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The role of agriculture, industry and the service sector in economic growth: The case of Mozambique

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Abstract

This study evaluated the effect of agriculture, industry, manufacturing and the service sector on economic growth for the period 1991 to 2020 using the autoregressive distributed lag stationarity (ARDL) bounds-testing approach. The empirical results of this study show that, in the long run, the industry sector and exports are positive and significant determinants; the manufacturing sector is a negative significant determinant of economic growth; while agriculture and the service sector were found to be insignificant. However, it was found that, in the short run, agriculture has a significant positive effect on economic growth, along with the manufacturing sector. The service sector was found to have no significant effect on economic growth in the short run. Therefore, in the long run, policy should focus on enhancing the industrial sector and promoting exports. In the short run, policy should focus on agriculture enhancement so as to boost economic growth positively.

Key words: impact analysis, agriculture, industry, service sector, economic growth

1. Introduction

The importance of the agriculture, industry, manufacturing and service sectors for economic growth in a developing economy has been studied widely in economics over a period of time. The behaviour of these sectors within an evolving economic environment, and their effect on the economy, are important to understand, as they influence the provision of basic needs, social and economic development, intersectoral interactions and associated international trade benefits.

For developing economies, agriculture has been viewed as the main economic driver and source of sustenance for the economy (Hwa 1988; Karshenas 2001; Diao *et al*. 2010; Awokuse & Xie 2015). Furthermore, from within duality theory (Lewis 1954; Hirschmann 1958), agriculture is perceived as a source of the capital required for the second stage of economic development, which is industrialisation. Nevertheless, the interconnectivity between agriculture, industry, manufacturing and the service sectors cannot be understated. These elements include the agriculture-induced industrial merchandise market and the industry-driven market for agricultural produce; food provision and its combined contribution to exports, and hence an improved balance of payments, enhanced domestic industrial processing and service sector delivery; and, obviously, their direct effect on the economic welfare of households. These sectors therefore complement each other and are wholly and individually important to the growth of the economy. Understanding their influence on economic growth is important for policy development and implementation.

It is against this background that the paper undertakes an econometric analysis of the significance of the contribution of agriculture, industry, and the manufacturing and service sectors to economic growth using time-series data for Mozambique, with the goal of examining the value added by these sectors to economic growth. There has been limited study on this topic for African countries, and specifically for Mozambique. The study addresses the lack of such studies, which play an integral role in understanding single-country dynamics with the aid of a robust econometric model that allows for results to be disaggregated into short- and long-run effects. Since the role of these sectors varies from country to country, the time-series methodology was adopted so as to get a better understanding of their effect on economic growth. Furthermore, unlike most studies that focused on structural transformation (its determinants, progression, modelling and so on), this study makes an effort to evaluate the effect of such transformation and other economic variables on economic growth through the lens of sectoral value addition. The rest of the study is organised as follows: in the next section, an economic review of Mozambique is presented, followed by the literature, a theoretical presentation of the model, the results, the discussion, and the conclusion.

2. Agriculture, industry and the service sector in economic growth: The case of Mozambique

The general outlook of the GDP per capita of Mozambique has shown an increasing general trend since 1991, as shown in Figure 1.

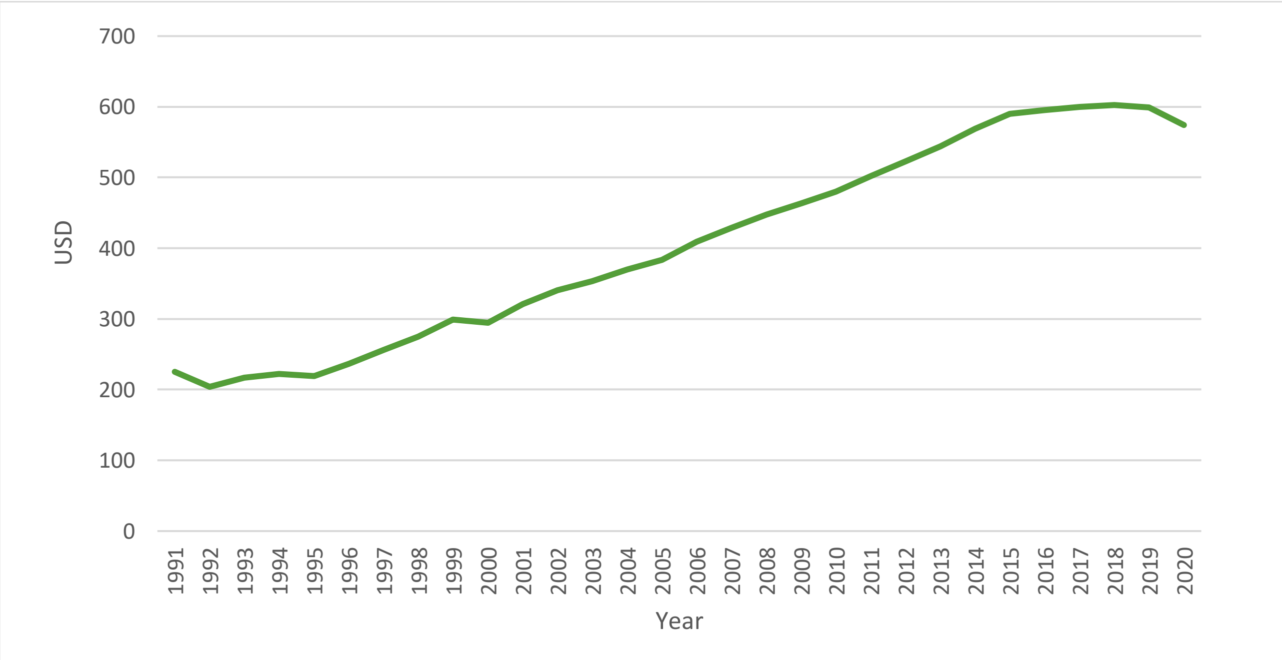

Figure 1: GDP per capita (constant 2015 US$)

