IPRPD
International Journal of Business & Management Studies
ISSN 2694-1430 (Print), 2694-1449 (Online)
Volume 01; Issue no 04: October, 2020

Modelling of economic growth determinants in Ghana in the presence of structural breaks

Samuel Asuamah Yeboah[1]

[1] *Faculty of Business and Management Studies, Sunyani Technical University,Ghana, E-mail: nelkonsegal@yahoo.com*

Received: 21/09/2020
Accepted: 22/10/2020
Published: 31/10/2020

Abstract

The study investigates the determinants of economic growth in the presence of structural breaks using the Gregory and Hansen co-integration model in the Ghanaian economy for the period 1971 to 2011. The variables considered as the determinants were financial development, inflation, government expenditure, and trade openness. The empirical findings are in agreement with the existence of co-integration in the presence of structural breaks. The study shows that there are structural breaks that coincide with identified climatic, economic, and political shocks. The finding does not support short-run nexus between growth and the determinants considered in the study. However, financial development, government expenditures, and trade openness are the long-run determinants of growth. In respect of policy, government-initiated structural reforms aimed at ensuring growth is of limited value, since the effect of such reforms on the long-run growth path will be offset by other shocks to the economy. Besides, in other to achieve sustainable economic growth, policymakers should put in place strategies to ensure that the financial sector is properly strengthening, trade is appropriately liberalized and government expenditure is targeted at the productive sector of the economy. Future studies, in line with the focus of the current study, based on panel cointegration, accounting for structural beaks effect, is worth embarking on.

Keywords: Co-integration, Long run, Short run, financial development, trade openness
JEL Classification: F1, F41, F43, G1, G2, H1

1. Introduction

For many years, the determinants of economic growth have attracted the attention of both policymakers and research in various fields such as applied economics, finance, econometrics, development economics and many others. This sustained interest in research in this area stems from the fact that there are many benefits nations developed from economic growth.

There has been many policies and theoretical focused empirical research in the area of long-run and causality link between economic growth and its determinants, using various estimation methods such as Johansen (1988) and Johansen and Juselius (1990), Autoregressive distributed lag models (Pesaran et al., 2001), Engle-Granger test (1987), Gregory (1996) and Hansen test (1992), and single equation Ordinary Least Energy Square.

The focus of the current research is on the determinants of economic growth by examining the role of financial development, government expenditure, trade openness, and inflation in influencing economic growth in both long run and short run. A review of related works revealed that many prior studies did not consider the effect of structural breaks in determining the determinants of economic growth (Omisakin and Adeniyi, 2014).

The present research adds to the existing literature by investigating the determinants of economic growth by accounting for the effect of endogenous structural breaks in the cointegration analysis. Besides, the paper makes a contribution to the literature on unit roots by a single structural break and a multiple break-in time series analysis.

The research contributes to both exogenous and endogenous growth theories by providing better understanding empirically of the factors influencing the growth of an economy and the channels of effect. These factors are inflation, government expenditures, and trade openness.

Another meaningful contribution to the growth theories is that it also establishes the role of variables such as finance in growth, which has been neglected in the earlier models as indicated by Stern (2000) and Sadorsky (2010).

The findings, also, are expected to help policies makers on the economy to plan properly in the area of economic growth. This is so since any economic growth projections in emerging economies such as Ghana without considering financial development, trade openness, government expenditures as an explanatory variable might provide an inaccurate estimate of actual economic growth and unduly interfere with the polices.

The research is based on research questions such as; what is the effect of structural change on economic growth? What are the short-run and long-run determinants of economic growth in the presence of structural breaks? Which explanatory variables can predict economic growth? The following hypothesis was considered in the study. There are statistically significant structural breaks that coincide with identified climatic, economic, and political shocks. The explanatory variables in the model estimated to have a statistically significant effect on economic growth.

The next sections of the paper are organised into five parts. The review of related works (2); methodology section (section 3); results section (section 4), discussion section (section 5); and conclusion section (6).

2. Review of Related Works

The review of related works is organised into four main parts. They are financial development and economic growth; inflation and economic growth; government expenditure and economic growth; and trade openness and economic growth.

2.1 Finance and Growth

Theoretically and empirically, the link between finance and growth have been examined. The theoretical findings are reported in the works of prior researchers such as Bagehot (1873); Schumpeter (1911); Gurley and Shaw (1955); Goldsmith (1969); McKinnon (1973); According to these authors, economic growth is a function of financial development in both advanced and early stages of development of any nation. Scarce resources from surplus to deficit side of an economy are channelled through an efficient financial system for growth and development.

The findings of the empirical works are reported in the works of researchers such as Goldsmith (1969); Greene and Villanueva (1991); Demetriades and Devereux (1992); Alesina, Grilli and Milesi-Ferretti (1993); King and Levine (1993); Grabel (1995); Demetriades and Hussein (1996); Demetriades, et al. (1996); Eatwell (1996); Hermes (1996); Arestis and Demetriades (1997); Levine and Zervos (1998); Rajan and Zingales (1998); Rodrik (1998); Kang and Sawada (2000); Rivera-Batiz (2001); Levine (2001); Shan, Morris and Sun (2001); Kar and Pentecos (2002); Calderón (2003); Prasad, Rogoff, Wei and Köse (2003); Arestis (2004, 2005); Dritsakis and Adamopoulos (2004); Levine (2004); Bonfiglioli (2005); Galindo, Schiantarelli, and Weiss (2005); Klein (2005); Mansor (2005); Liang (2006); Loayza and Ranciere (2006); Ranciere, Tornell and Westermann (2006); Naceur (2007); Shrestha, and Chowdhury (2007); Yapraklı (2007); Ang (2009); Lee and Shin (2008); Luintel et al. (2008); Klein and Olivei (2008); Bick, Kremer and Nautz (2009); Hepsağ (2009); Mohammad et al. (2009); Sergii (2009); Zheng and Yu (2009); Adamopoulos (2010); Akinlo and Egbetunde (2010); Dabos and Gantman (2010); Odeniran and Udeaja (2010); Ahmed and Suliman (2011); Nouri and Samimi (2011); Tabi and Ondoa (2011); Baliamoune-Lutz (2013);

Kapingura (2013); Samargandi et al. (2013); Balago (2014); Fang and Jiang (2014); Adeniyi et al. (2015); Dinar, Dalgiç, and İyidoğan (2015); Dilek (2016); Qamarzumman (2017).

The findings of these empirical works indicate various links between financial development and economic growth. They are positive, negative, direct, indirect, growth-driven finance hypothesis, finance-driven growth hypothesis, bidirectional hypothesis, and neutral nexus between finance and economic growth.

Olusegun and Oluwatosin (2014) examined the link between finance and economic growth for the ECOWAS countries for the period 1970 to 2008 using yearly time series data. They reported significant cointegration in the presence of structural breaks. Their results indicate that government expenditure, trade openness, capital investment enhanced economic growth. The Granger causality test did not support growth-driven finance assumption.

In a study in which Dinar, Dalgiç, and İyidoğan (2015) used time-series data on Turkey for the period 1998 to 2012. They obtained results indicating a stable long-run link between finance and economic growth in the presence of structural breaks, with causality running to finance from growth. The study was based on Gregory and Hansen cointegration analysis and Zivot and Andrews stationarity test.

Elijah and Hamza (2019) investigated the nexus between finance and economic growth in the presence of structural breaks, for Nigeria with trade openness as a control variable, using yearly time series data for the period 1981 to 2015. They obtained results indicating a stable long-run relationship between finance and economic growth, with a negative link.

2.2 Inflation-Growth

Many theories account for the nexus between inflation and economic growth in the growth literature. Some of the theorists (see Swan, 1956; Solow, 1956; Mundell, 1963; Tobin, 1965; Sidrauski, 1967; Stockman, 1981; Blanchard & Kiyotaki, 1987; Greenwood & Huffman, 1987; Cooley and Hansen, 1989; Tobin, 1972; Haslag, 1995; Marquis & Reffert, 1995; Dornbusch, et al., 1996; Haslag, 1997; Todaro, 2000; Gillman, Harris & Matyas, 2004) posit that inflation is positively linked to growth, negatively linked to growth and neutrally linked to growth.

The theories are Classical, Keynesian, Neo-Keynesian, Monetarist, Neo-classical and Endogenous growth theories. For example, in the classical growth model inflation is related to growth. The supply-side focuses on the effect of savings and investments in an economy and that labour, land and capital are important in the growth model. The aggregate demand (AD) and aggregate supply (AS) model is used to explain the inflation-growth nexus in the Keynesian and Neo-Keynesian model. In the monetarism model, the quantity theory of money is used to explain the causes of inflation as resulting from monetary growth. Inflation affects growth through capital accumulation and investment in the economy by the endogenous growth model and neo-classical growth model.

A lot of empirical studies on the inflation-growth nexus in all economics testing various hypothesis such positive link, negative link, neutral link, inflation-driven growth, growth-driven inflation, as well as a bidirectional link exist. Some studies have also focused on the level of inflation and growth link, short-run link and long-run link. The findings have been mixed in the empirical literature.

The findings are found in the works of various researchers (Fischer, 1993; Ghosh & Phillips, 1998; Shitundu & Luvanda, 2000; Mallik & Chowdhury, 2001; Gokal & Hanif, 2004; Mubarik, 2005; Bick, Kremer and Nautz, 2009; Mohammad et al., 2009; Munir, Mansur & Furuoka, 2009; Sergii, 2009; Frimpong & Oteng-Abayie, 2010; Espinoza et al., 2010; Hasanov, 2011; Marbuah, 2010; Ahmed & Suliman, 2011; Kasidi & Mwakanemela, 2013; Marbuah, 2013; Thanh, 2015; Van Eyden et al., 2015; Ibarra & Trupkin, 2016; Ndoricimpa, 2017).

Some studies found a negative effect on growth in a linear model (Stockman, 1981; Kormendi & Meguire, 1985; De Gregorio,1993; Fischer, 1993; Barro, 1995, 1996; Dewan et al., 1999; Dewan & Hussein, 2001; Gokal & Hanif, 2004; Munir, Mansur & Furuoka, 2009). Other

studies (Levine & Zervos, 1993; Sala-i-Martin, 1997) indicate inflation does not influence growth especially in the presence of other control variables.

