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#### Article

### Foreign direct investments nexus unemployment in East African IGAD member countries a panel data approach

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# Wondimhunegn Atilaw Woldetensaye, Endashaw Sisay Sirah & Agumas Shiferaw

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### GENERAL & APPLIED ECONOMICS | RESEARCH ARTICLE

### Foreign direct investments nexus unemployment in East African IGAD member countries a panel data approach

Wondimhunegn Atilaw Woldetensaye<sup>1</sup>\*, Endashaw Sisay Sirah<sup>1</sup> and Agumas Shiferaw<sup>2</sup>

**Abstract:** This study aims to examine between foreign direct investments nexus unemployment in the Intergovernmental Authority for Development member countries from East Africa. The study employed panel data approach for member countries from the year of 1996–2021. It concluded that annual unemployment rate, annual population growth rate, and economic growth of the host countries have significant impacts on foreign direct investments. Since the purpose of this study was to examine the relations ship between foreign direct investment and unemployment, and the findings of the study determined that foreign direct investment has a significant negative impact on unemployment. Additionally, the impact of these host countries was confirmed to be the same as cross-sectional entities of member countries. According to the study, the public sector should create a climate that attracts foreign direct investments there by absorbing unemployed groups and driving employment rates upward.

Subjects: Economics and Development; Economics; Finance

Keywords: foreign direct investments; nexus; unemployment; random effect and IGAD



Wondimhunegn Atilaw Woldetensaye

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The authors of this article are Wondimhunean Atilaw Woldetensaye lecturer of Mizan Tepi University, department of economics, Ethiopia. I earned my BA in Economics and MSc in Economics Policy Analysis from Dire Dawa and Jimma University, respectively. I have been conducting and involving work on the design of economics research developments, fundamental model and Analytical studies. My research interests include macroeconomics and budget deficits, international trade, merchandise export, financial economics, income inequality, and crosscountry economic growth. Endashaw Sisay holds MSc from Jimma University. Now he is lecturer at Mizan Tepi University, department of economics. His research interests include financial economics, econometrics and industrial economics. Agumas Shiferaw got his MSc in marketing management from Hawassa University. Now he is a lecturer in Mizan Tepi University departments of marketing managements. His research focuses on consumer behavior, profitability of companies and market chain value.

#### PUBLIC INTEREST STATEMENTS

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Today, the economies of the world are becoming increasingly interdependent. Foreign direct investments and unemployment is crucial elements of the growth promotion policy of least-developed countries, particularly in East Africa. The study provides a rigorous analysis of how the foreign direct investments are affecting the unemployment rate and economic growth in IGAD member countries. Three key findings emerged from this study. Empirical evidence suggests that foreign direct investments lead to a reduction in unemployment. The second factor that contributes to economic growth in these countries is the inflow of foreign direct investments, which boost economic growth through the transfer of technologies and increased employment opportunities. Lastly, the findings of this study suggest that the population growth rate of countries has a significant negative impact on foreign direct investments and cross sectional entities along foreign direct investments and unemployment.





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#### 1. Introduction

Intergovernmental Authority for Developments (IGAD) economies have had mixed macroeconomic performance in the last fifteen years. Although most African countries have fared better than the continent's average growth rate, some have performed worse. Compared to the African average of 5.1% between 2000 and 2015, Ethiopia, Sudan, and Uganda performed better. Kenya and Djibouti performed worse than the African average, while Eritrea, Somalia, and South Sudan's results were not compared because of incomplete data. Comparing the results of member countries over the past five years shows a similar picture, with Ethiopia, Sudan, and Uganda performing better than the Sub-Saharan Africa (SSA) average, while the rest lagged behind. In the five years from 2011 to 2015, Djibouti, Ethiopia, Kenya, and Uganda outperformed the African average of 4%, while Sudan underperformed. The data for Eritrea, Somalia, and South Sudan were not complete enough for comparison (Byiers, 2016).

The phenomenon of foreign direct investments (FDI) is a consequence of globalization, which involves the integration of the domestic economy with the global economy. Foreign investors can establish business within the economy by opening up the local economic sector and providing them with domestic capital. Financial globalization occurs when there is a rise in capital movement within several countries. With the help of global financial intermediaries, domestic lenders and borrowers can participate in the international market (Macionis & Plummer, 2005). Developing countries benefit from financial globalization due to cheap labor and relatively high returns on capital (Rogoff & Obstfeld, 1996). The amount of capital flowing into developing countries has increased in recent years. In developing countries, foreign investment has a significant impact on economic growth (Robert, 2014). The inflow of FDI into developing countries is well known as a contributor to economic growth. It also stimulates job creation, technology transfer, and economic growth in the host country. Competition between local and foreign firms is created by the presence of foreign firms. Due to this, domestic firms are forced to use their existing resources more efficiently and adopt new technologies (Nayyra et al., 2014).

Both developing and industrialized countries increasingly rely on it for resource transfers. There are several real and potential benefits from these flows, including technological spillovers, new jobs, and improved managerial skills and productivity. Magnus Blomstrm Stockholm School of Economics, NBER and CEPR and Ari Kokko Stockholm School of Economics (1997) Due to the capital deficit in least developed countries and the benefits accruable from these activities, they are vital for growth and development (Dejene, 2015). Most African countries have undertaken a variety of policy reforms to create a conducive investment environment to attract a substantial amount of FDI as a method of attracting FDI (Nicola et al., 2013).

It is a fundamental goal for policymakers around the world to attract foreign investors, but even more in poor countries, where lack of capital is one of the key obstacles to economic growth. Governments are particularly interested in the possibility that inward FDI can create new and qualified jobs in the industrial sector as one of the potential consequences of this investment. There has been little research conducted on FDI's effect on employment in developing countries despite its high empirical and policy relevance.

Scholars believe that FDI and international trade are the key factors for enhancing economic growth and reducing unemployment like (Mustafa & Azizun, 2020). Due to the fact that FDI enhances private investments, creates new jobs and transfers knowledge and skills, it can play an important role. There is no universal agreement on the impact of FDI on host economies today. Nonetheless, their role is critical not only in increasing production and creating jobs, but also in developing the infrastructure and industries that are necessary for economic growth (Nikolaos & Pavlos, 2017). Besides these inconsistent results of the foundation between FDI and unemployment, no study has explored the issues and pooled nature of macroeconomic variables related to host countries. In conclusion, this paper examines the relationship between FDI, unemployment, and economic growth in the East African IGAD member countries and does FDI reduce Unemployment with additional literature on host countries of panel data analysis.