Source: Author's own computations from the World Bank (2023) World Development Indicators

Looking at the sectoral contributions to GDP through their value added shows that the service sector, despite experiencing marginal decreases (from near 50% in 1991 to 40% by 2020), has been leading the pack, with an average of 42% of GDP in value addition. The manufacturing sector faced the same fate as the service sector, starting with 15% value added in 1991 and ending with 8% by 2020. The manufacturing sector has made the least contribution to GDP. The value added by the agricultural sector as a percentage of GDP has also decreased, from 35% in 1991 to 25% by 2020. As the agricultural sector trends show a decrease in value addition from 1997 to 2020, the industry and manufacturing sector trends show a relative increase. The industry sector is the only sector that has experienced marginal increases in value added as a ratio of GDP, starting from 16% in 1991 and ending at 22% by year 2020. Figure 2 gives a pictorial view of the trends in value added as a percentage of GDP for the four sectors.

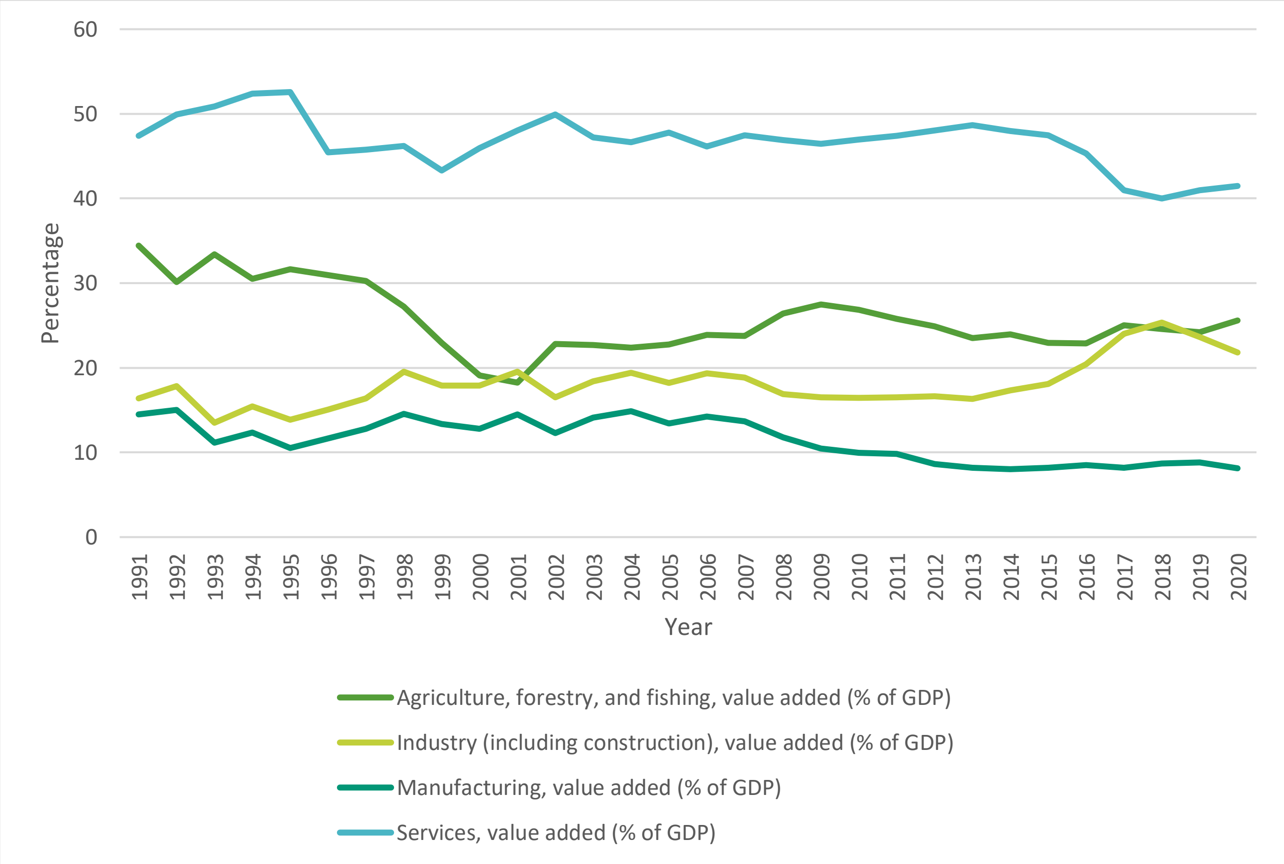

Figure 2: Value added by sector (% of GDP)

Source: Author's own computations from the World Bank (2023) World Development Indicators

Despite the aforementioned, when it comes to employment statistics, the agricultural sector is the dominant employment sector in Mozambique, accounting for at least 70% of total employment in the period from 1991 to 2020. It is followed by the industrial sector, which used to account for 12% of total employment in 1991, but accounted for at least 22% by 2020. The service sector, despite contributing the highest value addition as a percentage of GDP, accounts for less than 10% of total employment in Mozambique. Figure 3 summarises the percentage of total employment by sector in Mozambique for the period 1991 to 2019.