Studies (Fischer, 1993; Barro, 1995, 1996; Sarel, 1996; Andres & Hernando, 1997; Bruno & Easterly, 1998; Ghosh & Phillips, 1998; Khan & Senhadji, 2001; Caner & Hansen, 2004; Sweidan, 2004; Drukker et al., 2005; Hodge; 2005; Mortaza, 2005; Mubarik, 2005; Fabayo and Ajilore, 2006; Kremer et al., 2009; Bick, 2010; Espinoza et al., 2010; Frimpong & Oteng-Abayie, 2010; Omay & Kan, 2010; Phiri, 2010; Quartey, 2010; Salami & Kelikume; 2010; Lopez-Villavicencio & Mignon, 2011; Mohanty, Chakraborty, Das & Jogn, 2011; Ajideand Olukemi, 2012; Kremer et al., 2013; Seleteng et al., 2013 Vinayagathasan, 2013; Eggoh & Muhammad, 2014; Thanh, 2015; Van Eyden et al., 2015; Ibarra & Trupkin, 2016; Ndoricimpa, 2017) that have investigated the level of inflation needed to influence growth and the nonlinear link between inflation and growth conclude that not all levels of inflation are relevant influencing growth and that the link between inflation and growth is not linear but nonlinear.

In the study by Dewan and Hussein (2001) reported a significant negative nexus between growth and inflation for 41 middle-income countries. In a similar study, Faria and Carneiro (2001) on the economy of Brazil using yearly data between 1980 and 1995, they reported of a significant negative link between inflation and growth in the short run.

In a Jordan study by Sweidan (2004) for the period 1970 to 2003 positive link between growth and inflation was established below a threshold of 2 and a significant negative nexus at a threshold of 2.

In a Taiwan study, Lee and Wong (2005) for the period 1965 to 2002 assessed the inflation-growth link and indicated that inflation is negatively related to growth when the threshold exceeds 7.3%. They also investigated the nexus for the Japan economy for the period 1970 to 2001 and reported of threshold and concluded that beyond threshold levels of 2.52% and 9.66% inflation is not favourable to growth.

For the period 1976 to 2007, Bhaduri (2007) in a study of the Indian economy indicated that inflation and growth are negatively related in the short run and not in the long run.

In Turkey, for the period 1987-2006, Erbaykal and Okuyan (2008) investigated the growth-inflation link and reported significant short-term link and no long-term link between inflation and growth. In a Malaysian study by Munir et al. (2009) for the period 1970 to 2005 in a threshold analysis reported of a threshold effect and indicated that at higher levels of the inflation rate, growth is affected negatively.

In a Ghanaian study, for the period 1960 to 2008, Frimpong and Oteng-Abayie (2010) indicated a negative link between inflation and growth in the presence of breaks. Threshold levels were identified in their study. In a similar Ghanaian study, for the period 1970 to 2006, Quartey (2010) examined the effect of inflation on growth in the presence of breaks established threshold effect and reported of a significant negative link between growth and inflation.

Marbuah (2011) further examined the growth-inflation link for Ghana for the period 1955 to 2009 in the presence of structural breaks and concluded that higher inflation rates affect growth negatively and support the policy of inflation targeting in the Ghanaian economy. In a similar threshold analysis for the period 1996 to 1997 and 2010 to 2011 using quarterly data for India, Mohanty et al. (2011) reported of a significant positive link between inflation rate and growth in the presence of structural breaks and concluded that lower levels of inflation are appropriate for economic growth.

Seleteng et al. (2013) examined the inflation-growth link for SADC countries accounting for the threshold effect and concluded that a higher inflation rate negatively influences growth for the period under study. Kremer et al. (2013) in a panel study for 124 countries examined the effect of inflation on growth in a threshold analysis and concluded that lower inflation rates enhance growth and higher rates impede growth. For 32 countries in Asia, Vinayagathasan (2013) investigated the growth-inflation link accounting for threshold effect reported that lower inflation rates (above 5%) enhance growth whereas higher rates negatively affect growth.

In a panel study on the link between inflation and growth accounting for thresholds effect, for developed and developing economies, Eggoh and Muhammad (2014) study reported that higher inflation rates negatively affect growth.

In a study on ASEAN countries, Thanh (2015) examined the growth-inflation link accounting for the effect of a threshold, concluded that higher inflation rates are not good for economic growth. Van Eyden et al. (2015) in a further study on growth-inflation considering the effect of a threshold, reported a negative effect of inflation on growth at higher levels of inflation rates.

In 138 country study considering the effect of threshold on the growth-inflation link, Ibarra and Trupkin (2016) conclude that inflation negatively affects growth at a higher inflation rate and that the threshold rate for nonindustrial countries is about 19% and that for industrial countries is about 5%.

In an India study, Kallah (2018) reported of a significant positive link between inflation and growth in the presence of breaks at different threshold levels and concluded that lower levels of inflation rates are important for economic growth in India.

2.3 Government Expenditure-Growth

Two main theorists (Wagner and Keynes) explain the effect of government expenditure on economic growth in the growth literature. These two theorists give opposing explanations on the effect of government expenditure on growth, hence the empirical validation of these two approaches have yielded mixed findings and conclusions in the literature (Grossman, 1988).

According to the Wagner (1883) approach, government expenditure is an endogenous variable in the growth model (Musgrave and Musgrave, 1988; Cooray, 2009) whereas, in the Keynes (1936) model, government expenditure is exogenous variable (Abdullah, 2000).

The empirical findings on the link between government-growth link are reported in the works of researchers (Barro, 1991; Ghali, 1998; Bajo-Rudio, 2000; Albatel, 2002; Abu-Bader & Abu-Qarn, 2003; Niloy et al., 2003; Pevcin, 2003; Akpan, 2005; Mitchell, 2005; Gregoriou & Ghosh, 2007; Olugbenga & Owoye, 2007; Afonso & Furceri, 2008; Liu et al., 2008; Ranjan & Sharma, 2008; Sharma & Ramful, 2008; Alexiou, 2009; Cooray, 2009; Frimpong & Oteng-Agbaiye, 2009; Kumar, 2009; Maku, 2009; Mohammad et al., 2009; Pham, 2009; Bergh & Karlsson, 2010; Ighodaro & Oriakhi, 2010; Nurudeen & Usman, 2010; Taban, 2010; Verma and Arora, 2010; Adeniyi & Bashir, 2011; Afonso & Furceri, 2010; Afonso & Jalles, 2011; Usman et al., 2011; Adewara & Oloni, 2012; Boroujli, Amin, Mehrara, & Abrishami, 2013; Oyinlola & Akinnibosun, 2013; Srinivasan 2013).

The main findings as reported in the literature are that there is mixed findings, neutral findings, negative findings and positive findings. For example, Sharma and Ramful (2008) in accounting for the effect of structural breaks in Australia and the USA study, found a significant long-run link between expenditure and growth and no significant nexus in the model structural breaks were not accounted for.

Kumar (2009) studied the link between growth and government spending some East Asian economies considering the effect of structural breaks during the period 1960 to 2007. The Gregory and Hansen model used indicated a significant long-run link between growth and expenditures. Wagner's hypothesis was supported in the countries in the study aside in Hong Kong.

Oyinlola and Akinnibosun, (2013) for the period 1970 to 2009 investigated the growth-expenditure link for Nigerian economy accounting for structural breaks supported Wagner's hypothesis and concluded that in the long-run growth and government expenditure are related and that economic growth is the object of government expenditure.

For the post-apartheid period 1994 to 2015 in South Africa, Mlilo and Netshikulwe (2017) examined the growth-expenditure nexus accounting for the effect of structural breaks. There was no significant evidence of a stable long-run link between growth and expenditure. Wagner's hypothesis was rejected in support of the Keynesian hypothesis for the period under investigation.

2.4 Trade-Growth

The trade-growth nexus has received attention in the growth literature theoretically and empirically with contradicting findings though. The theoretical concepts are the exogenous growth model and the new growth model. According to the exogenous growth, model trade does not influence long-run growth (Rivera-Batiz & Romer 1991). In the context of the new growth model, trade influence long-run growth through resource allocation and world integration. This leads to growth in the developing economies (Grossman & Helpman 1991b).

Various empirical studies have examined the link between trade and growth in different kinds of hypothesis such as trade-driven growth hypothesis, growth-driven trade hypothesis, bidirectional causality, positive link, negative link, and neutral link. The empirical verification of these hypothesis has produced mixed findings in the growth literature. The empirical findings are found in the works of various researcher such as Karacaer and Kapusuzoglu (2010); Ozturk and Acaravci (2010); Manni and Afzal (2012); Dawson and Sanjuán-López (2013); Belloumi (2014); Soliu and Ibrahim (2014); Brana (2016); Iamsiraroj (2016); Uslu, Aydoğan, and Ketenci (2015); Alsamara, Mrabet, Barkat, and Elafif (2019).

Some of the studies did account for the effect of structural breaks such as the study by Ozturk and Acaravci (2010) for Turkey which reported of no significant long-run relationship between trade (proxied by export) in the presence of foreign direct investment, and a stable significant long-run link between trade (proxied by import) in the presence of foreign direct investment.

Dawson and Sanjuán-López (2013) investigated the trade-growth nexus for 47 developing countries during the period 1970 to 2004 in a panel model that accounted for the effect of structural breaks. The findings indicated a significant long-run link between trade and growth with bidirectional causality between the two variables in a bivariate model.

Uslu, Aydoğan, and Ketenci (2015) studied the impact of trade on growth in 21 developing countries in a panel model for the period 1995 to 2013 using quarterly data considering the influence of structural breaks. Their findings showed that trade account for growth and the effect of structural breaks is significant in the sense that the effect decrease in the presence of structural breaks.

Alsamara, Mrabet, Barkat, and Elafif (2019) examined the effect of trade on Turkey's economic growth for the period 1960-2014 period accounting for the effect of structural breaks. They reported a significant positive effect of trade on growth.

