

Behavior Description of Monetary and Fiscal Policy Factors That Impact Construction Output in Kenya for the Period 2000 - 2013

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Abstract: The main function of construction industry in the world is provision of physical and constructed facilities to give other activities space for taking place as seen in Hillebrandt, (2000). She further observes that, these physical and constructed facilities are referred to as construction output and are usually quantified in monetary terms. This quantification is done by Kenya National Bureau of Statistics in this country. Construction industry in Kenya mostly maintains a steady and an upward trend in its growth. Recently; 2013 and 2014, an economic survey report released by Kenya National Bureau of Statistics (KNBS) indicated that Kenya's building and construction as having contributed 4.8% to the Gross Domestic Product (GDP). The GDP had risen from Kshs.4.73 trillion to Kshs.5.36 trillion in 2014 as Macharia, (2015) indicates. This gives a clear picture that the sector is growing, though at a little bit slow pace. Description of the behavior of monetary and fiscal policy factors in Kenya was thought of as a means of enlightening the construction sector stakeholders and players about their existence. The factors play a major role in decision making regarding construction projects anywhere in the world, but they are usually not accounted for keenly at this crucial stage of decision making. Time series data was collected from KNBS and CBK on quarterly basis for the period starting from 2000 up to 2013, for the five factors. These data showed varied behavior; some displayed upward trends while others showed a zigzag behavior. Conclusion was drawn that in Kenya, there are five monetary and fiscal policy factors that have influence on construction output and therefore policy makers, stakeholders and players in the construction sector should ensure a keen consideration of the factors during decision making stage. This will avert the problem of many construction projects stalling and ensure steady growth of the sector. This shall therefore contribute towards achieving the much taunted two digit growth of the country's GDP.

Keywords: construction output, fiscal policy, monetary policy, time series.

I. INTRODUCTION

Construction output is a term used to refer to constructed facilities. In practice, the method used in quantifying the constructed facilities is by expressing them in monetary values, as long as the very money values are not the ones which are under investigation as seen in Hillebrandt, (2000). Kenya national Bureau of Statistics (KNBS) does this work in Kenya.

The main function of construction industry, not only here in

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Kenya but also everywhere else in the world, is provision of physical constructed facilities to offer other activities space for taking place. It is seen in Hillebrandt, (2000) that the value in monetary terms of *all the buildings and civil engineering works* in the industry produced within a given period of time, usually a calendar year, is said to be the construction industry's gross output. She further alludes that, this output is nearly 10% on average, on the whole world's Gross National Product (GNP).

Construction industry is seen as one of those industries which pose many challenges and it is among the leading in the world in terms of size as it is explained in Mawdesley & Qambar, (2000). Nonetheless, Mawdesley & Qambar, (2000), also felt that construction industry holds the key to the emerging and industrialized countries' prosperity in diverse ways.

Bon, (1992), pointed out that, the pattern of the relative amount of construction output, in comparison with the Gross Domestic Product (GDP), in any nation evolves alongside the nation's development. The implication of this is that, as the nation is developing from the level of being less developed country (LDC), to that of being newly industrialized country (NIC), and heading towards being an advanced industrialized country (AIC). Bon, (1992) further felt that the relative quantity of construction activity in any country displays a bell-shaped outline, whose highest point occur at the centre of the NIC phase. Minimum points occur near the beginning of the LDC phase and at the last stages of the AIC phase. A most essential feature which explains this trend is "the dwindling portion of physical assets in investment" that occurs as a country's economy develops. This is a long term change which occurs and takes place together with the normal happenings of economy's Kuznets and Kondratiev cycles. The Kuznets' period is estimated at 15 – 25 years while that of Kondratiev is 45 – 60 years. The upward trend is usually the ideal for a developing nation having a continuous construction activity growth. This is illustrated in fig.1 below.

