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UNEMPLOYMENT AND THE MACROECONOMICS OF ETHIOPIA

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Abstract

Unemployment has long been there for (especially) developing economies being the major development challenge. The cost of unemployment transmits in a couple of channels; of which the opportunity costs arising from lost production and the resultant social disorders are of immediate ledges. While appreciating them all, the government of Ethiopia (GoE) conveyed various schemes towards reducing unemployment to (at least the recommended) minimum rate. Despite developments in various efforts to that end, unemployment remained pronounceable policy challenge in Ethiopia. It, therefore, calls for enhanced intervention towards supporting the process of controlling unemployment in the country. The present study is principally aimed to identify those macroeconomic policy variables that are important in explaining the dynamics of unemployment in Ethiopia. We employed the annual time series data set for the period serially running from 1984 to 2018. The individual variables were all subjected to the augmented Dickey Fuller unit root tests and the mixed order of integration has been confirmed. As a result, the auto-regressive Distributed Lag model approach was employed for cointegration issues; and various possible cointegrating roots among the variables entered the unemployment model were suggested too. Our regression results reveal that, the population growth rate, economic growth rate, inflation rate, foreign direct investment, and the external debt variables are all important predictors of unemployment both in long and the short run periods. A positive impulse moves from inflation to (cyclical) unemployment in Ethiopia, whereby contrasting the Phillips hypothesis. Economic and social development policies need not be treated in isolation. Any successful monetary policy action in targeting the threshold inflation rate is supposed to be a crucial approach. Besides, enhancing productive and more labor-oriented investments serve the best long run solution to that end, too.

Keywords: *ARDL; Ethiopia; Macroeconomics; Philips Curve; Unemployment*

1. Introduction

Life without a job is the most likely distressing economic incident. As noted by Richard and Peter (2008), while most people depend on their labor earnings to satisfy minimal requirements of survival, still many others obtain from their work not only income, but also a sense of personal execution (Richard and Peter, 2008). Notably so arguable would be that, no job no income, no more life! Hence, job loss could mean either no life or poor life style, even a loss of self-esteem. Generally, the issue of job is all about the issue of survival! That mainly suggests for development policies to target unemployment issues in (especially) most developing countries.

Obviously, unemployment is a key macroeconomic meter to indicate the wellbeing of an overall economy of any type; i.e. irrespective of its development status. Controlling, or at least reducing, unemployment is of the basic headaches of all development policies. To that end, policy makers adapt various operational tools that are supposed to suit each of the corresponding situations prevailing under their vicinities. That means some economies are more of industry based, still the other tend to be more of agricultural, and so on. Consequently, policy instruments in varying conditions differ depending on their economic structures as well as other self-specific considerations, though all target the same thing. Whatever the instrument chosen is, it should be successful in reducing unemployment. A policy instrument supposed to attract more active labor force into the economic system can be taken as effective in framing development policies; which, in turn, is expected normalize the overall system. Fisher (1926), for instance

has acknowledged that, any mechanism adopted to boost investments are effective while reducing unemployment rates and maintaining the social welfare (Ibid).

A well-functioning economy is supposed to serve its constituents fairly, and be distributed in accordance to their contribution. One of such fairness can be ensured via its ability in absorbing the fairly sufficient proportion of active labor force available (see Jelilov et al, 2016). With a high rate of unemployment, an economy remains looser from at least two dimensions: one is the sacrificed production, and the other arises from the social costs of unemployment; like war, crimes, political instability and so on (Hussein, 2014; Snowdon and Vane, 2005). Besides, Fisher (1926) underlines unemployment as being mostly the foregone output since it deprives the necessary resources needed to develop the economy. Furthermore, unemployment leads to cruel home side problems, and unfavorably affects the status of a nation in comparison to other nations.