Nketiah, Cai, Adjei, and Boamah (2020) investigated the effect of trade on growth in the presence of foreign direct investment without accounting for the effect of structural breaks and reported that growth in Ghana for the period 1975 to 2017 is a function of trade openness.

3. Methodology

The paper aims to examine the determinants of economic growth in the presence of structural breaks. This is achieved by examining the unit root properties using Zivot-Andrews (1992) and Clemente, Montanes and Reyes (1998) tests. After that, the long-run relationship among the growth and the determinants are estimated using the Gregory and Hansen Methodology with Structural breaks (Sweidan, 2004).

3.1 Stationarity Test

The Zivot-Andrews (1992) and Clemente, Montanes and Reyes (1998) tests are used in considering structural breaks in time series analysis. The Zivot-Andrews (1992) unit root test (ZA) allows for the examination and investigation of unit root to be examined with one endogenously determined structural break. The ZA unit root test estimates the break date and does not treat the break date as fixed. A single break is allowed in the intercept and the trend of the series variables under investigation. Different dummy variables are used for each break date in the model. The ZA test is as specified in equations (1), (2) and (3) following the works of Perron's ADF test.

$$x_t = \hat{\mu}^A + \hat{\theta}^A du_t(\hat{\lambda}) + \hat{\beta}^A t + \hat{\alpha}^A x_{t-1} + \sum_{j=1}^{K} \hat{c}_j{}^A \Delta x_{t-j} + \hat{e}_t, \ldots\ldots\ldots\ldots\ldots\ldots (1)$$

$$x_t = \hat{\mu}^B + \hat{\beta}^B t + \hat{\gamma}^B dT^*{}_t(\hat{\lambda}) + \hat{\alpha}^B x_{t-1} + \sum_{j=1}^{K} \hat{c}_j{}^B \Delta x_{t-j} + \hat{e}_t, \ldots\ldots\ldots\ldots (2)$$

$$x_t = \hat{\mu}^C + \hat{\theta}^C du_t(\hat{\lambda}) + \hat{\beta}^C t + \hat{\gamma}^C dT^*{}_t(\hat{\lambda}) + \hat{\alpha}^C x_{t-1} + \sum_{j=1}^{K} \hat{c}_j{}^C \Delta x_{t-j} + \hat{e}_t, \ldots\ldots (3)$$

If $du_t(\lambda) = 1$, $t > T\lambda$, 0 otherwise; $dT^*_t(\lambda) = t - T\lambda$ if $t > T\lambda$, 0 otherwise. In equations (1), (2), and (3) the estimated values of the break fraction are the lamda. Equation four (4) specifies the null hypothesis which states that the series under investigation are integrated with no exogenous structural break. The alternative hypothesis indicates that the series variables under investigation are a trend-stationary process with a breakpoint that occurs in the trend at a point that is not known. In this case, the breakpoint is estimated at a point that gives the most weight to the alternative assumption.

$$x_t = \beta + x_{t-1} + e_t, \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (4)$$

Information criteria such as Schwartz Information Criterion (SIC); Akaike information criterion (AIC); Bayesian information criterion (BIC) and Hannan-Quinn information criterion (HQI) are used for the lag length selection. The t-test is used also in the lag selection process.

Empirical studies indicate that some series of variables exhibit multiple breaks and not just one break (Perman & Byrne, 2006). Clemente, Montanes, and Reyes (1998) developed a unit root test that accounts for multiple structural breaks based on the work of Perron and Vogelsang (1992). Equations (5) and (6) specifies the null and alternative hypothesis respectively.

$$H_0; y_t = y_{t-1} + \delta_1 dTb_{1_t} + \delta_2 dTb_{2t} + \mu_t, \ldots\ldots\ldots\ldots\ldots (5)$$

$$H_1; y_t = \mu + \theta_1 du_{1_t} + \theta_2 dTb_{2t} + \varepsilon_t, \ldots\ldots\ldots\ldots\ldots\ldots\ldots (6)$$

The dummy variable in the equations is dTb_{it} which is =1 if $t = Tb_i + 1$, 0 otherwise. $du_{it} = 1$ If $t > Tb_i$, $du_{it} = 1$ (for i=1, 2), 0 otherwise. Tb1 and Tb2 stand for the period for the breakpoint. Clemente et al. (1998) indicated that Tbi = λiT (for i=1, 2) for the range $0 < \lambda_i < 1$ and $\lambda_2 > \lambda_1$. The breakpoints are estimated based on innovative outliers and additive outliers. The innovative outlier model is as specified in equation (7).

$$y_t = \mu + \rho y_{t-1} + \delta_1 dTb_{1_t} + \delta_2 dTb_{2t} + \theta_1 du_{1t} + \theta_2 du_{2t} + \sum_{i=1}^{k} c_j \Delta y_{t-i} + \varepsilon_t, \ldots\ldots (7)$$

The asymptotic distribution of the test statistic for the model is given based on the assumption in the model (8)

$$0 \prec \lambda_0 \prec \lambda_1, \lambda_2 \prec 1 - \lambda_0 \prec 1, \ldots\ldots (8)$$

In equation (8), λ_1 and λ_2 take the values of [(t+2)/T, (T-1/T)]. To avoid situations where breaks occur in conservative time period Clemente et al. (1998) assumed that $\lambda_2 > \lambda_1 + 1$. In the case of additive outliers, the models are specified in equations (9) and (10).

$$x_t = \mu + \theta_1 du_{1t} + \theta_2 du_{2t} + \tilde{x}. \ldots\ldots\ldots\ldots\ldots\ldots (9)$$

In equation (9) the deterministic part of the model is eliminated according to Clemente et al. (1998) in estimation. Equation (10) is estimated based on an assumption that $\varrho = 1$ after the

estimation of equation (9). The null assumption that ϱ =1 is tested using the minimum values of the t-ratio.

$$\tilde{x}_t = \sum_{i=0}^{k} \omega_{1i} dTb_{1t-i} + \sum_{i=0}^{k} \omega_{2i} dTb_{2t-i} + \rho \tilde{x}_{t-1} + \sum_{i=1}^{k} c_i \Delta \tilde{x}_{t-i} + \ell_t \ldots\ldots\ldots\ldots (10)$$

The dummy variable is dTb_{it}, and it is included in the model to ensure that min $t^{A0}_{\varrho^{\wedge}}(\lambda_1, \lambda_2)$ converges to the distribution as stated by Clemente et al. (1998). Thus,

$$min\ t_{\rho^{\wedge}}{}^{A0}(\lambda_1, \lambda_2) \rightarrow inf\ \lambda = \wedge \frac{H}{[\lambda_1(\lambda_2 - \lambda_1)(1 - \lambda_2)]^{1/2} k^{1/2}} \ldots\ldots\ldots\ldots (11)$$

3.2 Gregory and Hansen Cointegration Test

The paper employs the Gregory and Hansen model of cointegration to account for the effect of endogenous structural breaks in investigating the long run link. Equations (12), (13), (14), and (15) are specified by Gregory and Hansen (1996a; 1996b) to test for cointegration link on the null hypothesis no cointegration against the alternative hypothesis, with two variables, dependent variable (Y) and explanatory variable (X). In the equations, error terms are = e; t= time subscript; k= break date.

Model A: Level Shift

$$Y_t = \theta_1 + \theta_2 f_{tk} + a_1 X_t + e_t, \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (12)$$

Model B: Level Shift with Trend

$$Y_t = \theta_1 + \theta_2 f_{tk} + \delta_1 t + a_1 X_t + e_t, \ldots\ldots\ldots\ldots\ldots\ldots\ldots (13)$$

Model C: Regime Shift with a change in Intercept and Slope coefficients

$$Y_t = \theta_1 + \theta_2 f_{tk} + \delta_1 t + a_1 X_t + a_2 X_t f_{tk} + e_t, \ldots\ldots\ldots\ldots (14)$$

Model D: Regime Shift with change Intercept, Slope coefficients and Trend

$$Y_t = \theta_1 + \theta_2 f_{tk} + \delta_1 t + \delta_2 t f_{tk} + a_1 X_t + a_2 X_t f_{tk} + e_t, \ldots\ldots\ldots\ldots (15)$$

In estimating dummy variables in equations (12) to (15), Gregory and Hansen (1996) specified equation (16).

f_{tk}= 0 if t ≤ k and f_{tk} = 1 if t > k …… (16)

In the equations, the break date is determined through the estimation of the cointegration equations for all possible break dates in the series in the study (Gregory & Hansen,1996),). The break date is selected using the minimum t-statistics or the maximum absolute values of the ADF test statistics. The works of MacKinnon (1991) was used by Gregory and Hansen (1996) to develop the critical values in Engle-Granger model which is use to examine cointegration nexus accounting for unknown structural breaks. Lee and Chang (2005) indicate that the presence of structural breaks distorts empirical results when not considered in analysis.

3.3 The Conceptual Framework of the Empirical Model

A multivariate (multiple regression) models are used to examine the determinants of economic growth with growth as the dependent variable and inflation, trade openness, government expenditure, and financial development as independent variables. The model is conceptualized as in equation (17), where M stands for the dependent variable and N, the independent variables.

$$M_t = \beta_0 + \beta_1 N_1 + \ldots + \beta_p N_p + \varepsilon_t \ldots\ldots\ldots\ldots (17)$$

3.4 Data

The paper is based on annual data obtained from the World Bank database (World Development Indicator-WDI) were employed for the analysis. The study period is from 1971 to 2011.

Data Description	Source
Economic growth (y) proxied by gross domestic product	WDI
Government expenditure (GE)	WDI
Inflation (IN)	WDI
Trade openness (OPEN)	WDI
Financial development (M2) proxied by money supply (M2 monetary aggregate)	WDI

Table 1 Data Description

4. Empirical Results

4.1 Zivot-Andrews Unit root Test Results

The Zivot-Andrews test was used to test for unit root allowing for an endogenously determined structural break. The results are reported in Table 2. The test is based on the null hypothesis of unit root against the alternative hypothesis of no unit root. The null hypothesis of unit root cannot be rejected. The series variables are unit root with structural breaks. The break dates coincide with known national dates in the Ghanaian economy. For example, in 1983, there was a drought in Ghana, which affects these variables.

