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Gross Capital Formation and Sectoral Employment Relationship: Evidence from the South African Economy

Thomas Habanabakize[1], Zandri Dickason-Koekemoer[2]

[1] *Faculty of Economic and Management Sciences, North-West University, Vanderbijlpark, South Africa*

[2] *Faculty of Economic and Management Sciences, North-West University, Potchefstroom, South Africa*

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Abstract:
Unemployment growth is a global economic concern and a serious issue in South Africa. There are numerous strategies in support of job creation. One of these is an improvement of gross capital formation (GCF), which is assumed to enhance economic growth and create employment within various economic sectors. Nonetheless, no study has been conducted to determine the role of gross capital formation on job creation and employment sustainability in South Africa. Consequently, the novelty and core aim of this study are to analyze the impact of GCF on sectoral employment in South Africa. To achieve its objective, the study applied the autoregressive distributed lag (ARDL) model to data from 1995 to 2019. Findings revealed that an increase in GCF assists in creating long-term jobs in the construction and business enterprise sectors and causes employment changes within different economic sectors in the short term. However, the GCF does not create long-term employment in the finance, manufacturing, and mining sectors. More jobs can be created if the government increases its support and subsidies to business enterprises and construction sectors.

Keywords: capital formation, unemployment, sectoral employment, autoregressive distributed lag, South Africa.

资本形成总额和部门就业关系：来自南非经济的证据

摘要：
失业增长是全球经济关注的问题，也是南非的一个严重问题。有许多支持创造就业的战略。其中之一是资本形成总额（全球气候基金）的改善，这被认为可以促进经济增长并在各个经济部门创造就业机会。尽管如此，尚未进行任何研究来确定总资本形成对南非就业机会创造和就业可持续性的作用。因此，本研究的新颖性和核心目的是分析全球气候基金对南非部门就业的影响。为实现其目标，该研究将自回归分布滞后（阿德莱）模型应用于1995年至2019年的数据。研究结果显示，全球气候基金的增加有助于在建筑和商业企业部门创造长期就业机会，并导致不同领域的就业变化短期内的经济部门。然而，全球气候基金并未在金融

、制造业和采矿业创造长期就业机会。如果政府加大对工商企业和建筑业的支持和补贴，就可以创造更多的就业机会。

关键词：资本形成、失业、部门就业、自回归分布滞后、南非。

1. Introduction

Irrespective of the method employed, a large portion of the South African population is unemployed. In the third quarter of 2021, the official unemployment rate was 34.9, while the youth unemployment rate was 74.8 percent (Statistics South Africa, 2021), the highest in the world. What is astonishing is that when South Africa was under global economic sanctions (during the apartheid regime), the official unemployment level was 22 percent (Statistics South Africa, 2015). In other words, in 1994, unemployment was 12.9 percent lower than the 2021 unemployment rate. The high unemployment rate might be a result of sluggish economic growth, a mismatch between existing skills and required skills in the labor market, a growing labor force, and a lack of sufficient gross capital formation (Mncayi, 2016; Oluwajodu et al., 2015; Peters & Brijlal, 2011). Various economic stakeholders have been striving to create more jobs, and yet unemployment remains a problem. Using data from Statistics South African, the South African unemployment trends or patterns between the first quarter of 1994 and the first quarter of 2021Q1 are displayed in Figure 1.