#### 2. Related literature

Both the issues of the FDI and unemployment are the global issues of the poor and rich countries that the researchers, international and national organizations to take study about this growing issues. Different scholars to explore the relationships between the FDI and unemployment by employing different methodology. But the results are different and contradictory. In these sections we will look at previous studies in the area both on LDC and DC.

The impact of FDI in Pakistan, India, and China from 1985 to 2008 was investigated. In India, China and Pakistan, FDI has little impact on employment opportunities compared to other policy interventions. The effect of FDI on unemployment rate and economic growth in Malaysia from 1980 to 2010. An OLS approach was used to analyze the data. The study found FDI to be beneficial to Malaysia's economic growth and a reduction in unemployment. Sarwar and Habib, (2013) examined the effect of FDI on employment levels in Pakistan between 1970 and 2011. Depicted on long run relationship between the variables was done using the Johansen test of co-integration, FDI has a positive significant effect on Pakistan's employment level. Roland (2006) were examined FDI and employment for 20 English and Dutch speaking Caribbean countries from 1990 to 2000. Results indicated that an increase in FDI leads to more jobs in these countries. FDI also influenced employment in China's manufacturing sector, according to Karlsson et al. (2009) employed VAR model from the year of 1998 to 2004, the direct positive effects of FDI on employment growth.

Researchers believe that FDI inflows can affect the unemployment rate and decrease it in the host country, such as Jumhur Tegep and Eddy Suratman and Sukma Indra (2019), which aimed to discover and test macroeconomic variables that can mediate the relationship between FDI and the unemployment rate in Indonesia by employed integrated alternative model on 36 Indonesian provinces over a 17-year time span. The result found that GDP and provincial minimum wages directly mediate FDI and reduce unemployment. FDI and the unemployment rate in Nigeria from 1980 to 2015 were studied by (Johnny et al., 2018). In the study, it was concluded that: FDI and the unemployment rate have a negative and significant relationship, and capital formation and the unemployment rate have a positive and significant relationship.

Adam and Żurek (2011) examined the correlation between FDI and the unemployment rate in Poland's labor market from 1995 to 2011. According to the study, foreign direct investment led to a decrease in unemployment in Poland in the short-term, and it recommended reforming government policies in order to FDI and ensures a positive impact in the long-run.

Mustafa and Azizun (2020) examined the relationship between FDI and unemployment in Sudan for 1990–2016 by using VAR model. The study concluded that FDI volume does not affect unemployment, and that unemployment in Sudan does not attract FDI. Using panel data from 1970 to 2011.

Dijana and Softi (2017) examined the correlation between global unemployment rates and FDI flows in the Western Balkan countries, and presented comparative analyses with chosen countries for the period 2000–2014. The analysis found that there has been a significant reduction in net investments since 2009, especially when it comes to FDI due to the global economic crisis, which led to a decrease in employment and rising unemployment.

Mehmet and Tahir (2013) examined the relationship between FDI and unemployment in seven developing countries from the time span of 1981 to 2009; namely Argentina, Chile, Colombia, Philippines, Thailand, Turkey and Uruguay showed long-run relationship between FDI and unemployment.

Bayar (2014) examined the relationship between unemployment, economic growth, export, and FDI inflows in Turkey during the period 2000:Q1-2013:Q3 by Using a bound testing approach based on autoregressive distributed lag. There is a long-run correlation between unemployment,

economic growth, exports, and FDI inflows, according to the study. In addition to this, empirical findings have shown that economic growth and exports undermine unemployment, while FDI increases it.

Upon reviewing previous studies in the literature, it can be understood there are several different studies that focus on the impact of FDI on unemployment, some of these studies used time series data and others used cross sectional panel data. Furthermore, it is noted that many different methodologies are employed in these studies, such as vector error correction, autoregressive distributed lag, generalized method of moment, cross-section common effect model, and cross-section fixed effect model. Nevertheless, it has been determined that no study has examined the leading FDI nexus unemployment and economic growth on IGAD member countries in East Africa from an investigation which adds additional literature on these specific regional studies and due to the differences in findings across studies, it is not possible to determine how FDI affects unemployment in IGAD countries. Since no study has covered this region separately, a report covering this region would be very beneficial to the literature of these investigations (Mustafa & Azizun, 2020).

#### 3. Research methodology

#### 3.1. Theoretical framework and empirical procedure

#### 3.1.1. Theoretical framework

Okun's economic model indicates a correlation between economic growth and unemployment. A panel data approach will be used to examine FDI and Unemployment Nexus in East Africa. FDI drive economic growth. The increase in FDI will lead to the increase of output in the country, which is the function of economic growth, inflation, and other macroeconomic variables (gross domestic product, unemployment, etc.). In light of the above argument, for the purpose of this study, the study will employ the fundamental model of Okun's law to estimate FDI and unemployment, since Economic growth depends on FDI extension as demonstrated by (Mustafa & Azizun, 2020).

$$\Delta U^{n}it = \Delta Y_{it} \tag{3.1}$$

Assume that  $\Delta Y_{it} f(UN_{it}^n, INF_{it}, FDI_{it}, TOP_{it})$  (3.1.1)

The economic growth rates of the country *i* during period **t** and,  $\Delta Y_{it}$  is other explanatory variables. As economic growth is the functions of FDI on the above arguments, it is possible to rewrite by arranging the right-hand side of explanation variable as explained in (Uka Odim et al., 2014).

$$\Delta FDI_{it} = \Delta U^{n} it \tag{3.2}$$

$$\Delta FDI_{it} = f(UN_{it}^{n}, INF_{it}, RGDP_{it}, TOP_{it})$$
(3.2.1)

In addition to the theoretical model of Okun's law, the study develops an econometrics a panel data model based on the above framework. There are three types of panel data regression models (pooled regression, fixed effect/LSDV model and random effect model) depending on the panel Hausman model specification test method.

