CHAPTER SEVEN.

EMPIRICAL ANALYSIS OF THE WORLD BANK AND ITS EFFICACY IN ECONOMIC DEVELOPMENT OF KENYA

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7.1 INTRODUCTION.

Having discussed analytically the performance of the World Bank and its efficacy in economic development of Kenya in the preceding chapters, in this chapter an attempt is made to assess empirically the performance of World Bank aid and foreign aid in general how they influence the economic growth in Kenya[1]. In order for us to construct the model and specify which variables to include let us recapitulate the important studies, which were highlighted in chapter one of this present research work. Chenery and Strout [2] modified the two-gap model, which pioneered a theoretical framework within which the role of foreign capital and World Bank aid is recognized. The study postulated that the less developed countries face two key growth constraints, inadequate savings to finance their desired levels of investment and foreign exchange to purchase all necessary imports required for the growth and development of their economy. In their study Chenery and Strout taking Pakistan, Israel and other countries demonstrated how foreign capital influenced the economic growth of these countries. Later other studies that have been carried out have confirmed the hypothesis that foreign aid where World Bank aid is included does influence economic development. The studies have used different sets of variables in different countries and in cross country analysis to arrive into this conclusion. However, in

the context of the sub-Saharan countries limited studies have been taken to study individual countries as the Sub-Sahara of Africa is not homogeneous. As a matter of fact every country follows its own economic policies and endowed with different natural resources. The continent of Africa has fifty three sovereign countries following different economic paradigms to achieve economic development. Therefore Kenya being our case of study, we have decided to carry out the assessment of the efficacy of the World Bank aid by employing least ordinary squares multiple regression stepwise analysis.

We will attempt to examine the influence of economic policy variables in the performance of World Bank and official development assistance. We have taken per capita income as the dependent variable. We have also taken various variables, World Bank aid and foreign aid as explanatory variables however we very well understand that it is not only foreign aid which influences economic growth of the country as there are a number of factors which influence the economic growth of Kenya. This may range from social, political and economic factors, so in this study we will employ those variables, which we can quantify, in order to carry out the empirical analysis.

7.2 Methodology of the empirical investigation

Our study is specifically a Kenyan scenario. When applying the Least Ordinary Square method and E-Views software it was found that the explanatory variables which we have selected individually exercise no exclusive influence over the

determination of performance of World Bank aid or official development assistance in the economic development of Kenya and thus suffer from multi-co linearity i.e. autocorrelation among the independent variables. To bring out the efficacy of the World Bank aid and foreign aid in general in the economic development of Kenya we adopted a step-wise regression analysis in order to assess the influence of other vital explanatory variables in the economic growth. The multiple regression analysis is supported by a step-wise regression analysis, which is attempted in order to enable us to evaluate the impact of World Bank aid including additional variables. The equations that constitute the model seek to achieve the objectives and test various hypotheses of this study accordingly in their log form; therefore the coefficients could be interpreted as elasticities.

The statistical significance of the estimates of the selected variables has been scrutinized by applying t-statistic. The results have been tested at 0.01, 0.05 and 0.10 per cent level of significance for two tailed tests. R^2 has been as well computed to know the proportion of variations in the dependent variable explained by the independent/explanatory variables. The significance of R^2 has also been checked by applying F-statistic by duly making suitable adjustments in respect with the regression model. We have also used the D.W to enable us identify whether there is multicollianity in the regression equation or not. We have interpreted the results accordingly and made the necessary inference.

7.3 THE MODEL AND DATA.

(i)THE MODEL

In order to assess empirically the role of World Bank aid and foreign aid in general in Kenya, we have selected the various variables for our analysis. As we indicated early we have adopted the multiple regression analysis in order to capture the influence of those economic factors, which influence economic growth in Kenya. We have selected per capita income as a dependent variable

In this research study we will employ a simple neoclassical growth model to motivate the form of empirical growth equation. Our study has adopted the recent empirical studies, which have been carried out on the effectiveness of World Bank aid and foreign aid, most notably the study by the World Bank by Burnside and Dollar (1997) and the basic model of Chenery and Strout (1966). The Chenery and strout (1966) is considered the core theory, it was reprinted by the World Bank publication in 1979 retaliating its importance and its relevance in the rationale of the World Bank aid. In our model we have selected World Bank aid, official development assistance, total government expenditure, money supply, inflation, infant mortality rate, population also included as explanatory variables. In the light of our empirical equation per capita income is determined by a set of factors, which is the share of each variable in the GDP. We strongly contend that sound macroeconomic policies are vital in influencing the Kenyan economic development. Reckless monetary and fiscal policies lead to an instable macroeconomic situation in the form of excessive inflation rates; therefore it is expected to have negative impact in economic development.

