

Economic Growth - Quality of Life Nexus in Ethiopia: Time Series Analysis

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Abstract

This study investigates the nexus between economic growth and quality of life (QoL) in Ethiopia by using objective indicators of QoL-variables from economic, social and political aspects by employing descriptive and time series analysis methods. The results from the descriptive analysis confirmed an increasing trend in all objective indicators. Where, education enrolment and consumption expenditure are showing strong correlation with economic growth. The co-integration and VECM results revealed that economic growth positively and significantly influences consumption expenditure and education enrolment in the SR and more strongly in the LR. However, it has shown a negative impact on political rights in the LR unlike in the SR where the impact is insignificant. The study also identified the existence of considerable relationship among the indicators. Urbanization is oppressing education enrolment and political rights in the SR unlike the LR case. Adjustments to the SR path of urbanization through timely provision of social services in rapidly urbanizing areas are suggested for circular improvement of QoL.

Keywords: Quality of life, Economic growth, indicators of QoL, Cointegration and Error correction model, Ethiopia

JEL Classification: D60, I31, N37

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1. Introduction

Every rational individual is striving to have a better life. The ultimate goal of every person is getting satisfaction and achieving better quality of life². The principle of rationality in Economics points out that people behave in a way that maximizes their satisfaction. People tend to work more, they innovate, increase their productivity and production in order to achieve happiness. Many economic policy specialists, public policy experts and others focus their attention on finding a way to increase the output, to raise economic activity that can be observed as economic growth³.

The problem is whether this economic growth is improving QoL or not? A mere economic growth without improvement in the QoL is less relevant. Many scholars starting with great philosophers like Aristotle up to political economists like Adam Smith, Karl Marks, Joan Stuart Mill and others had argued that human beings should be the end of development not a mere means. Conceicao and Bandura (2010) argues that, while it is often asserted that economists are primarily concerned with gross domestic product (GDP) levels and growth, it is important to step back a little and remember that what matters most as an “objective function” is people’s wellbeing.

Clearly, there are numerous benefits from economic growth; it helps to deal with problem of poverty, food crisis, lack of basic and luxury products, homelessness, and so forth. Traditionally, it has been used to measure the level of wellbeing, based on the assumption that growth in GDP leads to more consumption that ultimately improves wellbeing (Conceicao and Bandura, 2010).The same authors however, indicated that there is a disagreement on how consumption alone can improve the wellbeing of the society, due to the fact that wellbeing is a multi-dimensional concept. Its measurement has to encompass the social, political and economic aspects in

² Though there are different ways of defining QoL, most of them are about welfare, happiness, comfort, sense of freedom, security, and related issues demanded by individuals.

³ In the study, economic growth is defined as the average growth in the per capita real GDP over time.

both objective and subjective indicators. According to Paris and Wiesbaden (2010), GDP has many flaws and gaps as an indicator of material wellbeing such that it does not capture all the aspects of human life.

There are even some cases where economic growth contributes to deterioration of wellbeing (QoL). It can cause many social and environmental inconveniences mostly regarding pollution and health problems. This does not say that economic growth is doomed to bring improvement in wellbeing. The challenge is to harness the potential of economic growth to make sure it really does increase sustainable welfare improvements.

Consequently, there is no well-established relationship between economic growth and QoL. In most definitions and measurements of QoL, economic growth is considered as one variable among the determinants of QoL, but empirical studies show mixed results on its impact on QoL. It is a common result for studies based on time series analysis and for countries at different levels of development (Esterline, 2007; Conceicao and Bandura, 2010). Hence, to successfully transfer a rise in economy into improvement of the QoL, the concerned body has to have clearer understanding of the relationship between economic growth and QoL.

Concerning Ethiopia, it has been reported and publicized that the country is experiencing a continuous and fast economic growth. Many national and international sources, discloses beginning from the last two decades the economy is in its growth path.

According to the ministry of finance and economic development (MoFED, 2011), in contrary to the previous three and four decades, starting from 1990s the economy is in its fast growth trend. The African development bank group, World Bank, and IMF are having similar conclusions in their report on the performance of the Ethiopian economy.

However, to the best knowledge of the researcher, there is no sufficient study and evidence, that indicates if this economic growth is resulting

improvements in the QoL or not. Even related studies by Aklilu and Dessalegne (2000) and Habtamu W. (2005) are a mere definition of what wellbeing is, and emphasis only on inequality and psychological issues of QoL, not at relating QoL with EG. This study however, is designed to examine the impact of the recent economic growth on enhancing the QoL in Ethiopia. It tries to through a light on the nexus between EG and QOL.

Moreover, many studies, and development policy makers, worried not for a mere economic growth they focused rather on the general wellbeing of the people. Therefore, Policies designed to bring economic growth needs to take in to account that the ultimate goal that needs to be achieved is not the mere production but improvement of wellbeing of people in general. Hence, it calls detailed empirical assessment of the association between economic growth and QoL.

The main purpose of this study is therefore, to find out the nexus between economic growth in terms of per capita real GDP and QoL through its objective indicators in Ethiopia over the period 1981 to 2011. It aims to examine how much the recent economic growth in Ethiopia is contributing to improvement in the QoL and scrutinize the multidirectional connections among the indicators. The focus is on testing the existence of improvements on the basic objective indicators of QoL- variables from social, economic and political aspects including consumption spending, urbanization, education enrolment and political freedom –newly developed indicators.