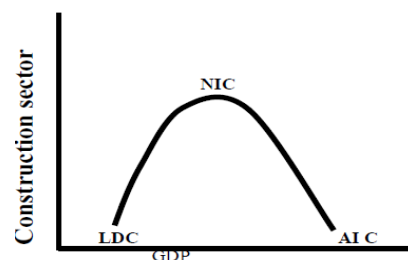


Figure 1(source: Bon, 1992)

While acknowledging the above correlation which was originally proposed by Bon, (1992) and further saying it is importantly empirical, Girardi & Mura, (2013) saw that the literature which discussed the model was just a mere description. This was identified as a gap and they went along to provide a stronger validation to prop up Bon's hypothesis using *panel data for world countries for the period beginning from the year 2000 up to 2011*. They actually found the relationship to work after logarithmic transformation of the data. This had the implication that the curve was asymmetric with respect to its upper limit. The meaning is that, a construction activity relative level tended to rise in countries which are developing, hit the highest point during industrialization and start reducing gradually in countries which are fully industrialized, approaching stabilization in economies which are completely developed.

Construction industry in Kenya is seen mostly maintaining an upward trend in terms of growth. As seen recently; 2013 and 2014, an economic survey report released by Kenya National Bureau of Statistics (KNBS) showed Kenya's building and construction as having contributed 4.8% to the Gross Domestic Product (GDP). The GDP shifted from Kshs.4.73 trillion to Kshs.5.36 trillion in 2014 exhibiting a nominal rise of 13.3% as Macharia, (2015) observes. This paints an indication that the sector is growing, though gradually.

A. Monetary Policy Factors that affect construction output in Kenya

Masinde, (2015), while reporting on Monetary Policy Committee's decision on base lending rate of Kenya's Central Bank (CBK), he said that the major concerns of CBK touch on three areas. The areas are namely:-

- i) Inflation
- ii) Exchange Rate , and
- iii) Interest Rate.

The three are the monetary policy factors that influence construction output in Kenya. These factors are further discussed below.

I. Inflation

Gruneberg, (1997) defines inflation as the average rate at which prices rise. The inflation rate according to him, is normally issued on yearly basis, but can also be done monthly. This is an economic factor which brings uncertainty to forecast construction budgets and impacts strongly on construction industry. This is due to prices going up unexpectedly and negatively affecting cash flows.

As it applies to all products, the cost of replacing construction equipment is usually affected by economic inflation as well as industrial inflation, Gransberg, Popescu, & Ryan, (2006). The definition of economic inflation is said to be the loss of purchasing power of a nations' currency.

Industrial inflation is as well defined as the construction costs change because of long-term as well as short-term commodity pricing fluctuations. A good example is the consumer price index (CPI) which is an extensively reported index of inflation that models the U.S consumer dollar power to purchase. According to Gransberg, Popescu, & Ryan, (2006), inflation index measures the inflation in general across the economy and therefore, it seeks to measure economic inflation. They continue to say that the 2004 to 2005 unprecedented increase in the cost of steel is a good

example which is specific to construction industry on the effects of industry inflation. While discussing decision making regarding equipment replacement, Gransberg, Popescu, & Ryan, (2006) say consideration of inflation is very necessary.

II. Exchange Rate

Exchange rate can be defined as the cost of a nation's currency when expressed in terms another country's currency. The exchange rate is composed of two main components. These are local currency and foreign currency as explained in Investopedia, (2015). The two components as they appear in Investopedia, (2015) are directly or indirectly quoted. For the indirect excerpt, the cost of single component of local currency is articulated to conform to the alien currency. Investopedia, (2015), continue to explain that there are those exchange rates which do not have a domestic currency component. They say in that case, the exchange rate can either be referred to as cross rate or cross currency.

Macdonald, (2007), explains *nominal exchange rate as the home currency price of a unit of foreign exchange*. Nominal exchange rate comes in two types. They are namely forward exchange rate and spot exchange rate.

He further explains the spot exchange rate as a bilateral one at "*which foreign exchange can be bought and sold for immediate delivery, usually between one and two days*". He also defines *bilateral forward rate, as that rate negotiated today (time t) at which foreign exchange can be bought and sold for delivery sometime in the future*".

Effects of exchange rate can be felt when construction projects' materials or components of a building are being imported in greater proportions Gruneberg, (1997). As also explained by Gruneberg, (1997) that, if the sector of construction operates at or near maximum capacity, contractors will be unable to meet their demand for construction and this will raise prices for tenders which in turn brings about inflationary pressures.

