

Structural Transformation and Income Convergence toward Upper Middle-Income Status: Evidence from Zimbabwe Case

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Structural Transformation and Income Convergence toward Upper Middle-Income Status: Evidence from Zimbabwe Case

by

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Abstract

Zimbabwe's economic activity has experienced persistent disruption due to macroeconomic instability, particularly prior to 2009, and remains vulnerable despite subsequent stabilization efforts. The country aims to achieve upper middle-income status by 2030; however, the feasibility of this goal remains uncertain. This study examines the structural drivers of Zimbabwe's income convergence using a panel error correction model over the period 1980–2024, incorporating pre- and post-2009 structural shifts. The sample includes successful upper middle-income countries, African structural peers, and persistent lower middle-income economies. Results indicate that structural transformation variables—manufacturing value added, capital formation, and manufactured exports—significantly reduce the income gap in the long run. Conversely, dependence on natural resource rents and macroeconomic instability widens the gap. Adjustment towards long-run equilibrium is gradual, reflecting structural constraints. The study proposes an income-threshold convergence framework linking World Bank classifications to economic performance, offering policy-relevant insights for Zimbabwe and comparable economies.

JEL Classification: O11, O14, O47

Keywords: Income convergence, structural transformation, upper-middle-income, panel error correction model; Zimbabwe.

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1. INTRODUCTION

Global economic development is characterized by uneven structural transformation where some countries have successfully transitioned to high income status while others stagnate for long periods. Past studies (Solow 1956; Barro and Sala-i-Martin 1992) support the classical growth theory which shows that poor economies grow faster than richer ones through income convergence. Studies (Felipe et al. 2012; Rodrik 2016) argue that convergence takes place at different speeds due to differences in technological capabilities, institutional quality, capital accumulation and economic stability. Consequently, developing countries fail to reach upper middle-income country (UMIC) status despite experiencing some periods of growth. Several developing countries are focusing mainly on raising their growth levels as guided by World Bank gross national income classifications system. Felipe et al. (2012) show that needs effective institutions, sustainable structural transformation and productivity to transition. Furthermore, Eichengreen et al. (2013) argue that countries are trapped within middle income levels as they fail to attain required productivity levels.

Past studies (Felipe et al. 2012; Rodrik 2016) suggest that the East Asian economies attained rapid growth in income by employing their technological capabilities, sustainably investing in human capital, diversifying their exports, and industrial upgrading. They moved towards higher value-added exports, and manufacturing, which improved productivity growth and hence continued convergence toward high income levels. On the contrary, countries in sub-Saharan Africa rely heavily on primary exports, manufacturing value added (MVA) as a percentage of gross domestic product (GDP) and productivity growth are constrained (Ajayi and Muhammed 2025; McMillan et al. 2011). According to Rodrik (2016), periods of growth in most Africa countries are a result of commodity booms and not structural upgrading and hence few countries have attained high income

levels. Diverse development pathways are evidence in Southern Africa countries with Botswana, Mauritius and South having attained upper middle-income country (UMIC) status while Seychelles has attained High income country (HIC) status. Common among these countries are effective institutions, sustained investment and diversified exports. Zimbabwe has been recognized as having strong industrial capacity and human capital within this region. Economic activity is significantly disrupted by macroeconomic instability in which the country experienced hyperinflation from 2004 until 2008. This is worsened by weakening institutions, and dwindling productive capacity (Hanke and Kwok 2009). Until now, growth remains uneven and structural vulnerabilities persist despite economic stabilization measures implemented post 2009. Questions about the country's convergence path have arisen from the country's development strategy which targets attainment of UMIC status by 2030. Whilst work has been done to examine the country's macroeconomic instability, economic growth (Chinamatira and Śmiglak-Krajewska 2025; Okoth et al. 2025) and reforms (Chamisa and Sunde 2024; Niyitunga and Gwakwara 2024; Tekwa 2024), there is a dearth of evidence focusing on the attainment of the World Bank's income classification thresholds. These past studies fail to explain whether structural changes are adequate in helping the country to close the gap between its gross national income and the World Bank's UMIC threshold, hereinafter referred to as the income gap, while capturing short run and long run dynamics. This has been done by limited studies in other economies (Reinhart and Rogoff 2010, Majenge et al. 2024; Nyathi, Nkala and Mlobane 2024; Mverecha 2025).

This study, therefore, models the income gap to estimate both short run adjustment dynamics and long run structural determinants using a panel error correction modelling (ECM) framework. Sub sample periods are created to understand the dynamics before and after 2009 stabilization reforms. This study generates scenario-based simulations to understand convergence towards UMIC status.

Contributions have been made in three ways: i) structural transformation variables are integrated within a unified dynamic framework, ii) empirical analysis focuses on income threshold convergence using internationally acceptable development levels, iii) the study applies a panel ECM framework to isolate long run determinants and short run adjustment dynamics.

The remainder of the study is organized as follows: section 2 covers theoretical and empirical literature, section 3 explains the methodology, section 4 presents and discusses major findings and section 5 concludes and provides policy implications.