In line with this, the study has used both the descriptive and econometric methods of analysis to capture the trend and correlation among variables and the econometric analysis methods that employ the co-integration and the vector error correction method to identify the LR and SR relationship among QoL indicators and economic growth.

The descriptive analysis confirmed that all indicators of QoL have shown increasing trend overtime and found strong correlation between consumption spending and education enrolment between each other and with economic growth. Political rights and education enrolment are significantly correlated

with each other and with the level of urbanization. Moreover, the empirical results indicated that economic growth influences consumption spending and education enrolment positively and significantly in the LR but negatively to polity composite index. In the SR, economic growth impacts consumption spending and education enrolment significantly and positively but has no significant impact to polity composite index. Urbanization is found to be an exogenous variable that negatively affects consumption spending and positively affects education enrolment and polity composite index in the LR and negatively influences education and polity composite index in the SR.

2. Review of the Literature

2.1 Definition and indices of quality of life

There are numerous attempts of individuals and groups of scholars to define and construct indices to measure QoL. Most of them like Landsman (1986); Edgerton (1990); Brock (1993); Felce & Perry (1995); (Diener and Suh, 1997); Veenhoven (2000); (Esterlin, 2007) define it from the perspective what is needed to have a good life in terms of quality. For most of them, QoL is addressing the question of satisfying life requirements. They define QoL as multi-dimensional concept concerned with satisfying the overall wellbeing of people at the individual and society level. Moreover, they underlined that measurement of QoL needs to consider both the subjective and objective aspects of life measured through indicators.

On the other hand, a theory called *the integrated quality of life theory* defines QoL as a good life where different aspects of life are satisfied on the high level. It asserts, aspects in QoL can range from the subjective to the objective features of good life. The subjective QoL explains how each individual feels and evaluate his definition of good life. Whether individuals content of life makes him/her happy are aspects that reflect the subjective QoL. The objective QoL defines how one's life is perceived by the outside world, which can be influenced by the culture in which people live and reveals itself in a person's ability to adapt to the values of that culture, this features doesn't say much about person's life. It is concerned with the

external world and conditions of life that are easily established which means they can be rated identically by the observers.

2.2 Empirical Literature

Most of the studies regarding this topic are made in USA, Europe and Latin America. One of the possible reasons is the availability of the data in these countries. The results obtained from these studies are consistent for objective indicators in cross sectional studies unlike time series studies. Time series studies on objective indicators and all the studies on subjective indicators show mixed results in terms of nexus between economic growth and QoL.

A study made by Easterlin, Angelescu, and Laura (2007) combines both cross sectional and time serious analysis. In cross sectional analysis they conclude that a rise in per capita GDP results in advancement in objective indicators of QoL unlike in the time series analysis which presents mixed results. Brown, Bowling and Flynn (2004) indicate that higher levels of wellbeing are associated with higher incomes and socioeconomic status. In contrary to these, Headey and Wearing (1992), in their review of the literature, found no significant difference in indicators of QoL between the deprived and more affluent societies in the USA, where people report higher level of wellbeing regardless of economic circumstances. However, this type of studies is almost not existent in African countries, in comparison with developed countries.

Most of the studies on happiness have been centred on industrialized countries, as the data is readily available ... For developing countries long run series ... are inexistent. (Conceicao and Bandura, 2010 pp.16).

Even though data collection is showing some progress in recent times, it is not sufficient. African studies date from 2000, and even if it is not a long time series, it is important because African economies are showing increasing growth trend from 2000 onwards. This fact underlines the need for new studies that are examining the nexus between economic growth and QoL.

In case of Ethiopia, QoL is not studied at satisfactory level, though there are attempts to relate it with poverty and inequality. Aklilu and Dessalegn, (2000) define QoL as something to do with the availability and achievements of resources and material needs. It is narrow definition only from point of view related with having farmland, cattle, farm implements and a house in rural settings. It is having some job (employment) or business (some income) in the urban setting.

From the view of determinants of QoL in Ethiopia, Habtamu (2005) has underline factors involving economic, political and social issues. These includes economic and material condition - commodities, state of health, nutritional, job, work, employment, political situation-freedom, human rights and liberties, education, relationships, family, religion, beliefs, etc.

In summary, we show that the nexus between economic growth and QoL depends on type of data used and level of development of a nation. Moreover, absence of sufficient studies in Ethiopia, where the economy is rising prompts the study to contribute in the area.

3. Data and Methodology

3.1 Data

Different Approaches of measuring QoL by most scholars and institutions can be broadly categorized in to objective and subjective indicators (McGillivray and Clarke 2006; van Hoorn 2007). However, due to reasons of inexistence and insufficiency of data and based on insights of the literature, this study relayed only on objective indicators- variables from the social, economic and political aspects. In view of that, the study incorporates per capita household final consumption expenditure (PCHHFC), urbanization (UR), Gross education enrolment (EDU), and polity composite index (PCI) as described below.

Consumption: Private Consumption expenditure per Capita (constant 2000US\$) includes the expenditures of nonprofits institutions serving households, as defined by the WB is taken.

Urbanization: Percentage of population in urban areas over time is taken. Even if there are opposite arguments whether urbanization of population would improve QoL or not, analysts praise the benefits of urban life that this study follows proponents on the ground of benefits and availability of more living facilities in urban areas than rural counterparts.

Education: Gross enrolment ratio given by dividing the number of students enrolled in educational sector of different levels - 'Primary', 'secondary' and 'tertiary' level by the population of school age children of these levels is considered.