The rationale of choosing Infant mortality rate variable is to capture the human capital development in Kenya. The inclusion of human capital variable in the equation reflects the centrality of the human capital factor in the theoretical growth literature. Our objective of using infant mortality variable is to analyse the relationship between World Bank aid and human development the one way in which World Bank believes impacts economic growth through improvement of infant mortality. Chapter four in the present research study we analyzed in detail World Bank in financing investments in human development. A recent paradigm was emphasized which measures economic development not only by GDP but also human development. The measure of human capital development is captured by the infant mortality rate, which is the number of deaths per 1000 people. The level of human capital stock in the country is linked with the output. The technical progress in the country depends in turn on the stock of the human capital. (Mosley and Hudson 1995, 1996) [3]

Human capital development indicator is also useful as it substitutes for domestic investment as often found in other studies. If aid is not supporting productive investments in Kenya then it must be either financing unproductive investments or recurrent expenditure or just consumption. Poor countries like Kenya where 56 percent of the population live below two dollars a day, financing consumption is not bad per se. When the World Bank aid is targeting the reduction of poverty by financing the consumption of the poor then it is the wise thing to do. The central objective of the World Bank is poverty reduction, through improving access to

health, education, family planning projects which lead to the reduction of infant mortality and improvements in other social indicators (World Bank) [4]. This improvement in the human capital development can not be picked up by the traditional accounting formula. The recent World Human Development reports and other studies argue that the reduction of infant mortality lead to economic development.

We have employed population as explanatory variable, which is expected to impact economic growth negatively. The World Bank loans financed projects of family planning to control population growth. Most of the problems faced by Kenya such as poverty, hunger, and environmental destruction, are the consequences of excessive population growth. Many economic literatures have established overpopulation as one of the greatest obstacles to economic development in the African countries where Kenya is not an exception. Overpopulation exerts a tremendous pressure on the meager resources, which are available for the economic development of Kenya. Overpopulation limits the resources available for investment and thus it will reduce economic growth. Economic growth did not keep pace with the population explosion of the 1970s and 1990s due to decline in infant mortality. We content that the World Bank aid can reduce the rise of population by supporting the programs of the government of the family planning and safe sex which will both reduce the birth rate and decrease of numbers contracting (H.I.V) aids virus. Countries that have reduced hunger have higher economic growth especially in agriculture and rural areas accompanied with lower population growth.

Total government expenditure is another vital explanatory variable which we have applied in the model. There is a vast evidence indicating that Foreign aid is either fungible or is supporting government consumption. When the government is spending on defense and recurrent expenditure like salaries, these will not spur economic development of the country. When there is big government expenditure that does not go to development expenditure it is a reflection of inefficient and corrupt bureaucracy and political regime, which is a big obstacle to economic development. However if the expenditure is financing social welfare poverty will be mitigated. A number of empirical studies do not find aid to foster economic growth some go to the extent of showing that aid is negatively related to economic growth. The evidence that aid is largely financing social welfare, which in turn is not picked by accounting formula, can explain the situation in which aid is negatively related to economic growth. This gives our study a challenge to evaluate whether the expenditure in improvement of health and education leads to reduction of poverty, which is the main objective of the World Bank loans to Kenya. We have taken infant mortality as an indicator to evaluate the social welfare, because when the World Bank aid is targeted to the poor it should have a reduction of infant mortality. Using the Ordinary Least Squire the regression equation supports our contention that World Bank aid helps to reduce infant mortality thus spurring economic development, these findings is consistent with conclusions of the studies of Pritchett and Lant 1995. [5]

Sound economic policies is vital variable because the relationship of world aid and growth can be also influenced by the economic policies of the country

(Burnside and dollar 2004) [6]. The World Bank where we are concentrating our study allocates aid to poor countries partly based on favorable assessments of country's public sector management, which comprise the rule of law, corruption and the quality of the bureaucracy. The World Bank emphasizes the crucial importance on sound governance, which is a prerequisite for efficient use of the resources available and effective implementation of government's policies, which will spur economic development. Sound economic policies imply that there exists a better bureaucracy, which enhances adherence to the rule of law, reduction of corruption and management of expenditure and revenue in a sustainable manner.

In our model and in the context of actual data, which we use for our analysis, the receiving of foreign aid does not instantly lead to economic development. If the aid received is used for the consumption purposes; it will only increase the GNP but will not lead to economic growth. This concur with the theory that when there is less investment there will be less capital formation thus there will be no substantial economic development. The aid, which is received, will only spur economic growth if it is invested in productive sections of the economy, which will consequently augment the stock of capital.

Money and quasi money (M2) comprise the sum of currency outside banks, demand deposits other than those of the central government, and the time, savings, and foreign currency deposits of resident sectors other than the central

government. This definition of money supply is frequently called broad money (M2) it corresponds to lines 34 and 35 in the International Monetary Fund's (IMF) International Financial Statistics (IFS). The state of financial system is an indicator, which is captured by M2/GDP (money supply relative to GDP). The scenario of a financial policy defined as the share of money supply in GDP (M2/GDP), a measure of financial deepening and financial sector in Kenya.

It is important in our study to evaluate the importance of conditional aid, which comes from the World Bank and the Official Development Assistance (ODA). We therefore formulate a model, which takes into considerations of the policies, which the World Bank and other donors, which come along with, aid. Burnside and Dollar 1997 focus categorically on the impact of policy on aid effectiveness, employing a neoclassical growth model they conclude that the impact of aid on growth will be higher when there are least policy distortions affecting the incentives of economic agents[7]. Therefore they are of the hypothesis that for the efficacy of the World Bank aid to be realized sound economic policy is critically vital. This postulation works either through increased productivity of aid or because most proportion of aid (ODA or World Bank) is actually invested. This implies that marginal productivity of capital hence the proportions of invested World Bank aid increases as distortions in the economy diminish. Donors more often reward the countries, which exhibit improving institutional quality by directing more aid to them as these are the countries which are less likely to waste whatever aid they receive.