#### 3.1.2. Empirical model procedure

The study used a panel data approach experienced in Mustafa and Azizun (2020) to determine the FDI and unemployment Nexus in East Africa IGAD member countries.

$$Y_{it} = \beta_i + \beta x_{2it} + \varepsilon_{it}$$
(3.3)

The dependent of variable( $Y_{it}$ );  $X_{it}$  is explanatory variables, and  $\varepsilon_{it}$  is the error term, while the subscript *i* is the cross-sectional unit of analysis, the individual country  $, i = 1 \dots N$  and t is the time period,  $t = 1 \dots N$ , t stands for unit and period of time, respectively. There are different fixed effect models depending on the assumption of the intercept and slope coefficients. We treat the group-specific constant term ( $\beta_{1it}$ ) in the fixed-effects model as a parameter to be estimated along with the other parameters. It may be either a time constant or a unit constant when the intercept is the individual unit but on time N - 1 individual dummy variable is included and the model become:

$$Y_{it} = \alpha_1 + \alpha_2 D_{2i} + \beta_2 X_{2it} \dots \dots \alpha_N D_{it} + \beta_N X_{3it} + \varepsilon_{it}$$
(3.4)

Although there are no significant temporal effects, there are significant differences among unit of

analysis in this type of model. In the case where the intercept is fixed over time but not on the individual unit, we could account for the time effect over the t years with t - 1 time dummy variables on the right-hand side of the equation. The model become

$$\gamma_{it} = \mu_1 + \mu_2 D_{27} \dots \dots \mu_T D_{TT} + \beta_2 X_{it} + \varepsilon_{it}$$
(3.5)

Using equations (3.3) and (3.5), the model would show no significant country differences, but might show autocorrelation because of time-lagged effects. Using a lot of dummy variables in these two fixed-effect models leads to a diminished degree of freedom and a greater risk of Multicollinearity, which increases the standard errors, thereby draining the model of its statistical power to test parameters. This problem becomes more complex when the time and unit of analysis are taken into account. Furthermore, if the models contain variables that are constant within the groups, parameter estimation may not be possible. While the model residuals are assumed to be normally distributed and homogeneous, there could be country-specific Heteroskedasticity or autocorrelation over time that would further impede estimation. In the case of a cross-section sampled from a large population so that exhaustiveness is maintained, it may be more appropriate to view the individual-specific effects in the sample as randomly distributed effects across the full cross-section of agents. An outcome is determined by a mean value and a random error. We can then construct the random effect model from equation (3.3) by simply assuming the intercept term is random with mean value  $\beta_i$ . Its value for individual *i* can then be expressed as follows:

$$\beta_i = \beta_i + \mathbf{v}_i \tag{3.6}$$

By substituting equation (3.6) into equation (3.3),the simplest panel data model we get a random panel data model that looks like this.

$$\gamma_{it} = \beta_i + \beta_{it} X_{it} V_{it} + \varepsilon_{it}$$
(3.6)

 $v_{it}$  Cross-sectional specific error term for individual countries, which indicates the deviation from the constant of the cross-sectional unit. In contrast, the idiosyncratic error is unique to a particular observation. It cannot be correlated with the errors of the variables (Greene, 2003) According to the properties of the two error components, the appropriate estimation method for this model is determined. In turn, the individual components may be independent or correlated with the regressors (Croissant & Millo, 2008). Despite the above models' advantages, they are unable to show or capture dynamic relationships, while most macroeconomic variables and economic relations are dynamic in nature. FDI and unemployment have a dynamic nature in that the current level has likely been affected by the previous period(s).. In order to capture this characteristic, true state dependency, it is better to use Lagged Dependent Variables models also known as panel data models (Brüderl & Ludwig, 2015). The lagged dependent variables can be introduced to either fixed or random effects models. Creating a panel model based on a fixed effects model is more

Table 1. Panel unit root test, im, pesaran and shin (IPS) for level variables						
Variables in level	With only individual effects	With individual effects and time trends				
Ln_FDI	0.0793*	0.9999				
Ln_UNE	0.5128	0.9327				
Ln_RGDP	0.0001***	0.0000***				
Ln_INF	0.0007***	0.0001***				
Ln_POP	0.9184	0.2611				

Source: Own competitions based on Available data (STATA SE/14.0.)

Note:—The sign of \*\*\*, \*\* and \*showed that the level of significant of the variables in IPS unit root test at the probability of 1%, 5% and 10%, respectively.

In a unit root test, if the variables are not stationary at level which indicated in Table 1, the next step is to difference the variables and perform a unit root test in first difference. Table 2 is the result of the unit root test for the first difference of variables.

appropriate for many macro datasets than a random effects model, according to (Judson & Owen, 1999). As a consequence of the above empirical model procedures, we can construct aggregate and disaggregate models of the OAEF\_A\_2146630 and unemployment nexus in East Africa with IGAD member countries.

$$FDI_{it} = f(UNE_{it}, GDP_{it}, INF_{it}, POP_{it})$$
(3.8a)

Therefore the linear equations model of this study is

$$FDI_{it} = \beta_0 + \beta_1 UNE_{it} + \beta_2 GDP_{it} + \beta_3 INF_{it} + \beta_4 POP_{it} + \varepsilon_{it}$$
(3.8a1)

All variables appearing in the estimated equation are described in order to avoid any form of misunderstanding of empirical results. To get rid of trends and variability in the data, all explained and explanatory variables are converted into logarithms.

$$LFDI_{it} = L\beta_0 + \beta_1 LUNE_{it} + \beta_2 LGDP_{it} + \beta_3 LINF_{it} + \beta_4 LPOP_{it} + \varepsilon_{it}$$
(3.8a11)

$$LUNE_{it} = L\beta_0 + \beta_1 LFDI_{it} + \beta_2 LGDP_{it} + \beta_3 LINF_{it} + \beta_4 LPOP_{it} + \varepsilon_{it}$$
(3.8a21)

These above simultaneous model of show the nexus between  $FDI_{it}$  and  $UNE_{it}$  illustrated on Tables 7 and 8.

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Variables in difference	With only individual effects	With individual effects & time trends
Ln_FDI	0.0793*	0.9999
ΔLn_UNE(1)	0.0000***	0.0000***
Ln_RGDP	0.0001***	0.0000***
Ln_INF	0.0007***	0.0001***
Ln_POP(1)	0.0000***	0.0007***

Table 2. Panel unit root test, im, pesaran and shin (IPS) for difference variables

Source: Own competitions based on Available data (STATA SE/14.0).

Note:—The sign of \*\*\*, \*\* and \*showed that the level of significant of the variables in IPS unit root test at the probability of 1%, 5% and 10%, respectively.

