Resource Rent Management and Structural Transformation: The Effect of Natural Resource Rents on Manufacturing Value-Added in Zimbabwe

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Abstract

Zimbabwe stands at a crossroads: although its natural resources are vast, without deliberate policy, the country risks perpetuating boom-bust cycles rather than achieving broad-based industrialisation. Against this backdrop, this study examines the long-run dynamics of industrialisation in Zimbabwe by examining the impact of natural resource rents on manufacturing value-added using time series data spanning from 1980 to 2021. Using an Autoregressive Distributed Lag (ARDL) Bounds testing approach to cointegration, the results reveal a resource-mix effect in the long-run. Total natural resource rents are positively related to manufacturing value-added, while mineral rents exhibit a negative relationship, consistent with the Dutch Disease mechanism that undermines tradable manufacturing. The findings also show that gross fixed capital formation positively influences manufacturing value-added in the long run, whereas trade openness exerts a negative effect. Short-run dynamics indicate that total natural resource rents depress manufacturing value-added contemporaneously, suggesting absorption constraints and temporary crowding out effects, whereas mineral rents generate short-lived positive impulses that subsequently reverse. Gross fixed capital formation exerts a negative effect in the short run before becoming positive in the long run. GDP per capita positively influences manufacturing value-added in the short-run, although its long-run coefficient is statistically insignificant. Policy implications are threefold: (i) leverage broad resource rents for industrial policy and infrastructure, while reducing over-dependence on minerals and strengthening mining-manufacturing linkages; (ii) scale up domestic investment by improving the investment climate and productive infrastructure; and (iii) adopt prudent trade management to mitigate import-competition pressures. Overall, the results suggest that well-managed resource rents can support structural transformation, whereas mineral-centric dependence risks undermining Zimbabwe's long-run industrialisation prospects.

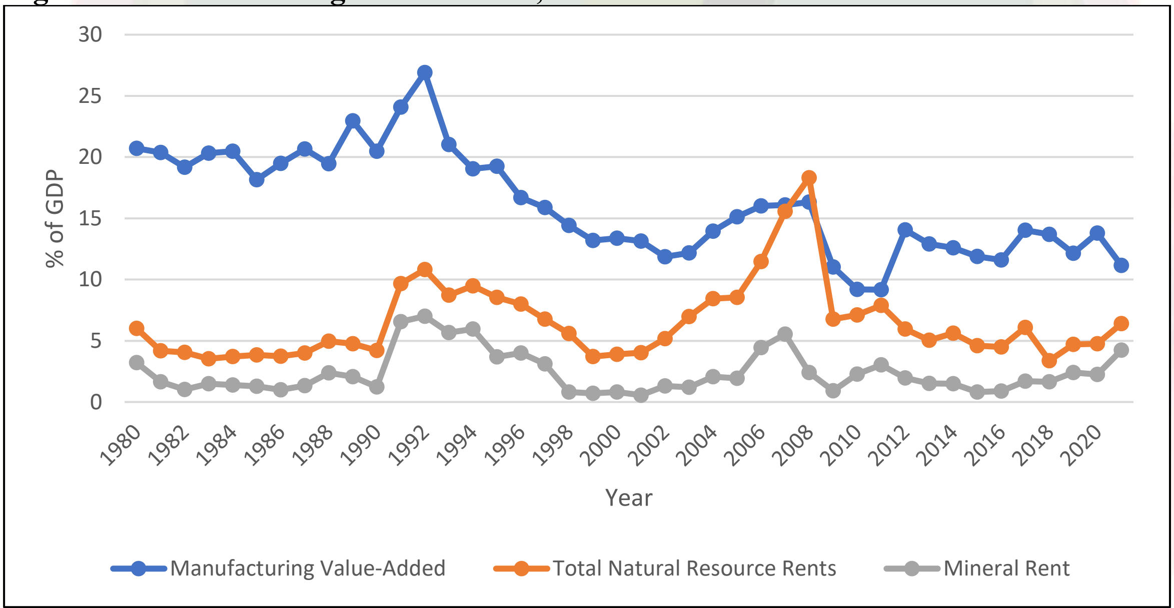
Keywords: Mineral dependence; structural transformation; resource curse; economic diversification; resource governance

Introduction

Industrial expansion remains a fundamental objective for every economy, as it anchors sustained economic performance and enhances societal well-being (Lisha et al., 2023). Industrialisation has always been a priority for development in African countries insofar as industry is the catalyst for long-run growth, thus contributing to poverty alleviation, human capital and strengthening economic diversification (Nkemgha et al., 2021). Achieving such expansion, however, requires both the strategic use of natural resources and the mobilisation of substantial revenues to support sustainable economic growth. However, reliance on natural resource rents can also impede industrial progress. Empirical evidence shows that excessive dependence on natural resource revenues may trigger the Dutch Disease or the "paradox of plenty," where resource booms undermine competitiveness in the manufacturing sector and slow structural transformation (Sachs and Warner, 2023; Bayili & Maïga, 2025; Awoa & Ondoa, 2024). Moreover, poorly managed resource exploitation can result in depletion, environmental degradation and long-term erosion of industrial capacity.