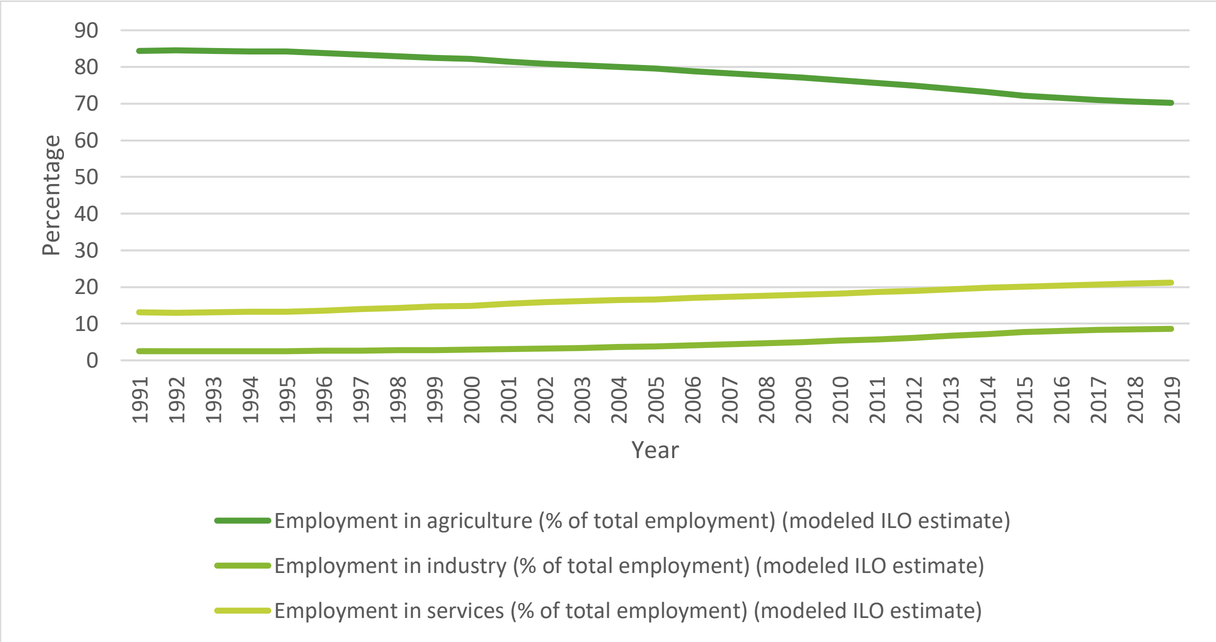

Figure 3: Sectoral share of total employment

Source: Author's own computations from the World Bank (2023) World Development Indicators

Using a gender lens, at least 80% of all women and 60% of all men are employed in the agricultural sector. Coming from nearly no representation in the early 1990s, only a meagre 3% of women were employed in the industrial sector by 2019. Comparatively, the percentage of males employed in the industrial sector more than doubled, from 5% in 1991 to 14% by 2019. In the service sector, the disparity between female vs. male employment has narrowed, starting at a ratio of one to three in 1991, in other words 7% of all women and 21% of men were employed in the service sector in that year, to 17% of all women and 26% of all men being employed in the service sector by 2019. Figure 4 gives the total percentage of women and men employed in the Mozambiquan economy by sector. Since there was no data on the manufacturing sector's percentage of total employment and sectoral total percentage employed by gender, this data was left out of Figures 3 and 4.

3. Literature review

The literature on the effect of economic sectors on economic growth is relatively vast and coupled with a variety of methodologies and results. However, the main tenet shared across this literature is the notion that it is important to assess its effect on continued learning and to deduce the appropriate policy direction. A number of past studies and their associated deliverables are discussed in this section.

On the significance of agriculture for economic growth, a number of studies show varied results. Of note, Hwa (1988) investigated the influence of agriculture on economic growth by using cross-section data for 86 countries. Hwa (1988) used an empirical model based on the Cobb-Douglas production function, with variables including gross domestic product, a scale parameter, capital stock, labour force and the rate of technological change over time, which were taken to be synonymous with a change in productivity. The rate of export growth and the rate of inflation were taken as influencing productivity changes, and hence were considered in Hwa's (1988) model so as to minimise misspecification of the estimated production function. Agricultural growth was found to be significantly associated with industrial growth and economic growth.