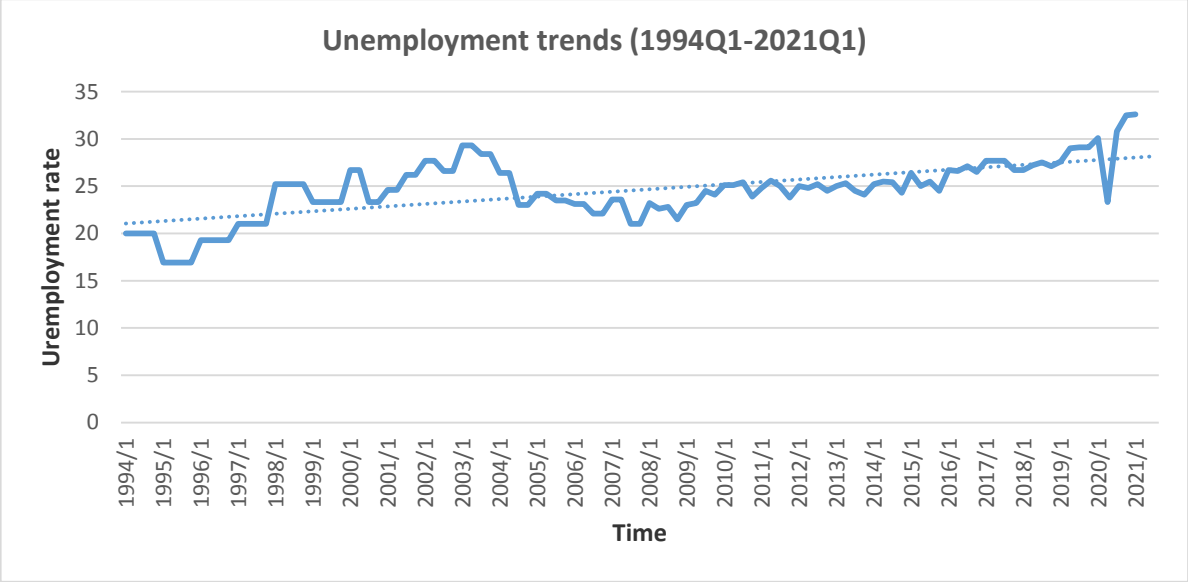

Figure 1. Unemployment trends between 1994 and 2021 (The authors' construction from SARB data)

As highlighted in the previous paragraph, unemployment remains one of the ongoing economic challenges in South Africa. Since the democratic government was introduced in 1994, government and policymakers introduced various strategies and created programs to alleviate unemployment. These strategies and programs include the Reconstruction and Development Programme (RDP) in 1994; Growth, Employment and Redistribution (GEAR) in 1996; Expanded Public Works Programme (EPWP) in 2004; Accelerated and Shared Growth Initiative for South Africa (ASGISA) in 2006; Industrial Policy Action Plan (IPAP) in 2007; The New Growth Path (NGP) in 2010; The National Development Plan (NDP) in 2012; and the Employment Tax Incentive (ETI) in 2014. However, all these programs did not fully achieve their objectives as the country is still experiencing a high unemployment rate. Therefore, several studies (Altman, 2003; Banerjee et al., 2008; Kingdon & Knight, 2004; Klasen & Woolard, 2009; Filmer & Fox, 2014; Hjort & Poulsen, 2019) were conducted to determine the cause of the growing rate and suggest possible solutions. Among solutions proposed by these studies are an increase in government expenditure, improving domestic investment, education and skill improvement. Although the current study appreciates previous studies' findings, it was important to analyze the issue at the micro-level and assess the role played by domestic investment or gross capital formation (GCF) in creating jobs within different economic sectors. Therefore, this study attempts to analyze the role or impact of the GCF on sectoral employment in South Africa.

2. Literature Review

Various economic theories elucidate the linkage between capital formation or domestic investment and employment. Those theories include, but are not limited to, the classical theory of employment, Keynesian employment theory, and the balance theory of capital formation. The classical theory of employment argues that any short-run shock within the economy corrects itself in the long run. Therefore, government or

policymakers' intervention is irrelevant. Classical economists believe that unemployment growth and other economic disturbances may happen with an economy for a short term, but they disappear by themselves without intervention (Edwards, 1959; Chaudhary, 1994; Limosani & Monteforte, 2017; Sahoo & Sahoo, 2019). If this classical theory is applied to the South African economy, one would say that the consequences of apartheid policies, high unemployment rate, drought, and other economic shocks could have been left alone as they will automatically fix themselves. The economy will return to full employment in the long run.

Opposing classical theory, the Keynesian theory stipulates that a low level of employment and high unemployment rate result from the low level of aggregate demand for goods and services (Nikensari et al., 2019). Therefore, appropriate expansionary fiscal and monetary policies are indispensable in dealing with low investment and high unemployment rates. The Keynesian economist opines that restructuring the economy and dealing with a mismatch between the labor market and education can reduce the magnetite of growing unemployment (Wong et al., 2019).