Polity Composite index (PCI): The relevance of political democracy to QoL is illustrated here in terms of the “polity composite index”. This index is calculated from the Polity IV dataset as the difference between democracy and autocracy measures, both of which range from 0 to 10 (Marshall and Jaggers 2004). The Polity IV democracy index is derived from the coding by knowledgeable scholars of a country’s situation with regard to the following: competitiveness of political participation, the openness and competitiveness of executive recruitment, and constraints on the chief executive.

The Polity IV autocracy index is similarly based on scoring countries according to competitiveness of political participation, the regulation of participation, the openness and competitiveness of executive recruitment, and constraints on the chief executive. The PCI is normalized to lie between 0 and 1, with 1 being the highest rating on political democracy.

Both national and international sources including the WB, central statistics agency, Ethiopian economics association and polity IV project were investigated for data collection purpose. The change in PCGDP and PCHHFC is measured in logarithmic form, to have a sharper insight into the data and to deal with the concept of elasticity.

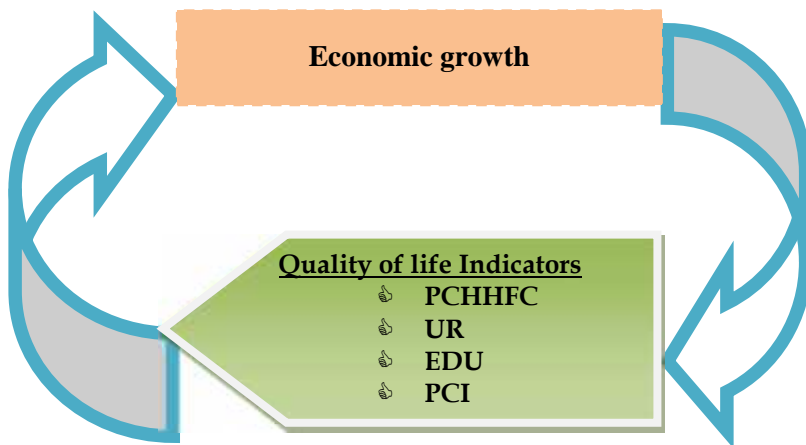
3.2 Model Specification

Conceptual framework

Based on insights from literatures, and to show an easy way of interaction among variables of interest, theoretically the model of interaction between economic growth and QoL can be constructed as follows.

The model represents the interaction of economic growth and QoL indicators. It signifies economic growth directly affects consumption expenditure, urbanization, education enrolment and polity composite index. The change in these variables is also assumed to affect economic growth by the reverse impact.

Figure 1: Model of interaction of economic growth and QoL (objective indicators)



Source: Own construction

Econometric model

The econometric model is based on modelling the nexus between economic growth (EG) and QoL through its indicators. In equation form, the structural equations can be expressed by explaining each QoL indicators by EG and other indicator as follows:

$$\begin{aligned}
 C &= fc(UR, EDU, PCI, EG) && \mathbf{1} \\
 UR &= fur(C, EDU, PCI, EG) && \mathbf{2} \\
 EDU &= fedu(C, UR, PCI, EG) && \mathbf{3} \\
 PCI &= fpci(C, UR, EDU, EG) && \mathbf{4}
 \end{aligned}$$

In this case of multivariate time series, VAR is selected as appropriate for it superficially resembles simultaneous equation modelling in that we consider several endogenous variables together. Besides, the model may be more parsimonious and includes fewer lags, and that more accurate forecasting is possible. To boot, the distinction between endogenous and exogenous variables does not have to be made a priori.⁴

The vector of the VAR model, therefore, incorporates PCHHFC, UR, EDU, PCI, and PCGDP. Hence, the econometric model based on Johansen and Juselius formulation (1990) and by assuming the variables are endogenous and by using matrix notation denoted by Y_t , VAR of order P can be expressed as;

$$Y_t = A_0 + A_1 Y_{t-1} + A_2 Y_{t-2} + A_3 Y_{t-3} + \dots + A_p Y_{t-p} + U_t. \quad (5),$$

where,

$Y_t = (PCHHFC_t, PCGDP_t, UR_t, EDU_t, PCI_t)'$ is a vector process (5×1) of variables

A_0 = is a (5×1) vector of deterministic terms like trends and intercepts

A_1 A_p = are (5×5) matrix of coefficients for dependent variables.

U_t = are a (5×1) vector of error terms and are iid (0, Σ), with Σ representing the contemporaneous covariance matrix.

Estimating a VAR is very easy. As the conventional one, it is appropriate to estimate equation 5 in which the same regressors appear in every equation, by ordinary least squares (OLS). In such cases, OLS is like both the efficient

⁴ These does not ignore the fact, that VAR method has limitations related to selecting optima lag and differencing to keep stationary may make the result unsatisfactory.

generalized least square estimator and the maximum likelihood estimator under the assumption of multivariate normal errors.

3.3 Method of Analysis

Stationarity: To get ride from the problem on consistency of estimation, misleading estimators, and testing and inferential problems, stationarity of variables is tested by the use of unit root test-using Augmented Dickey-Fuller (ADF).

Cointegration: with the pre assumption of non-stationarity, the possibility of existence of co integration is identified by the use of Johanson method for it can capture more than one co integrating relationships over others. The appropriate lag order (P) of the VAR was determined using standard model selection criteria (data dependent rule), by the use of a well known information criterion approaches including the Akaike information criteria (AIC),the modified LR statistics test, the Final prediction error (FPE), Shewarz Information criteria (SIC) and Hannan Quinn information criterion (HQ).

Vector error correction model (VECM): following co-integration among variables, the SR dynamics of these variables was determined by estimating the vector error correction method.