Despite possessing significant natural resource wealth, African countries, including Zimbabwe, continue to face persistent industrial stagnation (Nkemgha et al., 2021). Instead of serving as inputs into domestic industry or as catalysts for manufacturing development, abundant natural resources have frequently been associated with weak industrial performance across the continent. As Atolia et al. (2020) argue, natural resource endowments have increasingly been recognised as key determinants of Africa's (de)industrialisation patterns, highlighting the need for deeper empirical investigation.

Figure 1: Manufacturing Value-Added, Total Natural Resources and Mineral Rents



Source: Data from World Bank Indicators

Zimbabwe's development trajectory is tightly bound to the management of its natural wealth. The country's endowment in minerals has periodically generated fiscal space and foreign exchange earnings, yet the translation of these resource windfalls into broad-based industrialisation has been uneven. Figure 1 presents trends spanning between 1980 and 2021 for manufacturing value-added, total natural resource rents and mineral rents. Manufacturing value-added maintained strong levels through the 1980s, peaking at 26.90 % of GDP in 1992, which remains the highest recorded level in the country's history. However, from the mid-1990s, the sector began a downward trajectory. Manufacturing value-added fell steadily from 19.26% in 1995 to 13.20% in 1999, reflecting macroeconomic instability, declining competitiveness and loss of industrial capacity. The early 2000s saw further contractions, with manufacturing value-added dropping to 11.87% of GDP in 2002 and continuing to shrink, probably due to hyperinflation, currency instability and capital flight. By the time Zimbabwe entered a full-blown economic crisis (2007-2008), the manufacturing sector had deteriorated significantly. The downward pattern continued throughout the mid-2010s, with manufacturing value-added falling to 11.02% in 2018 and then declining to its lowest historical modern value if 7.72% in 2018, signalling severe de-industrialisation and increased dependence on imports.

However, more recent data indicate renewed growth momentum. Manufacturing value-added rose sharply to 15.74% of GDP in 2019 and further increased to 18.43% in 2020. This indicated partial revitalisation due to stabilisation efforts, import substitution policies and retooling initiatives undertaken by the industry. Despite these recent improvements, the sector remains constrained by structural challenges, probably due to overreliance on the extractive sector, outdated machinery, poor electricity supply and competition from cheaper imports.

Total natural resource rents averaged 6.5 per cent of GDP with a peak in 2008 (18.32%) and troughs in the late 2010s, with a minimum value registered in 2018. Such patterns mirror classic tensions in resource-rich economies. In principle, total resource rents can finance industrial public goods, such as infrastructure, energy, logistics, skills and crowd in private investment (Nkemgha et al., 2021). However, mineral-centred booms can also channel labour and capital away from tradables, appreciate the real exchange rate and compress manufacturing competitiveness, known as the Dutch disease channel (Nkemgha et al., 2021). For Zimbabwe, where mining has been the anchor of foreign receipts, the policy question is not whether resources matter, but how their composition and management condition long-run industrial outcomes.

This study is motivated by the poor performance of the manufacturing sector as indicated by a falling manufacturing value-added over the years and the role played by Zimbabwe's natural resource endowments in shaping the manufacturing sector. The study seeks to determine if the crowding-out effect of natural resources on the manufacturing sector exists in Zimbabwe, as it has been noted that abundant natural resources can displace the manufacturing sector. There is a dearth of literature, especially in Zimbabwe, on the role of natural resources rents on manufacturing value-added and this equally serves as a motivating factor for the choice of the topic. A preponderance of studies involving Zimbabwe focused mainly on the impact of natural resource revenue on the country's GDP. As a result, by focusing on natural resources rents and the manufacturing sector, the study intends to fill this gap in the literature. Thus, the study's main objective is to determine the impact of natural resource rents on manufacturing value-added (industrialisation) in Zimbabwe. Specifically, the study seeks to estimate the long-run effect of total natural resource rents on manufacturing value-added; to distinguish the impact of mineral rents and test whether mineral-centric dependence exerts a negative long-run influence on manufacturing value-added; and to assess the short-run impacts of both natural resource rents and mineral rents on industrialisation in Zimbabwe.