2. LITERATURE REVIEW

Theoretical Foundations

Theories suggest that convergence to the desired income level is underpinned by the combined working of institutional quality, effective resource management, human capital and structural transformation. Conditional convergence is founded by the neoclassical growth framework. Solow (1956) argues that convergence to the steady state income level is driven by technological advancements, population growth and rates of saving. Barro and Sala-i-Martin (1992) further show that the growth of poorer economies accelerates more than for richer economies when driven by structural factors like human capital, favorable macroeconomic conditions and institutional quality. These views suggest convergence is conditional upon availability of certain fundamentals that enhance higher and consistent growth in income.

The structural transformation theory supports the allocation of primary resources, capital and labour, from low sectors like agriculture to high productive sectors of the economy like manufacturing and services. Such choices will drive productivity and hence long-term growth (McMillan et al. 2011). On the contrary, Rodrik (2016) argues that traditional manufacturing

pathways are no longer driving convergence to desired income levels. Instead, countries must diversify and move into services and technologically sophisticated exports to avoid premature deindustrialization. Baldwin and Lopez- Gonzalez (2015) argue that countries can specialize in specific production stages and not the entire production value chain. This is supported by Hausmann et al. (2007) who show that production fragmentation increases technological diffusion and growth in productivity.

The resource curse hypothesis demonstrates that growth is slow in resource rich countries as they are easily affected by weak institutions and external shock like exchange rate movements and macroeconomic volatility (Auty and Furlonge 2018). The incentive for industrial development is reduced due to the crowding out effects of resource rents on tradable sectors. Resource rents drive growth when supported by effective institutions and economic management policies. The quality of institutions and their effect on long term growth is supported by past studies (Rodrik et al. 2004; Kaufmann et al. 2010). They show that institutions are critical in ensuring that economies can mobilize and implement development policies.

The endogenous growth theory (Lucas 1988; Romer 1990) persistent growth and increasing returns are possible where there is knowledge accumulation. This is possible as productivity is driven by learning by doing and innovation spillovers. The positive impact of human capital on productivity gains support from past studies (He and Li 2020; Hanushek and Woessmann 2023). Thus, human capital can improve the rate of convergence towards desired income levels. The significance of other variables in the convergence debate is supported by Fischer (1993). The study argues that inflation and fiscal instability may discourage capital accumulation through their distortionary effects on price signals and reduction in savings. Past studies (Bruno and Easterly

1998; Reinhart and Rogoff 2010) demonstrate that persistent macroeconomic instability leads to output losses and hence economies move away from the desired income level.

Drivers of Income Convergence

Studies confirm the significance of structural upgrading and growth in productivity as key in explaining convergence to the desired income level. Past studies (Felipe et al. 2012; Felipe et al. 2025) argue that better technological capabilities, diversified exports and strong manufacturing capabilities bring long term growth, convergence and, hence avoiding the middle-income trap. Erten and Schwank (2021) show that convergence is faster where there technological upgrading and integration into global production chains. In addition, Saha (2023), show that the country's absorptive capacity enhances the productivity effects of foreign direct investment on productivity and growth.

Natural resource rents have a negative effect on growth (Sachs and Warner, 2001), but this can be mitigated against using diversification and institutional quality. Rents can promote short term growth while they harm long term growth (Yu 2023). More so, Gafsi (2025) show that by strengthening resource management and diversifying their economies, resource rich countries can sustain short term growth.

Evidence suggests that human capital and macroeconomic stability contribute to long term growth. Past studies (Siddique and Kiani 2018; He and Li 2020) support that higher life expectancy improves growth by working through productivity and investment in education. According to Reinhart and Rogoff (2010) argue that economic stagnation is caused by financial crises and huge debt. Growth can be sustained by effective macroeconomic frameworks and financial stability (Majenge et al, 2024; Abdul Rahman et al. 2025).

On the contrary, growth is slow in African economies due to overreliance on commodity exports. This reduces the speed with which they converge to their desired income levels. Zimbabwe is highly dependent on primary sectors for growth and there are structural constraints like poor sectoral competitiveness. Public resources are stabilized by domestic resource mobilization efforts and credible fiscal reforms (Chamisa and Sunde 2024). Productivity growth is driven by trade openness (Nyathi et al. 2024), agricultural productivity (Chinamatira and Śmiglak-Krajewska 2025). Inflation dynamics are driven by monetary and exchange rate volatilities (Mverechea 2025). Past studies typically focus on determinants of economic performance. They do not focus on how a country can reduce the income gap. This limits the relevance of findings in supporting policies for countries that seek to transition to high income levels. Drivers of growth are not integrated into a unified analytical framework. Approaches like dynamic panels and cross-sectional regressions fail to account for short run adjustment dynamics and long run determinants. Evidence long run and short run dynamics and their connection with growth on economies like Zimbabwe that experienced structural breaks is limited. To address these gaps, this study models the income gap using a panel ECM framework. This approach isolates the key factors that drive income gap, and estimate the speed of adjustment towards long run equilibrium.