Despite notable developments towards controlling unemployment internationally, it still remained an issue in many countries. Its cost is the worst in especially least developed and underdeveloped economies. According to the 2017 cross country survey of the international labor organization, the world mean unemployment rate is estimated at about 15 percent in the world; of which the shares of sample individual countries has been found to be 24.30% in South Africa, 3.97% in China, 4.40% in USA, 39.39% in Bosnia and Herzegovina, 12.80% in Egypt, 4.30% in United Kingdom, 17.22% in Spain, 11.20% in Algeria, 7.50% in Argentina and specifically in 2016, stood at 17.06 % in Ethiopia (ILO, 2017; WB, 2017). From this we see that, the rate of unemployment is the highest among developing economies with Ethiopia being one.

In Ethiopia, growth in active work force, owing to the young dominant demographic profile of the country, is among the largest in the world. Despite to the high growth of labor force the country's economic growth, though pronounced to be among the highest in the world, is unable to satisfy the growing employment demand. From the office for national employment policy and strategy of Ethiopia, there are many more under 15 years old entering the work force each year than the old people living the labor force (NEPSE, 2016). The under 15 engagements are, however, not in cyclical vacant positions, but family labor. However, the country's macroeconomic profile recorded the highest unemployment rate, compared to most sub-Sahara countries. No doubt, real and sustained growth of economy reduces unemployment. According to the assessment report of the World Bank in 2016, Ethiopia has been registering the 5th fastest economic growth during the periods 2001–2010 at an average annual RGDP growth rate of 8.4 percent and the third with a forecast of 8.1 percent during the periods 2011-2015. Moreover, the country's economy had exhibited 9.8 percent average annual growth rate during 2010/11-2015/16, registered 8 percent growth in 2015/16 (NBE, 2015/16; WB, 2016). Despite such economic improvements, unemployment is high and remained one of the socio-economic problems in the country (WB, 2016; Dejene et al, 2016; Deribe et al, 2015).

Though it is of the extensively focused subjects of most economic researches in the country, the issue of unemployment remained bold in the macroeconomic environs of Ethiopia. Therefore, it still calls for an in-depth investigation into the identification of the deep-rooted sources of unemployment in support of an effort that could stabilize the general economic system in the country. Most previous works give a narrow view of the labor market; and still few tend to concentrate on the incidence of unemployment in specific categories. The policy aspect of labor market has been found to be less explored in the literature, at least, in the sense of macroeconomic determinants. Majority focused unemployment in a relation to microeconomic factors (though unemployment is mostly a macroeconomic concern); and to socio-economic as well as the demographics. Still some were limited to the specific categories of unemployment. For instance, Deribe et al (2015), Pieter (2004), Aynalem and Mulugeta (2016),Muhdin (2016), Dejene (2016), Nayak (2014), Wubante (2015), Gizachew et al (2017), and Tsegay and Roussar (2012)were limited only to either the youth, or urban aspects of unemployment. Despite the unemployment-micro link analyses, still majority of the previous works were area specific too. For example, the work of Muhdin (2016) was limited to selected towns by using the household level data; and Gizachew et al (2017) was based on the cross sectional observations from Halaba. Our basic stand is that, unemployment should be viewed broadly, and analyzed in a relation to macroeconomic variables. Hence, the current study is aimed to examine the macroeconomic determinants of unemployment in Ethiopia with special focus of examining the short and long run predictors of unemployment using the time series annual observations for the period running from 1984 to 2018.

We, therefore, test the following relevant hypotheses;

- There is inverse relationship between real national output and cyclical unemployment in the long run.
- Inflation has significant long run impact on cyclical unemployment in Ethiopia
- Foreign direct investment has positive and significant impact on unemployment in the long run, and the short run as well.
- In the short, population growth has no impact on unemployment, but correlates negatively with unemployment in the context of Ethiopia

The study is entirely based on the annual time series data set for the period ranging from 1984/85 to 2018/19. We employed the augmented Dickey Fuller (ADF) unit root test approach to examine the stationarity property of individual variables the model, and ARDL for cointegration test. Besides, we used the error correction model for the short dynamics.