Literature review

Theoretically, several explanations have been put forward to explain the nexus between natural resources and industrialisation. Since the seminal work of Sachs and Warner (1995), a large body of literature has investigated the nexus between natural resource rents and economic growth, known as the resource curse. The resource curse Hypothesis Posits that resource-rich countries tend to have lower economic growth, less democracy and worse development results than resource-poor countries. Several factors were considered as the leading causes of the natural resource curse phenomenon, including corruption, conflicts, volatility of revenues discouraging private investment and low incentives to human capital development, among others. Immediately following the work by Sachs and Warner (1995) is the Dutch Syndrome, also known as the "Dutch disease". The term "Dutch disease" originates from a 1977 edition of "The Economist" regarding a decline of the Dutch manufacturing sector after the discovery of multiple sources of natural gas. Thus, the Dutch disease occurs when natural resources boost domestic income and demand for goods. This, in turn, led to inflation and an appreciation of the exchange rate. Thus, the relative prices of non-resource commodities increase and their exports become too expensive relative to world markets. This reduces the competitiveness of these commodities as well as the investments they attract (Nkemgha et al., 2021). In addition, the boom in the natural resources sector attracts labour from non-resource sectors, reducing production in these sectors.

However, another strand of theoretical literature, attributed to Adam Smith (1976) and David Ricardo (1817) argued that natural resources play a beneficial role in the process of economic development. Natural resources increase revenue and hence domestic demand, which encourages the production of domestic market-oriented sectors. Also, resource rents can contribute to the development of infrastructure or the accumulation of human capital if adequately invested. Thus, natural resource can facilitate industrial development, create markets and encourage investment (Nkemgha et al., 2021). This shows that the impact of natural resources affects sectoral dynamics in several ways, either through boosting production in one sector at the expense of another or through negatively impacting all non-resource sectors.

Several empirical studies were conducted on the role natural resource rents play in industrialisation and findings can best be described as mixed or contradictory. Some studies note that excessive dependence on natural resources can cause instability in the environment and increase the cost of doing business and hence low industrialisation in the long run. First strand of empirical literature notes that natural resource dependence correlates with lower industrialisation (Nkemgha et al., 2021; Alssadek & Benhin, 2021; Chile et al., 2021; Bayili & Maïga, 2025). Nkemgha et al. (2021) conducted a study on 27 African countries testing the natural resource-industrialisation nexus using panel data analysis. The study found a negative association between natural resource rents and industrialisation. Nkemgha et al. (2021) also found that composition matters as mineral rents hamper industrialisation, whilst forests or coal rents positively boost industrialisation. Alssadek and Benhin (2021) found that oil booms appreciate the exchange rate and are linked to declines in non-oil sectors, including the manufacturing sector. Chile et al. (2021) found that in the short run, natural resources positively impact manufacturing value-added only in the current period and become negative after a one-period lag. The study also found that trade openness is negatively correlated with gross fixed capital formation is positively correlated with the manufacturing value-added. Contrasting the results by Nkemgha et al. (2021) and Alssadek & Benhin (2021), Chile et al. (2021)'s long-run results revealed a positive impact of natural resource rents and a negative impact of gross fixed capital formation on manufacturing value added. Thus, the study argued that natural resources rent is closely linked to the success of the manufacturing sector.

In Zimbabwe, Zhou and Nyandoro (2023) found that export diversification significantly enhances economic growth, underscoring the importance of value-added exports as a stabilising tool in resource-dependent countries. The findings suggest that converting resource rents into diversified manufacturing capabilities strengthens resilience against external shocks. Complementing this, a study by Mamba (2024) examined evidence from a panel study for ECOWAS and noted that natural resource rents exert a negative impact on manufacturing growth, revealing a Laffer-curve pattern in which excessive reliance on resource rents ultimately constrains industrial performance. Similarly, Oyeyemi et al. (2024) study emphasises the mediating role of institutions and financial deepening, showing that strong financial systems boost industrial value-added, yet many resource-rich Sub-Saharan African countries underperform due to weak governance. Huang et al. (2023) demonstrate that mineral price booms trigger urbanisation yet divert labour into low-skilled service rather than manufacturing, leading to consumption-driven rather than production-driven structural transformation. Bayili & Maïga (2025) also found that natural resource rents negatively influence industrialisation, stressing the importance of quality institutions to mitigate the adverse effects. Awoa & Ondoa (2024) examined the heterogeneous role of resource dependence on industrialisation in developing countries and revealed that natural resource rents reduce manufacturing value-added.

The empirical literature review shows mixed results on the impact of natural resource rents on industrialisation owing to different methodologies and variables used in these studies. This means that the issue is still up for debate. Despite vast empirical literature, there a dearth of literature, especially in Zimbabwe, on the role of natural resources rents on manufacturing value-added (industrialisation) and this equally serves as a motivating factor for the choice of the topic.