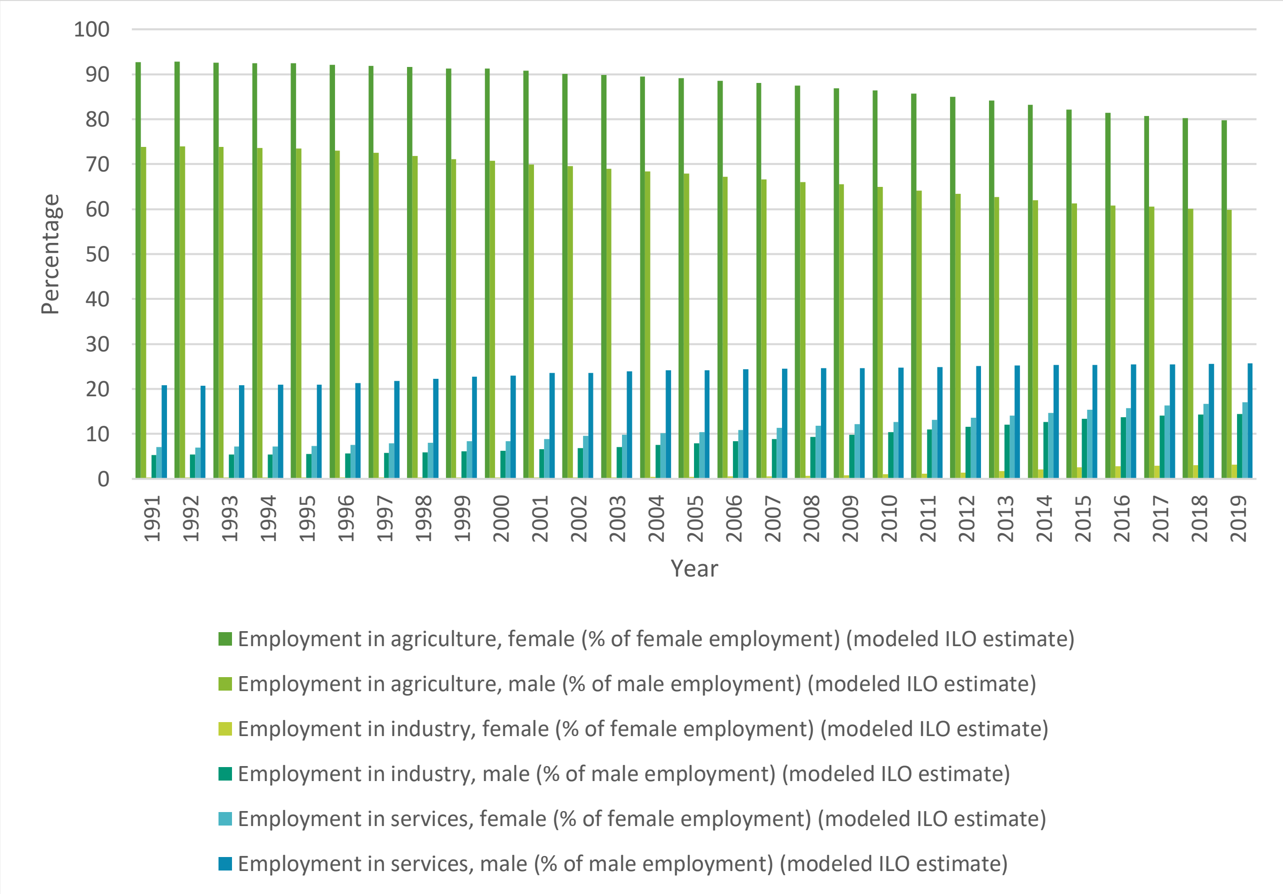

Figure 4: Sectoral total percentage employed by gender
Author's own computations from the World Bank (2023) World Development Indicators

Diao *et al*. (2010) assessed the contribution of agriculture to the development process in Africa and its role in poverty eradication. They focused on Ethiopia, Ghana, Kenya, Rwanda, Uganda and Zambia. Their findings indicate that, although Africa faces numerous novel challenges, which are unlike those faced by Asian countries, there is modest evidence to advocate that these countries can bypass broad-based agricultural development to successfully launch their economic transformation.

Valdés and Foster (2010) studied the importance of agriculture in poverty reduction, mainly through its influence on economic growth, in Latin America and other developing regions. The econometric evidence from their study indicates that, certainly in Latin America, the sector contributes to growth more than its share of GDP. That is, agriculture has a transmission mechanism that results not only in economic growth and agricultural growth, but also in subsequent non-agricultural growth.

Loizou *et al*. (2019) studied the possibilities of agriculture to promote integrated development in a regional rural economy by capturing and recording its interconnections with other sectors of economic activity. They employed an input-output analysis in a regional model to examine the influence of the primary sector in the regional economy, and the effect of the common agricultural policy (CAP) reform on the entire local economy, finding that agriculture is an important driver of growth in the region.

Mulanda and Punt (2021) show that economic growth led by agriculture reduces poverty. With the aid of a computable general equilibrium (CGE) model, capital and reduced transaction costs through increases in value added for all agricultural processing activities were found to be fundamental to structural transformation. Zhang and Diao (2020) combined a growth decomposition exercise with input-output (IO) analysis and also employed a CGE model analysis, and found that agriculture implicitly affected China's economy by enhancing economy-wide throughput growth through structural change.

Other studies that have aimed to assess the effect of agriculture on economic growth and other economic sectors or development include that by Chu *et al*. (2022), who used the Schumpeterian growth model to explore how agricultural technology affects the endogenous take-off of an economy; Gollin (2010), who reviewed theoretical arguments and empirical evidence for the hypothesis that improvements in agricultural productivity lead to economic growth in developing countries; Adeosun and Gbadamosi (2021), who reviewed the contribution of non-oil sectors (that is, agriculture, industry, export and service) on economic growth and finds that almost all factors have no causal effect on economic growth; and Chebbi (2010), who assessed the role of agriculture in economic growth and its interactions with other sectors of the Tunisian economy, and noted that, although the issue of the contribution by agriculture to economic growth is of interest to policymakers, it is rarely examined empirically.