#### 3.2. Definitions (Description) of variables and expected value

#### 3.2.1. Foreign direct investments (FDIit)

Foreign direct investments, net inflow as share of gross domestic product. Which provides the basic facilities to developing countries like technology, capital, entrepreneur abilities and professional skills; these are essential for creations of jobs opportunities.

#### 3.2.2. Unemployment (UNE(it)

It is an economic condition marked by an individual actively seeking a job but not now engage on their job measured as share of GDP. In additions to this it also defined by International Labour Organization (ILO) is number of people over the age of 18 who want and able to find work at a certain wage rate but are not capable to obtain it. Mustafa and Azizun (2020), employed the impacts of FDI on unemployment in Middle East and North Africa panel data approach, the finding revealed that FDI reduce significantly unemployment. Also Stamatiou and Dritsakis (2014) Investigated the impact of the FDI on unemployment rate including economic growth in Greece by using time series data analysis, the result found that decrements of unemployment by one percentage will cause to increase 0.27 percentage of FDI which confirmed the negative relationship between FDI and unemployment and its expects to have the negative sign.

#### 3.3. Inflations (INF)

It is a situation continually raises general price level and measured by annual Growth rate of GDP deflator. It is a sustained increase in general price levels of goods and services in an economy over a time period. According to Jeelanie Banday and Basu Roy Choudhury (2018) employed the impacts of FDI inflow on the rate of inflations in India. Whose finding concludes was an increase in FDI, inflation will decrease. This shows a one percentage increase FDI will cause to decline 0.542 in inflations. In additions to this another studies which studied by Hong and Ali (2020) on the impacts of inflations towards FDI in Malaysia and Iran. The result was supported on the previous studies. This concludes the rate of inflations has negative effect on FDI and its expects to have the negative sign.

#### 3.4. Gross domestic products (GDP\_it)

Per capita is the total value of final good and service a country produces in its territory divided by its total population at a given period of time. In addition to this it is the standards of measure the value of added created through the productions of goods and services in country during certain period of time. ADEDEJI and Ahuru (2016) investigated on FDI and economic growth in developing countries: Panel data estimations for Sub Saharan African Countries (SSA) and the finding reveals that though positively stimulate economic growth in SSA. And another scholars studies the Bouchoucha and Ali (2018) entitled the impacts of FDI on economic growth evidence from Tunisia economy by using time series data analysis from 1980 to 2015. The result supported the previous result which investigated, a one percentage increase on FDI will leads to increase GDP growth of 0.228%. Analyzed positive and significant effect of FDI on economic growth. Depending on this its expected coefficient of the variable is positive sign.

#### 3.5. Population growth (POP(it)

It is an increase in the number of people that rose in countries measured in change in population size as factor of time. It is annual average rate of change of population size for given country during a specific period time. Behname (2012) discuss FDI and economic growth evidence from South Asia from 1977 to 2009 a panel data approach and use populations growth as control variables analyzed population growth rate and FDI are negative relations ships. This indicate that the more populations size in the countries would mean more market at home hence FDI will decline as long as domestic investors are satisfied at home and Its expects to have negative sign.

#### 3.6. Model specifications test

Comparing the fixed effect (*FE*) and random effect (*RE*) model estimations can be test for weather correlated between  $\alpha_i$  and  $x_{it}$  assumes the idiosyncratic error and the explanatory variables uncorrelated across all time periods. Hausman 1978 developed the constructions of test based

on the difference between the  $FE(\beta_{FE})$  –, *i.e* and the coefficient of the Vector of FE model and  $RE(\beta_{RE})$  –, *i.e* and the coefficient of the vector of RE model. Under the null the variance of the differences will help to determine which of the two models is better:

$$\widehat{(\beta_{RE})} - \widehat{(\beta_{FE})} \text{ is}$$

$$\operatorname{var}(\widehat{\beta_{RE}}) - \operatorname{var}(\widehat{\beta_{FE}}) = \sum$$
(3.2a)

The Hausman test of the null of no correlations can therefore conducting using the Wald statics:

$$W = \widehat{(\beta_{RE} - \beta_{FE})} = \sum_{i=1}^{-1} \widehat{(\beta_{RE} - \beta_{FE})}$$
(3.2.b)

The null is the number of regressors, and the degree of freedom is *K* under the null. In Housman's test, the null hypothesis is that the coefficients estimated by the efficient random effect estimators are the same as the ones estimated by the consistent fixed effect estimators.

 $H_0 = \overbrace{(\beta_{RE})}^{-1} = \overbrace{(\beta_{FE})}^{-1}$  and  $H_1 = \overbrace{(\beta_{RE} - \beta_{FE})}^{-1} [var(\beta_{RE}) - var(\beta_{FE}) \cdot \sum_{.}^{-1} :$  If they are (insignificant the p-value, prob>chi<sup>2</sup>( $\stackrel{\alpha}{=} x^2(k)$ )|rgerthsan0.05), then it is safe to use random effect model. If we get a significant p – value we should use fixed effect model. In our case, Hausman specification test fail to rejects (accept) the null hypothesis insignificant at 5% (> h2 = 0.2797) random effect model is appropriate for this study.

#### 4. Econometrics result and its discussions

Under this sections which is the heart of the investigations we would present all the statistical and econometrics result of the studies accompanies with their interpretations so as to achieve the main objective discussed below. In this sections would have two broad sub sections. The first broad sub-sections are discussed about the descriptive statistics and the second broad sub sections is econometrics result on FDI and Unemployment nexus in IGAD member countries. The first broad sections dissipative statistics deals about the central tendency, dispersions and graphical plots of data natures of FDI and unemployment with other control Macro economic variables in the study area. Second sub topic which is allotted to analyze the basic econometrics results would be briefly observe panel unit root test and other diagnostic test of panel data Random-effects GLS regression estimations result of FDI and unemployment equations was employed.

#### 4.1. Panel unit root test result

It is common to test the stationarity of the variables in the first place before estimating the regression of the equations as the presence of the unit root test leads to spurious results. Accordingly a panel unit root test developed by the (Im Pesaran, 2004) is employed in the study. This method of the testing of a panel unit root allows for difference across the panel members. Therefore the null hypothesis of this test is that all countries have a unit root test for the variables against the alternatives hypothesis that at least some panel members without a unit root test. Based on the method the result of tests is the following Tables.