Research Methodology

The study and Autoregressive Distributed Lag (ARDL) Bounds Test approach to cointegration to examine the impact of resources rents on manufacturing value added (industrialisation), whilst controlling for GDP per capita, gross fixed capital formation and trade openness using STATA 18 statistical package. The model was employed for the data spanning from 1980 to 2021, the latest available data for the key independent variables (natural resource rents and mineral rents) from the World Bank Indicators). The ARDL model can be represented by the following model in its simplest form as follows:

$$Y_t = \omega + \sum_{i=0}^{p} \gamma_i \Delta Y_{t-i} + \sum_{i=0}^{q} \vartheta_i \Delta X_{t-i} + \varepsilon_t \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots . (1)$$

Theoretically, in its reduced form Y_t is the dependent variable, X_(t-i) is the vector of lagged explanatory variables, Y_(t-i) is the lag of the dependent variable. ω is the intercept term. The slope coefficients are represented by γ_i and ϑ_i. The error term is represented by ε_t. This study followed a study by Chile et al. (2025) and adopted the following:

$$\Delta man = \alpha_0 + \sum_{i=0}^{p} \alpha_i nrr_{t-i} + \sum_{i=0}^{q} \beta_i \Delta mr_{t-i} + \sum_{i=0}^{q} \delta_i \Delta gdpc_{t-i} + \sum_{i=0}^{q} \vartheta_i \Delta gcff_{t-i}$$
$$+ \sum_{i=0}^{q} \gamma_i \Delta trade_{t-i} + \mu_1 man_{t-1} + \mu_2 nrr_{t-1} + \mu_3 mr_{t-1} + \mu_4 gdpc_{t-1} + \mu_5 trade_{t-1}$$
$$+ \varepsilon_t \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots . (2)$$

where man represents Manufacturing Value Added, which represents industrialisation, nrr represents total natural resource rents; mr represents mineral rents; gdpc represents GDP per capita; gcff represents gross fixed capital formation; and trade represents trade openness. α_0 represents the intercept term and α,δ,β,ϑ,and γ are short run coefficients. μ_1,μ_2,μ_3,μ_4,μ_5 are the long run coefficients to be estimated. p and q are the lag lengths, t represents time.

Several pre-estimation tests were conducted before the actual ARDL model. To begin with, the study conducted a unit root test for all variables to determine whether they are integrated to order zero, I (0) or integrated to order one, I (1). To test for the presence of unit root the Augmented Dickey Fuller (ADF) test was used. To check for the presence of perfect multicollinearity, the study used the correlation matrix. Selection of optimal lag length was done using Akaike Information Criterion (AIC). In addition, after estimating the ARDL model, the model estimates were scrutinised if they are robust using four key post-estimation tests. Firstly, the model residuals were tested for normality using the Jacque-Bera (JB) test. The variance of the error term was tested for whether it was constant or not using White Test for Heteroscedasticity. Breusch-Godfrey Lagrange Multiplier test was used to check for the presence of serial correlation. Model specification test was conducted using Ramsey RESET Test. The coefficient of determination (R-squared) was used to measure the goodness of fit of the model in question. Stability tests were conducted using cumulative sum (CUSUM) and cumulative sum of squares (CUSUMSQ).

Estimation procedure

The ARDL model was first coined by Pesaran and Shin (2001), developed by Pesaran et al. (2001) and later modified by Nayaran (2005) to suit small sample size for data between 30 and 80 observations. Given this study had a small sample, between the required the model fits well. One of the key advantages of this model is that it fits well with small sample sizes as compared to other approaches to cointegration. In addition, the approach can be used for variables which are either I (0) or I (1) or a mixture of the two. The long run was first estimated, followed by the Bounds Test for cointegration. The ARDL Bounds test for the cointegration null hypothesis is that there is no long run equilibrium relationship amongst variables and the alternative hypothesis is that there exists a long run relationship amongst the variables. The study compared the F-statistic and F-critical values at 1, 5 and 10 percent levels of significance for Lowe and Upper bounds. With the presents of cointegration, the study estimated both the long run and short run models in the form of an Error Correction Model (ECM).

The following long run model was estimated:

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$$\Delta lncr = \mu_1 man_{t-1} + \mu_2 nrr_{t-1} + \mu_3 mr_{t-1} + \mu_4 gdpc_{t-1} + \mu_5 trade_{t-1} + \varepsilon_t \dots\dots\dots\dots (3)$$

where $\mu_1, \mu_2, \mu_3, \mu_4, \mu_5$ are the long run coefficients estimated. The ECM model is as follows:

$$\Delta man = \alpha_0 + \sum_{i=0}^{p} \alpha_i nrr_{t-i} + \sum_{i=0}^{q} \beta_i \Delta mr_{t-i} + \sum_{i=0}^{q} \delta_i \Delta gdpc_{t-i} + \sum_{i=0}^{q} \vartheta_i \Delta gcff_{t-i}$$

$$+ \sum_{i=0}^{q} \gamma_i \Delta trade_{t-i} + \aleph ECT_{t-1} + \varepsilon_t \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots . (4)$$

ECT in equation (4) is the error correction term and $\aleph$ is the coefficient which measure the speed of adjustment of variables towards long run equilibrium. The coefficient of the error correction term is expected to be negative and statistically significant, showing deviations from the long run. α_i, β_i, δ_i, ϑ_i and γ_i are short-run coefficients of the ECM.