It is against this background that the current study on Mozambique was commissioned to evaluate the effect of these sectors on the economic growth of the country. The topic was chosen because there are few studies that have examined the effects of value addition by industries other than agriculture.

4. Methodology

The general model to be estimated is represented by:

$$GDP_t = \rho_0 + \rho_1 AGV_t + \rho_2 IDV_t + \rho_3 MNV_t + \rho_4 SVV_t + \rho_5 IMP_t + \rho_6 EXP_t + \rho_7 GDP_{t-1} + \varepsilon_t, \quad (1)$$

where GDP is the real per capita GDP (a proxy for economic growth), AGV is agriculture, forestry and fishing value added (% of GDP), IDV is the value added (% of GDP) of industry (including construction), MNV is manufacturing value added (% of GDP), SVV is services value added (% of GDP), IMP is the ratio of imports to GDP, EXP is the ratio of exports to GDP, and ε is the error term.

Following Hwa (1988), exports are included in the model to capture international market linkages and possible economies of scale, very much competitive environment, and enhanced productive and allocative efficiency.

Imports are also included in the model for reasons that tend to contradict the rationale for the inclusion of exports. Imports of goods and services tend to have a dampening effect on economic growth due to increased external competition that negatively affects infant industries/farms. They are a leakage in the domestic economy and tend to reduce dependence on domestic production. Nevertheless, increased imports of goods and services do not always translate into less economic growth. Alternatively, increased imports may suggest that the domestic economy is faring better than international markets. Nonetheless, for a developing country like Mozambique, the expectation is that imports will have a negative effect on economic growth.

The autoregressive distributed lag stationarity (ARDL) representation of the cointegration test equation to be tested for each model is given by:

$$\Delta LGDP_t = \propto_0 + \sum_{i=0}^{n} \propto_{1i} \Delta LAGV_{t-i} + \sum_{i=0}^{n} \propto_{2i} \Delta LIDV_{t-i} + \sum_{i=0}^{n} \propto_{3i} \Delta LMNV_{t-i} + \sum_{i=0}^{n} \propto_{4i} \Delta LSVV_{t-i} + \sum_{i=0}^{n} \propto_{5i} \Delta LIMP_{t-i} + \sum_{i=0}^{n} \propto_{6i} \Delta LEXP_{t-i} + \sum_{i=1}^{n} \propto_{7i} \Delta LGDP_{t-i} + \sigma_1 LAGV_{t-1} + \sigma_2 LIDV_{t-1} + \sigma_3 LMNV_{t-1} + \sigma_4 LSVV_{t-1} + \sigma_5 LIMP_{t-1} + \sigma_6 LEXP_{t-1} + \sigma_7 LGDP_{t-1} + \mu_{1t}, \quad (2)$$

where all other variables are as defined, except Δ, which is the difference operator, $\propto_0$, $\propto_{i,1} - \propto_{i,7}$ and $\sigma_{i,1} - \sigma_{i,7}$, which are the respective coefficients, and μ_{1t}, which is the error term.

The null hypothesis of the non-existence of a cointegration relationship is:

$$H_0: \sigma_{i,1} = \sigma_{i,2} = \sigma_{i,3} = \sigma_{i,4} = \sigma_{i,5} = \sigma_{i,6} = \sigma_{i,7} = 0. \quad (3)$$

This was tested against the alternative hypothesis of the existence of a cointegration relationship, that is:

$$H_1: \sigma_{i,1} \neq \sigma_{i,2} \neq \sigma_{i,3} \neq \sigma_{i,4} \neq \sigma_{i,5} \neq \sigma_{i,6} \neq \sigma_{i,7} \neq 0. \quad (4)$$

The evaluation of the cointegration relationship was done with the aid of the lower and upper bound F-statistic critical values of Pesaran *et al*. (2001:300). A cointegration relationship is only valid when the calculated F-statistic is greater than the upper bound, otherwise it is inconclusive, or the null hypothesis of no level effect cannot be rejected.

Once the variables included in the ARDL representations were found to be cointegrated, the following long-run model (Equation (5)) and the short-run error correction model (Equation (6)) were estimated:

$$LGDP_t = \propto_0 + \sum_{i=0}^{n} \propto_{1i} LAGV_{t-i} + \sum_{i=0}^{n} \propto_{2i} LIDV_{t-i} + \sum_{i=0}^{n} \propto_{3i} LMNV_{t-i} + \sum_{i=0}^{n} \propto_{4i} LSVV_{t-i} + \sum_{i=0}^{n} \propto_{5i} LIMP_{t-i} + \sum_{i=0}^{n} \propto_{5i} LEXP_{t-i} + \sum_{i=1}^{n} \propto_{7i} LGDP_{t-i} + \mu_t \quad (5)$$

$$\Delta LGDP_t = \propto_0 + \sum_{i=0}^{n} \propto_{1i} \Delta LAGV_{t-i} + \sum_{i=0}^{n} \propto_{2i} \Delta LIDV_{t-i} + \sum_{i=0}^{n} \propto_{3i} \Delta LMNV_{t-i} + \sum_{i=0}^{n} \propto_{4i} \Delta LSVV_{t-i} + \sum_{i=0}^{n} \propto_{5i} \Delta LIMP_{t-i} + \sum_{i=0}^{n} \propto_{5i} \Delta LEXP_{t-i} + \sum_{i=1}^{n} \propto_{7i} \Delta LGDP_{t-i} + \xi_1 ECM_{t-1} + \mu_t, \quad (6)$$

where all other variables are as defined, ECM is the error-correction term lagged one period, and μ_t is the residual term.