Besides classical and Keynesian schools of thought, the Harrod-Domar theory is another economic theory interested in the role played in gross capital formation to improve economic growth and create new jobs. According to Yoshino et al. (2019), gross capital formation is the first step to increasing economic growth and, after that, creating more employment. Diverting from the theories mentioned above, one can highlight the balanced theory of capital formation. This theory mostly applies to countries with high population and low economic growth, similar to South Africa (Taraki & Arslan, 2019). The exponents of this theory assert that for production and economic growth, the government should support individual and industrial investment. Additionally, the theory emphasizes that for balanced growth in employment, capital goods must be spread out across all economic sectors (Krishna & Perez, 2005).

The relationship between employment and capital formation is not only theoretical but also empirical. A study by Alrayes and Wadi (2018) on determinants of unemployment in Bahrain found an inverse relationship between capital formation and unemployment. Therefore, gross capital formation has a positive impact on employment. Another study was done by Sahoo and Sahoo (2019) to assess the causality between unemployment and gross capital formation in the Indian economy. The study findings suggested that changes in gross fixed capital formation influence the unemployment level. Additionally, the study conducted by Iocovoiu (2012) to determine the effect of capital formation on employment found that the former economic variable positively impacts the latter. In the South African case, empirical findings from studies by Habanabakize and Muzindutsi (2018), Meyer and Sanusi (2019) suggested that capital formation positively impacts employment. Nonetheless, it is important to note that the gross capital formation may harm employment if most capital is invested in technology and capital rather than labor production. Besides, these studies in South Africa considered general employment rather than sectoral employment. The current study analyzes how gross capital formation influences job growth and destruction within the individual economic sector. The next section represents the selected sectors, data, and methodology employed for empirical assessment.

3. Methodology

3.1. Data and Sample Period

This study used quarterly time series data spanning from 1994 to 2020 to determine the linkage between gross capital formation and job creation or employment growth in different economic sectors and therefore undertook 104 observations. This data was acquired from the South African Reserve Bank (SARB). Five sectors, namely business enterprises, construction, manufacturing, mining, and financial sectors, were subjected to the study. The sample period and economic sectors of interest were chosen based on the availability of data and the role played by each sector within the South African economy. Table 1 exhibits the variables and their representations:

Table 1. Variable representation

Variables	Representation
Gross capital formation (domestic investment)	INVES
Employment in business enterprises	EBUS
Employment in constriction	ECON
Employment in the financial sector	EFIN
Employment in the manufacturing sector	EMAN
Employment in the mining sector	EMIN

3.2. Model Specification

Given diverse ways of determining the linkage between employment and gross capital formation within various countries, with different estimation approaches, this study investigated the Keynes theory of employment and gross capital formation using econometric techniques. Firstly, the descriptive statistical analysis provided a simple and meaningful data representation. A Granger (1969) causality test was employed to determine the short-run causality between employment and gross capital formation in South Africa. Secondly, the autoregressive distributed lag (ARDL) model approach established the cointegration or long-run relationship among variables. The model was selected based on its ability and accuracy when applied to a single equation. The unit root test was conducted, and none of the variables were stationary at the second difference I (2). To determine the relationship between employment and gross capital formation, the following ARDL model was estimated:

$$\Delta \mathrm{L}EMP_t = \propto_0 + \sum_{j=1}^{k} \beta_j \, \Delta \mathrm{L}EMP_{t-j} +$$

$\sum_{j=1}^{k} \lambda_j \Delta LINVES_{t-j} + \varphi_1 LEMP_{t-1} + \varphi_2 LINVES_{t-1} + u_t$ (1)

where $\Delta LEMP_t$ is the change in natural log value of total employment at time t, $\Delta LINVES_t$ represents the alteration in the natural log of gross capital formation at time t, $\propto_0$ represents the intercept, k denotes the number of lags, u_t designates white noise error term. β_j and λ_j indicate the short-term dynamics of the model, whereas φ_1 and φ_2 represent the long-run relationship. Equation (1) was used to estimate five diverse ARDL models. Each of these models represents properties of employment in business enterprises, construction, financial sector, manufacturing, and mining sector, respectively. The cointegration test was built on the following assumptions:

