Effect of Agriculture on Unemployment: Evidence from Selected SADC States

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ABSTRACT

Aim: The main aim of this paper was to examine the efficacy of agriculture as a source of employment. The paper drew attention from the fact that agriculture is seen as an employment creator. Background: Agriculture sector remains of major social and economic importance in the SADC region and the performance of agriculture has a strong influence on the rate of economic growth, the level of employment, demand for other goods, among other things. However, in Southern Africa one of the major socio-economic issues the region is still grappling with to date remains the persistently high unemployment level. Material and Methods: The study used a panel data and a GMM panel technique was used to analyse the study’s findings. The study used quantitative secondary data. Annual data was sourced from the World Bank and from the United Nations Development Programme (UNDP). The sample included five SADC countries (Zimbabwe, Mozambique, Lesotho, Eswatini and DRC) for the years 2005-2015. Results: Results showed that a negative relationship between AGR and unemployment. This shows that when agricultural production increases, unemployment decreases. Conclusion: The study recommends that governments in Southern Africa provide more support for agriculture in order to boast performance. A comprehensive agricultural growth strategy that promotes competitive and efficient production and marketing systems may therefore be the foundation of an effective employment expansion strategy for most Southern African governments.

Keywords: SADC region, United Nations Development Programme, Southern Africa, agriculture, employment.

Introduction

The agricultural sector is one of the main engines of economic growth and development. No region of the world has developed a diverse, modern economy without first establishing a successful foundation in agriculture (Alliance for a Green Revolution in Africa, 2017). The agricultural sector has great potential to provide an essential contribution to both employment numbers and work quality. A sustainably growing agricultural sector can generate decisive impetus and make significant contributions to the fight against poverty (Fechter, 2012). Employment in agriculture and in sectors directly connected to agriculture plays a crucial role in achieving this. The Food and Agriculture Organisation (FAO) and the African Development Bank (AfDB) consider agriculture to be among the most viable potential source of employment for young people (Okwi, 2017). Okwi (2017) further states that the World Bank projects that agriculture and agribusiness in Africa will grow to be a US$1 trillion industry in Africa by 2030 and Africa’s food markets alone are projected to increase from $313 billion in 2010 to more than $1 trillion in 2040.

Jayne, Kwame and Henry (2017) argues that rapidly rising demand for food, fuelled by population and income growth, will provide major opportunities for agri-food systems to accelerate employment creation and transform African economies. Seizing these opportunities will require African agriculture to become more inclusive and profitable. Greater profits in farming will generate greater expenditures by millions of people in rural areas that fuel the transition to a more diversified and robust economy. Higher incomes for millions of households engaged in agriculture will expand the demand for goods and services – and therefore employment – in the non-farm economy, while also opening up new employment opportunities across all stages of agri-food systems (Jayne et al. 2017).

Some studies have shown that the share of agriculture declines as economies develop. For instance, Christiaensen and Brooks (2018) and Roser (2020) notes that as countries develop, the share of the population working in agriculture is declining. However, this may not apply in Africa because most African workers remain engaged in agricultural work and because of this agriculture will continue to influence employment and livelihood opportunities both in agri-food systems and broader non-farm
sectors. Over 60 per cent of Africa’s economically active population works in and lives from agriculture; over one third of total value-added comes from agriculture; and, surprisingly, Africa imports close to US$50 billion worth of food every year, mostly to feed its rapidly expanding urban population (Gitau, 2016). This shows that agriculture remains Africa’s prime sector for growing inclusive economies and creating decent jobs mainly for the youth. Another factor that deserves attention is the fact that the process by which an agri-food system transforms over time from being subsistence-oriented and farm-centered into one that is more commercialized, productive, and off-farm centered is starting to take place in Africa. Food systems across the continent are responding to rapid urbanization, rising incomes and changing diets. These dynamics are creating many new growth opportunities within Africa’s food system. From this it can be seen that agriculture will be one of the engines of growth in Africa (Goedde, Ooko-Ombaka, and Pais, 2019).