The speed of the adjustment parameter (the lagged error-correction term, ξ_1) is expected to be statistically significant and negative, which further substantiates the existence of a cointegration relationship.

6. Data and data sources

The study used data for Mozambique for the period from 1991 to 2020. The main data source was the World Development Indicators (World Bank 2023). According to the World Bank (2023), after summing all outputs and deducting any intermediary inputs, value added is a sector’s net output (see Table 1). It is estimated without taking into account the deterioration and depletion of natural resources, or the wear and tear of manufactured assets.

Table 1: Datasets and descriptions

Variable	Name	World Bank description
AGV	Agriculture, forestry and fishing, value added (% of GDP)	Includes forestry, hunting and fishing, as well as cultivation of crops and livestock production.
IDV	Industry (including construction), value added (% of GDP)	It comprises value added in mining, mechanisation, construction, electricity, water and gas.
MNV	Manufacturing, value added (% of GDP)	Includes all manufacturing industries belonging to ISIC divisions 15 to 37, which focus mainly on manufacturing in the economy.
SVV	Services, value added (% of GDP)	Includes value added in wholesale and retail trade (including hotels and restaurants), transport, and government, financial, professional and personal services, such as education, health care, and real estate services.
GDP	GDP per capita (constant 2015 US$)	GDP per capita is gross domestic product divided by midyear population. GDP is the sum of gross value added by all resident producers in the economy, plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources.
IMP	Imports of goods and services (% of GDP)	Imports of goods and services represent the value of all goods and other market services received from the rest of the world. This includes the value of merchandise, freight, insurance, transport, travel, royalties, licence fees and other services, such as communication, construction, financial, information, business, personal and government services. It excludes the compensation of employees, and investment income (formerly called factor services) and transfer payments.
EXP	Exports of goods and services (% of GDP)	Exports of goods and services represent the value of all goods and other market services provided to the rest of the world. It includes the value of merchandise, freight, insurance, transport, travel, royalties, licence fees and other services, such as communication, construction, financial, information, business, personal and government services. It excludes the compensation of employees, and investment income (formerly called factor services) and transfer payments.

5. Empirical results

To warrant that all the variables are integrated of an order equal to zero or one, the augmented Dickey-Fuller generalised least square and the Perron (1997) PPURoot tests were used. The Perron (1997) PPURoot test was included because it considers the presence of structural breaks. The ARDL bounds test can only be used when all variables are integrated of an order equal to one or less. The results of the unit root tests are shown in Table 2, with the associated breakpoints of the Perron (1997) PPURoot test given in Table 3. The unit root test results confirm that all the variables under consideration are integrated at most of order one.

Table 2: Unit root tests

Variable	**Dickey-Fuller generalised least square (DF-GLS)**				**Perron (1997) unit root test (PPURoot)**			
	Stationarity in levels		Stationarity in first differences		Stationarity in levels		Stationarity in first differences	
	Without trend	With trend	Without trend	With trend	Without trend	With trend	Without trend	With trend
LGDP	-2.043**	-0.948	-2.554**	-4.322**	-2.587	-5.574*	-8.697***	-8.501***
LAGV	-1.409	-1.764	-4.073***	-4.620***	-3.817	-3.956	-5.996***	-7.528***
LIDV	-1.737*	-2.636	-3.117***	-3.161**	-3.479	-3.846	-5.177*	-8.218***
LMNV	-0.901	-2.089	-6.891***	-6.905***	-3.570	-4.063	-7.841***	-8.955***
LSVV	-1.501	-2.387	-4.343***	-4.936***	-3.808	-3.494	-6.048***	-5.923***
LIMP	-1.227	-2.205	-5.563***	-5.783***	-3.926	-3.631	-6.447***	-6.326***
LEXP	-0.797	-2.220	-4.178***	-3.973***	-4.308	-4.344	-5.534**	-5.534**

Note: *, ** and *** denote stationarity at the 10%, 5% and 1% levels of significance respectively

Table 3: Associated breakpoints – PPURoot

	Levels		**First difference**	
Variable	Without trend	With trend	Without trend	With trend
LGDP	2015	2014	1995	2000
LAGV	1998	1998	2000	2002
LIDV	2015	2007	2014	1998
LMNV	2009	2008	2007	1998
LSVV	2016	2011	1996	1996
LIMP	2011	2011	2012	1998
LEXP	2000	2000	2001	2001

The use of the PPURoot unit root-testing procedure has proven that, despite the presence of structural breaks that might have been caused by the historical Mozambique conflict situation or any other national or local issue, our data series is valid to be estimated using the model we adopted. The suitability of the ARDL bounds-testing procedure is proven by the results presented in Table 2, and it therefore was employed. Moving on to the next stage of the methodology, the empirical results of the ARDL bounds tests for cointegration are reported in Table 4.