Series (Level)	t-statistic	Optimal Breakpoints	Decisions
OPEN	-2.772	2005	Unit root
y	0.401	2005	Unit root
GE	-3.473	1992	Unit root
M2	-3.596	1979	Unit root
IN	2.141	2003	Unit root

Table 2 ZA (1992) unit root tests Results

(Author's computation, 2014): Critical values are 1% (-5.34); 5% (-4.80) and 10% (-4.58)

Series (Level)	t-statistic	Optimal Breakpoints	Decisions
ΔlnOPEN	-7.928***	1993	Stationary
ΔlnGE	-6.176***	1984	Stationary
Δlny	-6.943***	1977	Stationary
ΔlnM2	-7.023***	1985	Stationary
ΔlnIN	-5.723***	1977	Stationary

Table 3 ZA (1992) unit root tests Results

(Author's computation, 2014); Critical values are 1% (-5.34); 5% (-4.80) and 10% (-4.58):
Note: *** denotes statistical significance at the 10%, 5% and 1% levels respectively.

4.2 Clemente-Montanes-Reyes Unit Root Test Results

In the current study the stationarity test was performed using the Clemente-Montanes-Reyes test (1998) that accounts for two structural breaks. The Clemente-Montanes-Reyes tests are the innovational outlier (IO) and Additive Outlier (AO). The IO model results are shown in Table 4 and that of AO model are exhibited in Table 5. According to the IO model, structural changes take place gradually and allows for a break in both the slope and the intercept of the model. However, in the AO test, the hypothesis is that structural changes are only in the slope and it is rapid. The test null assumption is that the variables are unit root with structural breaks. The alternative assumption is that the variables are not unit root with a break. Despite the structural break in the series using the innovative outlier, except, government expenditure, the null assumption is not rejected in levels

as shown in Table 4. In Table 5 except money supply, we can reject the null hypothesis of a unit root in the series variables in first difference and logarithm form.

IO mode: IO model, structural changes take place gradually and allows for a break in both the slope and the intercept of the model				
Series(levels)	**t-statistic**	**Optimal Breakpoints**	**5% critical value**	**Decisions**
OPEN	-3.056	1984 & 1994	-5.49	Not stationary
y	0.604	1999 & 2004	-5.49	Not stationary
GE	-5.53	1979 & 1990	-5.49	Stationary
M2	-2.184	1977 & 1990	-5.49	Not stationary
IN	1.291	1998 & 2006	-5.49	Not stationary

Table 4 Clemente et al., (1998) structural break with double mean shifts
(Author's computation, 2014)

IO mode: IO model, structural changes take place gradually and allows for a break in both the slope and the intercept of the model				
Series	**t-statistic**	**Optimal Breakpoints**	**5% critical**	**Decisions**
Δlny	-7.758	1975 & 1982	-5.49	Stationary
ΔlnOPEN	-8.32	1981 & 1986	-5.49	Stationary
ΔlnGE	-5.849	1981 & 2004	-5.49	Stationary
ΔlnM2	-4.066	1975 & 1982	-5.49	Not stationary
ΔlnIN	-6.617	1974 & 1982	-5.49	Stationary

Table 5 Clemente et al., (1998) structural break with double mean shifts
(Author's computation, 2014)

In the case of the use of the additive outlier, in the face of the structural break in the variables in levels, the null assumption is not rejected in Table 6. In Table 7, except government expenditure, the null assumption is not rejected in first difference.

AO model: In the AO model, the assumption is that structural changes are rapid and allow for a break in only the slope.				
Series	**t-statistic**	**Optimal Breakpoints**	**5% critical value**	**Decisions**
GE	-3.568	1978 & 1988	-5.49	Unit root
y	-1.234	2002 & 2007	-5.49	Unit root
OPEN	-0.894	1988 & 1998	-5.49	Unit root
M2	-3.623	1981 & 1996	-5.49	Unit root
IN	-2.568	1998 & 2005	-5.49	Unit root

Table 6 Clemente et al., (1998) structural break with double mean shifts
(Author's computation, 2014)

AO model: In the AO model, the assumption is that structural changes are rapid and allow for a break in only the slope.				
Series (1st dif.)	t-statistic	Optimal Breakpoints	5% cri. value	Decisions
ΔlnGE	-5.56	1983 & 2003	-5.49	Stationary
Δlny	-1.427	1974 & 1981	-5.49	Unit root
ΔlnM2	-3.411	1977 & 1981	-5.49	Unit root
ΔlnIN	0.177	1973& 1981	-5.49	Unit root
ΔlnOPEN	-3.618	1980 & 2000	-5.49	Unit root

Table 7 Clemente et al., (1998) structural break with double mean shifts
(Author's computation, 2014)

4.3 Results and Analysis of the Economic Growth Determinants

In this section of the paper, growth determinants results of the Gregory and Hansen (G-H) Co-integration approach is presented. The results on the estimated models [model C; model C/T; model C/S and model C/S/T] are reported in Table 8. The results revealed evidence of no significant cointegration in models C and model C/T but significant cointegration in model C/S and model C/S/T. Therefore, Models C/S/T and model C/S are estimated.

Regressors	Model	ADF	BP
y, M2, GE, OPEN, IN	C	-5.22	2001:32:00
	C/T	-5.22	2001:32:00
	C/S	-9.980***	2002:33:00
	C/S/T	-7.180***	1995:26:00
	Note: The 1% CVs are -6.050 for ADF Note: The 5% CVs are -5.560 for ADF Note: The 10% CVs are -5.310 for ADF		

Table 8 Gregory-Hansen Structural Break Cointegration Test (Economic Growth; Model-Model C; Model C/T; Model C/S and Model C/S/T)
Source: Author's computation, 2014. Note: ** denote significance at 5% level of significance

The appropriate model for the long-run estimates of the two models was estimated by employing the OLS test of regression. The results are presented in Table 9. The estimates of the two models seem to imply that Model C/S is the most plausible model since more estimated coefficients of the explanatory variables are significant. The short-run dynamic equation for the determinants of economic growth with the error-correction adjustment model (ECM) was estimated using the residuals from Model C/S. Growth increases by about 33.3%, about 35.9%, about 13.9% and about 0.06% (though insignificant) when money supply, government expenditure, trade openness and inflation increase by 1% respectively in the long run in model C/S.

Cointegration equations 1970-2011 (Economic Growth)		
Regressors	GH-C/S (2002)	GH-C/S/T (1995)
Constant	12.886 (19.940)***	18.745 (14.260)***
Dum X Constant	0.017 -0.816	0.016 -0.292
Trend	n.a	0.071 (4.694)***
Dum X Trend	n.a	n.a
lnM2	0.333 (6.758)***	-0.004 -0.053
Dum X lnM2	n.a	n.a
lnGE	0.359 (12.19)***	0.088 -1.462
Dum X lnGE	n.a	n.a
lnOPEN	0.138 (5.576)***	0.088 (3.899)***
Dum X lnOPEN	n.a	n.a
lnIN	0.006 -0.839	-0.167 (-4.435)***
Dum X lnIN	n.a	n.a
R^2	0.978	0.987
Adjusted R-square	0.975	0.984

Table 9 Long Run Coefficients Estimates
Source: author's computation, 2014. Note * denote significance at 1% level**

The short-run results of the coefficients estimated are reported in Table 10. All the independent variables are insignificant with the coefficient of inflation alone having unexpected a priori theoretical sign. The value of the error correction term (ECM) of -0.089 is statistically insignificant. However, it has the expected a priori theoretical negative of negative.

Model C/S	**Regresand = Δlny**			
Regressors	**Elasticities**	**Std Error**	**T-ratio**	**P-value**
Δlny-1	0.157	0.226	0.694	0.349
ΔlnGE-1	0.043	0.065	0.659	0.514
ΔlnOPEN-1	0.055	0.035	1.548	0.131
ΔlnIN-1	0.044	0.066	0.656	0.517
ΔlnM2-1	0.047	0.082	0.566	0.575
ECM_{-1}	-0.057	0.059	0.97	0.339
Constant	-1.02	1.073	-0.951	0.349
Mean dependent var	0.033	S.D. dependent var		0.048
Sum squared resid	0.068	S.E. of regression		0.045
R-squared	0.241	Adjusted R-squared		0.102
rho	0.078	Durbin-Watson		1.712

Table 10 Short Run Coefficient Estimates
Source: Author's computation, 2014

Figures 1 and Figure 2 depict the stability test results of the parameters, which show that the coefficients estimated are not stable according to the CUSUM test. The results of the CUSUMSQ test indicate the squared residuals are stable since the fall in 5% critical boundaries.

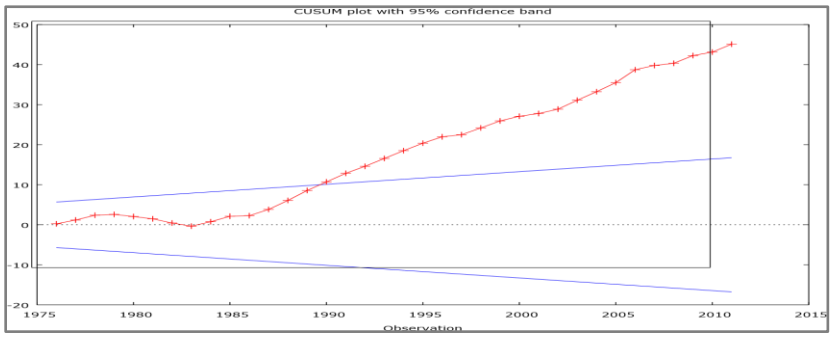

Figure 1 CUSUM

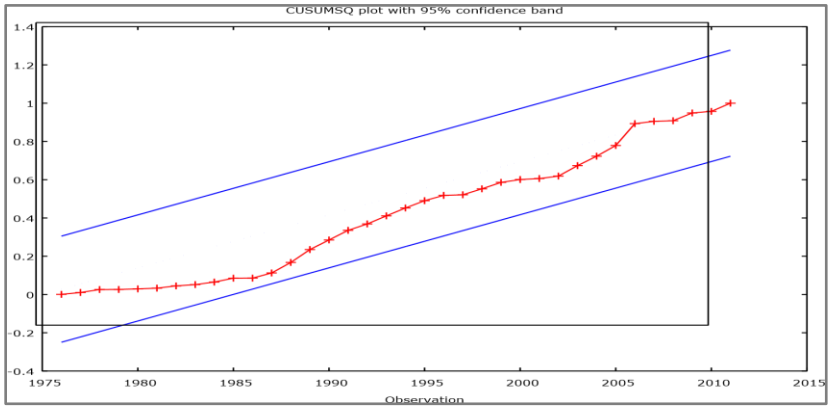

Figure 2 CUSUMSQ

5 DISCUSSIONS OF RESULTS

The paper examines and analyses the determinants of economic growth for Ghana for the period 1970 to 2011 using the Gregory and Hansen cointegration test which accounts for the effect of structural breaks.