The Southern Africa Development Community (SADC), economic region of Southern Africa, present one of the highest levels of unemployment among economic regions in the world (Adjor, 2018). Employment levels and labour productivity in the SADC region are generally low and this trend is directly linked with social and human development challenges (SADC, 2019). One approach to Africa’s unemployment crisis is engaging more young people in the agricultural sector. Empowering people to engage in the agricultural sector is vital to creating livelihood opportunities, achieve food security and stimulate economic growth in the Southern Africa Development Community (SADC) countries (FAO, 2018). The agriculture sector remains of major social and economic importance in the SADC region and the performance of agriculture has a strong influence on the rate of economic growth, the level of employment, demand for other goods, among other things (RSA, 2015). Agriculture continues to be the mainstay of the economy, and it employs more than 60 percent of the labour force in almost all SADC states (World Bank, 2017; Global Forum for Rural Advisory Services, 2012 and Economies Africaines, 2017; Sheps, 2018; USAID, 2019). This sector remains a crucial driving force for economic development in the region, where most inhabitants rely on agriculture directly or indirectly as their main source of livelihood. In an effort to find solutions to this worsening unemployment trend in the SADC, the agricultural sector contribution to employment creation is explored. However, there is a need to investigate the role of agriculture in employment creation in Southern Africa. This forms the aim of this study: to examine the effect of agriculture on unemployment in selected SADC states.

**Materials and Methods**

**Data sources**

The study used quantitative secondary data. Annual data was sourced from the World Bank and from the United Nations Development Programme (UNDP). The sample included five SADC countries (Zimbabwe, Mozambique, Lesotho, Eswatini and DRC) for the years 2005-2015. The reason these countries were chosen for this study is that they are low income countries and their economies rely heavily on agriculture. Chilonda and Minde (2007) and the World Bank (2018) claim that, particularly in the lower income countries, agriculture is the largest contributor to GDP, and the performance of the agricultural sector has a strong influence on growth, employment, food security, and poverty. The criterion for choosing this study period is the consistent availability of data for the period 2005 to 2015.

**Model specification and description variables**

This study adopts Ayinde (2008) model. Ayinde (2008) did an Empirical analysis of agricultural growth and unemployment in Nigeria. Based on the model employed by Ayinde (2016) model the study develops the following regression model:

\[ UN_{it} = \beta_0 + \beta_1REM_{it} + \beta_2IND_{it} + AGR + \beta_4GDP_{it} + \beta_3EDI_{it} + \varepsilon_{it} \ldots \ldots \ldots \ldots (I) \]

Where UN is unemployment, REM is remittances, IND is industrialisation, RR is Resource Rents, GDP is Gross Domestic Product, EDI is Education Development Index and \(\varepsilon_{it}\) is an error term. The description of variables is presented in Table 1 below.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description and Unit of Measurement</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP</td>
<td>Gross domestic Product</td>
<td>World Bank</td>
</tr>
<tr>
<td>UN</td>
<td>Unemployment</td>
<td>World Bank</td>
</tr>
<tr>
<td>REM</td>
<td>Remittances</td>
<td>World Bank</td>
</tr>
<tr>
<td>IND</td>
<td>Industrialisation</td>
<td>World Bank</td>
</tr>
</tbody>
</table>

**Table 1:** Summary of variable description.
Estimation techniques
This study used the Arellano and Bond one-step dynamic GMM estimator, which corrects for endogeneity of the lagged dependent variable remittances using lags as instruments. The GMM estimator has the advantage that it is more efficient than the OLS estimator. For instance, the GMM has been widely used to address the endogeneity problem that appears in panel data estimation of growth regressions and GMM also avoids simultaneity or reverse causality problems (Eggoh, Bangake and Semedo, 2019). Furthermore, it is also widely known as a solution to measurement errors (errors in variables) and omitted variable biases (Guillaumont and Kpodar, 2006). For the endogenous variables, this study relies on the internal instruments that are one lag variables. For robustness checks, this study follows El Hamma (2016) who used the the Sargan/Hansen test. The Sargan/Hansen test has been applied to check the validity of the instruments and the AR(1) and AR(2) are tests for first order and second order serial correlation.