3. METHODOLOGY

Research Design and Empirical Strategy

The study employs a dynamic panel data framework to establish whether Zimbabwe is following the correct path for attaining Upper middle-income country (UMIC) status by end of the year 2030. The analysis is done using two complementary approaches: first, a long run fixed effects model plus an error correction model (ECM) is estimated using all sampled countries. The study estimates

determinants of the distance (Dis) to the UMIC threshold or the income gap and the speed of convergence towards equilibrium. Last, using panel Engle-Granger two step approach, the study uses fixed effects (FE) to estimate long run coefficients and residuals are then used to estimate a lagged error correction term (ECT) for Zimbabwe. This allows for analysis of dynamics before and after the 2009 stabilization and creates possible scenarios from 2024 to 2030. These two approaches are consistent with the conditional convergence theory (Barro and Sala-i-Martin 1992; Sala-i-Martin 1997). Past studies (Baltagi 2021; Hsiao 2014; Wooldridge 2010) show that panel data techniques control unobserved heterogeneity. Fixed effects estimators incorporate country specific characteristics like institutional legacy and geography (Baltagi 2021).

In understanding the drivers of income classification transition dynamics, the study uses the threshold distance model. It captures the distance (DIS) between gross national income (GNI) per capita and the World Bank's upper middle-income (UMI) threshold. The dependent variable is defined as:

$$DIS_{it} = \ln(UMI_t) - \ln(GNIpc_{it})$$

The value of DIS is less than or equal to zero wherever a country attains UMIC status and a positive value indicates the income gap.

The study employs a dynamic FE model expressed in error correction form stated as follows:

$$\begin{aligned} \Delta DIS_{it} = & \phi(DIS_{it-1} - \beta_1 GCF_{it-1} - \beta_2 MVA_{it-1} - \beta_3 EXD_{it-1} - \beta_4 MEX_{it-1} - \beta_5 NRR_{it-1} - \\ & \beta_6 SEG_{it-1} - \beta_7 LEP_{it-1} - \beta_8 Inst_score_{it-1} - \beta_9 CPI_{it-1} - \beta_{10} POP_{it-1} - \beta_{11} FDI_{it-1}) \\ & + \gamma_1 \Delta GCF_{it} + \gamma_2 \Delta MVA_{it} + \gamma_3 \Delta EXD_{it} + \gamma_4 \Delta MEX_{it} + \gamma_5 \Delta NRR_{it} + \gamma_6 \Delta SEG_{it} + \gamma_7 \Delta LEP_{it} + \\ & \gamma_8 \Delta Inst_score_{it} + \gamma_9 \Delta CPI_{it} + \gamma_{10} \Delta POP_{it} + \gamma_{11} \Delta FDI_{it} + \mu_i + \lambda_t + \varepsilon_{it} \end{aligned}$$

Where:

The time invariant country specific effects are captured by μ_i , λ_t are time fixed effects, and the idiosyncratic error term is captured by ϵ_{it} . The coefficients, β , are long run parameters, the speed of adjustment is ϕ , and γ represents short run parameters.

The Zimbabwe specific, ECM is specified as follows:

$$\Delta DIS_t = \alpha + \sum \beta_k \Delta X_{k,t} + \lambda L_{z,t-1} + \varepsilon_t$$

Where, $L_{z,t-1}$ is the lagged residual from the panel long-run equation, ΔDIS_t is the annual change in the income gap, $\Delta X_{k,t}$ are the first differences of covariates, and the speed of adjustment towards a long run equilibrium is λ .

Using the data for Zimbabwe, the study estimates a full ECM, parsimonious ECM which captures only significant short run parameters (ΔNRR , ΔMEX , ΔLEP and $L_{z,t-1}$). This model is selected based on its stability and efficiency. The study also estimates an ECM plus post 2009 dummy, another model with pre-2009 and the last one from 2009 onwards. This is done to assess parameter stability across macroeconomic episodes. The study also tests structural breaks in convergence dynamics. In generating projections, the study employs the parsimonious model of the following form:

$$Dis_{t+1} = Dis_t + \widehat{\Delta DIS_t}$$

The observed value for 2024 serves as the initial condition. At each step, the lagged equilibrium error is updated. Simulated scenarios are presented in Table 1.

Table 1: Simulated Scenarios:

Scenario	ΔNRR	ΔMEX	ΔLEP
Baseline	Historical averages	Historical averages	Historical averages
Optimistic	Improved structural upgrading	Strong export growth	Health improvements
Pessimistic	Stagnation	Weak export performance	No health gains

Model validity is assessed using variance inflation factors (VIFs) to test for multicollinearity, residual correlation tests in ECM equations, sub samples are used to assess stability of parameters, and robust standard errors to correct for heteroskedasticity. Unit root is tested using both Im-Pesaran-Shin (IPS) and Levin-Lin-Chu to understand the order of integration.