Diagnostic check: the robustness of models has to be checked to have efficient and correctly specified estimators and to determine if a data set is well modelled by a normal distribution. Hence, serial auto correlation test, hetroskedasticity test and normality test were implemented to check.

4. Results and Discussion

4.1 Descriptive Result

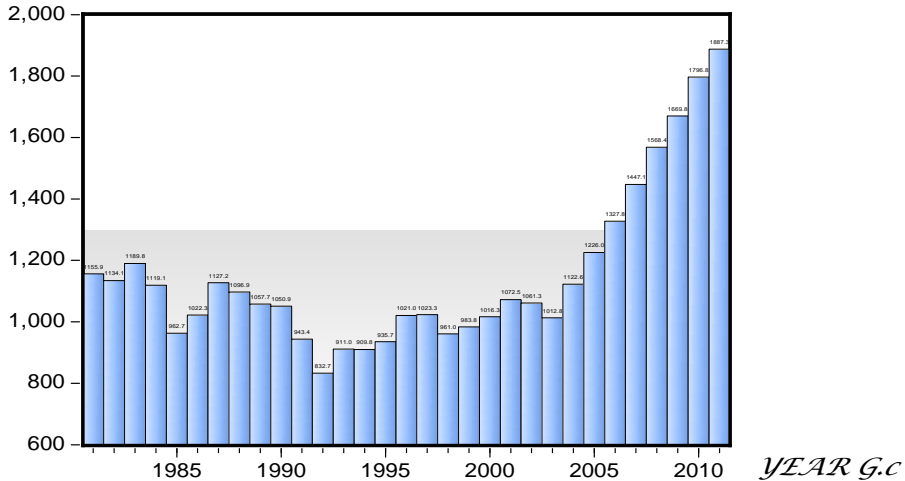
Trend analysis

For the period studied, all indicators have shown an increasing trend on average, though at different rate. Particularly, PCGDP, has shown a steep

rise starting from early 1990s (Figure 2). According to MoFED (2011), it is due to nation's successive development plans of SDPRP (2002/3- 2004/5), PASSDEP (2005/6- 2009/10), and GTP of (2009/10-2014/15).

Figure 2: Trend of per capita real GDP (1981-2011)

PCGDP (Birr)



Source: Authors computation based on WB (2011) data

Similarly, consumption spending, percentage of population with access to improved water and sanitation facilities as well as use of new products like mobile phone subscribers and internet users have shown an increment trend. Consumption of bads in terms of emission of CO₂ from different sources has been increasing over time that has a bad consequence to the environment and health of the people. This implies the positive impact of greater consumption on QoL however, is offset to some extent by negative effects brought about by that consumption, such as new environmental and health problems. Education enrolment, urbanization, and the polity composite index (insignificantly) have also shows an improvement over time with PCGDP.

This may indicate with increase in income, households' expenditure on food, cloth, shelter and other expenditures of non profit institutions have been raising. Besides, rise in urbanization may be associated with the availability of job opportunities, population growth, access to services and facilities in

the urban areas and the like. Moreover, an improvement in education enrolment can be justified as the rising PCGDP increases the demand and accessibility for education.

Correlation analysis

Correlation analysis is conducted among all the indicators to obtain strength and significance of association among them. As shown in Table 1, LNPPHHFC and EDU are significantly correlated with each other and with level of LNPPCGDP. As well, PCI and EDU also significantly correlated with each other and with the level of UR. These are consistent results with the econometric analysis. However, it should be noted that these are a mere linear relationship among the variables and are not strong for policy prescriptions.⁵

Table 1: Correlation analysis of variables

CORRELATION	LNPPHHFC	PCI	EDU	UR	LNPPCGDP
LNPPHHFC	1.000000				
PCI	0.1580 (0.3960)	1.000000			
EDU	0.8513 (0.0000)	0.4842 (0.0058)	1.00000 0		
UR	0.2620 (0.1545)	0.7283 (0.0000)	0.6534 (0.0001)	1.00000 0	
LNPPCGDP	0.9751 (0.0000)	0.1486 0.4249	0.8695 (0.0000)	0.2753 (0.1338)	1.000000

4.2 Econometric Result

Unit root test:

The result from ADF test in Table 2 demonstrate at level all variables are non stationary or I(1) at 1 percent level of significance for all the test statistic assumptions. At first difference, however, all variables except EDU (stationary at 5%) are stationary at 1percent level.

⁵ consistent result and more explanation is give in the econometrics result

Table 2: Augmented Dickey-Fuller Stationarity Test Result

Variable	Test Statistic Under Different Assumptions			Order of Integration
	Intercept	Trend and Intercept	no trend no intercept	
LNPCGDP	0.984440	-0.422609	1.029899	I(1)
D(LNPCGDP)	-3.948227	-4.789869	-3.814597*	
LNPCHHFC	0.550591	-0.794663	1.064274	I(1)
D(LNPCHHFC)	-5.722701	-7.388921*	-5.555452*	
UR	-1.518161	-0.732845	0.161031	I(1)
D(UR)	-5.364024*	2.042752	-5.446484*	
EDU	0.410458	-1.643902	1.362417	I(1)
D(EDU)	-2.853999	-3.501137	-2.504240**	
PCI	-1.258004	-1.519822	-1.592705	I(1)
D(PCI)	-5.379131*	-5.338267*	-5.291503*	

N.B.: 1. Lag length are decided based on Schwarz information criterion

2. Prefix 'D' stands for first difference operator.

3. Mackinnon (1996) one-sided critical values for rejection of a unit root are used

* Significant at 1 percent **significant at 5 percent,

Optimal lag length for endogenous variables

Following non-stationarity of variables at level, testing co-integration among variables requires determination of optimal lag length to get away from problems in parameters. Table 3 reveals LR, FPE, AIC and HQ select an optimal lag length of 2 at 5 percent level of significance.