Results

Multicollinearity
Collinearity implies two variables are near perfect linear combinations of one another. Multicollinearity involves more than two variables. In the presence of multicollinearity, it becomes difficult for the model to estimate the relationship between each independent variable and the dependent variable independently because the independent variables tend to change in unison (Frost, 2019).

Table 1: Correlation.

<table>
<thead>
<tr>
<th>UN</th>
<th>IND</th>
<th>GDP</th>
<th>AGR</th>
<th>REM</th>
<th>EDI</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN</td>
<td>1.00000</td>
<td>0.542722</td>
<td>0.010665</td>
<td>0.461893</td>
<td></td>
</tr>
<tr>
<td>IND</td>
<td>0.542722</td>
<td>1.00000</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>GDP</td>
<td>-</td>
<td>0.230289</td>
<td>0.131784</td>
<td>0.151899</td>
<td>0.360562</td>
</tr>
<tr>
<td>AGR</td>
<td>0.010665</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>REM</td>
<td>0.131784</td>
<td>0.230289</td>
<td>0.083579</td>
<td>0.108231</td>
<td>0.167311</td>
</tr>
<tr>
<td>EDI</td>
<td>0.010665</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>GDP</td>
<td>0.131784</td>
<td>0.230289</td>
<td>0.108231</td>
<td>0.083579</td>
<td>0.167311</td>
</tr>
<tr>
<td>AGR</td>
<td>0.151899</td>
<td>0.108231</td>
<td>0.120853</td>
<td>0.120853</td>
<td>-</td>
</tr>
<tr>
<td>REM</td>
<td>0.461893</td>
<td>0.360562</td>
<td>0.524561</td>
<td>0.524561</td>
<td>1.00000</td>
</tr>
</tbody>
</table>

Table 1 shows that correlation results indicated that there is no multicollinearity in the independent variables. All the variables had coefficients of less than 0.8 and this is an indication of an absence of multicollinearity (Williams, 2015).

Table 2: GMM results.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std Error</th>
<th>t-statistic</th>
<th>Prob</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP</td>
<td>3.4879</td>
<td>1.7606</td>
<td>1.98</td>
<td>0.0542</td>
</tr>
<tr>
<td>IND</td>
<td>0.0688</td>
<td>0.3643</td>
<td>0.1889</td>
<td>0.8510</td>
</tr>
<tr>
<td>AGR</td>
<td>-0.3695</td>
<td>0.0440</td>
<td>-3.9052</td>
<td>0.0003</td>
</tr>
<tr>
<td>REM</td>
<td>-3.2500</td>
<td>9.9700</td>
<td>-3.2598</td>
<td>0.0022</td>
</tr>
<tr>
<td>EDI</td>
<td>-1.966</td>
<td>5.099</td>
<td>3.8449</td>
<td>0.0004</td>
</tr>
</tbody>
</table>

Table 2 shows that there is a positive relationship between GDP and unemployment. This shows that when GDP increases unemployment also increases. The result is significant at a 10% significant level (0.0542). From Table 2 it can also be seen that there is a negative relationship between AGR and unemployment. This shows that when agricultural production increases, unemployment decreases. This result is significant at a 1% significant level (0.0003). Furthermore, results show that there is a negative relationship between REM and unemployment. This result is significant at a 1% significant level (0.0022).
This shows that remittances reduce unemployment. Results show that there is a negative relationship between EDI and unemployment. This implies that when more people are educated, the unemployment rate decreases. This result is significant at a 1% significant level (0.0004).

Discussion

Results show that there is a positive relationship between GDP and unemployment. This shows that when GDP increases unemployment also increases. This is surprising because the correlation between unemployment and real GDP growth should be a negative one (Dumitrescu, Dedu and Enciu, 2009). However, this finding is not only surprising to this study only. Several other studies have been puzzled by a similar result. For instance, The Federal Reserve Bank of Cleveland (2012) argued that the relationship between output and unemployment can be puzzling. The Federal Reserve Bank of Cleveland (2012) further maintains that the reason why there might be a positive relationship between GDP and unemployment because of the natural churning in the labor market.