Sample Selection, Data and Variables

The study employs panel data covering a period of 45 years from 1980 to 2024. The period is considered adequate for preliminary analysis and is selected based on data availability of key variables. The study sample consists sixteen countries being Zimbabwe as the focal country, countries that successfully transitioned to UMIC status (Vietnam, Indonesia, Thailand, Malaysia, Philippines), African structural peers (Angola, Ghana, Mozambique, Namibia, Nigeria, Tanzania and Zambia) and countries that have persistently remained at low middle income country (LMIC) status (Bangladesh, Kenya and Pakistan). There is variation in convergence outcomes while outliers, long standing UMICs and high-income countries are excluded. Hence it is possible to estimate structural determinants based on this heterogeneous sample.

Variable Selection and Theoretical Justification

The selection of explanatory variables is influenced by structural transformation and endogenous growth literature. Structural variables include manufacturing value added as a percent of GDP

(MVA) which captures a move towards sectors that are more productive (Kuznets 1966); Gross capital formation as percentage of GDP (GCF) which an indicator of physical capital accumulation (Mankiw et al. 1992); exports diversification index (EXD) which captures productive upgrading and movement up the value chain (Eichengreen et al. 2013). It is found by constructing the primary share index (Ores and metals exports as % of merchandise exports plus Agricultural raw materials as a % of merchandise exports plus Fuels as a % of merchandise exports) and subtracting it from one. Merchandise exports as a percentage of GDP (MEX) which captures structural upgrading as an indicator of a country's early-stage industrialization (Felipe et al. 2012). Foreign direct investment (FDI) flows as a percentage of GDP captures capital inflows, technology transfer, managerial know-how and integration into global production networks. It supports productivity growth and domestic investment. Human capital variables consist of secondary school enrolment (SEG) which shows intermediate skills development and workforce preparedness to raise productivity and enables structural transformation to higher value-added sector activities (Barro 1991; Lucas 1988). Life expectancy at birth in years (LEP) captures health conditions and overall development of population. Healthy populations are likely to improve growth and convergency. Institutional quality score (INST_SCORE) combines bureaucratic effectiveness, corruption control, law and order and investment security (Acemoglu and Robinson 2012). Better quality institutions release countries from lower income levels and provide conditions needed to translate structural transformation into sustainable improvements in income. Total natural resource rents as a percentage of GDP (NRR) measure the extent to which resource reliance influence convergence towards UMIC status. Heavy reliance on resource rents may crowd out manufacturing and weaken institutional incentives and slow down convergence. Annual percentage growth rate in population (POP) helps top isolate structural effects from demographic influences on per capita income

convergence. High population growth stretches public resources, raises dependency ratios and weaken capital accumulation. Inflation (CPI) is included since it influences both investment and growth.

Table 2: Variables and expected signs

Variable ²	Theory Link	Expected Sign	Key References (Google Scholar)
DIS	Conditional convergence theory; middle-income transition dynamics	—	Barro and Sala-i-Martin (1992); Eichengreen, Park and Shin (2012)
GCF	Solow growth model; capital deepening; endogenous growth	Negative	Solow (1956); Mankiw, Romer and Weil (1992); Barro (1991)
MVA	Structural transformation; productivity upgrading; Lewis dual-sector model	Negative	Kuznets (1967); McMillan and Rodrik (2011); Felipe et al. (2025)
EXD	Structural change; economic complexity; vulnerability to shocks	Negative	Imbs and Wacziarg (2003); Hausmann, Hwang and Rodrik (2007); Cadot, Carrère and Strauss-Kahn (2011)
MEX	Structural transformation;	Negative	Hausmann et al. (2007), Cadot et al. (2011)
NRR	Resource curse theory	Positive	Sachs and Warner (2001); Mehlum, Moene and Torvik (2006)
SEG	Human capital theory	Negative	Lucas (1988); Barro (1991); Mankiw et al. (1992)
LEP	Human capital theory	Negative	Acemoglu and Johnson (2007); Victoria (2015)

² NRR, GCF, and FDI are log-transformed to reduce skewness and stabilize variance. About 6 negative data points for EXD are replaced with zero to allow meaningful interpretation and avoid distortions in subsequent analyses. CPI is transformed using a shifted log approach that preserves the direction of change while allowing inclusion of all observations. These adjustments improve normality, reduce outlier effects, and ensure that the variables are appropriate for regression modeling.

INST_SCORE	Institutional economics	Negative	Rodrik, Subramanian and Trebbi (2004); Kaufmann, Kraay and Mastruzzi (2010)
CPI	Macroeconomic stability and growth; uncertainty and investment	Positive	Fischer (1993); Bruno and Easterly (1998)
POP	Solow dilution effect; demographic transition theory	Positive	Solow (1956); Mankiw et al, (1992)
FDI	Technology spillovers; capital mobility; integration theory	Negative	Borensztein, De Gregorio and Lee (1998); Alfaro et al. (2004)