In the Im, Pesaran and Shin panel unit root test method including time trends, all variables except *Ln* of total population growth and *Ln* of unemployment are stationary at level. As a general

rule, the unit root test shows that variables that are stationary at level are integrated of order ,I(0) at level, while variables that become stationary at level are integrated of order one ,(1) at level, but become I(0) after first differencing. Since this stationarity would not be appropriate to test the study panel co-integration test since in theory all variables are stationary at level, but that is not true for this study. Because of the occurrence of a second difference between the logarithms of the total population growth and the logarithms of unemployment in the models, this study does not include the test of co-integration.

#### 4.2. Descriptive analysis

The Intergovernmental Authority on East Africa (IGAD) was established in 1996 as an alternative to the Intergovernmental Authority on Development (IGAD), which was established in 1986. Repeated severe droughts and other natural disasters between 1974 and 1984 caused widespread environmental degradation and economic difficulties in the East African region. Although countries have made great efforts to deal with this situation and received generous support from the international community, the scale and scale of the problem has insisted on a regional approach that complements the country's efforts.

#### 4.2.1. Trend of the FDI and UNE across countries in different type of sketching graph

The structure of the log of FDL and unemployment plotted next sketching diagrams on host East African countries IGAD member countries has unstable trends of FDI and Unemployment excluding Ethiopia,Sudan, Kenya and including Relatively Uganda, these countries has relatively smooth trends as comparing to the other countries. But Djibouti and Uganda have deviations among consecutive years. In 2020 the net inflow of (%ofGDP) for Djibouti was 4.7%. Though the net FDI inflow of (%GDP) fluctuated substantially in recent year, it tended to increase through 2001–2020 period ending of at 4.7% in 2020.Coming to Uganda investments policy reviewed (IPR) was published in 2000.It formulated recommendations on the how to improve Uganda investments frame work, investments promotions efforts and strategies to attract and benefits from FDI. It spelled out a "Big Push" strategy of investments promotions reburied dramatics and sustained set of actions, arguing that minor adjustments would yield mediocre results leads for ununiformed trends of FDI.



Source: Own competitions Based on Available Data (STATA SE/14.0).

The first row in Table 3show the overall descriptive statistic displays the logarithm of foreign direct investment (*Ln\_FDI*). From the table, it can be seen that the variable was very smooth in the cross section with the maximum being 22.10679% in *Ln\_FDI* which was experienced in Djibouti and Kenya in 2008, while the lowest was -5.418125% in Djibouti in 1996/2002 and Kenya in 2003. The mean of the variable for the entire period of countries under consideration is 4.069125%. Since this study investigates the Nexus between FDI and unemployment, unemployment is determined as 0.0044206% and maximum at 0.4580753% and minimum at -0.6198444% experienced Ethiopian in the year of 2004/19 and 2021. An overview of Uganda in 2017/2021. 2007/2008 and 2017/2019 in Kenya. In addition, *Ln\_UNE* has adapted the minimum observation of -0.6198444% experienced in Ethiopia and Uganda.

Table 3. Summary st	atistics of variables used	I to FDI and UNE on eq	uations (3.8a11) estim	ations		
Variables		Mean	Std. Dev	Min	ΜαΧ	Observations
Ln_FDI	Over all	4.069125	6.982434	-5.418152	22.10679	N = 130
	Between		6.763008	.7748942	16.162	n = 5
	Within		3.446754	-11.17515	10.01392	T = 26
Ln_UNE	Over all	1.623447	.8369676	.54232443	3.332205	N = 130
	Between		.9152816	.8931783	2.79102	n = 5
	Within		.1585153	1.272593	2.164632	T = 26
D.Ln_UNE	Over all	0.0044206	.1044864	6198444	.4580753	N = 125
	Between		.0132653	0102073	.0238097	n = 5
	Within		.1038051	6265906	.4386862	T = 26
Ln_RGDP	Over all	1.442564	.8813627	-2.929827	2.44425	N = 123
	Between		.253634	1.171222	1.662002	n = 5
	Within		.8539298	-3.149265	2.400485	T-bar = 24.6
Ln_INF	Over all	1.878425	1.212101	-2.676491	5.595826	N = 123
	Between		.7584047	.9286546	2.980839	n = 5
	Within		1.002833	-2.291902	4.493413	T-bar = 24.6
Ln_POP	Over all	1.370259	1.152781	-0.0576291	4.592379	N = 130
	Between		.4981399	.5028119	1.696722	n = 5
	Within		1.0622474	.5905564	4.265916	T = 26
D.Ln_POP	Over all	.0876194	.5301567	5250449	3.611875	N = 125
	Between		.0665619	0293479	.1375578	n = 5
	Within		.5267762	4080776	3.561936	T = 25

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Country = 1 <b>Ethiopia</b>	Ln_FDI	In_UNE	In_RGDP	ln_INF	ln_POP
Observations	26	26	24.6	26	26
Mean	4.069125	1.623447	1.442564	1.878425	1.370259
Std. Dev.	6.982434	0.8369676	0.8813627	1.212101	1.152781
Min	-5.418125	0.5423243	-2.929827	-2.676491	0576291
Max	22.10679	3.332205	2.44425	5.595826	4.592379
Country = 2 = Djibouti	-				
Observations	26	26	24.6	24.6	26
Mean	4.069125	1.623447	1.442564	1.878425	1.370259
Std. Dev.	6.982434	.8369676	.8813627	1.212101	1.152781
Min	-5.418125	.5423243	-2.929827	-2.676491	0576291
Max	22.10679	3.332205	2.44425	5.595826	4.592379
Country = 3 = Kenya					
Observations	26	26	24.6	24.6	26
Mean	4.069125	1.623447	1.442564	1.878425	1.370259
Std. Dev.	6.982434	.8369676	.8813627	1.212101	1.152781
Min	-5.418125	.5423243	-2.929827	-2.676491	0576291
Max	22.10679	3.332205	2.44425	5.595826	4.592379
Country = 4 = Uganda					
Observations	26	26	24.6	24.6	26
Mean	4.069125	1.623447	1.442564	1.878425	1.370259
Std. Dev.	6.982434	.8369676	.8813627	1.212101	1.152781
Min	-5.418125	.5423243	-2.929827	-2.676491	0576291
Max	22.10679	3.332205	2.44425	5.595826	4.592379
Country = 5 = Sudan	-				
					(Continued)