2. Methods and Procedures

The data employed are exclusively of secondary types, which are sourced both from domestic and international organizations; like, National Bank of Ethiopia (NBE), Ministry of Finance and Economic Cooperation (MoFEC), Ethiopian Economics Association (EEA), the World Bank (WB), and International Monetary Fund (IMF) data bases. Our data set contained annual observations on the unemployment rate, population growth rate, foreign direct investment as a percentage of GDP, real gross domestic product (RGDP), and the inflation rate in terms of CPI (consumer price index), current external debt as a percentage of national income, from the study period ranging between 1984 and 2018.

2.1 The Model: Theory and Empirics

Our theoretical model is the Phillips (1958) curve which hypothesizes an inverse relationship between unemployment and inflation as indicated by,

$$UN_t = f(INF_t) \quad \text{(1.1)}$$

Where, UNEM is unemployment and INF represents inflation rate, and t is the time trend.

The functional relationship between unemployment and inflation in equation (1.1) states that, the rate of unemployment at any time t is a negative function of inflation rate. The original Phillips(1958) curve proposed that there is inverse and nonlinear association between changes in the levels of unemployment and the wage rate. The reduction in wages is associated with high levels of unemployment while increase in wages is associated with low level of unemployment (Romer, 2012).

To empirically examine the macroeconomic determinants of unemployment in Ethiopia, we adapt the following empirical model suggested by (Maqbool, 2013; Oniore and Bernard, 2015; Hussein, 2014; and Jelilov et al, 2016) by varying as well as extending the number of regressors;

$$UN_t = f(CPI_t) \quad \text{(1.2)}$$

Where, UNtis the rate of unemployment at any point in time, and CPIt is a measure of inflation rate at a given time period.

However, to account for other potential predictors of unemployment variable, we also control for the effects of relevant macroeconomic variables and rewrite the functional relations as follows;

$$UN_t = f(CPI_t, RGDP_t, DEPT_t, FDI_t, POP_t) \quad \text{(1.3)}$$

Where, UNt is unemployment rate at a given time period, RGDPt is real gross domestic product, CPIt is a proxy to inflation rate, DEPTt is external debt as a percentage of gross national income and FDIt is foreign direct investment as a share of GDPt.

We, therefore, take the natural logarithmic forms of each variable and specify the following linear regression model to capture the particular impact of each regressor entered the model;

$$lnUN_t = \alpha_0 + \alpha_1 lnCPI_t + \alpha_2 lnRGDP_t + \alpha_3 lnDEPT_t + \alpha_4 lnFDI_t + \alpha_5 lnPOP_t + u_t \quad \text{(1.4)}$$

Where, α0 is a constant; and αi's are the parameters of corresponding regressors; and u is the white noise error which explains any disequilibrium in the model.

Stationarity Test:
The augmented Dickey Fuller (ADF) unit root test approach was employed to examine the stationarity properties of all individual variables entered the unemployment regression model. We used STATA ver. 14 for data analysis or estimating the regression model of all procedures in our analysis.

Cointegration Test:
It would be obvious that, the choice of cointegration test approach is reliant on the order of integration among individual series under consideration (Maddala, 2013). Because our variables are of I(0) and I(1) types, exhibiting the mixed order of integration, we employed the Autoregressive Distributed Lag (ARDL) model approach for cointegration, to examine whether the variables jointly exhibit stationarity; that is whether they have a common long term trend. This condition is used to verify whether the series have a long tern stable equilibrium relation.
A beauty of ARDL is its suitability with various orders. That is, it can be applied when the series are of I(0), I(1), or even, fractionally (mutually cointegrated) integrated (Gujarati, 2004). Moreover, this approach provides unbiased estimates of the long-run model (Alimi, 2015). The Wald test or F-statistic in ARDL bounds test approach is used to test the existence of long-run relationship. We compare the reported F-statistic with the reported critical (Pesaran et al, 1999). If the estimated F-statistic appears to be greater than the upper-bound critical, the null hypothesis of no cointegration will be rejected. In contrast, if the F-statistic falls below the lower bound critical value, then we fail to reject the null. Thus, the variables included in the model do not share long-run relationships among themselves. If the F-statistic falls within the lower and upper bound critical values, then it tends to be inconclusive to either accept or reject the null. In that condition, looking for any appropriate mechanism (including variables management) would be mandatory. The general ARDL (p, q) follows;