4. RESULTS AND DISCUSSION

Descriptive Analysis

Summary statistics are provided in Table 3. The mean distance (DIS) to UMIC status is 1.12, and its median is 1.18 which suggests a symmetric distribution. Few countries are closer to UMIC as indicated by a negative skewness (-0.28) while kurtosis (2.23) shows that there is no excessive tail thickness. INST_SCORE has a mean and median values approximately equal to zero which shows standardization. Skewness is near zero while kurtosis is closer to normal distribution which confirms a balanced institutional difference across countries. The mean and median EXD are 48.79% and 49.40%, respectively, which shows that non-primary exports occupy nearly half of total exports. There are thin tails and limited extreme values and there is cross-country heterogeneity in export structures as indicated by a standard deviation of 28.45. NRR) shows mild skewness and low kurtosis and mean of 1.57 and median of 1.74. There is moderate variation across the sample. The average and median manufacturing exports (MEX) are 36.13% and 29.18%, respectively. Few countries in the sample have industrialized as shown by a positive skewness (0.48) and there is high structural variation indicated by the distance between minimum and maximum values. POP

shows that there are few highly populated countries as indicated by a low positive skewness and there is moderate dispersion. The average LEP value of 59.6 years and symmetrical distribution shows that there are evenly spread health outcomes. The SEG variable has light positive skewness (0.32), mean of 43.2% and maximum exceeding 100%. It reflects variations in the way countries accumulate human capital. FDI shows potential periods of macroeconomic volatility as indicated by skewness of -1.55 and kurtosis of 7.63. GCF demonstrates times of high physical capital accumulation and minor variations with moderate skewness (-1.06), high kurtosis (7.65) and standard deviation of 0.44. MVA with a mean of 14.93% of GDP shows significant contribution of industrial output to the national economy. Skewness (0.41) is low and kurtosis (2.28) is moderate occurrences of manufacturing's contribution. CPI has a mean and median value of 2.22 and 2.21 respectively and shows that there are extreme inflationary episodes which occur regularly compared to normal distribution.

Table 3: Descriptives

Variable	Mean	Median	Min	Max	Std. Dev.	Skewness	Kurtosis	Obs.
DIS	1.122	1.183	-0.977	3.47	0.875	-0.278	2.234	720
INST_SCORE	0	0.009	-3.49	3.554	1.283	-0.033	2.79	720
EXD	48.785	49.396	0	96.561	28.449	-0.183	1.886	720
NRR	1.575	1.742	-1.092	4.08	1.119	-0.226	2.249	720
MEX	36.131	29.18	0.001	95.812	29.948	0.478	1.82	720
POP	2.305	2.404	-0.172	6.76	0.916	0.3	4.645	720
LEP	59.598	59.744	42.759	77.15	9.183	-0.055	1.948	720
SEG	43.215	40.154	1.533	124.331	25.028	0.321	2.299	720
FDI	0.185	0.521	-8.882	3.693	1.667	-1.555	7.634	673
GCF	3.096	3.125	0.421	4.493	0.436	-1.057	7.647	720
MVA	14.926	13.697	1.327	33.346	7.144	0.409	2.277	720
CPI	2.219	2.213	-3.334	8.477	1.266	-0.329	7.346	720

Results in Table 4 show that DIS, POP, LEP, SEG and MVA are stationary after first differencing while variables such as INST_SCORE, EXD, NRR, MEX, FDI, GCF, and CPI are stationary at levels. These results show that there is possibility of long-term relationships among variables.

Table 4: Unit root tests

Variable	IPS		LLC		Order
	Level	First Diff	Level	First Diff	
DIS	5.765	-7.376***	0.208	-7.376***	I(1)
INST_SCORE	-4.385***	-17.847***	-2.639***	-9.957***	I(0)
EXD	-2.875***	-15.657***	-4.332***	-12.450***	I(0)
NRR	-2.688***	-16.203***	-2.492***	-15.920***	I(0)
MEX	-5.039***	-16.186***	-4.426***	-13.777***	I(0)
POP	2.292	-10.764***	-2.150**	-14.106***	I(1)
LEP	2.597	-3.825***	-7.686***	-16.266***	I(1)
SEG	5.988	-13.782***	3.413	-7.833***	I(1)
FDI	-5.761***	-16.821***	-2.564***	-5.763***	I(0)
GCF	-3.295***	-15.202***	-3.353***	-10.474***	I(0)
MVA	0.962	-15.675***	0.686	-13.113***	I(1)
CPI	-7.953***	-18.819***	-3.795***	-17.713***	I(0)

Results in Table 5 based on correlation show that all variables are negatively associated with the dependent variable except CPI and NRR. Potential multicollinearity is shown by coefficients higher than 0.70 and this is further examined using variance inflation factors (VIFs).