Table 4: Bounds F-test for cointegration

Dependent variable	**Function**			**F-statistic**	**Cointegration status**	
LGDP	F (LGDP, LAGV, LIDV, LMNV, LSVV, LIMP, LEXP)			6.9406***	Cointegrated	
Asymptotic critical values						
	1%		5%		10%	
Pesaran *et al*. 2001: 300	I (0)	I (1)	I (0)	I (1)	I (0)	I (1)
Table CI(iii) case III	3.15	4.43	2.45	3.61	2.12	3.23

Note: *, ** and *** denote significance at the 10%, 5% and 1% levels respectively

The results show that the computed F-statistic is greater than the upper critical bound at the 5% level of significance. This implies that there is cointegration between the series, and it confirms that all the regressor variables in the estimated equation are cointegrated with the dependent variable over the study period. Following the confirmation of cointegration, the optimal lag selected, based on the Schwarz Bayesian information criterion (SIC), is ARDL (2,1,2,2,0,0,0).

The estimated long-run and short-run coefficients for both estimated ARDL models are given in Table 5. Panel A of Table 5 gives the long-run results, while Panel B gives the short-run results.

Table 5: Estimated long-run and short-run coefficients

Panel A: Estimated long-run coefficients			
ARDL (2,1,2,2,0,0,0) selected based on Schwarz Bayesian criterion			
Dependent variable is LGDP			
Regressor	Coefficient	T-ratio	Probability values
LAGV	0.18968	0.77807	0.449
LIDV	1.5281**	2.6163	0.020
LMNV	-1.0249***	-3.7430	0.002
LSVV	0.81508	1.0293	0.321
LIMP	-0.090853	-0.59127	0.564
LEXP	0.49289***	6.2089	0.000
C	-1.1044	-0.23667	0.816
Panel B: Estimated short-run coefficients			
Dependent variable is dLGDP			
Regressor	Coefficient	T-ratio	Probability values
dLGDP1	-0.21662	-1.4385	0.168
dLAGV	0.22273**	2.2281	0.040
dLIDV	-0.22382*	-2.0571	0.055
dLIDV1	0.34173**	3.3223	0.004
dLMNV	0.41060***	3.4415	0.003
dLMNV1	-0.20441*	-1.9359	0.070
dLSVV	-0.17819	-1.1448	0.268
dLIMP	0.019861	0.55522	0.586
dLEXP	-0.10775**	-2.3319	0.032
ecm(-1)	-0.21861**	-2.6844	0.016

Note: *, ** and *** denote significance at the 10%, 5% and 1% levels respectively

The long-run results show that the industry and exports are positive, significant determinants of economic growth. The manufacturing sector was found to be a negative and significant deterrent to economic growth, while agriculture and the service sector were found to have no significant influence on economic growth. However, in the short run, agriculture was found to have a significant and positive effect on economic growth as well as on the manufacturing sector. The service sector also had no significance effect on economic growth in the short run. This rather odd result for the service sector, despite the fact that it adds value relatively more than other sectors, may be explained by its extremely low relative employment share. It can also be explained by the investment dependency theory, which states, in short, that the majority of investment is made by multinational corporations that have their headquarters in developed states and operate through subsidiaries in developing states, draining the poor countries of real and substantive economic impact. Despite the long-run results invalidating the importance of the effect of the agricultural sector on economic growth, the short-run results tend to agree with the findings in the literature that agriculture plays a significant role in enhancing economic growth (see Hwa 1988; Mulanda & Punt 2021). The insignificance of the agricultural sector for economic growth in the long run tends to confirm the findings of Diao *et al.* (2010) that countries cannot bypass broad-based agricultural development in the short run to successfully launch their economic transformation.

As expected, the coefficient for the error correction term (ecm(-1)) was also found to be negative and significant. The estimated models satisfied all the diagnostic tests (see Table 6) performed for serial correlation, functional form, normality and heteroscedasticity. The plot of the cumulative sum of recursive residuals (CUSUM) and the cumulative sum of squares of recursive residuals (CUSUMQ) are given in Figures 5 and 6, respectively.

Table 6: ARDL–VECM diagnostics tests

Test statistics	LM version	Probability values	f version	Probability values
A: Serial correlation	1.0166	0.313	0.9327	0.521
B: Functional form	0.77845	0.378	0.37176	0.553
C: Normality	0.35276	0.838	Not applicable	
D: Heteroscedasticity	2.0535	0.152	2.0577	0.163