Table 3: VAR Optimal lag order selection criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-153.5877	NA	0.057181	11.32769	11.56559	11.40042
1	-51.69794	160.1125	0.000244	5.835567	7.262929*	6.271926
2	-14.08546	45.67230*	0.000120*	4.934675*	7.551506	5.734667*
3	6.906854	17.99341	0.000278	5.220939	9.027238	6.384562

Lag exclusion test is also carried out by the use of the χ^2 (Wald) statistics for the joint significance of all endogenous variables at the selected lag. It confirms lag order of 1 and 2 are significant both jointly and individually.

The Johansen Cointegration Test Result

Using optimal lag of two and assuming all the series have a stochastic trend, the Johnson test result is displayed in Table 4. The trace statistics identifies three co-integration relationships, while, the maximum Eigen value identifies only one co-integration equation both at 5 percent level of significance. As a result, three co-integration equations are more sensible and acceptable for the model and objective of the study. Besides, it is argued that in a small sample simulation (like this study) trace statistics tends to have more heavily distorted sizes whereas their performance is superior to that of maximum Eigen value competitors.⁶

Table 4: Unrestricted co-integration rank test

Test	Null Hypothesis	Alternative Hypothesis	Eigenvalue	Cointegration Test Statistic	Critical Value (5%)
Trace Statistic	H0: $r = 0$ *	HA: $0 < r \leq 5$	0.759596	95.45541	69.81889
	H0: $r = 1$ *	HA: $1 < r \leq 5$	0.590360	55.54322	47.85613
	H0: $r = 2$ *	HA: $2 < r \leq 5$	0.492991	30.55385	29.79707
	H0: $r = 3$	HA: $3 < r \leq 5$	0.253245	11.53553	15.49471
	H0: $r = 4$	HA: $4 < r \leq 5$	0.113048	3.359018	3.841466
Maximum Eigen value	H0 : $r = 0$ *	HA: $r = 1$	0.759596	39.91219	33.87687
	H0: $r = 1$	HA: $r = 2$	0.590360	24.98936	27.58434
	H0: $r = 2$	HA: $r = 3$	0.492991	19.01833	21.13162
	H0: $r = 3$	HA: $r = 4$	0.253245	8.176507	14.26460
	H0: $r = 4$	H0: $r = 5$	0.113048	3.359018	3.841466

* denotes the rejection of the null hypothesis at the 0.05 level

⁶ In case of discrepant results from two tests one should analyze the obtained relationships from their interpretability and sensibility perspective and make final selection based on that (University of Warsaw Faculty of economic science, 2010)

Weak Exogeneity test: After determining the number of co-integrating equations, the next task is identifying endogenous and exogenous variables based on weak Exogeneity test. Table 5 indicates LNPCGDP and UR are weakly exogenous variables leave others endogenous.

Table 5: Weak Exogeneity test

Variable	Chi-sq	Probability	Conclusion
LNPCHHFC	17.39200	0.0263	endogenous
EDU	22.68208	0.0038	endogenous
UR	12.70395	0.1224	weakly exogenous
PCI	14.39086	0.0721	endogenous
LNPCGDP	9.811680	0.2785	Weakly exogenous

Discussion of Econometric results

Based on weak Exogeneity test and significance of β coefficients, the following LR models are obtained.

4.2.1 Long Run Relationships (Co-integration Analysis)

Estimated long run model for per capita consumption expenditure (LNPHHFC)

$$\text{LNPCHHFC} - 1.234594\text{LNPCGDP} (-1)** + 0.031677\text{UR}* = 0 (0.09573) (0.00933)$$

Where; the standard errors are in parenthesis.

* - significance at 5%, ** - significance at 1%

The model shows economic growth positively influences consumption expenditure at 1percent level of significance. Empirically, a percentage increase in economic growth lead 1.23 percentage increase in consumption spending in the LR. It is consistent with theories of consumption and shows that the lion share of income of the people is devoted to consumption purpose.

On the other hand, the model signifies the coefficient of urbanization is negative and statistically significant at 5 percent level. The result suggests in

the LR, a unit change in urbanization lead consumption expenditure to respond negatively by approximately 3.2 percent.

It can be attributed to more economies of scale adaptation, stability in living conditions, and accessibility of financial institutions with saving facilities and other in urban areas in the LR. Moreover, according to Delisle (1990), there are wider disparities in access to food and other resources within the urban population than the rural population. In many ways, the food and nutrition situation of the urban poor may be worse than that of their rural counterparts. It is because of a lack of in kind income, dependence on the market economy, adverse environmental conditions and time constraints of women contributes to minimal food expenditure in the urban areas in the LR.

A study by Guush, *et al.* (2011) found Per capita intake of calories is higher in rural Ethiopia than their urban counterpart attributed to disparities in the availability of food, which may partly cause consumption expenditure to decrease in the urban areas.