$$Y_t^{\prime} = \gamma_{0i} + \sum_{i=1}^{p} \delta_i Y_{t-i} + \sum_{j=0}^{q} \beta_i^{\prime} X_{t-i} + \varepsilon_{ti} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{(1.5)}$$

Where,$Y_t^{\prime}$ is a vector, $(X_t^{\prime})^{\prime}$ are allowed purely $I(0)$ *or* $I(1)$ *or cointegrated*; δ and β are coefficients; γ is the constant; $i = 1, \ldots, K; p$;is the optimal lag order used for the endogenous variable; *q* is optimal lag orders used for independent variable; ε_{ti} is a vector of error terms- unobservable zero mean white noise vector process(serially uncorrelated or independent).

$$lnUNR_t = \beta + \alpha_{11} lnUNR_{t-1} + \alpha_{21} lnRGDP_{t-1} + \alpha_{31} lnINF_{t-1} + \alpha_{41} lnED_{t-1} + \alpha_{51} lnFDI_{t-1} + \alpha_{61} lnPOP_{t-1} + \sum_{i=1}^{p} \theta_{1i} lnUNR_{t-i} + \sum_{i=1}^{p} \theta_{2i} lnRGDP_{t-i} + \sum_{i=1}^{p} \theta_{3i} lnINF_{t-i} + \sum_{i=1}^{p} \theta_{4i} lnED_{t-i} + \sum_{i=1}^{p} \theta_{5i} lnFDI_{t-i} + \sum_{i=1}^{p} \theta_{i} lnPOP_{t-i} + u_{1i} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{(1.6)}$$

Where, *lnUNR* is log of unemployment rate, *lnRGDP* is the log of real gross domestic product, *lnINFR* is the log of inflation rate, *lnFDI* is the log of foreign direct investment, *lnEXD* is the log of external debt, *lnPOP* is *log* of population growth rate, $\beta_j (j = 1,2\ldots., 6)$ denotes intercept; q is maximum lag length; *i* is number of lags; $\theta_{jk}(j,k = 1,2\ldots, 6)$ denote the long run coefficients.

Hypothesis for testing the cointegration among the variables in the model follows;

H_0: $a_{jk} = 0 \Rightarrow$ No cointegration. $j, k = 1,\ldots,6$

H_1: $a_{jk} \neq 0 \Rightarrow$ No cointegration. $j, k = 1,\ldots,6$

If there is an evidence of long-run relationship among the variables, the following long-run *ARDL* (p_1, p_2, p_3, p_4, p_5) model will be estimated (Abdulbaset *et al*, 2013). All variables are as defined earlier.

$$DlnUNR_t = \beta + \sum_{i=1}^{p} \theta_{1i} lnUNR_{t\text{-i}} + \sum_{i=1}^{p} \theta_{2i} lnRGDP_{t\text{-i}} + \sum_{i=1}^{p} \theta_{3i} lnINF_{t\text{-i}} + \sum_{i=1}^{p} \theta_{4i} lnED_{t\text{-i}} + \sum_{i=1}^{p} \theta_{5i} lnFDI_{t\text{-i}} + \sum_{i=1}^{p} \theta_i lnPOP_{t\text{-i}} + u_{1i} \quad (1.7)$$

Error Correction Model (ECM):

After a confirmation of long-run cointegration among the variables UNR_t, $RGDP_t$, $INFR_t$, EXD_t, POP_t, FDI_t, the *ECM* approach was employed in order to capture the short run behavior of variables involved in the analysis. The general ECM specification is given by;

$$\Delta y_t = a_0 + a_1 \Delta x_t - \gamma \mu_{t-1} + u_t \quad (1.8)$$

Whereby, a_1 is impact multiplier; γ is the adjustment parameter

3. Results and Discussion

Individual variables were all subjected to the augmented Dickey-Fuller (ADF) unit root tests in order to examine the stationarity properties among them. Table 1.1 below reports the ADF regression results;