Inflation, consumer prices (annual %) as measured by the consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a fixed basket of goods and services that may be fixed or changed at specified intervals, such as yearly. Some of the key distortions in the economy have appeared in the recent economic literature high inflation, fiscal deficits and other financial macro economic stability (Fischer, 1993) [8]. In this research study we have chosen to measure distortion in the economy by Inflation. We expect that high inflation negatively affects economic activity and reduces economic growth, because of increased level of uncertainty about the macroeconomic environment. High uncertainness due to high inflation reduces the efficiency of the price mechanism. Stable fiscal policy positively related to economic growth, which will spur economic development.

Reckless monetary and fiscal policies can lead to instability of macroeconomic environment in the form of excess debts and inflation rates. High inflation hurts the economic growth and lowers the investment because of increased uncertainty about the macroeconomic environment. This hampers economic decision-making and slows down productivity growth (Allen and Ndikumana, 1998). [9]

GDP at purchaser's prices variable is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making

deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in current U.S. dollars.

IBRD loans and IDA credits, the World Bank Group extends IBRD loans and IDA credits. The International Bank for Reconstruction and Development (IBRD) lends at near market rates. Credits from the International Development Association (IDA) are at concessional rates. Data are in current U.S. dollars.

Official development assistance consists of disbursements of loans made on concessional terms (net of repayments of principal) and grants by official agencies of the members of the Development Assistance Committee (DAC), by multilateral institutions, and by non-DAC countries to promote economic development and welfare in Kenya it includes loans with a grant element of at least 25 percent (calculated at a rate of discount of 10 percent.

The basic model, which will be tested, will be;

$$\text{Log (Y)} = a + b_0 \log x + b_1 \log x + b_2 \log x + b_3 \log x + b_{4\,\log} x + b_5 \log x + b_6 \log x + u$$

Where by Log (Y) is the per capita income, a is a constant, ODA is the official development assistance ratio of GDP, EXPG is the total government expenditure ratio of GDP, M2 is the money supply ratio of GDP an indicator for macroeconomic stability and financial deepening Kenya, POP, is the population of Kenya, INFL is the inflation rate of Kenya and MRT is the infant mortality of Kenya. Low Mortality rates, high life expectancy, are good indicators of the overall health conditions within a county. High mortality rates are associated with other unfavorable human development indicators.

(ii) THE DATA

The data used in our study is based on the World Bank world Development indicators 2006. The variables used are the GDP per capita, Official Development Assistance (ODA) the World Bank Assistance (IBRD and IDA), total national population, money supply, inflation, infant mortality, and total government expenditure. In our study we will use the Ordinary Least Squire to run the regression equation. The regression sample runs from 1980 to 2004 and our case study is Kenya. The dependent variable is the GDP per capita, which is the gross domestic product divided by the population.

7.4 Regression analysis

The step-wise regression analysis method is often resorted to enable us to decide on the best set of explanatory variable for regression analysis. We have therefore in this study embarked by introducing the independent variables one at a time, which is generally known as step-wise regression.

Step one

Regression Results: (For data see table 7.1 to 7.4)

$\text{Log } (Y) = a + b_0 \log x + u$

$(GDP) = -0.1 - 0.013(ODA) + (GDP/POP\ (-1)$
$\quad\quad (-0.01)\ \ (-10)\quad\quad (+1.0))$

$R^2 = 0.996 \quad\quad D.W = 1.5$

$R^{-2} = 0.996 \quad\quad F\text{-statistic} = 2953$

GDP refers to per capita income; ODA refers Official Development Assistance as a ratio of GDP. All the variables are in their log form.

This result indicates that official development assistance is negatively related to per capita income growth with the economic growth in Kenya. The coefficient of per capita income is highly significant as indicated by the positive parameter of per capita income, which on the basis of the above regression equation implies that the changes in economic growth are highly influenced by ODA. R^2 explains 61 per cent of variation of the relationship between growth and official development assistance. F-statistic is highly significant indicating the goodness of fit of the equation.

Step two explanation.

Regression Results: (For data see table 7.1 to 7.4)

Log (Y) = a + b_0 logx +$b_1$logx+u

(GDP) = -0.1 - 0.013(ODA) +0.017(WBA)

(-0.13) (-1.92) (+1.9)

R^2 = 0.99 R^{-2} = 0.99

D.W = 1.8 F-statistic =2212

GDP refers to GDP per capital income of Kenya. ODA refers to Official Development Assistance and WBA refers to World Bank aid to Kenya each as a ratio of GDP. All the variables are in their log form.

The regression result above indicates that ODA is negatively related to economic growth in Kenya. World Bank aid is significant and positively related to economic development in Kenya, when World Bank increases by one percentage point per capita income will increase by 0.01-percentage point. The R^2 shows that 99 % of variation in growth per capita income in Kenya as by the two variables jointly.

Step three explanation .