Estimated long run model for Education enrolment (EDU)

$$\text{EDU} - 127.3020\text{LNPCGDP} (-1)** - 14.77601\text{UR}^* = 0 \quad (12.8323) (1.25117)$$

Where the standard errors are in parenthesis

* - significance at 5%, ** - significance at 1%

The model signifies economic growth has positive outcome on education enrolment at 1percent level of significance⁷. Empirically, a percentage increase in per capita GDP helps education enrolment to increase by 1.27 percent in the LR. Clearly, when income increases, it pushes the demand for education upward. It is because it can relax constraints on education expenditure both at individual and national level. An increase in income helps parents to send their child to the school. On the other way, economic

⁷ Note that; it is the finding on the reverse impact of growth on human capital accumulation unlike most literatures, which deals on the role of human capital investment on economic growth.

growth leads the government to expend more on education sectors and encourage for enrolment.

This result is consistent with the findings of Kakar, Khan and Khilji (2011) in their study of the relationship between economic growth and education. Using a time series analysis, their finding confirms education has a LR relationship with economic growth but not in the SR. It is also in line with the findings of Tariq S., Wadud M., and Qamarullah B. (2007) indicating education and GDP growth have a bidirectional causality of each other.

On the other hand, the model shows urbanization has a positive contribution to education enrolment in the LR at 5% level of significance. Empirically, a unit increase (decrease) in urbanization leads an increases (decreases) education enrolment by 14.77 percent respectively. Clearly, the availability of more education facilities in the urban areas can make education enrolment high.

Estimated long run model for polity composite index (PCI)

$$PCI + 45.92284LNPCGDP^{**} - 0.408372UR^* = 0 \quad (0.81622) \quad (0.78159)$$

Where; the standard errors are in parenthesis.

* - significance at 5%, ** - significance at 1%

From the model, economic growth has negative and significant influences on polity composite index in the LR. Empirically, a unit increase in LNPCGDP, leads to 0.45 unit decreases in polity⁸ score in the LR. Implying economic growth in terms of per capita GDP significantly affects the determination of political system to be less competitive.

The result is unlike to the "Lipset hypothesis" Lipset (1959), which states that, "The more well-to-do a nation, the greater the chances that it will sustain democracy." However, it is consistent with most literatures. As recently noted by G. Fayad, *et al.* (2011), various Studies found a negative relationship and attribute it to issue of political unrest and the power of the government during economic slowdown. Alesina and Perrotti (1994) argue that "transitions from dictatorship to democracy, being associated with socio

⁸ It is the unit of measurement of political freedom.

political instability, should typically be periods of low growth." Burke and Leigh (2010) also, presents a game theoretic model in which output contractions can encourage democratization by reducing the citizens' opportunity cost of demonstrating for a better government. This increases the political power of citizens relative to ruling elites, and thus the pressures for democratic change. Strong growth, however, strengthens the legitimacy of autocratic governments and reduces the citizens' incentives to protest. Moreover, by constraining government expenditure possibilities, growth Slowdowns reduce the bargaining power of autocratic regimes (Haggard and Kaufman, 1997) and their ability to coerce important stakeholders (Geddes, 1999), this increasing the likelihood of democratic change.

Concerning Ethiopia, in addition to the above possible mechanisms, it can also be associated to the political economy of the country. The developmental state (dominantly considered as a trait to democracy) is viewed as one of the two pillars of the "national renaissance." Coupled with the other pillar (democratic federalism), " where developmental state is characterized by traits of, economic nationalism, large government bureaucracy, skepticism about neo liberalism and the 'Washington Consensus', prioritization of economic growth over political reform (UNDP, 2012). Besides, Omano E., (2007) argues that the repressive nature of the state as one of the factors that enhanced its developmental capacity. Hence those characteristics as a requirement to achieve level of development, can lead the deterioration of political environment.

Moreover, from the sphere of democratization, developmental states face challenges unlike their effort (case in East Asian Tigers). It needs to overcome the legacy of authoritarianism, ethnocracy, neo liberalism, fostering a meritocratic public sector, stemming public staff turnover, confronting challenges of balancing the rights of business with the needs of majority, and challenge of governing in accordance with popular wishes while transforming the structure of the economy which are observed in Ethiopia could challenge the political situation (UNDP, 2012).

Concerning urbanization, it influences polity composite index positively at 5 percent level of significance. The result suggests a percentage increase in urbanization improves polity composite index by 0.4 polity level in the LR. It is due to the fact more institutions with the aim of protecting political rights are based in urban areas relative to their counterpart in rural areas. Further, in the LR more communication associated with more population and technology makes people in the urban areas to unit and resist for their rights.

In summary, Economic growth is found to have a positive and significant impact on consumption expenditure and education enrolment and a negative impact on polity composite index at 1 percent level of significance in the LR. Urbanization on the other hand has a negative impact on per capita consumption expenditure and positive impact on education enrolment and polity composite index all at 5 percent level of significance.

4.2.2 Short Run Relationships (Vector Error Correction Models (VECM))

The VECM will tell us about the SR behaviour prevail among the variables by restricting the LR behaviour of endogenous variables to converge to their co-integrating relationships while allowing for SR adjustment dynamics. Based on test of significance of coefficient⁹, the parsimonious error correction models are given below.

In the model (Table 6), both consumption and economic growth have significant role in the SR dynamics of consumption expenditure. Consumption expenditure at one period before has a negative and significant impact on the current consumption. Empirically, a 10 % increase in consumption at time t-1 leads to decrease in consumption at time t by 7.5percent. On the other hand, economic growth has positive impact on consumption in the SR at 5 percent level of significance. A 10 percent rise in economic growth leads for a rise of consumption expenditure by 9.3 percent that is consistent with the LR case.