In terms of variable identification, the dependent variable is the manufacturing value added (man) measured as a percentage of Gross Domestic Product (GDP). Various studies used the same variable as a dependent variable (Chile et al., 2021; Nkemgha et al., 2021). Total natural resource rent (nrr) was measured as a percentage of GDP. The a priori expectation for nrr was negative. Mineral rents (mr) are measured as a percentage of GDP and the expected value of the coefficient of mineral rents was negative. GDP per capita (gdpc) was measured in USD constant (2015), where its coefficient was expected to be positive. Gross fixed capital formation (gcff) is formerly known as domestic investment and it was measured as a percentage of GDP. Trade openness (trade) was measured as the sum of imports plus exports as a percentage of GDP. The a priori expectation of the coefficient of trade openness was negative. The data for all variables were gathered from World Bank Indicators.

Results and discussion

Table 1 presents a summary of the descriptive statistics of the raw data used in the study. The data spans from 1980 to 2021, making a total of 42 observations. Coefficient of variation for the dependent variable, manufacturing value added (man), is 0.263. For natural resource rents is 0.489, for mineral rents (mr) is 0.709, for GDP per capita (gdpc) is 0.172, for gross fixed capital formation (gcff) is 0.432 and for trade openness (trade) is 0.268. Thus, all variables have low variation as indicated by their coefficient of variation. Kurtosis values for all manufacturing value added, GDP per capita, gross fixed capital formation and trade openness are less than 3, implying a leptokurtic distribution. Total natural resource rents and mineral rents have kurtosis values of greater than 3, implying a platykurtic distribution.

Table 1: Summary of Descriptive Statistics

Variables	Obs	Mean	Std. Dev.	Min	Max	Skew.	Kurt.
man	42	16.148	4.225	9.173	26.899	0.432	2.429
nrr	42	6.513	3.186	3.378	18.323	1.843	6.803
mr	42	2.404	1.705	0.565	7.01	1.263	3.613
gdpc	42	1435.329	247.272	803.045	1789.351	-0.756	2.858
gcff	42	13.41	5.789	2	24.577	-0.204	2.516
trade	42	62.492	16.725	35.917	109.522	0.536	2.747

All other variables except GDP per capita and gross fixed capital formation are positively skewed. Low variation in the data set implies the absence of outliers, the data will not be transformed into log transformations.

Table 2: ADF Unit Root Test Results

Variable	p-value (levels)	p-value (1st differences)	Order of integration

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man	0.2683	0.0001	I (1)
nrr	0.2759	0.0001	I (1)
mr	0.2070	0.0000	I (1)
gdpc	0.5699	0.0305	I (1)
gcff	0.9134	0.0000	I (1)
trade	0.4177	0.0000	I (1)

The ADF test for unit root results shows that all variables are integrated to order one, that is, they are I (1), meaning they became stationary after differencing once. Since there are no I (2) variables, it is possible to use the ARDL Bounds test approach to estimate the model for this study.

Multicollinearity test

The multicollinearity results in Table 3 indicate that the coefficients of correlation are less than 0.8 in absolute terms. This indicates the absence of perfect linear multicollinearity. Thus, the effect of one regressor on manufacturing value added can be isolated whilst holding other factors constant.

Table 3: Multicollinearity Test

Variables	d.man	d.nrr	d.mr	d.gdpc	d.gcff	d.trade
d.man	1.000					
d.nrr	0.460	1.000				
d.mr	0.263	0.548	1.000			
d.gdpc	-0.202	-0.314	0.078	1.000		
d.gcff	-0.100	-0.064	-0.009	0.051	1.000	
d.trade	0.250	0.716	0.136	-0.225	0.135	1.000

ARDL Bounds Test

Table 4: ARDL Bounds Test

		Critical Values	
F-Statistic	Significance	Lower Bound I (0)	Upper Bound I (1)
7.419***	10 per cent	2.26	3.35
	5 per cent	2.62	3.79
	1 per cent	3.41	4.68

**** denotes rejection of Ho at 1% level*

The findings from the Bounds test show an F-statistic of 7.419, which is significant at 1 % level. This shows that there exists a long-run relationship between manufacturing value added and the explanatory variables. Thus, there is cointegration and the need to interpret both long-run and short-run models. The Error Correction Model (ECM) is shown in Table 5.