On the nature of structural breaks in the data used, the study shows that there are structural breaks that coincide with identified climatic, economic, and political shocks. The findings are in support of that of Kiran, Yavus and Guris (2009) for Turkey; Binh (2011) for Vietnam; Dobnik (2011) for 23 OECD countries; and Dramani et al. (2012) for Ghana. The theoretical implications are that, the theory of structural breaks is supported and that forecasted values of real output that do not take account of structural breaks might have errors and are unreliable.

In the case of the determinants of economic growth, the findings of a positive effect of trade on growth are in line with that of previous research works (Manni & Afzal, 2012; Soliu & Ibrahim, 2014) that reported of a positive effect of trade on growth.

Besides, the findings of a positive nexus between financial development and growth are in line with the findings of earlier researchers (Mansor, 2005; Owoye et al., 2007; Mohammad et al., 2009; Nouri & Samimi, 2011; Tabi & Ondoa, 2011) who reported of a positive relationship between financial development and growth, but inconsistent with the findings of other researchers (Ahmed & Suliman, 2011) who reported of a negative effect of financial development and growth.

Further, the findings of a positive effect of inflation (but insignificant) on growth are in support of the works of previous researchers (Mallik & Chowdhury, 2001; Ahmed & Suliman, 2011) who reported of a positive effect of inflation on growth. However, the findings are not in support of previous studies (Fischer, 1993; Ghosh & Phillips, 1998; Shitundu & Luvanda, 2000; Mubarik, 2005; Bick, Kremer and Nautz, 2009; Mohammad et al., 2009; Sergii, 2009; Espinoza et al., 2010; Hasanov, 2011; Marbuah, 2010; Kasidi & Mwakanemela, 2013) that produced negative results. Other researchers (Frimpong & Oteng-Abayie, 2010) have reported of the neutral effect of inflation on economic growth, which is contrary to the findings of the current study.

Lastly, the empirical results on the positive effect of government expenditure on growth are consistent with the findings of previous researchers in the literature (Ranjan & Sharma, 2008; Alexiou, 2009; Ighodaro & Oriakhi, 2010; Adeniyi & Bashir, 2011; Srinivasan, 2013). According to

researchers, this might result from positive externalities through the harmonization of the conflicts between private and social interests and the provision of socially optimal direction for growth as well as offsetting market failures (Ghali, 1998). Ighodaro and Oriakhi (2010) and Adeniyi and Bashir (2011) reported a positive effect of government spending on economic growth in Nigeria. Srinivasan (2013) reported a statistically significant positive relationship between GDP and public expenditure in India.

The findings are not in line with the works of other researchers (Barro, 1991; Bajo-Rudio, 2000; Pevcin, 2003; Afonso & Furceri, 2008; Pham, 2009; Mohammad et al., 2009; Maku, 2009; Bergh & Karlsson, 2010; Afonso & Jalles, 2011) who have reported of a significant negative relationship between government expenditure and growth. According to these researchers, increasing government expenditure may deteriorate economic growth through the crowding-out effect. The private sector is crowded out as a result of distortions of the tax, government inefficiencies, incentives systems, and interventions to free markets system. The findings of the current paper are inconsistent with that of researchers (Taban, 2010; Verma & Arora, 2010) who reported an insignificant link between government expenditures and growth.

6. CONCLUSIONS AND RECOMMENDATIONS

The purpose of the study was to investigate the determinants of economic growth in the presence of structural breaks using the Gregory and Hansen cointegration model. The variables considered as the determinants were financial development, inflation, government expenditure, and trade openness.

The empirical findings are in agreement with the existence of cointegration in the presence of structural breaks. The study shows that there are structural breaks that coincide with identified climatic, economic, and political shocks. The theoretical implications are that the theory of structural breaks is supported and that forecasted values of real output that do not take account of structural breaks might have errors and are unreliable. In respect of policy, government-initiated structural reforms aimed at ensuring growth is of limited value, since the effect of such reforms on the long-run growth path will be offset by other shocks to the economy.

On the determinants of economic growth, the finding does not support short-run nexus between growth and the determinants considered in the study, though the conventional and new CUSUMSQ tests suggest the stability of equilibrium residuals which reinforces the cointegration nexus. This is so since there are no significant determinants of growth in the Gregory-Hansen model estimated in the short run. However, financial development, government expenditures, and trade openness are the long-run determinants of growth.

The importance of the current findings concerning policy formulation to achieve sustainable economic growth is that policymakers should put in place strategies to ensure that the financial sector is properly strengthening, trade is appropriately liberalised (*'open'*) and government expenditure is targeted at the productive sector of the economy. Future studies in line with the focus of the current study, based on panel cointegration, accounting for structural beaks effect, is worth embarking on.

Works Citation

Abdullah, H. A. (2000). The Relationship between Government Expenditure and Economic Growth in Saudi Arabia. Journal of Administrative Science, 12(2), 173-191.

Abu-Bader, S., & Abu-Qarn A. S. (2003). Government Expenditures, Military Spending and Economic Growth: Causality Evidence from Egypt, Israel, and Syria. Journal of Policy Modelling, 25(6-7), 567-583.

Adamopoulos, A. A. (2010). Financial Development and Economic Growth - An Empirical Analysis for Ireland. International Journal of Economic Sciences and Applied Research, 3(1), 75-88.

Adeniyi, O. M., & Bashir, A. O. (2011). Sectoral Analysis of the Impact of Public Investment on Economic Growth in Nigeria (1970-2008). European Journal of Social Sciences, 20(2), 259-262.

Adeniyi, O., & Oyinlola, A., & Omisakin, O., & Egwaikhide, F. O. (2015). "Financial development and economic growth in Nigeria: Evidence from threshold modelling". Economic Analysis and Policy, Elsevier, 47(C), 11-21.

Adewara, S. O., & Oloni, E. F. (2012). "Composition of public expenditure and economic growth in Nigeria". Journal of Emerging Trends in Economics and Management Sciences, 3(4), 403-407.

Afonso, A. & Furceri, D. (2008). Government Size, Composition, Volatility and Economic Growth. ECB Working Paper 849.

Afonso A., & Furceri D. (2010). Government Size, Composition, Volatility and Economic Growth. European Journal of Political Economy, 26 (4), 517-532.

Afonso, A., & Jalles, J. T. (2011). Growth and Productivity: The Role of Government Debt (July 23, 2011). Technical University of Lisbon Department of Economics Working Paper No. 13/2011/DE/UECE.

Ahmed, A. E. M., & Suliman, S. Z. (2011). The Long-Run Relationship between money supply, Real GDP and price level: Empirical evidence from Sudan. Journal of Business Studies Quarterly, 2(2), 68-79.

Ajide, K. B., & Olukemi, L. (2012). "Inflation Thresholds and Economic Growth: Evidence from Nigeria". Asian Economic and Financial Review, Asian Economic and Social Society, 2(7), 876-901.

Akinlo, A. E., & Egbetunde, T. (2010). Financial Development and Economic Growth: The Experience of 10 Sub-Saharan African Countries Revisited. The Review of Finance and Banking, 2(1), 17-28.

Akpan, N. I. (2005). Government expenditure and economic growth in Nigeria: A disaggregated approach. CBN Econ. Finance. Rev., 43(1), 51-69.

Albatel, A. H. (2002). Wagner's law and the expanding public sector in Saudi Arabia. J. King Saud University. Adm. Sci., 14 (2), 139-156.

Alesina, A., Grilli, V., & Milesi-Ferretti, G. M. (1993) The political economy of capital controls. CEPR discussion papers (793).

Alexiou, C. (2009). Government Spending and Economic Growth: Econometric Evidence from South-Eastern Europe (SEE). Journal of Economic and Social Research, 11(1), 1-16.

Alsamara, M., Mrabet, Z., Barkat, K., & Elafif, M. (2019). The Impacts of Trade and Financial Developments on Economic Growth in Turkey: ARDL Approach with Structural Break. Emerging Markets Finance and Trade, 55(8), 1671-1680.

Andres, J., & Hernando, I. (1997). Does inflation harm Economic Growth? Evidence for the OECD, Banco de Espana Working Paper 9706.

Ang, J. B. (2009). Financial development and the FDI-growth nexus: the Malaysian experience. Applied Economics, 41(13), 1595-1601.

Arestis, P. (2004). Washington Consensus and Financial Liberalization. Journal of Post Keynesian Economics, 27(2), 251-271.

Arestis, P. (2005). Financial Liberalisation and the Relationship between Finance and Growth. CEPP WORKING PAPER, 5(5), 1-23.

Arestis, P., & Demetriades, P. (1997). Financial Development and Economic Growth: Assessing the Evidence. The Economic Journal, 107, 783-799.

Bagehot, W. (1873) Lombard Street: A Description of the Money Market. Richard D. Irwin.

Bajo-Rubio O. (2000). A further generalization of the Solow growth model: the role of the public sector. Economic Letters, 68, 79-84.