Table 5: Correlation Matrix

Variables	DIS	INST_SCORE	EXD	NRR	MEX	POP	LEP	SEG	FDI	GCF	MVA	CPI
DIS	1											
INST_SCORE	-0.369***	1										
EXD	-0.230***	0.253***	1									
NRR	0.110***	-0.064*	-0.689***	1								
MEX	-0.303***	0.258***	0.880***	-0.680***	1							
POP	0.225***	-0.091**	-0.471***	0.366***	-0.508***	1						
LEP	-0.525***	0.371***	0.685***	-0.385***	0.722***	-0.515***	1					
SEG	-0.692***	0.264***	0.352***	-0.255***	0.415***	-0.445***	0.569***	1				
FDI	-0.243***	0.321***	-0.122***	0.327***	-0.048	-0.054	0.093**	0.223***	1			
GCF	-0.168***	0.257***	-0.045	0.127***	0.072*	-0.048	0.196***	0.052	0.313***	1		
MVA	-0.350***	0.165***	0.505***	-0.291***	0.533***	-0.491***	0.572***	0.435***	-0.006	0.185***	1	
CPI	0.347***	-0.230***	-0.310***	0.244***	-0.364***	0.251***	-0.328***	-0.358***	-0.046	-0.074**	-0.265***	1

Findings in Table 6 show that there is no problem of multicollinearity as all variables have VIF values which are below the critical level of 10. Highest VIFs are for MEX (5.99) and EXD (5.57). They are slightly above the conservative level of 5 which shows moderate multicollinearity. Thus, all regressors can be used in the same model during analysis.

Table 6: Multicollinearity tests

Variable	VIF	Tolerance (1/VIF)
INST_SCORE	1.68	0.595
EXD	5.57	0.179
NRR	2.5	0.4
MEX	5.99	0.167
POP	1.61	0.622
LEP	3.56	0.281
SEG	1.94	0.516
FDI	1.53	0.652
GCF	1.31	0.763
MVA	1.79	0.559
CPI	1.25	0.802
Mean VIF	2.61	

Using a Engle-Granger approach, the study estimates a fixed effects regression which provided residuals that are subjected to Im-Pesaran-Shin (IPS) panel unit root test to determine whether they are stationary. Results in Table 7 ($p < 0.0041$), show that residuals are stationary and hence a cointegrating relationship is confirmed.

Table 7: Cointegration Tests

Test	Statistic	p-value	Conclusion
IPS unit root on residuals	$\bar{W}_t = -2.646$	0.0041	Reject null $\rightarrow$ residual stationary

Empirical Analysis

The study presents findings in Table 8 for both long, using panel fixed effects (FE) regression, and short run parameters, using error correction model (ECM), based on the entire sample. To construct the ECM, the study first differenced variables including the lagged residual ($\hat{\varepsilon}_{i,t-1}$) from the FE model (Pesaran, Shin and Smith 1999; Azolibe 2021).

In the long run, findings confirm that key determinants of moving towards UMIC status are structural composition, human capital accumulation and macroeconomic stability. Natural resource rents (NRR) have a positive and significant effect on the threshold distance (DIS). There are persistent long-term effects from structural dependence on the extractive sector. Findings are consistent with resource dependence literature which suggests that overreliance on natural resources dampens the effects of industrial diversification, institutional quality and human capital deepening (Arezki and Brueckner 2021; Bulman et al. 2017; Lederman and Maloney 2007b). Thus, convergence towards UMIC is sustainable where a country moves away from dependence on primary resources.

High manufacturing exports (MEX) widens the development gap which happens where there is no supporting structural transformation. This shows that export growth does not automatically result in income convergence with complementary changes in technology, local value addition and connectivity across sectors (Lederman and Maloney 2007a; Rodrik 2018; Freund and Pierola 2012; Baldwin and Loez-Gonzalez 2015).

Life expectancy (LEP) has a significant and negative effect on the development gap. This shows that countries are likely to attain UMIC status as the health of their populations improves. Long term wide economic improvements are possible where human capital growth improves (Hanushek and Woessmann 2015; He and Li 2020; Barro and Lee 2013). The developmental gap narrows with an improvement in access to secondary education (SEG). This is possible as education

improves skills that improves technology adoption and the rate at which the economy adapts to structural changes which drive income convergence (Ciccone and Papaioannou 2009; Hanushek and Woessmann 2015).

Controls like manufacturing value added (MVA), inflation (CPI) and foreign direct investment (FDI) have positive and significant effect on development gap. Findings show that manufacturing is expanding in low valued activities which are failing to bring about wider productivity spillovers. Consistent with past studies (Rodrik 2013, 2018), MVA alone does not guarantee convergence to UMIC unless supported by other factors like technological advancement and sectoral connections. The widening of developmental gap due to increased FDI flows suggests that improves convergence when supported by domestic factors like high absorptive capacity and adequate human capital (Borensztein et al. 1998). Their availability widens the developmental impact of FDI flows. High inflation widens the developmental gap as it worsens macroeconomic volatility and weakens growth. Investment decisions are distorted, and the real buying power of money is reduced in an inflationary environment and hence a widening of the development gap.

In the long run, GCF, INST_SCORE and EXD are not statistically significant and hence do not explain convergence to or divergence from UMIC status.