Table 5: Estimation Results

ARDL (3,1,3, 2,3,3) regression
Sample: 1980 - 2021 — *Number of obs = 39*
R-squared = 0.8819
Adj R-squared = 0.7507
Log likelihood = -43.581758 — *Root MSE = 1.0889*

D.man	Coef.	Std.Err.	t	P>t	[95% Conf.	**Interval]**
ADJ						
man						
L1.	-0.358	0.127	-2.81	0.012	-0.625	-0.09
Long Run Model						
nrr	4.335	1.371	3.16	0.005	1.454	7.216
mr	-6.493	2.5004	-2.60	0.018	-11.747	-1.24
gdpc	0.005	0.005	0.99	0.336	-0.006	0.017
gcff	1.272	0.441	2.88	0.010	0.344	2.199
trade	-0.362	0.098	-3.68	0.002	-0.569	-0.156
Short Run Model						
man						
LD.	-0.672	0.196	-3.43	0.003	-1.083	-0.261
LD1.	-0.412	0.176	-2.34	0.031	-0.781	-0.043
nrr						
D1.	-0.792	0.286	-2.77	0.013	-1.393	-0.192
mr						
D1.	2.421	0.482	5.02	0.000	1.407	3.434
LD.	2.106	0.332	6.35	0.000	1.410	2.803
L2D.	1.180	0.404	2.92	0.009	0.330	2.020
gdpc						
D1.	-0.002	0.003	-0.58	0.572	-0.007	0.004
LD.	0.009	0.002	3.37	0.003	0.004	0.015
gcff						
D1.	-0.490	0.108	-4.53	0.000	-0.717	-0.263

LD.	-0.415	0.092	-4.50	0.000	-0.608	-0.221
L2D.	-0.028	0.068	-4.14	0.001	-0.425	-0.139
trade						
D1.	-0.012	0.043	-0.28	0.781	-0.102	0.078
LD.	-0.051	0.046	-1.12	0.275	-0.148	0.045
L2D.	0.028	0.028	1.00	0.329	-0.030	0.085
_cons	-0.042	3.010	-0.012	0.989	-6.366	6.283

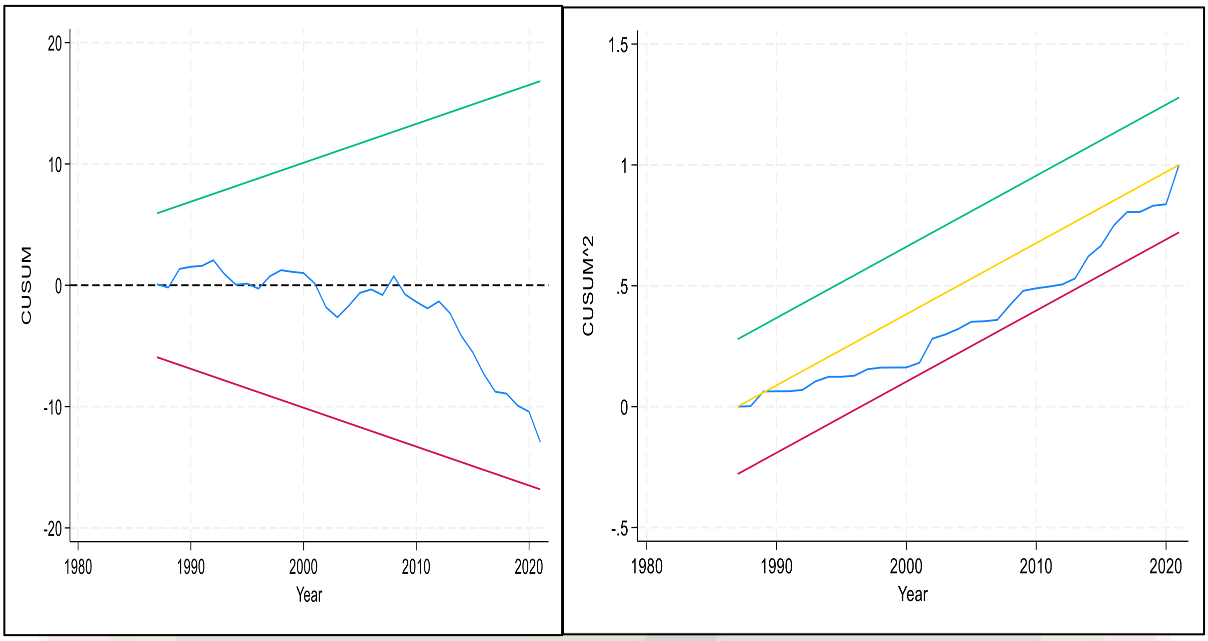
Table 5 presents both long-run and short-run effects and the adjustment coefficient (ECM/ADJ). The coefficient of the error correction term (ADJ) shows how quickly manufacturing value added adjusts back to equilibrium after a short-run disturbance. The coefficient is negative and statistically significant. This shows that manufacturing value-added converges back to the long-run equilibrium aftershocks. The magnitude of 0.3575 indicates that about 35.7% of the disequilibrium is corrected each year. This implies that the manufacturing sector in Zimbabwe demonstrates stable long-run adjustment dynamics as shocks are not permanent. Table 6 presents the diagnostic test results for the study findings, which are interpreted to check whether the estimates of the ARDL model pass all the post-estimation tests.