Regression Results: (For data see table 7.1 to 7.4)

Log (Y) = a + b_0 log x +$b_1$log x + b_2 log x + u

LogGDP) = -0.06 -0.0.01(ODA) +0.01(WBA) +0.01(EXPG) + 1.0 GDP/POP (-1))

(-0.45 (-0.98) (1.22) (+0.59) (31.0)

R^2 = 0.99 R^{-2} = 0.99

D.W =1.86 F-statistic =1605

GDP refers to GDP per capita income in Kenya. WBA refers to World Bank aid and EXP refers Government expenditure to Kenya, each as a ratio of Gross Domestic product in Kenya. All the variables are in their log form

The above result shows that ODA is negatively correlated to economic growth of Kenya. The World Bank assistance is positively related and significant to economic development in Kenya. When World Bank assistance increases by one percent per capita income will increase by 0.01 percentage point. Total government expenditure is positively related to economic development in Kenya. R^2 shows that 99 percent of variation in growth per capita income in Kenya as by the three variables jointly.

Step four explanation

Regression Results: (For data see table 7.1 to 7.4)

Log (Y) = a + b_0 log x +$b_1$log x + b_2 log x + b_3 log x +u

Ln (GDP) = 3.865 -0.06578(ODA) -0.2324(WBA) -0.6024(EXPG) +0.1367(M2)

(21.58) (-1.3031) (-3.04) (-6.761) (4.197)

R^2 =0.99 R^{-2} = 99

D.W =0.2.41 F-statistic =1605.

GDP refers to GDP per capita income in Kenya. WBA refers to World Bank aid to Kenya, EXP refers Government expenditure, and M2 refers to broad money supply each as a ratio of Gross Domestic Product in Kenya. All the variables are in their log form

The above result shows that both ODA and World Bank aid are negatively correlated with economic growth in Kenya. Government expenditure has also negative sign and thus it is negatively correlated to economic development in Kenya as most of the expenditure is used to finance current consumption and paying salaries of the civil service. Money supply a parameter for sound macroeconomic policy and financial deepening is positively and highly significant in economic development in Kenya. It is the sole most important explanatory variable, which highly influences the economic growth in Kenya. Thus it is evident from R^2 and R^{-2} that the variables explain 0.99 or 99 percent in determining economic growth in Kenya. F-statistic is highly significant and determines goodness of fit of the whole regression equation and highly significant.

Step five explanation

Regression Results: (For data see table 7.1 to 7.4)

$\text{Log } (Y) = a + b_0 \log x + b_1 \log x + b_2 \log x + b_3 \log x + b_4 \log x + u$

Ln (Y) = 2.65+0.001(ODA) +0.01(WBA) – 0.08(EXPG) +0.059(M2) -0.162 (POP)

(1.7) (0.14) (0.28) (-1.93) (2.2) (-1.63)

R^2 =0.99

D.W =2.54 F-statistic =1428

GDP refers to GDP per capita income in Kenya. WBA refers to World Bank aid to Kenya, EXP refers Government expenditure, and M2 refers to broad money supply each as ratio of Gross Domestic product and POP refer to population of Kenya. All the variables are in their log form

The above results show that both ODA is positively related to economic growth in Kenya. World Bank aid is positively related with economic growth in Kenya and it is significant. Government expenditure has a negative sign and thus it is negatively correlated to economic development in Kenya. Money supply a parameter for sound macroeconomic policy and financial deepening is positively and highly significant in economic development in Kenya. Population has a negative sign thus negatively related to economic growth in Kenya as predicted. Thus it is evident from the coefficient of determination R^2 and R^{-2} that the variables explain 99, and 99 percent respectively of variation of the relationship of the independent variable and the explanatory variables in determining economic growth in Kenya. F-statistic is highly significant and determines goodness of fit of the whole regression equation.

Step six explanation

Regression Results: (For data see table 7.1 to 7.4)

$\text{Log } (Y) = a + b_0 \log x + b_1 \log x + b_2 \log x + b_3 \log x + b_{4 \log} x + b_5 \log x + u$

Ln (Y) =3.38+0.01(ODA) +0.04(WBA) – 1.105(EXPG) + 0.07(M2) -0.204(POP) -0.0003(INFL)

(0.6217) (0.2705) (-3.06) (-2.4318) (1.1286) (-0.2190) (-2.2.001)

R^2 =0.99

D.W =2.6 F-statistic =1187

GDP refer to GDP per capita income in Kenya. WBA refer to World Bank aid, EXP refers Government expenditure, M2 refers to broad money supply, POP refers to population, and INFL refer to inflation of Kenya. All the variables are in their log form.

The above results show that ODA is positively related with economic growth in Kenya. World Bank is positively correlated with economic growth in Kenya. Our results indicate that by raising the ODA/GDP by one percent point it leads to increase of the per capita income by 0.01 percentage points. World Bank aid is positively related to economic growth in Kenya, this means that when one percentage point of World Bank aid is increased in Kenya it increases the per capita income by 0.004 cents dollar. Government expenditure has negative sign and the t-value is significant thus it is negatively correlated to economic development in Kenya as most of the expenditure is used to finance current consumption and paying salaries of the civil service. Money supply a parameter for sound macroeconomic policy and financial deepening is positively and highly significant in economic development in Kenya. Population has a negative impact on the per capita income in Kenya as predicted. Our results indicate that by raising population by one percentage point will decrease the per capita income by 0.204 percent points. Inflation parameter an indicator for prudent economic policy has a negative sign thus it is negatively related to economic growth in Kenya. Thus it is evident from the coefficient of determination R^2 that the variables explain 99 percent of variation of the relationship of the independent

variable and the explanatory variables in determining economic growth in Kenya. D.W is 2.6 which is good implying that there is no autocorrelation between the independent variables. F-statistic is highly significant and determines goodness of fit of the whole regression equation.