(i) Null hypothesis (H0) for no cointegration:

$\varphi_1 = \varphi_2 = \varphi_3 = \varphi_3 = \varphi_4 = \varphi_5 = 0$

(ii) Alternative hypothesis (H1) for no cointegration:

$\varphi_1 \neq \varphi_2 \neq \varphi_{43} \neq \varphi_4 \neq \varphi_5 \neq 0$

The bounds or F test was conducted to assess the presence or absence of cointegration between variables. The calculated F-statistics were compared to Pesaran et al.'s (2001) critical values. If the calculated F-statistics are greater than the upper critical value from the table, the null hypothesis is rejected, and the conclusion is that a cointegration exists between variables. However, if the tabulated lower critical value is greater than the calculated F-statistics, the null hypothesis is not rejected, and the conclusion is that variables do not cointegrate. Lastly, if the calculated F-statistics lie between the upper and lower critical values, the result becomes inconclusive and requires additional information for cointegration (Dube & Zhou, 2013). The occurrence of cointegration between variables denotes a long-run relationship between employment and gross capital formation. If the results ascertain the existence of cointegration among variables, then the following ECM is estimated deriving from ARDL equation 1:

$\Delta EMP_t = \propto_1 + \sum_{j=1}^{k} \beta_{1j} \Delta EMP_{t-j} + \sum_{j=1}^{k} \lambda_{1j} \Delta INVESP_{t-j} + {}^{\delta} ECT_{t-1} + u_t$ (2)

where ECT represents the error correction term as a measurement of the speed of adjustment towards equilibrium. The ARDL model estimation was preceded by statistical analysis followed by a Granger causality test to determine the causal relationship between variables. The optimal number of lags (k) was determined using Schwarz's Bayesian information criterion (SBIC). Additionally, normality, parameter stability, autocorrelation, and heteroscedasticity tests were conducted to ensure the reliability of obtained results.

4. Empirical Analysis

4.1. Descriptive Statistics

Table 1 exhibits the descriptive analysis. The results in Table 1 suggest that, when the average gross capital formation is 103884.7, more jobs are created in business enterprises compared to other selected sectors. When the average gross capital formation is 103884.7, the average sectoral employment is presented as follows: 134.7 in the business enterprise sector; 90.5 in the construction sector; 62.7 in the financial sector; 109.2 manufacturing and 98.0 in the mining sector, respectively. When the median value of gross capital formation is 98569 (Table 1), the median numbers of employment in business enterprises, construction, financial sector, manufacturing, and mining are 121.8, 91.3, 81.6, 108.1, and 98.3, respectively. Suppose the maximum level of gross capital formation is 162515. In that case, the maximum numbers of jobs created in business enterprises, construction, financial sector, manufacturing, and mining will be 202.8, 125.6, 112.9, 130.3, and 122.8, respectively. If the minimum investment was 51289, the numbers of jobs in business enterprises, construction, financial sector, manufacturing, and mining should be 94.8, 52.0, 10.5, 96.6, and 80.6, respectively.

Employment elasticity is higher in the financial sector than in other sectors, as represented by standard deviations in Table 1. The standard deviation of employment is 37.8, 22.8, 43.4, 9.7, and 11.4 in business enterprises, construction, financial sector, manufacturing, and mining, respectively. Results in the table also indicate that employment in all selected sectors is moderately skewed as their skewness lies between -0.21 and 0.63. Looking at the Kurtosis, all distribution is platykurtic, meaning that they are not normally distributed.

Table 2. Descriptive statistics

	EBUS	ECON	EFIN	EMAN	EMIN	INVES
Mean	134.7	90.5	62.7	109.2	98.0	103884.7
Median	121.8	91.3	81.6	108.1	98.3	98569
Maximum	202.8	125.6	112.9	130.3	122.8	162515
Minimum	94.8	52.0	10.5	96.6	80.6	51289
Std. dev.	37.8	22.8	43.4	9.7	11.4	36379
Skewness	0.68	-0.26	-0.21	0.63	0.40	0.18
Kurtosis	1.86	1.77	1.23	2.48	2.42	1.40
Jarque-Bera	11.52	6.54	12.07	6.78	3.52	9.74

4.2. Unit Root Test and Lag Selection

The ARDL model is only used if none of the variables under consideration are I (2); therefore, the ADF unit root test was used to ensure variables are I(0),

I(1), or a combination of the two to fulfill the ARDL model's requirement. As it is exhibited in Table 3, all variables are I(I). Therefore, the ARDL model can be used to test for cointegration between employment and gross capital formation (gross capital formation).

