households were managed to save part of their income to Banks for future use, that is Kondamoyo and

Ifuta village 93.3% of the respondents saved income while for Kamalendi and Tumaini village was 100% of the respondent for each village.

Table 3.6: Distribution of Savings

Villages	Savings of the respondent in percentage (%)	
	Saved	Not Saved
Kondamoyo	93.3	6.7
Ifuta	93.3	6.7
Kamalendi	100	0
Tumaini	100	0

Source: Field Survey Data 2010

4.0 Effects of Income From Tobacco

In a further attempt to precisely pin down the effects of income earned from tobacco production on poverty reduction at household level, this section estimates the binary (Binomial) logistic model. The effects of these income regarded as explanatory variables that were house construction, dummy variable for tobacco production, paying tuition fees in education, clothing materials, home utensils and future, savings, health services and purchasing of food while poverty status was dependent variable that is 1 if households head income is above poverty line (above one USD) and 0 if households head income is below poverty line. So these were found as very important in explaining the probability of household being poor, not poor or coming out from the group of poor.

Table 3.7: Effects of Income from Tobacco
(10 vars, 120 obs pasted into editor)
. logic poverty status hc pf hs ed cm huf sv production reduction Logistic regression

```
                                          Number of obs   =     120
                                          LR chi2 (8)       = 146.25
                                          Prob > chi2     = 0.0000
Log likelihood = -5.7329979               Pseudo R2       = 0.9273
```

povertysta~s	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]	
hc	.0000431	.0000266	1.62	0.105	-8.98e-06	.0000952
pf	.0000168	.0000385	0.44	0.663	-.0000587	.0000923
hs	.0005495	.0004762	1.15	0.249	-.0003839	.0014829
ed	4.08e-06	6.46e-06	0.63	0.528	-8.59e-06	.0000167
cm	-.0000132	.0000525	-0.25	0.802	-.0001161	.0000897
huf	.0000998	.0000779	1.28	0.200	-.0000529	.0002525
sv	.0000188	.0000299	0.63	0.530	-.0000399	.0000775
production	4.738914	6.931345	0.68	0.494	-8.846273	18.3241
_cons	-10.07832	6.576095	-1.53	0.125	-22.96723	2.810589

Note: 0 failures and 56 successes completely determined.
Source: STATA Data Analysis

In the estimated model it observed that, the model had a goodness fit as demonstrated by a high Pseudo R^2 =92 percent and statistically significant at 5 percent with a probability ch2 (8) of 146.25. The Log likelihood ratio was -5.7329979 with a p value of 0.0000 was appreciated.

The analysis through the coefficients, Z- test, p value, standard error and the 95 percent confidence interval suggests that households head engaged in tobacco production helped them to reduce poverty.

Coefficient on production reflects the prime role that tobacco production is very important in poverty reduction. The implications derived from the results showed that, if one household produce tobacco, the possibilities of being lifted from poverty increased by 4.738914 units statistically significant at 5 percent. It indicates that for a unit change in production the coefficient in favour of getting $ 1 per day increases by 4.738914. So this marks the importance of tobacco production in poverty reduction. It might be the case in regard that tobacco production influences the possibility of households being above poverty line. This result is consisted with the statement provided by World Bank, 2002 said that countries with larger decrease in income have typically seen in increases in poverty (as in former Socialist economies and parts of Africa).

The coefficient of savings was statistically significant with 0.0000188 units and positively relationships with the possibility of the households being above poverty line. Thus the possibilities that households were being above poverty line were increased by 0.0000188 units statistically significant at 5 percent holding other variables constant. This emphasizes that, households that engaged in tobacco production are likely to be above poverty line. So households engaged in tobacco production are therefore likely to be better off than those households engaged in other activities apart from tobacco production.

The coefficient of house construction is positive with 0.0000431units statistically significant at 5 percent (Table 4.21). This means that a one unit increase of income earned from tobacco production, there is a possibility of an increased coefficient of house construction with 0.0000431 units.

The coefficient of health services is positive with 0.0005495 units and is statistically significant at 5 percent (Table 4.21). The positive sign indicates that tobacco production helped farmers to reduce poverty. A one unit increase of income leads to an increase of 0.0005495 units of health services. This statement is resembles to that provided by World Bank (2005) that, access to health services had been an indicator for poverty reduction.

5.0 Conclusion
The study discovered that within Kondamoyo Ward other households were engaging in non tobacco production. However further analysis shows that households not engaged in tobacco production earns low profit compared to those households producing tobacco as their major source of income.

In regarding to factors of tobacco production, a researcher found that capital, labour, farm size, credit and extension services as the most important factors that influence tobacco

production. These factors were positively related in tobacco production for those households interviewed. This implied that, holding other factors constant tobacco production increased by a certain percent followed by increase in one percent of the variable. But credit had negative impact in tobacco production. The reason was the insufficient use of agrochemicals, due to the fact that extension services were only provided by Tobacco Company while the government did not provide extension services.