Table 1.1: Stationarity test results (ADF)

Variable	***Level***		***First difference***	
	Constant	*Constant and trend*	*Constant*	*Constant and trend*
lnUN$_t$	(-2.751582)	(-2.734954)	(7.697294)*	(7.609472)*
lnRGDP$_t$	(4.201534)*	(6.038616)*		
lnFDI$_t$	(-1.382028)	(-3.566594)	(5.883800)*	(5.803385)*
lnCPI$_t$	(4.168996)*	(7.536394)*		
lnPOP$_t$	(-0.263257)	(-4.212254)	(-4.323737)*	(-4.332646)*
lnDEBT$_t$	(-1.472761)	(-2.574467)	-4.247948*	(4.191843)*

**** Rejection of the null hypotheses at (α= 0.01 and α= 0.05)***

Source: (Own computation, 2018/19)

Evident from table (1.1) is mixed order of integration among the time series. The ADF regression results suggest that whereas, the variables lnRGDPt and lnCPIt are stationary, the lnUNt, lnFDIt, lnPOPt, and lnDEBTt are not. Since the variables are I(0) and I(1) and no more higher order has been confirmed, we employ the auto regressive distributed lag model (ARDL) for cointegration issues.

Dynamic model analyses need to determine the time span for which the impact of changes in a given variable could persist. Below is the lag length reported by various measures.

Table 1.2: Lag length determination

Lag	**LogLL**	**LR**	**FPE**	**AIC**	**SC**	**HQ**
0	-194.7781	NA	0.182108	12.48613	12.71515	12.56204
1	-136.5185	94.67171	0.023295	10.40741	11.78154*	10.86289
2	-98.80853	49.49440*	0.011909	9.613033	12.13227	10.44809

3	-66.67363	32.13490	0.010789*	9.167102*	12.83144	10.38173*

* lag length suggested by corresponding criterion

As it can easily be seen above, the most reported lag length is 3. Therefore, we use a length of 3 in regression of the VAR model in this paper.

Before running ARDL regression, we conducted appropriate diagnostic tests and none of them were revealed invalid. Unambiguously, the conditions of normality in the distribution of residuals, heteroscedasticity, serial correlation and multicollinearity, model specification, and parameters stability issues were all examined, and the overall model validity has been confirmed with each condition.

Table 1.3: ARDL Bounds test result for Cointegration

Model	***F-statistic***	***t-statistic***	***Inference***
$F_{lnUN_t}(lnUN_t/lnRGDP_t, lnPOP_t, lnFDI_t, lnDEBT_t, lnCPI_t)$	7.277*	6.204*	*yes*
$F_{lnPOP_t}(lnPOP_t/lnRGDP_t, lnUN_t, lnFDI_t, lnDEBT_t, lnCPI_t)$	8.891*	4.836*	*yes*
$F_{lnDEPT_t}(lnDEPT_t/lnRGDP_t, lnPOP_t, lnFDI_t, lnUN_t, lnCPI_t)$	8.742*	2.658	*yes*
$F_{lnRGDP_t}(lnRGDP_t/lnRUN_t, lnPOP_t, lnFDI_t, lnDEBT_t, lnCPI_t)$	13.25*	6.700*	*yes*
$F_{lnFDI_t}(lnFDI_t/lnRGDP_t, lnPOP_t, lnUN_t, lnDEBT_t, lnCPI_t)$	4.958*	1.400	*yes*
$F_{lnCPI_t}(lnCPI_t/lnRGDP_t, lnPOP_t, lnFDI_t, lnDEBT_t, lnUN_t)$	5.071*	5.187*	*yes*

Critical value bounds of the F-statistic and t-statistic: restricted intercept and no trend

		F-statistic						*t-statistic*					
***K*=5**	*Sig.* level	99%		95%		90%		99%		95%		90%	
		I(0)	*I*(10	*I*(0)	*I*(1)	*I*(0)	I(1)	*I*(0)	*I*(10	*I*(0)	*I*(1)	*I*(0)	*I*(1)
		3.41	4.68	2.62	3.79	2.26	3.35	3.43	4.79	2.86	4.19	2.57	3.86

Where, *K*is the number of regressors; and * denote statistical significance at 1 percent.