⁹ The test is fund in Appendix I

The coefficient of the error correction term (ECM1) guarantees that although the actual consumption expenditure may temporarily deviate from its LR equilibrium value, it would gradually converge to its equilibrium. It shows that 78.33 percent of the deviation of the actual per capita consumption expenditure from its equilibrium value is eliminated every year. Hence, full adjustment would require a period of less than one and half year for per capita consumption expenditure to reach its LR value.

Table 6: Parsimonious Error Correction Model for consumption expenditure

Dependent Variable: D (LNPCHHFCt)

Variable	Coefficient	Std. Error	t-Statistic	P- Value
DLNPCHHFC(-1)	-0.748196 ***	0.277934	-2.691995	0.0083
DLNPCGDPT (-1)	0.925131**	0.422655	2.188853	0.0309
ECM1	-0.783322***	0.278475	-2.812895	0.0062

** Significance at 5% , *** significant at 1%

The result from Table 7 suggests that, the SR dynamics of education enrolment is positively influenced by the previous year education enrolment and economic growth at 10 % and 1 percent level of significance respectively. A percentage increase in education enrolment at time t-1 contributes to 0.3 percentage increase in education enrolment at time t. It is due to the fact more education helps people to recognize the value of education to human wellbeing as confirmed by (Oketch & Ngware, 2012). It should also be noted that, school repetition and readmission could also contribute for increasing of education enrolment in the latter periods. Similarly, a percentage increase in economic growth results approximately 0.5 percentage increase in education enrolment in the SR, which is consistent with the LR result.

Urbanization has negative and significant impact on SR fluctuation of education enrolment unlike its LR case. The result reveals a percentage

increase in urbanization leads approximately 7 percent decrease in education enrolment in the SR. It can be associated with rapid urbanization in the country through the rural urban migration that lead to the prevalence of a significant number of illiterate persons in the cities Golini (2001). According to this study, In the Ethiopian history, urban population growth in the last fifteen years of the last century was very fast with the rates over 5 percent and a peak in the quinquennium 1985-1990, when the annual rate of change reached 5.93 percent. This rapid urbanization resulted for severe overcrowding, and shortage of social services. It is also evident that a significant proportion of males and girls who migrate with families or friends and who are expected to get education do not attend school (Erulkar *et al.*, 2006, P. 368).

According to Oketch & Ngware (2012), rapid urbanization can lead to great urban inequalities that mask national education statistics. For example, a significant proportion of the residents in urban areas live in the slums where access to public services is of either very deplorable quality or nonexistent. Further, huge rural-urban migration decreases enrolment in the rural areas and because of negative impact of rapid urbanization on education provisions in the urban areas, the immigrants will left out of school in the SR (Oketch & Ngware, 2012).

However, it should be noted despite the fact in the SR, urbanization has a positive contribution for LR dynamics of education enrolment. This implies challenges of educational provisions and inequalities are eliminated and positive contributions of urbanization will outweigh in the LR. This was confirmed by Golini, (2001) that Ethiopian further urbanization can contribute and provide better services to its people because they can benefit from the economies of scale.

The coefficient of error correction term for education enrolment (ECM2) (-0.286714) shows that approximately 29 percent of the deviation of the actual education enrolment from its equilibrium is eliminated every year. This result ensures that education convergences to its LR equilibrium with a minimum approximate to three years period.

The coefficient of ECM3 (-0.801359) is the error correction term which is the speed of adjustment to the LR equilibrium of education enrolment periodically transmitted from the disequilibrium in polity composite index. It shows that approximately only 0.8 percent of the deviation of actual education enrolment from its equilibrium attributed to the disequilibrium in polity composite index is eliminated every year, indicating that long period of time is required for full adjustment which is a sensible result given it is disequilibrium is from political situation.

Table 7: Parsimonious Error Correction Model for education enrolment
Dependent Variable: D (EDU_t)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
ECM2	-0.286714*	0.004037	-1.834038	0.0704
ECM3	-0.801359**	0.365940	-2.189866	0.0309
D(EDU(-1))	0.303127*	0.17257	1.756589	0.0820
D(UR(-1))	-7.138697**	3.377270	-2.113748	0.0370
D(LNPCGDP(-1))	49.12680***	15.57660	3.153885	0.0021
Constant	1.281496*	0.661870	1.936174	0.0557

* Significance at 10 % ** significance at 5%, *** significant at 1%

The model in Table 8 signifies that, the SR dynamics of PCI is influenced only by urbanization. The SR impact of urbanization on polity composite index is negative and significant at 5 percent. A percentage increase in urbanization results approximately 3.8 units' decrease in polity score in the SR, which is contrary to the LR relationship.

Usually, it is associated with the consequences of rapid urbanization. At the times of rapid urbanization, changes occur hand-in-hand with the arrival of immigrants. Problems that resulted from overcrowded cities, and problems with the civil service commission, are just some of the side effects that urbanization and immigration results. These and other consequences can expose the society for insecurity in their political and civil rights in the SR. Concerning Ethiopia, it is indicated above that, the country has experienced rapid urbanization in the last fifteen years of the last century, which resulted

for severe overcrowding, and shortage of social services that ultimately can lead to problems with political and civil rights. Besides, Golini (2001) indicated that, 1970s and 80s was a period of urban crises everywhere in Africa and more sever in Ethiopia which could be associated with political crisis, drought and long economic crisis.

Furthermore, it may be associated that it takes time to establish institutions with the aim of protecting political rights and civil liberties and start effective actions. Hence, in the SR, rapid urbanization can create challenges in administration and protecting rights. In contrast to these, in the LR, urbanization has a positive role for political rights indicate the elimination of problems that would exist in the SR.