Step seven explanation.

Regression Results: (For data see table 7.1 to 7.4)

$$\text{Log } (Y) = a + b_0 \log x + b_1 \log x + b_2 \log x + b_3 \log x + b_{4\ \log.} x + b_5 \log x + b_6 \log x + u$$

Ln(GDP) =3.38+0.01(ODA) +0.005(WBA) -0.105(EXPG) +0.07(M2) -0.204(POP) -0.0003(INFL)-0.001(MRT)

(1.69) (0.5) (0.14) (-1.89) (2.01) (-1.68) (-0.66) (0.02)

R^2 = 0.99 D.W =2.6 F-statistic =974

GDP refers to GDP per capital income of Kenya. WBA refers to World Bank aid, EXP refers Government expenditure, M2 refers to broad money supply each as a ratio of Gross Domestic Product in Kenya. POP refers to population of Kenya, INFL refers to inflation, and MRT refer to infant mortality rate. All the variables are in their log form.

The above results show that ODA is positively related with economic growth in Kenya. World Bank has a positive sign thus positively correlated with economic growth in Kenya. When World Bank aid is increased by one percent the per capita income will increase by 0.005 percent point. Government expenditure has negative sign and the t-value is significant thus it is negatively correlated to economic development in Kenya. Money supply a parameter for sound macroeconomic policy and financial deepening is positively and highly significant in economic development in Kenya. Population has a negative impact on the per

capita income in Kenya as predicted. World Bank aid can go either into physical capital formation if the aid is capital-intensive or into human capital investment if the aid is knowledge or technology intensive. Burnside and Dollar (1997) [10] established that aid is effective only if it is invested, not consumed. We would like to emphasize that aid is even more effective in economic development when invested in human capital. The World Bank finances projects in family planning, early childhood development, healthcare and providing facilities for education, hence leading to gender equity which acts as a powerful force for reducing child mortality rate. The empowerment of women by human development through projects funded by the World Bank influences child wellbeing through enhanced control over fertility rate, greater use of health services and better knowledge of health interventions.

Thus it is evident from the coefficient of determination R^2 and R^{-2} that the variables explain 99 percentage of variation of the relationship of the independent variable and the explanatory variables in determining economic growth in Kenya. D.W is high 2.6 implying that there is no autocorrelation between the independent variables. F-statistic is highly significant and determines goodness of fit of the whole regression equation. It is evident that foreign aid has a positive impact when there is stability and sound macroeconomic policy in Kenya in our period of study. Thus we can conclude that sound economic policies are significant in the performance of the World Bank in economic development of Kenya. It can be seen that the model generally

performs well in assessing the role and efficacy of the foreign aid including the World Bank in Kenya during 1980 to 2004.

It is clear from the regression equation that all the parameters have the expected outcomes. The World Bank has been financing development projects in Kenya since financial year 1960. The World Bank invests in various projects which are considered to have direct impact of poverty reduction and economic development. The World Bank loans finances human development, building of roads, hospitals, irrigation schemes, education, and water supply which its rate of returns are low and it takes long gestation periods. ODA the official development assistance results are so encouraging, has a positive influence on the per capita income of the people in Kenya. This means that when one-dollar ODA is invested in Kenya it increases the per capita income of one cent of a dollar.

Population has a negative impact on the per capita income in Kenya as predicted, this concur with the economic literature. Our results indicate that by raising population by one percentage point will decrease the per capita income by 21 cents of a dollar.

Money supply (M_2) it shows the positive sign. This implies that the macroeconomic and policy variables are correctly signed and statistically significant in our case study of Kenya, supporting the findings of Burnside and Dollar (2000) [11] which supports the contention that aid is effective where there is

sound macroeconomic policies. This can be further analyzed that liberation policy is beneficial to growth. In our study the results show by increasing the money supply by one percentage point it will increase the per capita income by 0.071 per cent points. The development of the financial sector has a vital role to play in establishing a more broad-based foundation for economic growth. A strong and reliable banking system is needed to bolster confidence in public financial management and enhance efficiency in the delivery of services to the urban as well as rural areas. Therefore, improving the operational efficiency and performance of the financial sector is critical for the successful vibrant economic growth and development of Kenya.

The sign for inflation is negative as expected. High inflation has negative impact on economic development therefore stable inflation appears to be conducive for spurring higher economic growth. The results show that when inflation increases by one percentage point it will decrease the per capita income by 0.14 percent points. The constant has a positive sign as expected because economic growth and development is positive at long run according to the theory of economic development. All parameters are statistically significant.

Table 7.1: showing the summary of Empirical result of Log-Linear multiple Regression Analysis (step-wise) 1980 to 2004. Per capita income is the dependent variable.