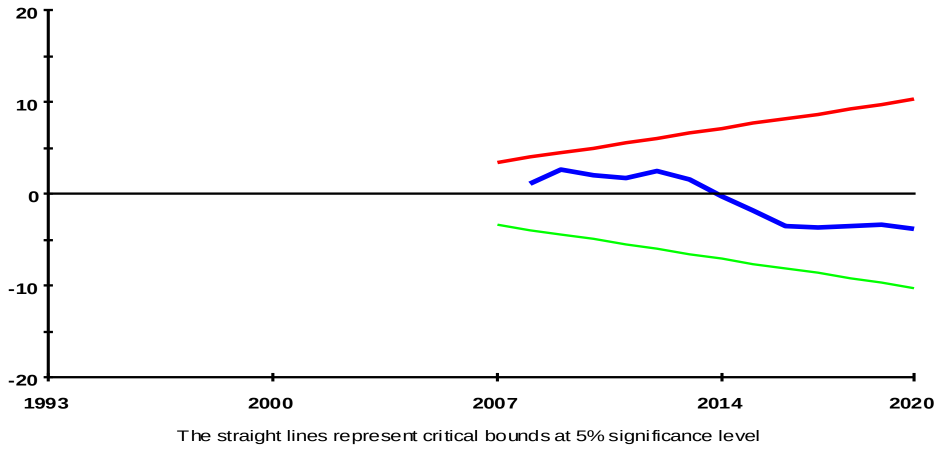

Figure 5: Plot of cumulative sum of recursive residuals

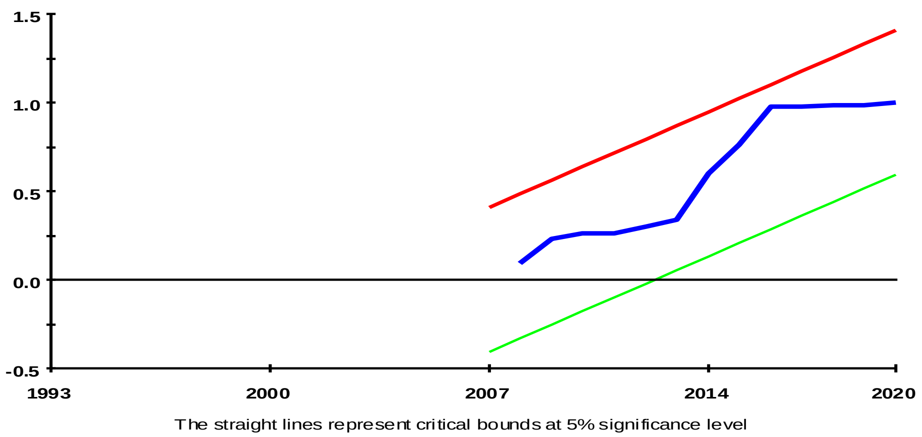

Figure 6: Plot of cumulative sum of squares of recursive residuals

The cumulative sum of recursive residuals (CUSUM) and the cumulative sum of squares of recursive residuals (CUSUMQ) in Figures 5 and 6, respectively show that both models are stable and confirm the stability of the long-run coefficients for the regressors at the 5% level of significance.

6. Conclusion

This paper has examined the effect of agriculture, industry, the manufacturing sector and the service sector on economic growth in the case of Mozambique for the period 1991 to 2020 using the ARDL bounds-testing procedure.

The long-run results show that the industry and exports are positive and significant determinants of economic growth. The manufacturing sector was found to be a negative and significant deterrent to economic growth, while agriculture and the service sector were found to be of no significance to economic growth. However, in the short run, agriculture was found to have a significant and positive effect on economic growth as well as on the manufacturing sector. The service sector also had no significant effect on economic growth in the short run.

The implications are that, for a sustained, long-run impact, policy should focus on enhancing the industrial sector and promoting exports. In the short run, the enhancement of the agricultural sector is of paramount importance to positively boost economic growth.

References

Adeosun OT & Gbadamosi II, 2021. Impact of non-oil sectors on GDP/capita in selected African countries: Evidence from panel analysis. World Journal of Science, Technology and Sustainable Development 18(3): 274–84.

Awokuse TO & Xie R, 2015. Does agriculture really matter for economic growth in developing countries? Canadian Journal of Agricultural Economics / Revue canadienne d'agroeconomie 63(1): 77–99.

Chebbi EH, 2010. Agriculture and economic growth in Tunisia. China Agricultural Economic Review 2(1): 63–78.

Chu AC, Peretto PF & Wang X, 2022. Agricultural revolution and industrialization. Journal of Development Economics 158: 102887.

Diao X, Hazell P & Thurlow J, 2010. The role of agriculture in African development. World Development 38(10): 1375–83.

Gollin D, 2010. Agricultural productivity and economic growth. In P Pingali & R Evenson (eds), Handbook of agricultural economics vol. 4. Amsterdam: Elsevier BV.

Hirschmann AO, 1958. The strategy of economic development. New Haven CT: Yale University Press.

Hwa EC, 1988. The contribution of agriculture to economic growth: Some empirical evidence. World Development 16(11): 1329–39.

Karshenas M, 2001. Agriculture and economic development in sub-Saharan Africa and Asia. Cambridge Journal of Economics 25(3): 315–42.

Lewis WA, 1954. Economic development with limited supplies of labour. The Manchester Schools 22: 139–91.

Loizou E, Karelakis C, Galanopoulos K & Mattas K, 2019. The role of agriculture as a development tool for a regional economy. Agricultural Systems 173: 482–90.

Mulanda SM & Punt C, 2021. Characteristics of Zambia's agricultural sector and the role for agricultural policy: Insights from CGE modelling. Structural Change and Economic Dynamics 58: 300-12.

Perron P, 1997. Further evidence on breaking trend functions in macroeconomic variables. Journal of Econometrics 80(2): 355–85.

Pesaran MH, Shin Y & Smith R, 2001. Bound testing approaches to the analysis of level relationship. Journal of Applied Econometrics 16(3): 289–326.

Valdés A & Foster W, 2010. Reflections on the role of agriculture in pro-poor growth. World Development 38(10): 1362–74.

World Bank, 2023. DataBank | World Development Indicators. Available at https://databank.worldbank.org/reports.aspx?source=2&country=MOZ (Accessed 15 March 2023).

Zhang Y & Diao X, 2020. The changing role of agriculture with economic structural change – The case of China. China Economic Review 62: 101504.