Source: (Own computation, 2018/19)

The bounds test is mainly based on the joint F-statistic which its asymptotic distribution is non-standard under the null hypothesis of no cointegration. The first step in the ARDL bounds approach is to estimate the six equations (1, 2, 3, 4, 5 and 6). The estimations of the six equations for the existence of long run relationship among the variables by conducting the F-test for the joint significance of the coefficients of the lagged levels of the variables, i.e.,

$$H_0: a_{1i} = a_{2i} = a_{3i} = a_{4i} = a_{5i} = a_{6i} = 0$$

Against the alternative,

$$H_1: a_{1i} \neq a_{2i} \neq a_{3i} \neq a_{4i} \neq a_{5i} \neq a_{6i} = 0 \; i = 1,2,3,4,5 \; and \; 6.$$

We denote the F-statistic of the test which normalize, $lnUN_t$ by $F_{lnUN_t}(lnUN_t/lnRGDP_t, lnPOP_t, lnFDI_t, lnDEBT_t, lnCPI_t)$.

Two sets of critical values for a given significance level can be determined (Pesaran *et al*., 2001). The first level is calculated on the assumption that all variables included in the ARDL model are integrated of order zero, while the second on the assumption that the variables are integrated of order one. The null hypothesis of no cointegration is rejected when the value of the test statistic exceeds the upper critical bounds value. Other ways, the cointegration test is inconclusive. The use of this approach is guided by the short data span. We choose a maximum lag order of 3 for the conditional ARDL vector error correction model by using the Akaike information criteria (AIC). The

calculated *F*-statistics are reported in Table 1.3 when each variable is considered as a dependent variable (normalized) in the ARDL regressions. Their values are: for

Equation (1), $F_{lnUNt}(lnUN_t/lnRGDP_t, lnPOP_t, lnFDI_t, lnDEBT_t, lnCPI_t) = 7.276699$; for

Equation (41), $F_{lnRGDPt}(lnRGDP_t/lnRUN_t, lnPOP_t, lnFDI_t, lnDEBT_t, lnCPI_t) = 13.25035$; for

Equation (42), $F_{lnCPIt}(lnCPI_t/lnRGDP_t, lnPOP_t, lnFDI_t, lnDEBT_t, lnUN_t) = 5.071352$; for

Equation (43), $F_{lnFDIt}(lnFDI_t/lnRGDP_t, lnPOP_t, lnUN_t, lnDEBT_t, lnCPI_t) = 4.957683$; for

Equation (44), $F_{lnDEPTt}(lnDEPT_t/lnRGDP_t, lnPOP_t, lnFDI_t, lnUN_t, lnCPI_t) = 8.742264$; and for

Equation (45), $F_{lnPOPt}(lnPOP_t/lnRGDP_t, lnUN_t, lnFDI_t, lnDEBT_t, lnCPI_t) = 8.891138$

From these results, it is clear that there is a long run relationship amongst the variables when $lnUN_t$, $lnPOP_t$, $lnDEBT_t$, $lnRGDP_t$, $lnFDI_t$, and $lnCPI_t$is the dependent variable because its *F*-statistic (6.701) is higher than the upper-bound critical value (4.15) at the 5% level. Thus, the null of no cointegration in equation (1- 6) is rejected. There exists a cointegration among the variables. The results confirm that, there are long-run relationships between unemployment and all regressors entered the model. All models reveal the existence of the long run relationship among variables at 1 percent significance level. This conclusion is based on the computed *F*-statistics.