	C	ODA/ GDP	WB/ GDP	EXP/ GDP	M2/ GDP	POP	INFL	MRT	R^2	R^{-2}	F Statistics	DW
Step 1	0.06 (0.52)	-0.01 (-1.79)							0.99		2953	1.5
2	-0.01 (-0.010	-0.01 (-1.92)	0.02 (1.9)						0.99	0.99	2212	1.8
3	-0.06 (-0.45)	-0.01 (-0.98)	0.01 (1.2)	0.01 (0.6)					0.99	0.99	1605	1.86
4	0.12 (0.8)	-0.00 (-0.060	-0.02 (-0.93)	-0.03 (-0.99)	0.020 (2.28)				0.99	0.99	1569	2.4
5	2.6 (1.7)	0.00 (0.14)	0.01 (0.28)	-0.08 (-1.93)	0.06 (2.2)	-0.16 (-1.63)			0.99	0.99	1428	2.5
6	3.4 (1.8)	0.01 (0.5)	0.004 0.21)	-0.11 (-1.95)	0.07 (2.13)	-0.2 (-1.7)	-0.00 (-0.7)		0.99	0.99	1187	2.6
7	3.38 (1.69)	0.01 (0.5)	0.01 (0.14)	-0.11 (-1.89)	0.07 (2.01)	-0.2 (-1.7)	- 00003 -0.6	0.001 (0.02)	0.99	0.99	974	2.56

WORLD BANK AID CONTRIBUTES TO INCREASE IN TOTAL GOVERNMENT EXPENDITURE.

An interesting question would be what proportion of increased spending resulting from increased World Bank aid goes to total public expenditure. Empirical analysis of the linkage between the World Bank aid to total government expenditure is necessary when assessing the performance of World Bank on

economic development of Kenya. Given Kenya's high dependence on world bank aid there is need to assess its impact on the budget process by establishing the link between the world bank aid ODA and total government expenditure in Kenya.

The government expenditure is composed of two components recurrent expenditure which finances wages, salaries and day today activities of the government and development expenditure, which finances the development activities of the government. To assess how the World Bank aid affects the total expenditure of the government we decompose foreign aid to ODA and World Bank aid. When using Ordinary Least Squire regression on the model, the equation shows a strong and positive significant relationship between total government expenditure and World Bank loans. The equation also shows a positive significance when employing the foreign aid. This result supports our hypothesis that World Bank aid contributes to increase in total public government expenditure. This finding implies that Kenya is highly dependent on aid to finance its government expenditure. The results also concur with the findings of recent economic literature that foreign aid flows stimulate the total government expenditure. The results also confirm our contention that the Kenya government rely more on the foreign aid than the domestic resources to finance the government expenditure. (James Njeru 2004). [13]

As a number of economic literature have underscored that one of the biggest hurdles in the economic development in African countries where Kenya is included is overpopulation. Overpopulation hampers economic growth and development. World bank aid and other foreign aid is channeled to Kenya through the projects and programs of the government, it can be argued that these loans finance government expenditures that have a direct beneficial effect on the society at large such as transport and communication systems and other infrastructure health and education facilities, agriculture water and sanitation.

Model two

This model attempts to explain how the World Bank loans affect the total government expenditure in Kenya for the period 1980 to 2004. Most of the foreign assistance is recorded in the development vote it accounts significantly in the development expenditure in the budget. When there is aid embargo the government cuts down the total government expenditure. In this situation the government mostly cuts the development expenditure and it resorts to paying of the salaries and maintaining the recurrent expenditure for the day today running of the government. Selected variables are total government expenditure as a ratio of GDP as dependent variable and Official development assistance, World Bank aid, money supply each as a ratio of GDP. Population and inflation have also been included as explanatory variables.

Our basic model will be

$$\text{Log } (Y) = a + b_0 \log x + b_1 \log x + b_2 \log x + b_3 \log x + b_{4\log} x + b_5 \log x$$

Step one explanation

Regression Results: (For data see table 7.1 to 7.4)

Log (Y) = a + b_0 log x

Log (EXPG/GDP) = C + log (ODA/GDP)

Log EXPG/GDP) = -1.76 + 0.594 log (ODA/GDP)
(- 8.536) (0.815)

R^2 = 0.028 D.W =0.408
R^{-2}= -0.014 F-statistic =0.66

GDP is the Gross Domestic Product of Kenya. ODA refers to Official Development Assistance in Kenya each as a ratio of GDP. All the variables are in their log form.

This result indicates that we employ ODA alone official development assistance is negatively related to total government expenditure in Kenya. R^2 is very low thus it does not explain the relationship of the independent variable and dependent variable. D.W is also very low.

Step two explanation.

Regression Results: (For data see table 7.1 to 7.4)

Log (Y) = a + b_0 log x +$b_1$log x

Log (EXPG/GDP) = C + log (ODA/GDP) + log (WBA/GDP)

Log EXPG/GDP) = -1.44 - 0.04 log ODA/GDP+0.357logWBA/GDP
(-7.8) (-0.64) (3.78)

R^2 =) 0.41 D.W =0.40
R^{-2}= 0.36 F-statistic =7.67

GDP is the Gross Domestic Product of Kenya. EXP refers total Government expenditure, ODA refers to Official Development Assistance, and WBA refers to

World Bank aid in Kenya each as a ratio of GDP. All the variables are in their log form.