The coefficient of error correction term for polity composite index (ECM3) (-0.457194) shows PCI has the speed of adjustment of more than 45 percent per year for any disequilibrium originates from itself indicate full adjustment needs more than two years.

Table 8: Parsimonious Error Correction Model for polity composite index

Dependent Variable: D (PCI)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
ECM2	- 0.312775**	0.121005	-2.584807	0.0112
ECM3	-0.457194**	0.182922	-2.499395	0.0141
D(UR(-1))	-3.794023**	1.688193	-2.247387	0.0268
Constant	0.596088*	0.330849	1.801695	0.0746

* Significance at 10% ** significance at 5%

In summary, economic growth have a positive and significant influence on per capita consumption expenditure and education enrolment in the SR, but have not impact to polity composite index. Urbanization on the other hand, influences political and social representative variables significantly and negatively in the SR unlike the LR case.

4.3 Diagnostic checks

In the study, different post estimation diagnostic tests were performed to guarantee the robustness of models obtained. Table 9 reveals that we fail to reject the null hypothesis of jointly normal distribution, no serial correlation and no hetroskedasticity with the specified VECM.

Table 9: Diagnostic checks for VECM

Test	Statistic		P-Value
	Lag	Chi-sq	
Residual Vector Serial Correlation	1	17.69339	0.8551
LM 25df	2	31.62740	0.1691
	3	22.85114	0.5863
	4	11.17369	0.9921
	Joint test	17.59487	0.0622
Residual vector Normality (Jarque-Bera) 10 Df	Joint test	240.9426	0.4707
Residual Vector Hetroskedasticity 240df	Joint test		

5. Conclusion and Suggestions

5.1 Conclusion

Following the rising of the Ethiopian economy, this study investigated the possible nexus that can exist between this economic growth and QoL. The trend analysis shows on average a rising trend for all objective indicators though at a different rate. The correlation analysis verifies consumption expenditure and education enrolment significantly correlated with each other and with economic growth. In addition to this, polity composite index and education enrolment are significantly correlated with each other and with the level of urbanization.

The result from co-integration analysis discloses, in the LR, economic growth have a significant and positive impact on consumption expenditure and education enrolment and negative impact on polity composite index. The VECM reveals economic growth positively and significantly influences

consumption expenditure and education enrolment in the SR, unlike its impact on polity composite index. In general, models indicate, economic growth influence to Qol tends to be stronger in the LR compared to the SR impact.

5.2 Suggestions

To benefit from economic growth in improving QoL in both LR and SR, it needs to be accelerated with caution to its effect on political rights in the LR. In light of that, it requires to make sure the benefits of the economy are appropriately used not to repress political rights but, should be designed where the outputs of the economy can be used to foster those political rights.

Besides, the VECM analysis identifies rapid urbanization through its (overcrowding effect) has a negative impact on education and polity composite index in the SR unlike its LR case. Hence, it requires adjustment mechanisms on the SR path of urbanization, which may include early establishment of institutions like independent courts and ombudsman and/or its branches and expand and facilitate educational provisions in these rapidly urbanizing areas.

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Appendix I: Tests on the significance of VECM Coefficients

Dependent Variable: D(LNPCHHFC)

Variables	Coefficient	Std. Error	t-Statistic	Prob.
ECM1	-0.783322	0.278475	-2.812895	0.0062
ECM2	0.001721	0.006568	0.261943	0.7939
ECM3	0.005192	0.009929	0.522856	0.6022
D(LNPCHHFC(-1))	-0.748196	0.277934	-2.691995	0.0083
D(EDU(-1))	-0.000421	0.004682	-0.089976	0.9285
D(PCI(-1))	-0.011522	0.010924	-1.054720	0.2941
D(UR(-1))	0.043868	0.091639	0.478706	0.6332
D(LNPCGDP(-1))	0.925131	0.422655	2.188853	0.0309
C	0.020418	0.017959	1.136939	0.2583

Dependent variable: D(EDU)

Variables	Coefficient	Std. Error	t-Statistic	Prob.
ECM2	-0.007404	0.004037	-1.834038	0.0704
ECM3	-0.801359	0.365940	-2.189866	0.0309
D(LNPCHHFC(-1))	-16.93907	10.24301	-1.653720	0.1013
D(EDU(-1))	0.303127	0.172566	1.756589	0.0820
D(PCI(-1))	-0.066460	0.402591	-0.165080	0.8692
D(UR(-1))	-7.138697	3.377270	-2.113748	0.0370
D(LNPCGDP(-1))	49.12680	15.57660	3.153885	0.0021
C	1.281496	0.661870	1.936174	0.0557

Dependent Variable: D(PCI)

Variables	Coefficient	Std. Error	t-Statistic	Prob.
ECM1	0.317708	5.391656	0.058926	0.9531
ECM2	-0.312775	0.121005	-2.584807	0.0112
ECM3	-0.457194	0.182922	-2.499395	0.0141
D(LNPCHHFC(-1))	-2.172939	5.120165	-0.424388	0.6722
D(EDU(-1))	-0.040960	0.086260	-0.474844	0.6359
D(PCI(-1))	0.052899	0.201243	0.262859	0.7932
D(UR(-1))	-3.794023	1.688193	-2.247387	0.0268
D(LNPCGDP(-1))	-7.401460	7.786262	-0.950579	0.3441
C	0.596088	0.330849	1.801695	0.0746