III. Interest Rate

This is said to be the annualized cost of credit or debt-capital computed as the percentage ratio of interest to the principal amount, Businessdictionary.com (2014). According to Businessdictionary.com (2014), a bank can choose to determine its own interest rate on loans but, practically, local rates are almost the same from one bank to the other. Generally, interest rates tend to rise in times of inflation, high demand for credit, tight money supply, or even due to greater reserve requirements for banks. An upward trend in interest rates for any reason tends to dampen the activities of businesses, including those in the construction industry.

The Comptroller's Handbook, (1998), points out that investments into the real estate are very sensitive to interest rates and therefore, this should form a careful consideration in the real estate industry lending. When sourcing for funds for real estate project, the availability and cost of financing is usually affected by interest rates. Also affected by this interest rate are the real estate financial viability and construction costs. Looking at the rate of floating for a number of money owing and many leases which are on fixed rate,

escalating rates of interest are injurious to projects of real estate capacity of repayment in the future. Real estate market liquidity is usually reduced.

By increased interest rates especially when investors are attracted by alternative investments as the Handbook, (1998) explains.

B. Fiscal Policy Factors that affect construction output in Kenya

I. Taxation

It is usually felt that an economic growth can be fuelled through tax rate reduction by the government. Lower taxes paid by people means that they have more money which they can spend or put in an investment like a building which is a construction output. An improved economic growth is brought about by increased consumer spending or investment. Economic regulators would somehow wish not see too much of this spending increase since it triggers increased inflation as is explained in Investopedia, (2014).

In the world, Kenyan tax payers are regarded as heavily taxed. This is because of the number of taxes and levies that they have to comply with. The taxes range from income tax, value added tax, customs duty, exercise duty, dumping duty, Kenya Bureau of Standards Levy, industrial Training Levy, insurance levy, business permit fees (payable by Nairobi residents to the city County), Transport Licensing fees and various other (payable to the City County). Others are catering levy, the national hospital insurance fund, the fuel levy, the motor vehicle road license fees, the import declaration form fees, television and radio license, driving license fees, the rural electrification levy, the electricity regulatory board levy, the exchange rate surcharge (levied by Kenya Power and Lighting), the stamp duty, the dairy board levy and finally the Sugar Authority levy (Kalinga et al, (2003).

II. Government Spending

The other possibility as explained by Investopedia, (2014) is by the government where it decides to amplify its own spending. A notable example is initiating construction projects like by constructing additional highways or building structures.

This situation was witnessed recently in this country when the government initiated Economic Stimulus Projects (ESP). The thought is that the extra spending of government comes with job creations and unemployment rate is usually lowered. A number of economists, though, dispute the concept that employment can be created by the government, this is due to the fact that taxation is the main source of government's money – this is to say, from the private sector's productive activities.

II. METHOD

In order to describe the behavior of monetary and fiscal policy factors that affect construction output in Kenya for the period between the year 2000 and 2013, graphical method was used. The factors as found out earlier are five in number. They are namely; Interest Rates, Inflation and Exchange Rate which fall under monetary policy. Fiscal policy factors are government expenditure on construction and taxes. Logarithmic transformation was done on total tax on

products and government expenditure on construction to reduce the problem of heteroscedasticity.

III. DATA

The Kenya National Bureau of statistics (KNBS) and Central bank of Kenya (CBK) provided the time series data from the year 2000 to 2013 on quarterly bases. This was data which was used for analysis.

Behavior Description of the Factors

A. Behavior Description of Commercial Banks Weighted Interest Rates (CBWR)

This interest rate was highest in the year 2000 when it reached 24.76%. It then started dropping steadily to 12.2% in 2004. This is a difference of more than 50% in less than five years. However towards the end of 2004, the rate began to go up very mildly, though with some fluctuations. Over the whole period from 2000 to 2013, the behavior of this variable presented itself as a U-shaped graph. The lowest level of the interest rate was reached in the year 2004. This scenario is exhibited in figure 2.