Balago, G. S. (2014). Financial sector development and economic growth in Nigeria: An empirical investigation. International Journal of Finance and Accounting 3(4), 253-265

Baliamoune-Lutz, M. (2013). Financial Development and Income in African Countries. Contemporary Economic Policy, 31(1), 163-175.

Barro, R. J. (1991). "Economic Growth in a Cross-Section of Countries". Quarterly Journal of Economics, 106(2), 407-433.

Barro, R. J. (1995). Inflation and Economic Growth. NBER Working Paper Series, No. 5326.

Bergh, A. & Karlsson, M. (2010). Government Size and Growth: Accounting for Economic Freedom and Globalization. Public Choice 142 (1-2), 195-213.

Belloumi, M. (2014). The relationship between trade, FDI and economic growth in Tunisia: An application of the autoregressive distributed lag model. Economic Systems, 38(2), 269-87.

Brana, S. (2016). International trade, FDI and growth: Some interactions Introduction to the special issue. International Economics, 145(C), 1-6.

Bhaduri, N. S. (2007). Revisiting the growth inflation nexus: A wavelet analysis (Working Paper No. 77/2013). Chennai, India: Madras School of Economics.

Bick, A. (2010). "Threshold Effects of Inflation on Economic Growth in Developing Countries". Economics Letters, 108(2), 126-129.

Bick, A. Kremer, S., & Nautz, D. (2009). Inflation and Growth: New Evidence from a Dynamic Panel Threshold Analysis. SFB 649 Discussion Paper 036, 33-47.

Binh, P. T. (2011). Energy Consumption and Economic Growth in Vietnam: Threshold Cointegration and Causality Analysis. International Journal of Energy Economics and Policy, 1(1), 1-17.

Blanchard, O. J., & Kiyotaki, N. (1987). "Monopolistic Competition and the Effects of Aggregate Demand". American Economic Review, 77(4), 647-666.

Bonfiglioli, A. (2005). How Does Financial Liberalization Affect Economic Growth? Institute for International Economic Studies Seminar Papers, 736.

Boroujli, M., Amin, M., Mehrara, M., & Abrishami, H. (2013). Government Expenditure and Economic Growth in Iran. International Letters of Social and Humanistic Sciences, 11, 76-83.

Brady, K. K. (2007). State Government Size and Economic growth: A Panel Data Analysis of the United States over the Period 1986-2003. Pittsburgh: Duquesne University.

Bruno, M., & Easterly, W. (1998). Inflation Crisis and Long-Run Growth. Journal of Monetary Economics, 41(1), 3-26.

Calderon, C., & Liu, L. (2003). The direction of causality between financial development and economic growth. Journal of Development Economics, 72 (1), 321-334.

Caner, M., & Hansen, B. E. (2004), "Instrumental Variable Estimation of a Threshold Model". Econometric Theory, 20(5), 813-843.

Clemente, J, Montañés, A., & Reyes, M. (1998) 'Testing for a unit root in variables with a double change in the mean'. Economics Letters, 59(2), 175-182.

Cooley, T. F., & Hansen, G. D. (1989). "The Inflation Tax in a Real Business Cycle Model". American Economic Review, 79(4), 733-48.

Cooray, A. (2009). Government Expenditure, Governance and Economic Growth. Comparative Economic Studies, 51(3), 401-418.

Dabos, M. P., & Gantmann, E. R. (2010). The Fading Link? A New Empirical Analysis of the Relationship Between Financial Development and Economic Growth. MFI Working Paper Series, No. 2010-013, 1-20.

Dawson, P.J., & Sanjuán-López, A. I. (2013). "The export-income relationship in developing countries: evidence from panel cointegration". Journal of Developing Areas, 47(1), 47-62.

De Gregorio, J. (1993). "Inflation, Taxation, and Long-Run Growth". Journal of Monetary Economics, 31(3), 271-298.

Demetriades, P., & Devereux, M. P. (I992). 'Investment and "financial repression", theory and evidence from 63 LDCs.' Keele University, Working Paper in Economics 92/I6 (December).

Demetriades, P., & Hussein, K. (1996). Financial development and economic growth: cointegration and causality tests for I6 countries. Journal of Development Economics, 51(2), 387-411.

Dewan, E., & Hussein, S. (2001). "Determinants of Economic Growth", Working Paper, Reserve Bank of Fiji.

Dewan, E., Hussein, S, & Morling, S. (1999). Modelling inflation processes in Fiji, EDWP 1999-02, Reserve Bank of Fiji, Suva.

Dickey, D. A. (1976). Estimation and Hypothesis Testing for Nonstationary Time Series. PhD. Thesis, Iowa State University, Ames.

Dickey, D. A., & Wayne, A. F. (1979). Distribution of the Estimators for Autoregressive Time Series with a Unit Root. Journal of the American Statistical Assoc., 74(366), 427-431.

Dilek D-C., & Ispir, M. S., & Yetkiner, I. (2017). Financial development and economic growth: Some theory and more evidence. Journal of Policy Modelling, 39(2), 290-306.

Dinar, B. G., Dalgiç, B. C., & İyidoğan, P. V. (2015). Financial Liberalization and Economic Growth in Turkey: A Re-examination. Hacettepe University Journal of Economics and Administrative Sciences, 33(1), 19-43.

Dobnik, F. (2011). Energy consumption and economic growth revisited: Structural breaks and cross-sectional dependence. Ruhr Economic Papers, 303.

Dornbusch, R., Fischer, S., & Kearney, C. (1996). Macroeconomics. The Mc-Graw-Hill Companies, Inc., Sydney.

Dramani, J. B., F. Tandoh, F., & Tewari, D. D. (2012). Structural breaks, electricity consumption and economic growth: Evidence from Ghana. African Journal of Business Management, 6(22), 6709- 6720.

Dritsakis, N., & Adamopoulos, A. (2004). Financial development and economic growth in Greece: an empirical investigation with granger causality analysis. Int. Econ. J. 18 (4), 547-559

Drukker, D., Gomis-Porqueras, P., & Hernandez-Verme, P. (2005). Threshold Effects in the Relationship Between Inflation and Growth: A New Panel-Data Approach, Working Paper.

Eggoh, J. C., & Muhammad, K. (2014). "On the nonlinear relationship between inflation and economic growth". Research in Economics, 68(2), 133-143.

Engle, R. F. & Granger, C. (1987). Cointegration and Error Correction, Representation, Estimation and Testing. Econometrics, 55(2), 251-276.

Eatwell, J. (1996). International financial liberalization: The impact on world development. CEPA Working Paper Series 1. New York: New School for Social Research.

Elijah, S., & Hamza, N. (2019). Re-Examining the Link Between Finance and Economic Growth in Nigeria. Asia Proceedings of Social Sciences, 4(3), 5-7.

Espinoza, R., Leon, H., & Prasad, A. (2010). Estimating the Inflation Growth Nexus-A Smooth Transition Model. IMF Working Paper.

Erbaykal, E., & Okuyan, H. A. (2008). Does inflation depress economic growth? Evidence from Turkey. International Research Journal of Finance and Economics, 17(13), 41-48.

Fabayo, J.A. & Ajilore O.T., (2006). "Inflation: how much is too much for economic growth in Nigeria". Indian Economic Review, 41(2), 129-148.

Fang, X., & Jiang, Y. (2014). The Promoting Effect of Financial Development on Economic Growth: Evidence from China. Emerging Markets Finance and Trade, 50(s1), 34-50.

Faria, J. R., & Carneiro, F. G. (2001). Does High Inflation Affect Growth in the Long and Short Run? Journal of Applied Economics, 4(1), 89-105.

Fischer, S. (1993). The Role of Macroeconomic Factors in Economic Growth. Journal of Monetary Economics, 32(3), 485-512.

Frimpong, J. M., & Oteng-Abayie, E. F. (2010). "When is Inflation Harmful? Estimating the Threshold Effect for Ghana". American Journal of Economics and Business Administration, 2(3), 232-239.

Frimpong, J. M., & Oteng-Abayie, E. F. (2009). Size of Government Expenditure and Economic Growth in three WAMZ Countries. 172-175: Bus. Rev. Cambridge.

Galindo, A., Schiantarell, F., & Weiss, A. (2005). Does Financial Liberalization Improve the Allocation of Investment? Micro Evidence from Developing Countries. Boston College Working Papers in Economics, 625.

Ghali, K. H. (1998). Government size and economic growth: Evidence from a multivariate cointegration analysis. Applied Economics, 31(1), 975-87.

Gillman, M., Harris, M. N., & Mátyás, L. (2004). Inflation and growth: Explaining a negative effect. Empirical economics, 29(1), 149-167.

Goldsmith, R. W. (1969). Financial Structure and Development. New Haven, CT: Yale University Press.

Gokal, V., & Hanif, S. (2004). Relationship between Inflation and Economic Growth in Fiji. Working Paper 2004/04.

Gosh, A., & Phillips, S. (1998). Warning: Inflation May Be harmful to your Growth. IMF Staff Papers, 45(4).

Grabel, I. (1995). Speculation-Led Economic Development: A Post-Keynesian Interpretation of Financial Liberalization Programs. International Review of Applied Economics, 9(2), 127-49.

Granger, C. W. J. (1981): "Some Properties of Time Series Data and Their Use in Econometric Model Specification". Journal of Econometrics, 16(1), 121-130.

Granger, C. W. J., & Weiss, A. A. (1983). "Time Series Analysis of Error-Correcting Models," in Studies in Econometrics, Time Series, and Multivariate Statistics. New York: Academic Press, 255-278.

Gregory, A., & Hansen, B. (1996). Residual-based Tests for Cointegration in Models with Regime Shifts. Journal of Econometrics, 10(3), 321-335.

Greene, J., & Villanueva, D. (1991). Private Investment in Developing Countries: An Empirical Analysis. IMF Staff Papers, 38(1), 33-58.

Greenwood, J., &Huffman, G. (1987). "A dynamic equilibrium model of inflation and unemployment". Journal of Monetary Economics, 19(2), 203-228.

Grossman, P. J. (1988). Growth in Government and Economic Growth: The Australian Experience. Australian Economic Papers, 27(3), 33-43.