Table 1.4: The long run nexus of unemployment and other macroeconomic variables

Dependent variable: Unemployment rate (UN_t)				
Regressors	*Coeff.*	*Stand errors*	*t-statistics*	*Prob.*
$lnPOP_t$	9.64	4.362428	2.210685	0.0456
$lnRGDP_t$	-0.44	0.164806	-2.652923	0.0199
$lnCPI_t$	0.62	0.154519	4.00675	0.0015
$lnFDI_t$	-0.43	0.132177	-3.220696	0.0067
$lnDEBT_t$	-1.61	0.439135	-3.656843	0.0029
Cons	-0.25			0.000

Source: (*Own computation,* 2018/19)

The predicted relationship between unemployment and other explanatory variables considered is therefore given by,

$$lnUN_t = 9.64lnPOP_t - 0.44lnRGDP_t + 0.62lnCPI_t - 0.43lnFDI_t - 1.61lnDEBT_t - 0.25\ldots. \quad (1.9)$$

From table (1.4) above, it is worth mentioning that the regressors all exhibit meaningful on g term correlation with (cyclical) unemployment. In contrast with the Phillips hypothesis, we estimate appositive association between unemployment and inflation to Ethiopia. Of course, this finding is also similar to most empirical literatures. For instance, Folawewo and Adeboje (2017) found the positive and significant impact of inflation on unemployment in their empirical analysis for ECOWAS, which contrasts the Phillips curve, and in support of our results too. On the other side, Maqbool et al (2013) estimated VAR model to examine the macroeconomic determinants of unemployment in Pakistan, and his findings show that, the Phillips curve was alive both in the short and the long run. Eita (2016) has estimated negative and significant link among unemployment and inflation variables, towards validating the Phillips hypothesis in Namibia's economy, but contrasting our finding. This finding however is not surprising in the context of Ethiopia's economy. The positive impulse from inflation goes towards (cyclical) unemployment via its inadequate impact on costs of investment. A positive inflation shock increases prices of inputs, including the labor (given the market is efficient), which in turn, reduces the profit margin to the firm. Thus, low investing demand reduces employment demand as well. A high and persistent inflation in the country deter private investment whereby unfavorably affecting the labor demand (especially) in the private sector. Thus, the Phillips curve is no longer valid in the Ethiopian context.

Unemployment is negatively associated with the external debt in Ethiopia. This favorable effect of external debt might imply that, resources obtained in the form of external borrowing are diverted towards productive sectors, with a potential of absorbing the growing labor force in the country, and should in principle; i.e., never beg food to eat! Loan receipts directed towards end consumption bear nothing beyond the multidimensional costs to the general system. This finding is in line with the findings of Maqbool et al (2013) in Pakistan, and Folawewo and Adeboje (2017) among ECOWAS forming countries.

Improvement in real national output reduces unemployment in the long run, indicating that part of the income obtained is reinvested, which in turn, demands more labor employment in the economy. That is, new capital formations as well as expansion of existing assets (both) from enhanced production invite new inputs, raw materials, labor force for further takeoff. This finding supports development theories, and is line with most empirical findings. For instance, Maqbool et al (2013) in Pakistan; Folawewo and Adeboje (2017) among ECOWAS member states; Doğan (2012) in Turky; Prawoto (2017) and Trimurti (2014) in Indonesia; Aurangzeb and Asif (2013) in China, confirmed the significant negative association between RGDP and cyclical unemployment. Domestically, this finding is consistent with the findings of (Getnet, 2003; IMF, 2013; Abdulkadir and Kaushik, 2015; and Deribe et al, 2015).

International capital inflow were found to significantly reduce the long run (cyclical) unemployment growth in Ethiopia, indicating that the GoE is (partly) successful in targeting FDI for creating jobs to home side labor force. The estimated negative coefficient of FDI (table1.4) is obvious, and confirms the overwhelming view that, developing economies rely on foreign direct investments basically to satisfy the persistently growing internal demand for job. Our finding supports Adeboje (2017); Prawoto (2017) and Trimurti (2014); Maqbool et al (2013); and Getnet (2003).