Table 6: Diagnostic Tests

Test	p-value	Decision
Normality Test	0.2796	Normally distributed residuals
Ramsey RESET Test	0.8981	Correctly specified model
Breusch-Godfrey LM Test for autocorrelation	0.4271	No serial correlation
White Test for Heteroscedasticity	0.4246	No heteroscedasticity

The findings in Table 6 show that the model passes all the diagnostic tests. The p-value (0.2796) of the normality test shows that the residuals are normally distributed. The model is correctly specified as shown by the Ramsey RESET test. There is no serial correlation as indicated by the p-value of 0.4271 from the autocorrelation test. Lastly, the variance of the error term is constant as indicated by White Test for Heteroscedasticity, with a p-value of 0.4246.

Figure 2: Stability Test



Stability test results are presents in Figure 2. These are indicated by CUSUM and CUSUMSQ tests and both fall within the boundaries for the sample period, imply a stable model. Hence there are also no structural breaks.

The long-run coefficient of natural resource rents is positive and statistically significant at 1% level. Thus, a percentage point increase in total natural resources rents increases the manufacturing value added, a measure of industrialisation, by 4.34 percentage points in the long run. This suggests general resource rents support manufacturing expansion through investment capacity, infrastructure spending and increased government revenue. However, in the short run, the coefficient of total natural resource rents is negative, suggesting that short-run resource windfalls initially reduce manufacturing. This owes to absorption capacity constraints, shocks and short-term crowding out. The findings are in line with the theoretical predictions in the short run, where natural resource rents negatively impact industrialisation. Studies by Awoa & Ondoa (2024) and Bayili & Maïga (2025) found a negative impact of natural resource rents on manufacturing value-added. Also conforming to the findings is a study by Chile et al. (2025), who found a positive long-run impact of natural resource rents on manufacturing value added.

The findings, in line with the a priori expectation, reveal a negative long-run impact of mineral rents on manufacturing value added. The coefficient of mineral rent is negative and statistically significant at 5% level. A 1 percentage point increase in mineral rents decreases manufacturing value added by 6.49 percentage points in the long run. This is in line with the classic Dutch Disease phenomenon, where mineral booms appreciate the exchange rate and cause manufacturing to become less competitive. This implies that resources shift from the manufacturing sector towards the extractive sectors. However, the short-run results contradict the long-run findings as both current period, one period lagged and two period lagged coefficients of mineral rent are positive and statistically significant at 1 % level. This implies that, in the short run, mineral revenue spikes temporarily stimulate economic activity, thereby boosting manufacturing. However, in the long run, the impact becomes negative, implying that the short-run gains are not sustainable. This represents a classic boom-bust behaviour. Studies by Nkemgha et al. (2021) found similar findings.

The coefficient of gross fixed capital formation is positive in the long run and statistically significant at 5% level. A 1 percentage point increase in gross fixed capital formation (domestic investment) increases manufacturing value added by 1.27 percentage points. This conforms to the a priori expectation. The finding implies that in the long run, investments in machinery, plants and infrastructure directly support manufacturing output. Contradicting results were found by Chile et al. (2021), who found a negative impact of gross capital formation on manufacturing value-added. However, this is not the case in the short run, as there is a strong negative relationship between domestic investment and manufacturing value added. The current period, one period lagged and two period lagged coefficients of gross fixed capital formation are negative and statistically significant at 1 % level. This implies that capital investment in the short run depresses manufacturing output initially, owing to adjustment costs and installation delays. However, as we approach the long run, it becomes positive, which is also consistent with investment paying off over time. Chile et al. (2021) also found contradicting results as gross fixed capital formation was found to positively influence manufacturing value-added in the short run.

The coefficient of trade openness is negative and statistically significant at 1% level in the long run. This means that an increase in trade openness by 1 percentage point reduces manufacturing value added by 0.36 basis points. This is owed to competition from imports, which harms domestic manufacturing. The country is importing manufactured goods instead of producing them domestically. Thus, the manufacturing is also not able to compete globally. On the other hand, the coefficient of trade openness is statistically insignificant in the short run. This shows that trade openness does not influence manufacturing in the short run, only in the long run. Similar findings of a negative association were reported by Chile et al. (2021).

GDP per capita is positively related to manufacturing value added in the short run. The coefficient of one-period lagged GDP per capita is positive and statistically significant at 1% level.

Lastly, the coefficients of on period and two-period lagged manufacturing value added are negative and statistically significant at 1 % and 5% level, respectively. This shows that past increases in manufacturing value added reduce current growth. This is consistent with the correction towards equilibrium.

Conclusion and recommendations

The study examined the impact of natural resource rents on manufacturing value added, which is a proxy for industrialisation. The main aim was to investigate whether natural resources lead to or are detrimental to industrialisation in Zimbabwe. Given the fact that Zimbabwe depends on the extractive sectors. The study found that, in the long run, total natural resource rents are beneficial whilst mineral rents are harmful. Also, domestic investment supports the manufacturing sector and trade openness reduces the manufacturing sector, suggesting that unregulated trade openness may undermine manufacturing competitiveness in Zimbabwe. GDP has no clear impact, but it has a positive impact in the short run. These findings suggest a resource mix effect, where broad natural resource rents help the manufacturing sector, whilst mineral-dominated resource dependence harms the sector. In the short run, the study findings show that mineral rents are beneficial as they initially boost manufacturing (boom effects), then hurt in the long run. Domestic investment also disrupts output initially but becomes beneficial. In terms of the adjustment, disequilibrium corrects at 35-36% per year, showing a stable ARDL model. Overall, the findings support a resource-curse pattern specific to minerals, highlighting the importance of productive investment.