The regression result above indicates that official development assistance is negatively related to total government expenditure. The World Bank aid is positively related to total government expenditure as t-value for World Bank loans (WBA/GNP) is highly significant in Kenya in our period of study when World Bank increases by one percent the total government expenditure will increase by 35 cents dollar. The R^2 shows that 41 per cent of variation in total government expenditure in Kenya.

Step three explanation

Regression Results: (For data see table 7.1 to 7.4)

$\text{Log } (Y) = a + b_0 \log x + b_1 \log x + b_2 \log x$

Log (EXPG/GDP) = C + log (ODA/GDP) + log (WBA/GDP)+ log(M2/GDP)

Log EXPG/GDP) = -1.67 + 0.11 log(ODA/GDP)+ 0.12 log (WBA/GDP)+0.11 log (M2/GDP)
(-6.96) (0.94) (0.62) (1.48)

R^2 = 0.466542) D.W =0.474984

R^{-2}= 0.390334 F-statistic =6.121933

GDP is the Gross Domestic Product of Kenya. EXP refers total Government expenditure, ODA refers to Official Development Assistance, WBA refers to World Bank aid, and M2 refers to broad money supply in Kenya each as a ratio of GDP. All the variables are in their log form.

The above result shows that ODA is negatively correlated to economic growth of Kenya. The World Bank assistance is positively related to economic development

in Kenya. When ODA loans increases by one percent the total government Expenditure will increase by 0.1 percent. The result shows that when there is one percent increase of World Bank aid the total government expenditure increase by 0.11 percentage points this means that when World Bank aid increase by one dollar total government expenditure will increase by 11 US cents. The indicator for macroeconomic policies and strong financial deepening is positively related to government expenditure.

Step four explanation

Regression Results: (For data see table 7.1 to 7.4)

$\text{Log } (Y) = a + b_0 \log x + b_1 \log x + b_2 \log x + b_3 \log x$

Log (EXPG/GDP) = C + log (ODA/GDP) + log (WBA/GDP) + log (M2/GDP) +log (POP)

Log EXPG/GDP) = 35.88+ 0.04 (ODA/GDP+0.24log WBA/GDP+0.61 log (M2/GDP) -2.28log POP
(10.86) (0.83) (3.35) (11.69) (-11.38)

$R^2 = 0.93$ D.W =1.78
$R^{-2} = 0.91$ F-statistic = 65.01

GDP is the Gross Domestic Product of Kenya. EXP refers total Government expenditure, ODA refers to Official Development Assistance, WBA refers to World Bank aid, and M2 refers to broad money supply in Kenya each as a ratio of GDP. POP refers to population of Kenya. All the variables are in their log form.

The above result shows that both ODA and World Bank aid are positively and significantly correlated with total government expenditure in Kenya. This implies that when World Bank aid is increased by one percent point, total government expenditure will increase by 0.24 percent point. This implies that when World

Bank aid increases by one dollar the government expenditure increases by US 24 cents. Money supply a parameter for sound macroeconomic policy and financial deepening is positively and highly significant in influencing total government expenditure in Kenya. Thus it is evident from coefficient of determination R^2 that the variables explain 93, percent in determining total government expenditure in Kenya. F-statistic is highly significant and determines goodness of fit of the whole regression equation

Step five explanation

Regression Results: (For data see table 7.1 to 7.4)

$$\text{Log } (Y) = a + b_0 \log x + b_1 \log x + b_2 \log x + b_3 \log x + b_{4 \log} x$$

Log (EXPG/GDP) = C + log (ODA/GDP) + log (WBA/GDP) + log (M2/GDP) +log (POP) + INFL

Log(EXPG/GDP)=38.65+0.10(ODA/GDP)+0.21log(WBA/GDP) +0.67logM2/GDP-2.44logPOP-0.003INFL
(10.78) (1.71) (3.00) (10.90) (-11.31 (-1.65)

R^2 =) 0.94 D.W =2.03
R^{-2}= 0.92 F-statistic = 57.05

GDP is the Gross Domestic Product of Kenya. EXP refers total Government expenditure, ODA refers to Official Development Assistance, WBA refers to World Bank aid, and M2 refers to broad money supply in Kenya each as a ratio of GDP. POP refers to population, INFL of Kenya. All the variables are in their log form.

The above results show that ODA is positively related with total government expenditure in Kenya. The World Bank aid to Kenya is positively related and highly significant to total government expenditure in Kenya. This implies that when World Bank aid increases by one percent the total government expenditure

will increase by 0.21 percent point. Total government expenditure increases with the increase of the World Bank aid implying that the government expenditure uses aid to finance its expenditure. The policy makers in Kenya perceive that the World Bank aid flow as a source or an increase of Government revenue.

Money supply a parameter for sound macroeconomic policy and financial deepening is positively and significantly related in total government expenditure in Kenya. Population has a negative impact on the total government expenditure in Kenya as predicted. Thus it is evident from the coefficient of determination R^2 and R^{-2} that the variables explain 94, and 92 percent respectively of variation of the relationship of the independent variable and the explanatory variables in determining the total government expenditure in Kenya. F-statistic is highly significant and determines goodness of fit of the whole regression equation.