Empirically the overall findings suggested that tobacco production has helped households to increase the ability to purchase food for feeding their family, finance education that is at primary, secondary and University level, health services, construct modern houses, clothing materials and purchasing of home utensils and furniture. Also farmers producing tobacco had managed to save part of their earnings from tobacco in Banks for the purposes of overcoming emergencies compared to those farmers not growing tobacco.

What is needed is the development of conditions supporting general tobacco production in the study area. Within this wide guideline, a number of precise recommendations have made;

a) Technology which Use Less Firewood for Curing Tobacco

Firewood from the forest surrounding the tobacco producing area is the only source of fuel used by farmers in curing tobacco. The continued use of firewood is pushing its source further and further away from the tobacco households which are too expensive to farmers to afford the costs growing tobacco in the study area. About the actual wood consumption in tobacco curing and the possibilities of reducing is through using Air for curing tobacco for hanging it in well-ventilated barns and allowed to dry over a certain period. Air-cured tobacco is low in sugar, which gives the tobacco smoke a light, sweet flavor, and high in nicotine. Cigar and burley tobaccos are air cured. A second alternative is by using sun for curing tobacco where it dries uncovered in the sun. This method is used in Turkey, Greece and other Mediterranean countries to produce oriental tobacco. Sun-cured tobacco is low in sugar and nicotine and is used in cigarettes.

b) Initiate Better Credit Arrangements

One generally observed characteristic of tobacco enterprise is the requirement for purchased seasonal inputs. The majority of smallholders cannot afford to purchase adequate quantities of seasonal inputs on a cash basis at the start of the production season. Growers are therefore, forced to enter into contracts with leaf dealers to ensure adequate and timely supply of inputs, a practice that violates the competitive market model. This situation is a severe weakness on the part of growers that has to be resolved. Any lending mechanisms that is to be instituted needs access to finance from outside the local economy. Farmers must be encouraged to establish their own local organizations such as savings and credit co-operative societies or a tobacco development fund. The co-operative union could also consider establishing a farmers' co-operative bank that can deal with farm credit/loans to tobacco growers. Such organizations must be able to access capital from wider financial markets.

c) Increased Investment in Infrastructure and Supporting Services

More investments in transport infrastructure, research and extension are needed. An improved transport infrastructure will essentially reduce the costs of tobacco marketing and input delivery. While returns to investment in research are known to be very high worldwide, extension services are necessary for the diffusion of improved practices by farmers. Increase in yield per hectare can still be achieved through improved growing techniques. Improved quality and presentation of tobacco leaves can be achieved through better handling, curing, grading and advanced marketing techniques. Provision of adequate and quality extension services is therefore, vital. The current move should be to see if extension services can as well be shifted to the private sector, and stake holders should find ways to institutionalize payment of private extension services.

d) Provision of Agricultural Extension Services

Agricultural extension services must be provided to the farmers engaged in tobacco production in order to raise output. The government must be participated in providing extension services with collaboration by the extension services which is provided by Tobacco Company which buys tobacco from farmers. Many farmers in the villages they tradition techniques in tobacco production so extension officers in order to help farmers in planting, harvest, curing and grading for the purpose of transporting tobacco with high quality.

e) Agro Processing Industries

For the purposes for ensuring farmers increasing tobacco production outputs and stable price agro processing industries must be established in Tabora region whereby more than 60% of the total tobacco production by the households cultivated. Despite that a larger percent of tobacco is produced in Tabora region but tobacco processing industry was built in Morogoro where there is no farmer engaging in tobacco production. This processing of raw tobacco was transferred from BAT's factory in Dar es Salaam to a new processing plant in Morogoro jointly owned by NDC and the Tobacco Board and was financed by a loan from BAT (Tanzania). If tobacco processing industry would build in Tabora region, more farmers would have been attracted in tobacco production. This would add more income to farmers and national income in general to the government as well as the increase of output.

f) Access to Finance

Tobacco producers in Tanzania has limited access to finance due to the fact of inability of the farmers to fulfill the collateral requirements; some of the banks operate in limited geographical areas lack of a guarantee scheme to back up banks financing farmers, high cost of screening and administering small loans spread over big areas and inabilities of borrowers to prepare and present applications that meet bank's requirements. The current reforms have resulted in liberalisation of the financial sector to a great extent. This has led to establishment of a number of banks including the Micro Finance Bank, liberalisation of financial rates and establishment of a stock exchange market. In spite of all these, farmers are still being facing a major constraint in accessing finance. This limits their capacity to survive, increase capacity, upgrade their technologies and even in many cases, expand their markets and improve or raise productivity and eventually increase incomes. Some strategies should be undertaken in order to promote transferring lessons and good practices

from traditional financing mechanisms into suitable financial products for financing farmers, facilitate opening up of farmers windows in financial Institutions, promote innovative financial products for farmers such as leasing, Credit Schemes and promote improving access of tobacco farmers to bank financing through simplification of procedures, mobilise resources and promote development of new financial institutions for financing farmers.

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