Table 4. (Continued)					
			Variables		
Country = 1 <b>Ethiopia</b>	Ln_FDI	In_UNE	In_RGDP	In_INF	In_POP
Observations	26	26	24.6	24.6	26
Mean	4.069125	1.623447	1.442564	1.878425	1.370259
Std. Dev.	6.982434	.8369676	.8813627	1.212101	1.152781
Min	-5.418125	.5423243	-2.929827	-2.676491	0576291
Max	22.10679	3.332205	2.44425	5.595826	4.592379
Source: Own Competitions Based	l On Available Data (STATA SE/14.	((		-	

Table 5. Diagnostic estimation	is issues				
Multicollinearity test					
Mean of VIF	1.	15			
	Heteroskedasticity				
Breusch-Pagan	chi2(1)	Prob > chi2			
	= 0.87	= 0.3501			
White's test	= 16.90	= 0.6597			
	Model specification: Hausman test				
	chi2(1)	Prob > chi2			
	= 5.08	= 0.2797			
Breusch and Pagan LM test for random effects					
	chibar2 (01)	Prob > chibar2			
	= 249.57	= 0.000			
	Group Variability's				
	F(4, 121)	Prob > F			
	= 2.55	= 0.0427			

Source: Own Competitions Based On Available Data (STATA SE/14.0.)

Note: Hausman test:  $H_0$  = Random effect model is appropriate and  $H_1$  = Fixed effect model is appropriate. The Breusch and Pagan LM test:  $H_0$  = pooled OLS regression model is Appropriate and  $H_1$  = Random effect model is appropriate.

The Table 4 represents the statically summary of East African IGAD member countries individually which approximates the mean. Accordingly, the above cumulative table of theses cross member states as the overall variation of the above general statistical summary the mean value, the standard deviations, and the variation between maximum and minimum values are smooth or moderate. The measure of central tendency and measure of dispersion to the individual countries do not significantly differ from the overall statistics summary. In the regions indicated by the results, both the overall summarized statistics and each individual country have moderate or smooth interactions of the variables determining FDI and unemployment. Preliminary investigations for this study show the consistency of the data in statistical explanations.

#### 4.3. Econometrics analysis

#### 4.3.1. Diagnostic test

Before estimating the econometrics Analysis, it is essential to explore the data. Alemayehu (2004) data explorations are the pre-requisite for good model formulations and analysis. Data explorations help us to identify the patterns of the data in order to give it good strong empiric from explanations. In addition to this, the consistency of parameters estimators and validity of their econometrics interpretations and marginal effects crucially dependent on the correct functional forms of diagnostic test of the econometrics models indicated on table 5.

#### 4.3.2. Correlation matrix

Table 6 Introduces the correlation matrix of all variables used on the study. A correlation matrix was an econometrics estimation which implies that relationship between the variables in regression analysis. It was used to summarize data, as an input into more advanced analysis and diagnostic test for advanced estimations. Ratner (2009) and Bobenič Hintošová et al. (2018) employed as the Paris of the variable with the high correlations would be excluded from the empirical model to avoid the Multicollinearity problems. According to the study we consider a correlation coefficient of 0.7 and above as high value stated in the study. Based on the correlation coefficients the positive effect of Ln\_RGDP while the negative effect Ln\_UNE, Ln\_INF, Ln\_POP and Countryname on FDI expected in the following empirical model. Some Variables are insignificant coefficients on the empirical model investigated in the study

Table 6. Cor	relation matri	x estimation	result			
	Ln_FDI	Ln_UNE	Ln_RGDP	Ln_INF	Ln_POP	Country name
Ln_FDI	1.0000					
Ln_UNE	6807**	1.0000				
Ln_RGDP	.5532***	2308*	1.0000			
Ln_INF	2901*	3157*	.5185**	1.0000		
Ln_POP	6309**	.5431**	.2587*	.4574*	1.0000	
Country name	5132*	5107***	.6901**	.6109*	.1801	1.0000

Source: Own Competitions Based On Available Data (STATA SE/14.0.)

Note:1.\*\*\*,\*\*and \*show significant level at 1%,5% & 10% significance, respectively.

2. Countryname 1,2,3,4,and 5 Is shown Country name id number (i.e.) for Ethiopia, Djibouti,Kenya,Uganda and Sudan, respectively.

presented on Tables 7 and 8; this was experienced and confirmed from Birdsall (2005). The variables have relationships but they are insignificant.

These sections (Tables 7 and 8) represent the result of the empirical explanations between FDI nexus unemployment in East African IGAD member countries by employing random-effects GLS analysis from 1996 to 2021.Since the study was employed Nexus it indicated that relations of FDI on unemployment (Table 7) and unemployment on FDI (Table 8) tables below researchers investigated, respectively.

The data presented in this section represent the results of the empirical analysis of foreign direct investment ( $Ln\_FDI_{it}$ ) and unemployment ( $(Ln\_UNE_{it})$  in IGAD member countries in East Africa. The study used a panel data for five East African IGAD member countries from 1996 to 2021. The estimation result for these Crosse countries is shown in Table(5.8) as illustrated in Equation (3.8a11). The significance level of the explanatory variables is statistically significant logarithms of unemployment ( $Ln\_UNE_{it}$ ), real gross domestic product ( $RGDP_{it}$ ), total population growth ( $Ln\_POP_{it}$ ), and cross-sectional group entities ( $Countryname_{it}$ ) but unemployment is significantly significant at 5% and cross sectional group entities with 1%.

Table 7. Random-effec (equations 3.8a12)	ts GLS regression result	the Dependent Variabl	le = 〖Ln_UNE〗_it
Variables	Coefficient	Std. error	Z-statics
Ln_FDI	1201819***	.031693	-3.79
Ln_RGDP	0147715	.0194246	-0.76
Ln_INF	0035571	.0045514	-0.78
Ln_POP	.0471328**	.0264563	1.78
Country name	1898379***	.036522	-5.20
_cons	3.030583***	.2127122	14.25
Probabilities			***
Number of Oserv			130
R_ Square Within Between overall			= 0.0069 = 0.5977 = 0.3019

Source: Own Competitions Based On Available Data (STATA SE/14.0.)

Note:-1. \*\*\*, \*\* and \* show significant level at 1%, 5% and 10% significance, respectively.