As the economy goes through a long expansion, unemployment will stabilize at a lower level, and additional growth may not necessarily generate additional reductions in the unemployment rate. As a result, further output growth will not necessarily manifest itself as a further decline in the unemployment rate. This may result in a positive relationship between GDP and unemployment being witnessed. Bartolucci, Choudhry, Marelli and Signorelli (2018) observed that the sensitivity of unemployment to GDP changes is lower in developing countries. This may also justify this study’s finding because all countries used in this study are developing economies.

Results show that there is a negative relationship between AGR and unemployment. This shows that when agricultural production increases, unemployment decreases. This finding is consistent with empirical findings and the situation on the ground in all the countries under investigation. Nevertheless, the agriculture sector remains of major social and economic importance in the SADC region and the performance of agriculture has a strong influence on the rate of economic growth, the level of employment, demand for other goods, among other things. However, in Southern Africa one of the major socio-economic issues the region is still grappling with to date remains the persistently high unemployment level. It appears as if economic growth is not being translated into sufficient employment creation, raising yet more questions regarding the complex relationships between output and employment in the SADC region.

Results showed that a negative relationship between REM and unemployment. This implies that when more people are educated, the unemployment rate decreases. This is consistent with empirical literature. Workers’ remittances constitute a significant component of much needed resources for economic development in developing countries. Fayissa and Nsiah cited in Asad, Hashmi and Yousaf (2016) reported that the foreign remittances provide a stream to finance development projects, augment the investment level. All these can create employment opportunities and decrease unemployment. Remittances can also contribute to human capital development which then decreases structural unemployment. Johnson (2011) and Salas (2014) showed that remittances improve human capital and this reduces unemployment.

Results show that there is a negative relationship between EDI and unemployment. This implies that when more people are educated, the unemployment rate decreases. This is consistent with empirical findings. For instance, Applegate, Chiem, and Sanders (2014) showed that when indicate that having a high school diploma significantly decreased an individual’s unemployment rate. Zimmer (2016) conducted a study on the importance of education for the unemployed and showed that higher levels of education increase the chance an unemployed person will emerge with a comparable wage and reduce the time required to find new employment.

Conclusion

The main aim of this paper was to examine the efficacy of agriculture as a source of employment. The paper drew attention from the fact that agriculture is seen as an employment creator. Literature showed that the agriculture sector remains of major social and economic importance in the SADC region and the performance of agriculture has a strong influence on the rate of economic growth, the level of employment, demand for other goods, among other things. However, in Southern Africa one of the major socio-economic issues the region is still grappling with to date remains the persistently high unemployment level. It appears as if economic growth is not being translated into sufficient employment creation, raising yet more questions regarding the complex relationships between output and employment in the SADC region.

Results showed that a negative relationship between AGR and unemployment. This shows that when agricultural production increases, unemployment decreases. Based on this result, the study argues that sustainable growth of the agricultural sector is important for the creation of employment opportunities. The study, therefore, recommends that governments in Southern Africa provide more support for agriculture in order to boost performance. A comprehensive agricultural growth strategy that promotes competitive and efficient
production and marketing systems may therefore be the foundation of an effective employment expansion strategy for most Southern African governments. Policy makers must acknowledge the importance of agriculture for employment and redouble their efforts to transform the sector. There must be political will to invest in agriculture. African leaders need to convert their rhetoric commitment to agriculture into actions that transform the lives of millions of unemployed people. The study argues that the future of agriculture in Africa will hinge on the enabling environment created and the quality of public spending by African governments and their development partners in the agricultural sector. Governments should offer financial support, create policies that are conducive for businesses. A stable policy environment offers an enabling environment for the private businesses to invest. The uncertainty over land redistribution in several African states, SADC included, have created an uncertain environment in the agricultural sector. Uncertainty, in the agricultural sector, has significant negative effects on agricultural investment, because agricultural investment involves large irreversible costs and investors can delay the decision to invest until they have further information.

References


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