Population growth deters employment growth in the country, indicating that, the population growth rate is much higher than the country's (gross investing) employing capacity. The country's economy appears not responsive to instantaneously growing labor force in a manner that could clear employment gap in the labor market. NEPSE (2016) noted that, the labor force is growing much more rapidly than the population as a whole because of the young dominated demographic profile. There are many more under-aged (below 15) years old entering the work force each year than there are old people living the labor force. Unemployment provides a link between growth and poverty reduction only when it is systematically guided through policies and strategies which influence the determinants of labor market characteristics.

The Short-run Case:

Table 1.5: The Short run dynamics of unemployment: ECM estimates

	Dependent variable($d, lnUN_t$)			
Variable	*Coeff.*	*Std. error*	*t-Statistic*	*Prob.*
Adjustment Parameter, Ecm (-1) = -0.267 (0.000)				
$d,lnRGDP_t$(-1)	0.345	0.080	4.296	0.0009
$d,lnRGDP_t$(-2)	0.096	0.043	2.223	0.0445
$d,lnCPI_t$	0.253	0.050	5.068	0.0002
$d,(lnCPI_t$(-1)	0.365	0.072	5.061	0.0002
$d,(lnCPI_t$(-2)	0.160	0.073	2.208	0.0458
$d,(lnFDI_t)$	-0.235	0.068	3.464	0.0042
$d,(lnFDI_t$(-1)	0.707	0.133	5.316	0.0001
$d,(lnFDI_t$(-2)	0.396	0.103	3.844	0.0020
$d,(lnDEBT_t)$	-1.583	0.351	-4.512	0.0006
$d,(lnDEBT_t$(-1)	0.660	0.293	2.251	0.0423
$d,(lnDEBT_t$(-2)	1.128	0.323	3.488	0.0040
$d,(lnPOP_t)$	12.21	5.783	-2.113	0.0545

Source: (Own computation, 2018/19*)*

Evident from table (1.5) is negative and strongly significant coefficient of the error correction, which is estimated at -0.267(0.000).Hence, there is strong evidence for the short-term deviations to restore back towards the long term stable equilibrium point. About26.7% of the deviations in the system will be corrected each year. That means it takes a system about 3 years and 9 months to reach the long run (full restoration) equilibrium position. Fortunately, all variables entered the unemployment model have all found to be important in the short run. Thus, the regressors chosen all contribute significantly to the dynamics of unemployment irrespective of the time span considered in our analysis.

The positive impact of inflation persists also in the short run, due to its inadequate effect on private investment undertakings. Besides, the impact of initial shock survives up to the second period. It farther reveals that, the extent of inflationary pressure in the dynamics of inflation in the country. The effect of output is positive in short run, perhaps indicating the short run rigidities in the real sector. The short run impacts of FDI and population growth on the country's (cyclical) unemployment are obvious.

4. Conclusion and some Recommendations

Premise with the Phillips curve was suggested no longer valid in Ethiopia. Positive impulse moves from inflation to (cyclical) unemployment, likely due to its inadequate role on private investments. Timing is of less relevance whenever the importance of every macroeconomic regressor is considered; only that, the weight for some may differ. That is, the significant impacts of all variables persist both in the long and the short run. In line with theoretical justification, the effects of real national output, FDI, and the external borrowing on (cyclical) unemployment are negative. Besides, the impact of population size is also expected. Economic and social development policies of the country need not be treated in isolation. Monetary policy should be credible in targeting lower inflation rate. Moreover, any effective family planning policy could help in the effectiveness of employment policies. More importantly, enhancing productive and more labor-oriented investments serve the long run solution. Additionally, the country should make the investment environment attractive towards enhancing inflows of international capital, as they were found to significantly reduce the (cyclical) unemployment growth rate in Ethiopia.

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