Table 7.2
World Bank aid performance: Empirical result of Log-Linear multiple Regression Analysis (step-wise): 1980 to 2004. (Dependent Variable: LOG (EXPG/GNP)

Step	C	ODA/ GDP	WB/ GDP	M2/ GDP	POP	INFL	R^2	R^{-2}	F-Statistics	DW
1	-1.76 (-8.54)	0.06 (0.82)					-0.01	0.03	0.66	0.41
2	-1.44 (-7.80)	-0.04 (-0.64)	0.35 (3.78)				0.41	0.36	7.66	0.39
3	-1.68 (-6.96)	0.11 (0.94)	(0.12) (0.62)	0.11 (1.48)			0.47	0.39	6.12	0.47
4	35.87 (10.9)	0.04 (0.83)	0.24 (3.35)	0.61 (11.69)	-2.27 (-11.38)		0.93	0.91	65.01	1.78
5	38.66 (10.78)	0.1 (1.71)	0.21 (3.00)	0.68 (10.89)	-2.44 (-11.31)	-0.003 (-1.66)	0.94	0.92	57.04	2.03

7.3. Table of World Bank aid, Official Development Assistance, expenditure, GDP and inflation in Kenya in our study period.

Year	WBA	ODA	EXP	GDP	INFL
1980	5.28E+08	396,620,000	8.78E+08	7.27E+09	13.85818
1981	5.86E+08	449,390,016.00	8.31E+08	6.85E+09	11.60305
1982	7.42E+08	484,800,000.00	8.18E+08	6.43E+09	20.66671
1983	8.4E+08	399,089,984.00	8.88E+08	5.98E+09	11.39778
1984	9.46E+08	406,390,016.00	8.89E+08	6.19E+09	10.2841
1985	1.16E+09	429,740,000.00	8.98E+08	6.14E+09	13.00657
1986	1.38E+09	444,920,000.00	9.62E+08	7.24E+09	2.534276
1987	1.68E+09	560,190,016.00	9.93E+08	7.97E+09	8.637673
1988	1.65E+09	836,009,984.00	1.01E+09	8.36E+09	12.26496
1989	1.78E+09	1,064,140,032.00	1.03E+09	8.27E+09	13.78932
1990	2.06E+09	1,185,830,016.00	1.07E+09	8.59E+09	17.78181
1991	2.15E+09	920,499,968.00	1.14E+09	8.15E+09	20.0845
1992	2.07E+09	885,830,016.00	1.24E+09	8.22E+09	27.33237
1993	2.2E+09	909,529,984.00	1.33E+09	5.75E+09	45.97888
1994	2.29E+09	677,699,968.00	1.72E+09	7.15E+09	28.81439
1995	2.41E+09	733,960,000.00	1.89E+09	9.05E+09	1.554328
1996	2.37E+09	596,550,016.00	1.94E+09	1.2E+10	8.864087
1997	2.25E+09	447,780,000.00	1.94E+09	1.31E+10	11.36185
1998	2.36E+09	414,750,016.00	2E+09	1.41E+10	6.722436
1999	2.31E+09	309,860,000.00	1.96E+09	1.29E+10	5.742001
2000	2.31E+09	512,140,000.00	1.91E+09	1.27E+10	9.980025
2001	2.29E+09	463,460,000.00	1.92E+09	1.31E+10	5.738598
2002	2.46E+09	393,510,016.00	1.95E+09	1.32E+10	1.961308
2003	2.74E+09	514,409,984.00	2.04E+09	1.5E+10	9.815691
2004	2.88E+09	635,100,032.00	2.03E+09	1.61E+10	11.62404

Source, World Bank economic indicators 2006.

WBA refers to World Bank aid, ODA refers to Official Development Assistance, EXP refers to total government Expenditure, and GDP Gross Domestic Product, INFL refers to inflation in Kenya in our period of study 1980 to 2004.

7.4: Table showing population, broad money supply and infant mortality rate in Kenya.

year	POP	M2	MRT
1980	16282496	1.61E+10	73.00
1981	16914982	1.83E+10	81
1982	17573348	2.14E+10	80
1983	18254942	2.24E+10	81
1984	18956092	2.53E+10	82
1985	19673480	2.69E+10	65.00
1986	20405074	3.57E+10	66
1987	21149240	3.97E+10	65
1988	22664636	4.29E+10	64
1989	23430276	4.84E+10	65
1990	24199826	5.81E+10	64.00
1991	24971048	6.95E+10	65
1992	25000000	9.66E+10	67
1993	25737392	1.24E+11	68
1994	26490784	1.52E+11	70
1995	27225892	1.96E+11	72.00
1996	27942268	2.46E+11	72
1997	28642986	2.96E+11	73
1998	29331140	3.05E+11	74
1999	30011476	3.24E+11	75
2000	30689332	3.4E+11	77.00
2001	31363972	3.5E+11	78
2002	32039836	3.91E+11	79
2003	32733766	4.37E+11	79
2004	33467328	4.97E+11	78.50

POP refers to the population; M2 refers to broad money supply MRT refers to the infant mortality in Kenya.

NOTES AND REFERENCES

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The "Extreme poverty can be ended, not in the time of our grandchildren, but our time" [1]