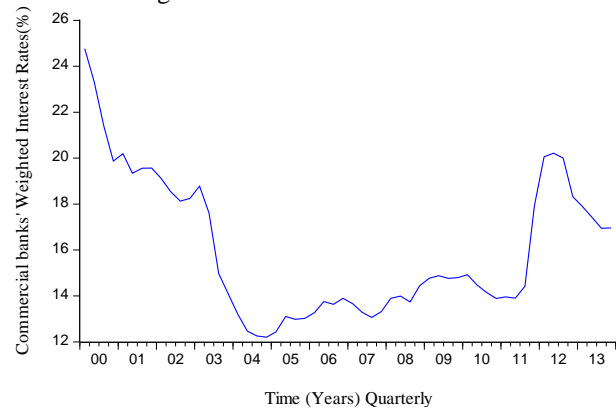


Figure 2: Commercial Bank's Weighted Interest Rates
Source: Authors, (2017)

B. Inflation Rates

Inflation rate appeared to fluctuate heavily over the whole period from year 2000 to year 2013. The lowest of this rate occurred in the first quarter of 2002 and the highest happened in the last quarter of 2012. The rates were 1.2% and 19.1% respectively. The behavior of inflation rate over the whole period in question is given in figure 3.

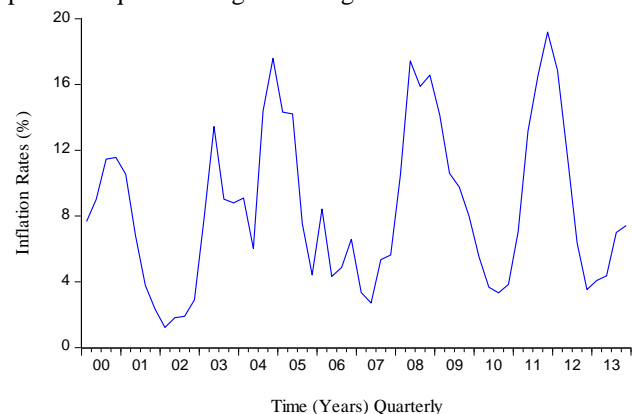


Figure 3: Inflation Rates
Source: Authors, (2017)

C. Exchange Rates

As can be observed from figure 4, the Kenya shilling to US dollar operated between Kshs. 62.6 and Kshs. 93.86.

The former being the lowest and the latter being the highest. The lowest rate happened towards the end of the second quarter of 2008. However the highest exchange rate occurred in the last quarter of 2011. From the beginning of the year 2000, the rate was rising very mildly with a bit of fluctuations up to the beginning of 2005. The rate then started dropping sharply up to the middle of 2008. From 2008 to 2009, there was a very sharp increase of the exchange rate. It then dropped shortly, and then it took a sharp rise up to around 2012 when it started reducing slowly. The behavior of this variable is exhibited in figure 4.



Figure 4: Exchange Rates
Source: Authors, (2017)

D. Government Expenditure on construction

Government expenditure on construction has been increasing from the year 2000 to the year 2013. This trend is an indication that the government’s projects have been increasing year by year except in 2002 when there was a small decline. The lowest expenditure on construction by the government over this period was Kshs. 9.695 billion and the highest was Kshs. 28.079 billion. This occurred in 2002 and 2012 respectively. From the observation of figure 5, it can be seen that the government of Kenya allocates some increased finances to construction projects every year. The figure overleaf displays this scenario.

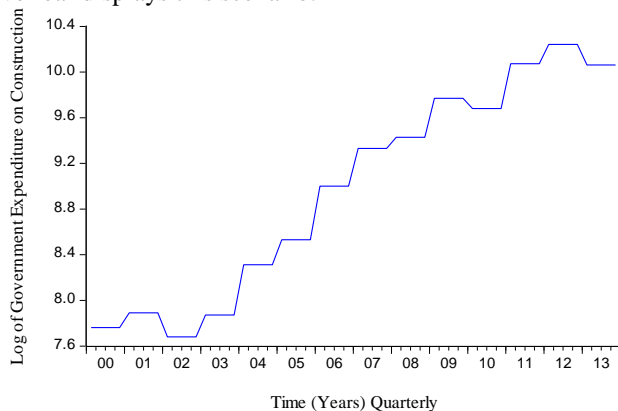


Figure 5: Logarithm of Government Expenditure on Construction

Source: Authors, (2017)

E. Total Tax on Products

From figure 6, tax collection from products has been increasing over the whole period except in 2002 when there

was a sharp decrease. The tax collection started from then, to increase gradually over the period between the years 2002 to 2013. The highest amount of this collection was reached in 2013 and the lowest was reached in 2002. The highest was Kshs. 67.884 billion and the lowest was Kshs. 24.921 billion respectively. There were fluctuations in collection of this tax but above all, it maintained an upward trend over the whole period under consideration. Figure 6 shows this trend.