Table 3. ADF unit soot tests

Level					**1st difference**	
Without trends			**With trend**		**Without trend**	
	t-statistics	**P-value**	**t-statistics**	**P-value**	**t-statistics**	**P-value**
LEBUS	-1.812777	0.3721	-0.098127	0.3721	-3.383281	0.0143**
LECON	-0.969305	0.761	-2.076546	0.5511	-8.378836	0.0000*
LEFIN	-1.086835	0.718	-1.811201	0.6908	-9.538772	0.0000*
LINVES	-0.511095	0.8827	-1.915441	0.6374	-3.730552	0.0053*
LEMAN	-1.357996	0.5991	-2.07091	0.5542	-8.783663	0.0000*
LEMIN	-2.243258	0.1929	-2.180358	0.494	-5.075153	0.0001*

Note: *, ** denote the rejection of the null hypothesis at the 1% and 5% level of significance, respectively.

4.3. Lag Length and Model Selection

The number of optimum lags used in the model was selected using Schwarz's Bayesian information criterion (SBIC). For all five models, the maximum number of lags selected was four lags. The best model found for employment in business enterprises was ARDL (2, 0), ARDL (2, 2) for employment in construction, ARDL (1, 1) for employment in the financial sector, ARDL (1, 0) for employment in manufacturing, and ARDL (2, 0) for employment in the mining sector. A summary of the best models selected for the study and their optimum lags are displayed in Table 4.

Table 4. Lag length and model selection

	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**
	LEBUS vs. LINVES	LECON vs. LINVES	LEFIN vs. LINVES	LEMAN vs. LINVES	LEMIN vs. LINVES
Lags length	4	4	4	4	4
Best model	ARDL (2,0)	ARDL (2,2)	ARDL (1,1)	ARDL (1,0)	ARDL (2, 0)

4.4. Bound Testing and Long-Run Relationship Analysis

The lower and upper bound critical values from the Pesaran et al. (2001) table and their corresponding estimated F-values are illustrated in Table 5. The estimated F-values of employment in business enterprises and contraction are 6.17 and 5.81, respectively. These are greater than 4.78 and 5.73, which are upper-bound critical values at a 5% significance level. Therefore, the null hypothesis suggesting no cointegration among variables was rejected in favor of the alternative hypothesis. The rejection of the null hypothesis suggests that a long-run relationship exists between gross capital formation and employment in both sectors (business enterprises and construction). This result implies that increasing gross capital formation or improving investment levels in both business enterprises and construction sectors results in long-term job creation within these sectors. Other previous studies (Birch, 1979; Neumark et al., 2008; Kerr et al., 2014, p. 2; Altman, 2003, p. 4) are in line with this study's findings regarding the positive long-run relationship between gross capital formation and job creation in business and construction sectors.

On the other hand, the results from the bound test for integration indicated that the null hypothesis for employment in the financial, manufacturing, and mining sectors could not be rejected at a 5% level of significance because their estimated F-values (2.11; 2.10; 3.68) are lower than the upper bound (5.73). This means the absence of a long-run relationship between gross capital formation and employment in those sectors, namely the financial, mining and manufacturing sectors. These findings are not surprising because technology improvement in these sectors causes them to become more capital-intensive than labor-intensive. The same result was found by other studies (Rotman, 2013; Bonorchis & Burkhardt, 2016) that gross capital formation in the abovementioned sector does not create jobs. The summary of the bound testing result is displayed in Table 5.