There are various policy implications arising from the study findings. First, natural resources rents can support the manufacturing sector if it is well managed. Thus, there is a need for policymakers to channel resource revenues into industrial policy and stabilise fiscal flows and to avoid excessive dependency on minerals. Thus, mineral dependency is dangerous if care is not taken. Therefore, there is a need for the government of Zimbabwe and policymakers to diversify the country's exports and build linkages between the mining sector and the industry. Since long run gains are large from gross fixed capital formation, domestic investment must be encouraged. Therefore, there is a need to improve the investment climate and infrastructure development to boost manufacturing value added. With the findings at hand, caution needs to be taken as far as trade openness is concerned. Weak domestic industries are vulnerable to import shocks; as a result, the study recommends strategic tariffs, protection of infant industries and export promotion incentives and programs to be put in place.

References

Alssadek, M., & Benhin, J. (2021). Oil boom, exchange rate and sectoral output: An empirical analysis of Dutch disease in oil rich countries. Resources Policy, 74, 102362. https://doi.org/10.1016/j.resourpol.2021.102362.

Amiri, H., Samadian, F., Yahoo, M., & Jamali, S. J. (2019). Natural resource abundance, institutional quality and manufacturing development: Evidence from resource-rich countries. Resources Policy, 62, 550-560.

Atolia, M., Loungani, P., Marquis, M., & Papageorgiou, C. (2020). Rethinking development policy: What remains of structural transformation? World Development, 128, 104834.

Awoa, P. A., & Ondoa, H. A. (2024). Heterogeneous role of resource dependence on industrialisation in developing countries. Comparative Economic Studies, 66, 753–781. https://link.springer.com/article/10.1057/s41294-023-00231-9.

Bayili, P. A. R., & Maïga, W. H. E. (2025). The effect of natural resource dependence on industrialisation in Africa: The role of institutional quality: PAR Bayili. Mineral Economics, 1-16. https://doi.org/10.1007/s13563-025-00519-5

Chile, N. I., Uzoechina, B. I., Eze, M. A., Imoagwu, C. P., & Anyachebelu, U. M. (2021). Does the abundance of natural resources crowd-out the manufacturing sector? Evidence from Nigeria. Asian Development Policy Review, 9(3), 108–126.

Huang, Q., Xie, V. W., & You, W. (2023). Resource rents, urbanisation and structural transformation (STEG Working Paper No. 074). Structural Transformation and Economic Growth (STEG). https://cepr.org/system/files/publication-files/WP074.pdf

Lisha, L., Mousa, S., Arnone, G., Muda, I., Huerta Soto, R., & Shiming, Z. (2023). Natural resources, green innovation, FinTech and sustainability: A fresh insight from BRICS. Resources Policy, 80, 103119. https://doi.org/10.1016/j.resourpol.2022.103119.

Mamba, E. (2024). Natural resource rents, manufacturing trade and manufacturing growth: Evidence from linear and nonlinear regressions for ECOWAS countries. Comparative Economic Studies, 67(1), 150–185. https://doi.org/10.1057/s41294-024-00234-0

Narayan, P.K. (2005). The saving and investment nexus for China: Evidence from cointegration tests, Applied Economics, 17, 1979-1990.

Nkemgha, G. Z., Kengne, V., & Djouaka, A. P. (2021). Does the exploitation of natural resources promote the industrialisation of African countries? Economics Bulletin, 41(3), 1338–1356. [econpapers.repec.org]

Oyeyemi, O. G., David, O. O., Ishola, A. R., Kwarbai, J. D., & Osinowo, O. O. (2024). Effect of financial deepening and institutional factors on industrial value added: Evidence from Sub Saharan Africa. International Journal of Applied Economics, Finance and Accounting, 20(2), 174–187. https://doi.org/10.33094/ijaefa.v20i2.1955.

Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. Journal of applied econometrics, 16(3), 289-326.

Sachs, J. D., & Warner, A. M. (1995). Natural resource abundance and economic growth (NBER Working Paper No. 5398). National Bureau of Economic Research. https://doi.org/10.3386/w5398.

Smith, A. (1976). An inquiry into the nature and causes of the wealth of nations (E. Cannan, Ed.). University of Chicago Press.

Zhou, H., & Nyandoro, J. M. (2023). Export diversification and economic growth: Evidence from Zimbabwe. Botswana Journal of Economics, 15(1), 1–9. https://doi.org/10.5897/BOJE2022.0007.