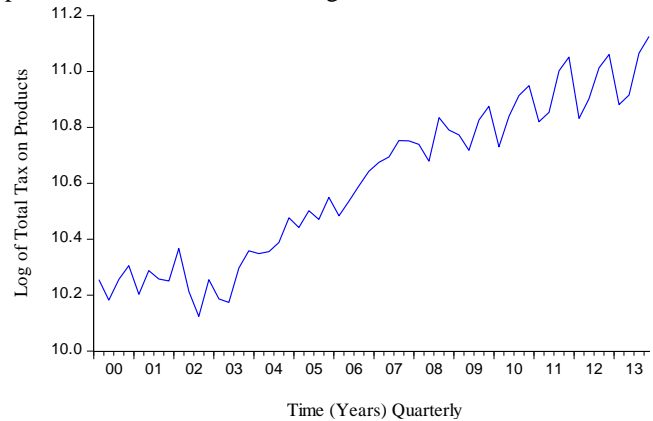


Figure 6: Logarithm of Total Tax on Products
Source: Authors, (2017)

IV. CONCLUSIONS

In conclusion, monetary and fiscal policy factors which affect construction output in Kenya are five. They are namely commercial banks weighted interest rates-the rate used to lend money to commercial banks’ clients in Kenya. The other factors are exchange rates, inflation rate, government expenditure on construction and taxes.

The fiscal policy factors appear to maintain an almost upward trend throughout the 14 years while monetary policy factors in Kenya appear to display a “U” shaped graph for interest rates and a zigzag behavior for inflation rate and exchange rate. Stakeholders and construction sector players in Kenya are therefore advised to take these factors into consideration when making decisions on construction projects undertaking.

REFERENCES

- 1 Bon, R. (1992). *The Future of International*. Pergamon Press Ltd.
- 2 Businessdictionary.com. (2014.). Interest rate. Retrieved 10 11, 2015, from Businessdictionary.com: <http://www.businessdictionary.com/definition/interest-rate.html>
- 3 CBK.(2013). CBK Rates. Retrieved from Interest Rates: www.centralbank.go.ke
- 4 Girardi, D., & Mura, A. (2013, September). Construction and economic development: empirical evidence for the period 2000-2011. Retrieved from Università Di Siena 1240: <http://www.econ-pol.unisi.it/quaderni/684.pdf>
- 5 Gransberg, D. D., Popescu, C. M., & Ryan, R. C. (2006). *Construction Equipment Management For Engineers, Estimators and Owners*. Boca Raton: CRC Press.
- 6 Gruneberg, S. L. (1997). *Construction Economics, An Introduction*. New York: Palgrave.
- 7 HandBook, C. (1998, March). *Commercial Real Estate and Construction Lending*. Retrieved 2014
- 8 Hillebrandt, P. M. (2000). *Economic Theory and the Construction Industry*. London: Palgrave Macmillan.
- 9 Investopedia. (2015, May 3). Exchange rate. Retrieved from Investopedia:<http://www.investopedia.com/terms/e/exchangerate.asp>

- 10 Kalinga, Maehle, Powell, S., McIntyre, & Jacobs. (2003). Kenya: Selected Issues and Statistical Appendix. Washington. D.C: International Monetary Fund Publication Service.
- 11 Macdonald, R. (2007). Exchange Rate Economics Theories and Evidence. New York: Routledge.
- 12 Macharia, N. (2015, May 5). Overview: Kenya Construction Industry. Retrieved from The Nation Business Review: <http://www.kenyanbusinessreview.com/562/construction-industry-in-kenya/>
- 13 Masinde, J. (2015, May 7). Central Bank holds basic lending rate as shilling takes more beating. Daily nation, p. 35.
- 14 Mawdesley, M. J., & Qambar, S. (2000). System Thinking and Construction Productivity. 1st.InternationalConference on Systems thinking in Management, (pp. 414 - 419).

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