Table 5. Bound testing for cointegration

Model	**Estimated F-value**	**Pesaran et al.'s (2001) critical value at 5%**	
		Lower bound	**Upper bound**
ARDL(2,0): business	6.17	4.04	5.73
ARDL(2,2): construction	5.81	4.94	5.73
ARDL(1,1): financial sector	2.11	4.94	5.73
ARDL(1,0): manufacturing	2.1	4.94	5.73
ARDL(2,0): mining	3.68	4.94	5.73

4.5. Analysis of Short-Run Relationships

The results from ECM for employment in the business and construction sector are represented in Table 6. The error term (ECT) for each model is negative and statistically significant at the 1 percent significant level. The coefficient of ECT in the business

enterprise sector is -0.921748, and the ECT coefficient in the construction sector is -0.606858. These results suggest that approximately 92% of shocks within the model are corrected and adjusted each quarter. In other words, the alterations in gross capital formation will take about 1.08 (1/0.921748) quarters to impact employment in business enterprises, and it will take approximately 1.65 (1/606858) for the changes in gross capital formation to have an effect on employment in the construction sector. The lagged coefficients for both models are significant, implying that besides the effect of gross capital formation, employment history data for both sectors influences short-term revel of employment within these sectors.

Table 6. ECM results for business enterprises and construction sectors

Business enterprise sector			**Construction sector**		
Variable	**Coefficient**	**P-value**	**Variable**	**Coefficient**	**P-value**
D(EBUS(-1))	0.7174	0.0000**	D(LECON(-1))	0.4776	0.0001**
D(EBUS(-2))	0.2039	0.0000**	D(LECON(-2))	0.23351	0.0252*
D(INVES)	4.03E-05	0.0047**	D(LINVES)	4.6E-06	0.0000**
			D(LINVES(-1))	-2.6E-06	0.0005**
			D(LINVES(-2))	-1.07E-06	0.1218
ECT(-1)	-0.921748	0.0000**	ECT(-1)	-0.6068	0.0000**
C	0.032564	0.5784	C	0.0027	0.1257

Note: **, * rejection of null hypothesis at 1% and 5 % significant revel respectively.

4.6. Analysis of Causal Relationships

When two or more variables are cointegrated, they have a possible causal relationship. To establish the causality among the study variables and the direction of that relationship, the author conducted the pairwise Granger causality test. Table 7 summarises the outcome of the Granger causality test. Findings suggested bidirectional causality between employment in the business enterprise and construction sectors, employment in the financial institution and business enterprise sectors, business enterprises and investment, and investment and employment in the construction sector. Based on the results in Table 7, it can be concluded that both employment in the enterprise sector and gross capital formation (investment) dominate causality. In other words, these two variables are the major causes of short-term changes in sectoral employment. Therefore, to improve short-term employment, the government and policymakers should focus on growing investment and supporting the business enterprise sector.

Table 7. Pairwise Granger causality test results

Null hypothesis	**Probability**	**Causality direction**	
		Unidirectional	**Bidirectional**
LECONST does not Granger cause LEBUSENT	0.0004*		✓✓
LEBUSENT does not Granger cause LECONST	0.0658*		
LEFININS does not Granger cause LEBUSENT	0.0041*		✓✓
LEBUSENT does not Granger cause LEFININS	0.0277*		
LEMININ does not Granger cause LEBUSENT	0.0002*		✓✓
LEBUSENT does not Granger cause LEMININ	0.0821*		
LINVESP does not Granger cause LEBUSENT	0.0209*		✓✓
LEBUSENT does not Granger cause LINVESP	0.0738*		
LMANUF does not Granger cause LEBUSENT	0.9249		
LEBUSENT does not Granger cause LMANUF	0.8449		
LEFININS does not Granger cause LECONST	0.0717*	✓	
LECONST does not Granger cause LEFININS	0.2334		
LEMININ does not Granger cause LECONST	0.1507		*
LECONST does not Granger cause LEMININ	0.1173		
LINVESP does not Granger cause LECONST	0.0918		✓✓
LECONST does not Granger cause LINVESP	0.0623		
LMANUF does not Granger cause LECONST	0.1000	*	*
LECONST does not Granger cause LMANUF	0.7820		
LEMININ does not Granger cause LEFININS	0.0648	✓	
LEFININS does not Granger cause LEMININ	0.1277		
LINVESP does not Granger cause LEFININS	0.8608		
LEFININS does not Granger cause LINVESP	0.0050	✓	
LMANUF does not Granger cause LEFININS	0.1866	*	
LEFININS does not Granger cause LMANUF	0.8541		
LINVESP does not Granger cause LEMININ	0.3607		
LEMININ does not Granger cause LINVESP	0.0126	✓	
LMANUF does not Granger cause LEMININ	0.4885	*	*
LEMININ does not Granger cause LMANUF	0.3821		
LMANUF does not Granger cause LINVESP	0.0963	✓	*
LINVESP does not Granger cause LMANUF	0.3531		