In the short run, the ECT is negative and significant ($\beta = -0.6781$, $t = -4.92$, $p < 0.001$), which show that there is rapid adjustment to a long run equilibrium of 67.81% annually. This is consistent with views that countries revert to their long run path as they correct short run shocks. The immediate effect of changes in natural resource rents (NRR) on development gap is positive and significant ($\beta = 0.0967$, $p < 0.01$). This is consistent with the structural drag witnessed in the long run. MEX has a positive and significant effect ($\beta = 0.0967$, $p < 0.05$) on the developmental gap. Similarly, raising manufacturing share does not close the income gap but shows structural

weaknesses in the economy (Rodrik, 2018). Both LEP ($\beta = -0.0322$, $p < 0.01$) and GCF ($\beta = -0.1186$, $p < 0.01$) are significant and negative. This shows that improvements in human capital and physical capital accumulation can immediately promote convergence to UMIC status. A rise in investment boosts productivity and raises national output (He and Li. 2020; Saha. 2023). Other covariates (INST_SCORE, EXD, SEG, FDI, MVA and CPI do not explain changes in DIS in the short run. This could be caused by factors that include but are not limited to smoothing and policy lags in structural interventions and weak within year variations.

Table 8: Panel of 16 Countries – Full Model (Long-Run and Short-Run ECM)

Variable	Long-Run		Short-Run	
	Parameter (β)	T-Statistic	Parameter (γ)	T-Statistic
INST_SCORE	0.0216	1.28	-0.0025	-0.33
EXD	-0.0025	-1.62	0.00095	0.88
NRR	0.1988	6.45***	0.0967	5.47***
MEX	0.00382	2.24**	0.00227	2.27**
LEP	-0.04897	-11.43***	-0.0322	-3.07***
SEG	-0.01205	-9.14***	-0.00146	-1.43
FDI	0.02914	2.30**	0.00132	0.24
GCF	-0.06712	-1.42	-0.1186	-3.81***
MVA	0.0105	2.47**	0.00373	1.05
CPI	0.04938	3.53***	0.00153	0.29
Constant	4.2066	15.98***	0.00633	0.2
ECT	–	–	-0.6781	-4.92***

*Asterisks denote significance: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$*

Findings in Table 9 are for ECMs for Zimbabwe based on the residuals from panel models. They give a comparison of different specifications as represented by each column. Using a model with all variables, the error correction term (ECT) is negative and significant which shows that 73.49% of deviations from the long run are corrected within one year. Using a parsimonious model and

ECM with post 2009 dummy, correction within one year is for 67.81% and 55.16% of disequilibrium, respectively. Adjustment is slow and unstable for the two sub samples. In the pre-2009 period, there is weak long run adjustment as expected where there are policy inconsistencies, unstable macroeconomic environment and structural rigidities. In the post 2009 period, there is potential for faster convergence which is possible in a stable environment and closeness to the long run equilibrium.

Results show that MEX is positive and significant ($\beta = 0.0201$, $p < 0.10$) using the Full ECM, and positive and significant ($\beta = 0.0143$, $p < 0.05$) using the parsimonious model. This means the development gap worsens as manufacturing exports improve in the short run. This unexpected divergence of the country from UMIC where there are low value manufacturing exports or premature deindustrialization which reduces the impact of exports on growth (Rodrik 2016). Convergence takes place where MEX is supported by improvements in productivity and structural upgrading (Erten and Schwank 2021). Thus, Zimbabwe could be faced with low value manufactured exports that lack forward and backward linkages to key sectors. This makes improvements in MEX inadequate in closing the development gap.

Natural resource rents (NRR) have a positive and significant effect using the full ECM ($\beta = 0.4101$, $p < 0.10$), using the parsimonious model ($\beta = 0.3936$, $p < 0.01$) and using the model with post 2009 dummy ($\beta = 0.4033$, $p < 0.05$). Findings show that improvements in natural resource rent delay convergence to UMIC status as supported by the past studies (Auty and Furlonge 2018; Yu 2023, Gafsi 2025) which show that countries that are well endowed in natural resources struggle with structural transformation and improving productivity. In the context of Zimbabwe, as much as resource rents generate fiscal gains they are failing to bring about broad-based industrial upgrading, and hence divergence from UMIC in the short term.

Life expectancy (LEP) has a negative a significant effect on development gap using both the full ECM ($\beta = -0.1070$ $p < 0.05$) and using the parsimonious model ($\beta = -0.1092$, $p < 0.01$). This shows that there is convergence to UMIC as life expectancy improves. This clearly shows the link between a healthy population and gains in productivity and the link between educational outcomes and economic growth (Siddique et al. 2019, He and Li 2020; Celik et al. 2023). Thus, Zimbabwe's investment in health care could be improving its life expectancy and hence narrowing the development gap.

Findings show that reforms done after the year 2009 have contributed substantially to the growth of the economy. The parameter is significant ($\beta = -0.2313$ $p < 0.05$) showing that reforms are increasing the chances of the country to attain UMIC by 2030. This view is supported by past studies (Lyeonov et al. 2018; Abdul Rahman et al. 2025) which suggest that macroeconomic stabilization and credible reforms improve convergence.