Grossman, G. M., & Helpman. E. (1991b). Innovation and growth in the global economy. Cambridge, USA and London, UK: MIT Press.

Gurley, J. G., & Shaw, E. S. (1955). Financial Aspects of Economic Development. The American Economic Review, 45(4), 515-538.

Hansen, B. E. (1992). Tests for parameter instability in regressions with I(1) processes. Journal of Business & Economic Statistics, 10(3), 321-335.

Hasanov, F. (2011). "Relationship between inflation and economic growth in Azerbaijani economy: is there any threshold effect?" Asian Journal of Business and Management Sciences, 1(1), 1-11.

Haslag J. H. (1995). Monetary policy, banking, and growth. Economic Inquiry, 36(3), 489-500.

Haslag, J. H. (1997). "Output, Growth, Welfare and Inflation: A Survey". Economic Review Second Quarter, Federal Reserve Bank of Dallas.

Hepsağ, A. (2009). Finansal Liberalizasyon Politikalarının Geçerliliğinin McKinnon Tamamlayıcılık Hipotezi Çerçevesinde Sınanması: Türkiye Örneği. BDDK Bankacılık ve Finansal Piyasalar, 3(1), 63-80.

Hermes, N. (1996). Financial Reform and Financial İntermediation in Chile, 1983-1992, In Financial Development and Economic Growth: Theory and Experiences from Developing Countries, Hermes, N., & R. Lensink, R. (ed.), 310-336, London: Routledge.

Hodge, D. (2005). "Inflation and Growth in South Africa". Cambridge Journal of Economics, 30(2), 163-180.

Iamsiraroj, S. (2016). The foreign direct investment–Economic growth nexus. International Review of Economics and Finance, 42(c), 16-133.

Ibarra, R., & Trupkin, D. (2016). "Reexamining the relationship between inflation and growth: Do institutions matter in developing countries?" Economic Modelling, 52(Part B), 332- 351.

Ighodaro, C. A. U., & Oriakhi, D. E. (2010). Does the relationship between government expenditure and economic growth follow Wagner's law in Nigeria? Annals of the University of Petrosani, Economics, 10(2),185-198.

Johansen, S., & Juselius, K. (1990). Maximum Likelihood Estimation and Inference on Cointegration with Applications to the Demand for Money. Oxford Bull. Econ. Stat., No 52.

Johansen, S. (1985). The Mathematical Structure of Error Correction Models. manuscript, University of Copenhagen.

Kallah U. M. (2018). Non-Linear Relationship Between Inflation and Economic Growth in India. EPRA International Journal of Economic and Business Review. 6(7), 83-87.

Kang, S. J. B., & Sawada, Y. (2000). Financial Repression and External Openness in an Endogenous Growth Model. Journal of International Trade and Economic Development, 9(4), 427-443.

Kapingura, F. M. (2013). Finance and economic growth nexus: Complementarity and substitutability between the banking sector and financial markets in Africa, using South Africa as a case1. Journal of Economics and International Finance, 5(7), 273-286.

Kar, M., & Pentecos, E. J. (2000). Financial Development and Economic Growth in Turkey: Further Evidence on the Causality Issue. Economic Research, No. 00/27.

Karacaer, S., & Kapusuzoglu, A. (2010). Investigating causal relations among the stock market and macroeconomic variables: Evidence from Turkey. International Journal of Economic Perspectives 4 (3), 501-507.

Kasidi, F., Mwakanemela, K. (2013), Impact of inflation on economic growth: A case study of Tanzania. Asian Journal of Empirical Research, 3(4), 363-380.

Keynes, J. M. (1936). The General Theory of Employment, Interest and Money. International Relations and Security Network, 1-190.

Khan, M. S., & Senhadji, A. S. (2001). Threshold Effects in the Relationship between Inflation and Growth. IMF Staff Papers, 48.

King, R. G. & Levine, R. (1993). Finance and Growth: Schumpeter Might be Right. Quarterly Journal of Economics, 108(3), 717-37.

Kiran, B, Yavus, N. C., & Guris, B. (2009). Financial development and economic growth: A panel data analysis of emerging countries. International Research Journal of Finance and Economics, 30(1), 1450-2887.

Klein, M. W., & Olivei, G. P. (2008). Capital Account Liberalization, Financial Depth and Economic Growth. Journal of International Money and Finance, 27(6), 861-875.

Klein, M.W. (2005). Capital Account Liberalization, Institutional Quality and Economic Growth: Theory and Evidence. NBER Research Working Paper, 11112.

Kormendi, R. C., & Meguire, P. G. (1985). "Macroeconomic Determinants of Growth: Cross-Country Evidence". Journal of Monetary Economics, 1985, 141-163.

Kremer, S., Bick, A., & Nautz, D. (2013). "Inflation and Growth: New Evidence from a Dynamic Panel Threshold Analysis". Empirical Economics, 44(2), 861-878.

Kumar, S. (2009) "Further evidence on public spending and economic growth in East Asian Countries," MPRA Paper No. 19298.

Lee, C. C. (2005), Energy consumption and GDP in developing countries: a cointegrated panel analysis. Energy Economics, 27 (3), 415-427.

Lee, I., & Shin, J. H. (2008). Financial Liberalization, Crises, and Economic Growth. Asian Economic Papers, 7(1), 106-115.

Lee, C. C. & Wong, S. Y. (2005). "Inflationary threshold effects in the relationship between financial development and economic growth: evidence from Taiwan and Japan". Journal of Economic Development, 30(1), 49-69.

Levine, R. (2001). International Financial Liberalization and Economic Growth. Review of International Economics, 9(4), 688-702.

Levine, R. (2004). Finance and Growth: Theory and Evidence. NBER Working Paper 10766, Cambridge, Massachusetts: National Bureau of Economic Research.

Levine, R., & Zervos, S. (1993). What We Have Learned About Policy and Growth from Cross Country Regressions? American Economic Review Papers and Proceedings, 83, 426.

Levine, R., & Zervos, S. (1998). Stock markets, banks, and economic growth. American Economic Review, 88(3), 537-558.

Liang, H. J., & Reichert, A. (2006). The relationship between economic growth and banking sector development. 2(1), 19-35.

Liu, CL., & Hsu, C, Younis, M. (2008). The association between government expenditure and economic growth: the granger causality test of the USA data. J Pub Budg Acc Fin Mangt, 20(4), 439-452.

Loayza, N. V., & Ranciere, R. (2006). Financial Development, Financial Fragility, and Growth. Journal of Money, Credit and Banking, 38(4), 1051-1076.

López- Villavicencio, A., & Mignon, V. (2011). On the impact of inflation on output growth: Does the level of inflation matters. Journal of Macroeconomics, 33(3), 455-464.

Luintel, K. B., Khan, M., Arestis, P., & Theodoridis, K. (2008). Financial structure and economic growth, Journal of Development Economics, 86(1), 181-200.

Maku, O. E. (2009). "Does Government Spending Spur Economic Growth in Nigeria? Munich Personal RePEc MPRA Paper no. 17941.

Mallik, G., & Chowdhurry, A. (2001). Inflation and Economic Growth: Evidence from Four South Asian Countries. Asia-Pacific Development Journal, 8(1), 123-135.

Manni, U. H., & Ibne Afzal, M. N. (2012). Effect of Trade Liberalization on Economic Growth of Developing Countries: A Case of Bangladesh Economy. Journal of Business, Economics and Finance, 1(2), 37-44.

Mansor A. (2005). Monetary Policy and Sectoral Effect: A Case Study of Malaysia. Web Page Publication.

Marbuah G. (2011). "On the inflation-growth nexus: Testing for optimal inflation on output growth". West African Journal of Monetary and Economic Integration, 11(2), 54-82.

Marquis, M. H., & Reffert, K. L. (1995). The inflation tax in a convex model of equilibrium growth. Economica, 62(245), 109-121.

MacKinnon, J. G. (1991). 'Critical values for cointegration tests', in Long-run Economic Relationships: Readings in Cointegration, eds. R. F. Engle and C. W. J. Granger, Oxford: Oxford University Press, 267-276.

McKinnon, R. I. (1973). Money and Capital in Economic Development, Washington D.C.: The Brookings Institution.

Mitchell, D. J. (2005). The Impact of Government Spending on Economic Growth. Heritage Foundation Backgrounder No. 1831.

Mlilo, M., & Netshikulwe, M. (2017). "Re-testing Wagner's Law: Structural breaks and disaggregated data for South Africa". Journal of Economics and Behavioural Studies, AMH International, 9(4), 49-61.

Mohammad, S. D., Wasti, S. K. A., Lal, I., & Hussain, A. (2009). An Empirical investigation between Money Supply, Government Expenditure, output & Prices: the Pakistan Evidence. European Journal of Economics, Finance and Administrative Sciences, 17, 60-68.

Mohanty, D., Chakraborty, A. B., Das, A., & John, J. (2011). Inflation Threshold in India: An Empirical Investigation. Reserve bank of India Working Paper Series, 18.

Mubarik, Y. A. (2005). Inflation and Growth: An Estimate of the Threshold Level of Inflation in Pakistan. SPB-Research Bulletin, 1(1), 35-44.

Mundell, R. A. (1963). Inflation and real interest. Journal of Political Economy, 71(3), 280-283.

Munir, Q., Mansur, K., & Furuoka, F. (2009). "Inflation and Economic Growth in Malaysia: A Threshold Regression Approach". ASEAN Economic Bulletin, 26(2), 180-193.

Musgrave, R. A., & Musgrave, B. (1988). Public Finance in Theory and Practice, New York: McGraw-Hill Book Company.

Naceur, S., & Ghazouani, S. (2007). Stock markets, banks, and economic growth: Empirical evidence from the MEN A region. Research in International Business and Finance, 21(2), 297-315.

Ndoricimpa, A. (2017). Threshold Effects of Inflation on Economic Growth: Is Africa Different? International Economic Journal, 31(4), 599-620.

Nketiah, E., Cai, X., Adjei, M., & Boamah, B. B. (2020). Foreign Direct Investment, Trade Openness and Economic Growth: Evidence from Ghana. Open Journal of Business and Management, 8(1), 39-55.