Notes: * denotes H_0 not rejected at a 10% level of significance and implies no causality.
✓, ✓✓ denote a rejection of H_0 at a 10% level of significance and implies the presence of bilateral causality.

4.7. Diagnostic Tests

The study model's robustness and the findings' accuracy were corroborated through diagnostic tests. Results in Table 8 show that the probability values for all performed diagnostic tests exceed 0.05. Therefore, the null hypothesis of normality, no serial correlation, and no heteroscedasticity is not rejected. Additionally, the stability of the model was tested using the CUSUM test, and the outcome of the test suggested that the model is stable.

Table 8. Pairwise Granger causality test results

Test	H0	P-value	Decision conclusion
Jarque-Bera	Residuals are normally distributed	0.072	Residuals are not normally distributed.
L M Test	No serial correlation	0.416	No serial correlation in the model.
White (CT)	No heteroscedasticity	0.245	No heteroscedasticity in the model.
CUSUM	The model is stable	The model is stable at a 0.05 significance level	

5. Concluding Summary and Recommendations

In most cases, sectoral employment sectors are driven by gross capital formation (domestic investment), and empirical studies have proved that a positive relationship exists between investment and sectoral employment. Using the five ARDL models, this study analyzed the effect of gross capital formation and sectoral employment in South Africa. Findings revealed that domestic investment or gross capital formation plays an important role in creating job opportunities in both the construction and business enterprise sectors. This implies that increasing investment in new and old, small and large firms can assist in alleviating the unemployment issue in South Africa. This is possible because the construction sector creates some jobs during the construction of new properties and infrastructure; other jobs are for maintenance. Therefore, gross capital formation creates long-term and short-term employment in the construction sector.

Despite gross capital formation/domestic employment creating jobs in the construction and business enterprise sector, it has no significant effect on long-term employment in some other sectors, namely finance, manufacturing, and mining. In this sector, a large amount of investment is allocated for capital and technological growth in production at the expense of labor-intensive production. This justifies why gross capital formation may cause employment changes for the short term instead of the long run. For increasing employment in the sector that has no long-run relationship with gross capital formation, the focus should not be on spending on or investing only in capital productivity but also labor-intensive economic activities. Since the construction and business enterprise sectors employ more labor in both the short and long run, the government should support and subsidize these two sectors.

Although some other studies (Birch, 1979; Neumark et al., 2008; Kerr et al., 2014, p. 2; Altman, 2003, p. 4) assessed implications of changes in countries' gross fixed capital formation on job creation, none of these studies included the South African economy. Therefore, the novelty of this study was to isolate the South African case to be analyzed independently. Additionally, each of the studies mentioned above focuses on a specific economic sector, while the current study grouped the major South African economic sectors. Therefore, this study's recommendation on how to create more jobs through the improvement of the gross fixed capital formation is also applicable to other countries with similar economic conditions as South Africa.

6. Limitation of the Study

Capital formation is not the only variable that can affect sectoral employment fluctuations. There are other factors such as economic growth, the country's demography, labor market policies, labor unions, compatibility between job requirements and employees' skills, and, recently, the coronavirus pandemic. All these variables and many others can explain changes in job creation. Therefore, future studies should use a larger number of independent variables for various periods. Additionally, different econometric models can be employed to assess whether similar results will be obtained.

Authors' Contributions

Thomas Habanabakize is responsible for the article's conceptualization, preparation, and writing. Zandri Dickason is responsible for editing and the publication process.

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