2. Countryname 1, 2, 3, 4, and 5 Is shown Country name id number (i.e.) for Ethiopia, Djibouti, Kenya, Uganda and Sudan, respectively.

Table 8. Random-effec 3.8a11)	ts GLS regression result	the dependent variable	e = Ln_FDI it (equation
Variables	Coefficient	Std. error	Z-statics
Ln_UNE	864651***	.2280156	-3.79
Ln_RGDP	.1128908**	.0512296	2.20
Ln_INF	0183469	.0121267	-1.51
Ln_POP	1470151**	.0706419	-2.08
Country name	234343**	.1060402	-2.21
Intercept	5.962222***	.7561296	7.89
Probabilities			***
Number of Oserv			130
R_ Square Within Between overall			= 0.0688 = 0.9628 = 0.2200

Source: Own Competitions Based On Available Data (STATA SE/14.0.)

Note:-1. \*\*\*, \*\* and \* show significant level at 1%, 5% and 10% significance, respectively.

2. Countryname1, 2, 3, 4, and5 Is shown Country name id number (i.e.) for Ethiopia, Djibouti, Kenya, Uganda and Sudan, respectively.

When foreign direct investments  $(Ln\_FDI_{it})$  change by one percentage that leads to the unemployment rate  $(Ln\_UNE_{it})$  of cross-sectional entities decreases by 0.864651 with the stability of the other explanatory variables. The results of this study are consistent and rebuilt based on the assumptions of a fundamental theory of economics model that is Okun's law in accordance with the findings of (Mustafa & Azizun, 2020; (Nayyra et al., 2014). In the IGAD member countries a one percent change of the FDI leads to unemployment rate on the cross countries are decreased by 0.234343.

According to the coefficient of real Gross domestic products  $(Ln_RGDP_{it})$  the result show that significant and positive at five percentage which explained that when the Foreign direct investments  $(Ln_FDI_{it}$  are increased by one percentage the economic growth of the host countries increased by the 0.1128908. This result is confirmed and consistent Okun's law fundamental economic model and Mustafa and Azizun (2020), respectively.

Population growth (*Ln\_POP<sub>it</sub>*) demonstrates a significant and negative effect on foreign direct investments (*Ln\_FDI*), which means that when population growth increases by one percentage, FDI (*Ln\_FDI<sub>it</sub>*) decrease by 0.1470151. According to the neoclassical growth model, the higher the population rate (*Ln\_POP<sub>it</sub>*) has a negative effect on the steady state output, as a result of the portion of the economy's resources going to investment in new workers, rather than raising capital per worker which is consistent with the results of this study and those of (Nlandu & Kareem, 2018).The result of cross sectional entities or group (*Countryname<sub>it</sub>*) which implied on this study is countries, is positive and statistically significant, at percent which showed that FDI (*Ln\_FDI<sub>it</sub>*) and unemployment (*Ln\_UNE<sub>it</sub>*) have negative relationships on the study and which are supported by the result of this study. Finally the study employs a panel data approach to study FDI (*Ln\_FDI<sub>it</sub>*) and unemployment (*Ln\_UNE<sub>it</sub>*) for East African IGAD member countries. Based on data available, the study confirms that cross sectional entities of group countries are significant and that reductions in unemployment (*Ln\_UNE<sub>it</sub>*) are taking place in the East African IGAD member countries (*Countryname<sub>it</sub>*) which are included in the study.

#### 5. Conclusion and recommendations

The aim of this study was to provide new empirical evidence on the FDI Nexus Unemployment in East African IGAD member countries using a Panel Data method from 1996 to 2021. The scope of the study included five countries from IGAD member countries based on the available data. In this study, we employed a random effect panel approach model using a Housman and Breusch and Pagan LM test for random effects model specifications test. We found that unemployment, real

gross domestic product, population growth, and cross-sectional entities have significant effects on FDI. The findings of this study indicate that lack of FDI has negative effects on the economy of these member countries. IGAD member countries in East Africa should follow economic, monetary, and fiscal policies that attract FDI to the region and improve investment climates that are attractive to FDI. Developing economies in Africa should adopt economic, monetary, and fiscal policies that attract FDI and create investment climates that are attractive to FDI. IGAD member countries also attracted FDI that absorbed unemployed groups and improve employment rates. Additionally, the government is improving and enacting a set of laws and regulations that provide a set of incentives and tax exemptions to attract FDI to the IGAD member countries.

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#### References

- Adam, P. B., & Żurek, M. (2011). Foreign direct investment and unemployment: VAR analysis for Poland in the years 1995-2009. European Research Studies Journal, XIV(1), 2011. https://doi.org/10.35808/ersj/306
- ADEDEJI, G. D., & R, Ahuru. (2016). Foreign direct investment and economic growth in developing countries: Panel estimation for Sub-Saharan African countries. International Journal of Development and Management Review (INJODEMAR). 11. June, 2016. https://www.ajol.info/index.php/ijdmr/article/view/ 137826
- Alemayehu, G. (2004). Problem of African macro and external data and their implications for policy making. *First Forum of African Development, Addis Ababa.* https://hdl.handle.net/10855/26442
- Bayar, Y. B. (2014). Effects of economic growth, export and foreign direct investment inflows on unemployment in Turkey. Investment Management and Financial Innovations, 11(2), 2014. https://www.econ biz.de/Record/effects-of-economic-growth-exportand-foreign-direct-investment-inflows-on-unemploy ment-in-turkey-bayar-y%C4%B1lmaz/10010392853
- Behname, M. (2012). Foreign direct investment and economic growth: Evidence from Southern Asia. Atlantic Review of Economics -, 2.
- Birdsall, N. (2005). Effect of inward foreign direct investment on income inequality in transition countries. *Journal of Economic Integration*, 22(4), 888–928.
- Bobenič Hintošová, A., Bruothová, M., Kubíková, Z., & Ručinský, R. (2018). Determinants of foreign direct investment inflows: A case of the Visegrad countries.