Niloy, B., Emranul, M. H., & Denise, R. O. (2003). Public Expenditure and Economic Growth: A Disaggregated Analysis for Developing Countries, JEL, Publication.

Nouri, M., & Samimi, A. J. (2011). The impact of monetary policy on economic growth in Iran. Middle-East Journal of Scientific Research, 9(6), 740-743.

Nurudeen, A., & Usman, A. (2010). "Government expenditure and economic growth in Nigeria: 1970-2008: a disaggregated analysis". Business and Economic Journal, 4(1), 1-11.

Omay, T., & Kan, Ö. E., (2010). "Re-examining the threshold effects in the inflation-growth nexus with cross-sectionally dependent nonlinear panel: Evidence from six industrializes economies". Economic Modelling, 27, 996-1005.

Odeniran, S. O. & Udeaja, E. A. (2010). Financial Sector Development and Economic Growth, Empirical Evidence from Nigeria. Journal of Economic and Financial Review, 48(3), 91-123.

Omisakin, O. A., & Adeniyi. O. A. (2014). Structural breaks and finance-driven growth hypothesis in ECOWAS: further empirical evidence. Int J Bus Econ Sci Appl Res, 7(3), 63-80.

Oyinlola, M. A., & Akinnibosun, O. (2013). "Public expenditure and economic growth nexus: Further evidence from Nigeria". Journal of Economics and International Finance, 5(4), 146-154.

Ozturk, I., & Acaravci, A. (2010). FDI, trade and growth in Turkey: Evidence from ARDL bounds testing approach. Argumenta Oeconomica, 25(2), 95-115.

Perman, R., & Byrne, J. P. (2006). Unit roots and structural breaks: a survey of the literature. Department of Economics, University of Glasgow, Glasgow.

Perron, P., & Vogelsang, T. J. (1992). Nonstationarity and level shifts with an application to purchasing power parity. Journal of Business and Economic Statistics, 10(3), 301-320.

Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. J Appl Econom 16(3), 289-326.

Pevcin, P. (2003). Does the Optimal Size of Government Spending Exist? Ljubljana: University of Ljubljana.

Pham, T. (2009). Government Expenditure and Economic Growth: Evidence from Singapore, Hong Kong, China and Malaysia. Rotterdam: Erasmus University.

Phillips, P. C. B. (1985). "Time Series Regression with Unit Roots," Cowles Foundation Discussion Paper No. 740, Yale University.

Phiri, A. (2010). At what level is inflation least detrimental towards finance-growth activity in South Africa". Journal of Sustainable Development in Africa, 12(6), 354-364.

Prasad, E. S., Rogoff, K., Wei, S. J. & Köse, A. (2003). Effects of Financial Globalization on Developing Countries: Some Empirical Evidence. Economic and Political Weekly, 38(41), 4319-4330.

Qamruzzaman, M., & Jianguo, W. (2017). Financial innovation and economic growth in Bangladesh. Financial Innovation, 3(1), 1-24.

Quartey, P. (2010). "Price stability and the growth maximizing rate of inflation for Ghana". Modern Economy, 1(3), 180-194.

Rajan, R. G., & Zingales, L. (1998). Financial Dependence and Growth. The American Economic Review, 88 (3), 559-586.

Ranjan, K. D., & Sharma, C. (2008). "Government Expenditure and Economic Growth: Evidence from India". The IUP Journal of Public Finance, IUP Publications, 1(3), 60-69.

Ranciere, R., Tornell, A., & Westermann, F. (2006). Decomposing the Effects of Financial Liberalization: Crises vs. Growth. NBER Working Paper, 12806.

Rivera-Batiz, F. L. (2001). International Financial liberalisation, corruption and economic growth. Review of International Economics, 9(4), 727-737.

Rivera-Batiz, L. A., & Romer, P. M. (1991). International trade with endogenous technological change (No. w3594). National Bureau of Economic Research.

Rodrik, D. (1998). Who needs capital account convertibility? Princeton Essays in International Finance, 207, 1-10.

Sadorsky, P. (2010). "The impact of financial development on energy consumption in emerging economies". Energy Policy, 38(5), 2528-2535.

Sala-i-Martin, X. (1997). I Just Ran Two Million Regressions. American Economic Review, 87(2), 178-183.

Salami, D., & Kelikume, I. (2010). An Estimation of Inflation Threshold for Nigeria (1970-2008). International Review of Business Research papers, 6(5), 375-385.

Samargandi. N., Fidrmuc, J., & Ghosh, S. (2013). Is the Relationship between Financial Development and Economic Growth Monotonic for Middle-Income Countries? Brunel University Working Paper No. 13-21.

Sarel, M. (1996). Nonlinear Effects of Inflation on Economic Growth. IMF Staff Paper, 43(1), 199-215.

Seleteng, M., Bittencourt, M., & van Eyden, R. (2013). "Non-linearities in Inflation-Growth Nexus in the SADC Region: Panel Smooth Transition Regression Approach". Economic Modelling, 30, 149-156.

Schumpeter, J. A. (1911). The Theory of Economic Development. Harvard University Press, Cambridge, MA.

Sergii, P. (2009). Inflation and Economic Growth: The Non-Linear Relationship. Evidence from CIS Countries. MA Thesis in Economics, Kyiv School of Economics.

Shan, J., Morris, A., & Sun, F. (2001). "Financial Development and Economic Growth: an Eggand-Chicken Problem". Review of International Economics, 9(3), 443-454.

Sharma, A., & Ramful, P. (2008). Does disaggregation affect the relationship between health care expenditure and GDP? An analysis using regime shifts. Research Paper (27), Centre for Health Economics.

Shrestha, M. B., & Chowdhury, K. (2007). Impact of Financial Liberalization on Welfare: Evidence from Nepal (August 23, 2008). Applied Econometrics and International Development, 7(1), 1-14.

Shitundu, L., & Luvanda, G. (2000). The Effect of Inflation on Economic Growth in Tanzania, African Journal of Finance and Management, 9(1), 70-77.

Sidrauski, M. (1967). "Rational choice and patterns of growth in a monetary economy", The American Economic Review, 57(2), 534-544.

Soliu, A., & Ibrahim, O. (2014) Empirical analysis of trade openness, capital formation, FDI, and economic growth: Nigeria experience. The International Journal of Social Sciences and Humanities Invention, 1 (1), 36-50.

Srinivasan, P. (2013)." Causality between public expenditure and economic growth: The Case of India". International Journal of Economics and Management, 7(2), 335-347.

Solow, R. M. (1956). 'A Contribution to the Theory of Economic Growth'. Quarterly Journal of Economics, 70(1), 65-94.

Stern, D. I. (2000). A multivariate cointegration analysis of the role of energy in the U.S. macroeconomy. Energy Econ. 22(2), 267-283.

Stockman, A. (1981). "Anticipated Inflation and Capital Stock in A Cash-in-Advance Economy". Journal of Monetary Economics, 8(3), 387-393.

Swan, T. W. (1956). "Economic Growth and Capital Accumulation". Econ. Record, XXXII (63), 334-361.

Sweidan, O. D. (2004). "Does inflation harm economic growth in Jordan? An econometric analysis for the period 1970-2000". International Journal of Applied Econometrics and Quantitative Studies,1(2), 41-66.

Taban, S. (2010). "An Examination of the Government Spending and Economic Growth Nexus for Turkey Using Bound Test Approach". International Research Journal of Finance and Economics, 48(1), 184-193.

Tabi, H. N., & Ondoa, H. A. (2011). Inflation, Money and Economic Growth in Cameroon. International Journal of Financial Research, 2(1), 45-53.

Thanh, S. D. (2015). "Threshold effects of inflation on growth in the ASEAN-5 countries: A Panel Smooth Transition Regression approach". Journal of Economics, Finance and Administrative Science, 20(38), 41-48.

Tobin, J. (1965). "Money and Economic Growth". Econometrica, 33(4), 671-684.

Tobin, J. (1972). "Inflation and Unemployment". American Economic Review, 62 (1), 1-26.

Todaro, M. P. (2000). Economic Development, Addison Wesley Longman, Inc., New York.

Uslu, Ç. L., Aydoğan, E. T., & Ketenci, N. (2015). "Economic Growth, Financial Development, and Trade Openness in Emerging Markets: Panel Approach". MPRA Paper 64722, University Library of Munich, Germany.

Usman, A., Mobolaji, HI., Kilishi, A. A., Yaru, M. A., & Yakubu, T. A. (2011). Public Expenditure and economic growth in Nigeria. Asian Econ. Finance. Rev. 1(3), 104-113.

vanEyden, R., Omay T., & Gupta, R. (2015). "Inflation-Growth Nexus in Africa: Evidence from a Pooled CCE Multiple Regime Panel Smooth Transition Model", University of Pretoria, Department of Economics Working Paper Series, Working Paper: 2015-04.

Verma, S., & Arora, R. (2010). Does the Indian Economy Support Wagner's Law? An Econometric Analysis. Eurasian Journal of Business and Economics, 3(5), 77-91.

Vinayagathasan, T. (2013). "Inflation and economic growth: A dynamic panel threshold analysis for Asian economies". Journal of Asian Economics, 26(c), 31-41.

Wagner, A. (1883). Three Extracts on Public Finance. In: Musgrave, R. A. & A. T. Peacock, (Eds.), 1958, Classics in the Theory of Public Finance. Macmillan, London.

Yapraklı, S. (2007). Ticari ve Finansal Dışa Açıklık İle Ekonomik Büyüme Arasındaki İlişki: Türkiye Üzerine Bir Uygulama. Ekonometri ve İstatistik.

Zheng, C., & Yu, Y. (2009). Financial Development and Economic Growth Based on the Panel Data (19942005) of All Provinces in China. International Conference on Business Intelligence and Financial Engineering, 790-793.

Zivot, E., & Andrews, D. (1992). "Further evidence of the great crash, the oil price shock and unit root hypothesis". Journal of Business and Economic Statistics, 10(3), 251-270.