Journal of International Studies, 11(2), 222–235. https://doi.org/10.14254/2071-8330.2018/11-2/15

- Bouchoucha, N., & Ali, W. (2018). The impact of FDI on economic growth: Evidence from Tunisia. *Journal of Smart Economic Growth*;, 4(3). www.jseg.ro2537-141X
- Brüderl, J., & Ludwig, V. (2015). Fixed-EFFECTS PANEL REgression. In H. Best & C. Wolf (Eds.), The sage handbook of regression analysis and causal inference (pp. 327–357). Sage, Thousand Oaks.
- Byiers, B. (2016). The political economy of regional integration in Africa: Intergovernmental Authority on Development (IGAD) report. The European Centre for Development Policy Management. http://ecdpm.org/ wp-content/uploads/ECDPM-2016-political-Economy-RegionalIntegration-Africa-IGAD-Report.pdf
- Croissant, Y., & Millo, G. (2008). Panel data econometrics in R: The plm package. Journal of Statistical Software, 27(2), 1–43. https://doi.org/10.18637/jss.v027.i02
- Dejene, G. (2015). The impact of foreign direct investment on economic growth the case of Ethiopia. Journal of Poverty, Investments and Developments. https://core. ac.uk/download/pdf/234695299.pdf
- Dijana, G., & Softi. (2017). Impact of the FDI on unemployment rate in countries of West Balkan. Review of Innovation and Competitiveness: a Journal of Economic and Social Research, 3(2), 2017. https://doi. org/10/0000-0002-7557-2367
- Hong, T. Y., & Ali, D. H. A. (2020). The Impact of inflation towards foreign direct investment in Malaysia and Iran. International Journal of Academic Research in Business and Social Sciences, 10(6), 210–216. https:// doi.org/10.6007/IJARBSS/v10-i6/7280
- Jeelanie Banday, U., & Basu Roy Choudhury, S. (2018). Impacts of FDI inflow on the rate of inflations in India. https://www.projectguru.in/impact-fdi-inflowsrate-inflation-india/
- Johnny, N., Timipere, E. T., Krokeme, O., & Markjackson, D. (2018). Impact of foreign direct investment on unemployment rate in Nigeria (1980-2015). International Journal of Academic Research in Business and Social Sciences, 8(3), 57–69. https://doi. org/10.6007/IJARBSS/v8-i3/3905
- Judson, R. A., & Owen, A. L. (1999, October). Estimating dynamic panel data models: A guide for macroeconomists. *Economics Letters, Elsevier*, 65(1), 9–15. https://doi.org/10.1016/S0165-1765(99)00130-5
- Jumhur Tegep and Eddy Suratman and Sukma Indra. (2019). The failure of foreign direct investment to explain unemployment rate and the mediating role of economic growth and minimum wage. International Journal of Economics and Financial Issues, Econ Journals, 9(2), 154–161. https://doi.org/ 10.32479/ijefi.7524
- Karlsson, S., Lundin, N., Sjöholm, F., & He, P. (2009). Foreign firms and Chinese employment. Wiley Blackwell, The World Economy.

- Macionis, J. J., & Plummer. (2005). Sociology introductions (3rd ed.). Oxford Blackwell Publishing.
- Magnus Blomstrm Stockholm School of Economics, NBER and CEPR and Ari Kokko Stockholm School of Economics. (1997). The impact of foreign investment on host countries: A review of the empirical evidence. National Bureau of Economic Research 1050. 02138
- Mehmet, M., & Tahir, D. (2013). The effect of foreign direct investments on unemployment: Evidence from panel data for seven developing countries. *Journal of Business, Economics and Finance*, 2(3). https://dergi park.org.tr/tr/download/article-file/374588
- Mustafa, A., & Azizun, N. (2020, August). The impact of foreign direct investment on unemployment: panel data approach. *Emerging Science Journal*, 4(4). https://www.ijournalse.org/index.php/ESJ/article/ view/387
- Nayyra, Z., Fu, Q., & Suhail Sharif, M. (2014). Foreign direct investment and unemployment reduction in Pakistan. *Int. J. Eco. Res*, 5(2), 10–17. https://www. ijeronline.com/documents/volumes/Vol%205%20iss %2002/ijer%20v05%20i2%20(2).pdf
- Nicola, D. C., Francesco, P., & Adnan, S. (2013). Foreign direct investment, employment and wages in sub-Saharan Africa. United Nations Industrial Development Organization.
- Nikolaos, D., & Pavlos, S. (2017). Foreign direct investments, exports, unemployment and economic growth in the new EU-members A panel data approach. department of applied informatics. University of Macedonia, Economics and Social Sciences, Thessaloniki, Greece and Department of Applied Informatics, University of Macedonia, Economics and Social Sciences, 2017 Volume 70, Issue 4, 443-468
  Nlandu, M., & Kareem, M. (2018).Foreign direct invest-

ment and growth in developing countries:

Evidence from the countries of the organization of Eastern Caribbean States. Journals, Working Papers & Conferences in Business Studies and Economics.

Pesaran, M. H. (2004). General diagnostic tests for cross section dependence in panels, IZA discussion Paper 1240, Institute for the Study of Labor, Bonn.

Ratner, B. (2009). The correlation coefficient: Its values range between +1/–1, or do they? Journal of Targeting, Measurement and Analysis for Marketing, 17(2), 139–142. 18 May 2009. https://doi.org/10. 1057/jt.2009.5

Robert, F. (2014). Advanced international trade: Theory and evidence (2nd) ed.). Economics and Finance.

Rogoff, K., & Obstfeld, M. (1996). Foundations of International Macroeconomics. Cambridge, Massachusetts: MIT Press.

- Roland, C. (2006). Foreign direct investment and employment in the English and Dutch- speaking Caribbean. *ILO Sub Regional Office for the Caribbean*. https://www.ilo.org/wcmsp5/groups/public/—ameri cas/—ro-lima/—sro-port\_of\_spain/documents/meet ingdocument/wcms\_306245.pdf
- Stamatiou, P., & Dritsakis, N. (2014). The impact of foreign direct investment on the unemployment rate and economic growth in Greece: A time series analysis. Journal of Economics. https://www.semanticscholar. org/paper/The-Impact-of-Foreign-Direct-Investment-on-the-Rate-Stamatiou-Dritsakis/ a02f01bbbbef2f4d1a693b0604323e9dca918793
- Uka Odim, O., Clementina Ngozi, O., & Lawrence, E. (2014). The Keynesian ricardian dichotomy on budget deficits in Nigeria. IOSR Journal of Economics and Finance (IOSR-JEF), 5(2), 2321–5925. https://www. iosrjournals.org/iosr-jef/papers/vol5-issue2/ I0526978.pdf



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