Table 8: Zimbabwe – Country-Specific ECM (Full and Parsimonious Models, Pre/Post 2009)

Variable	Full ECM (all variables)	Parsimonious ECM	ECM + Post-2009	Pre-2009 ECM	Post-2009 ECM
$\Delta \text{INST_SCORE}$	-0.0294 (0.0267)	—	—	—	—
ΔEXD	-0.0091 (0.0075)	-0.0048 (0.0063)	-0.0021 (0.0061)	0.0033 (0.0102)	-0.0021 (0.0117)
ΔNRR	0.4101* (0.1619)	0.3936*** (0.132)	0.4033*** (0.126)	0.3025 (0.198)	0.3455 (0.235)
ΔMEX	0.0201* (0.0092)	0.0143** (0.0074)	0.0090 (0.0076)	-0.0001 (0.0129)	0.0172 (0.0142)
ΔLEP	-0.1070** (0.0299)	-0.1092*** (0.0282)	-0.0243 (0.0507)	-0.0007 (0.0836)	-0.0206 (0.0834)
ΔSEG	-0.0076 (0.0073)	-0.0063 (0.0060)	-0.0086 (0.0059)	-0.0075 (0.0100)	-0.0035 (0.0107)
ΔFDI	-0.0304 (0.0426)	—	—	—	—

ΔGCF	-0.1283 (0.0877)	—	—	—	—
ΔMVA	-0.0056 (0.0169)	—	—	—	—
ΔCPI	0.0202 (0.0204)	—	—	—	—
ECT	-0.7349*** (0.1627)	-0.6781*** (0.1378)	-0.5516*** (0.1463)	-0.3615 (0.2717)	-0.1272 (0.0817)
POST_2009	—	—	-0.2313** (0.1171)	—	—
Constant	0.0026 (0.0342)	0.0063 (0.0314)	0.1029 (0.0573)	0.1214 (0.0807)	-0.1200 (0.1135)

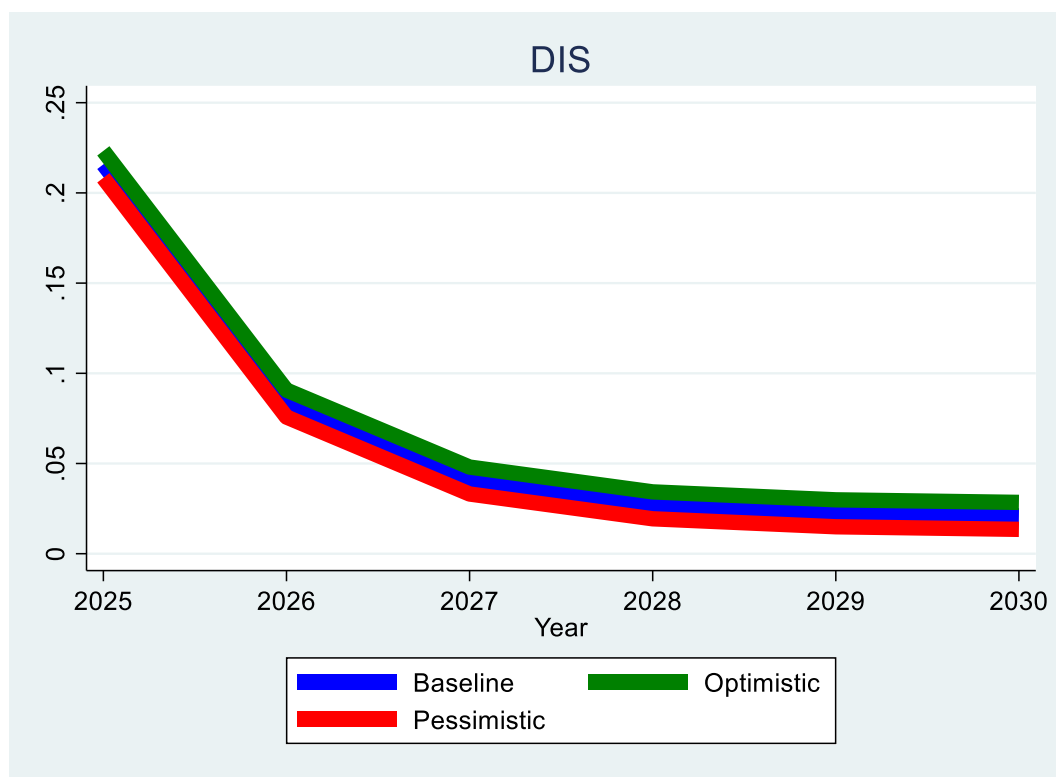
*Asterisks denote significance: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$*

Convergence Dynamics

Findings on the projected income gap or DIS from 2025 to 2030 are presented in Table 9. The study applied three scenarios as presented in Table 1. The income gap is interpreted as closing where the value converges to zero. There is evidence of gradual convergence towards UMIC status by 2030 as the income gap moves towards zero in all scenarios. For example, under the baseline scenario, the development gap starts at 0.216 and falls gradually to 0.021 by 2030. Zimbabwe can significantly reduce the income gap if there is consistency in the use of current structural dynamics. Under the optimistic scenario, the income gap moves from 0.223 (2025) to 0.028 (2030). This is driven by growth in key drivers identified using the parsimonious model. Results show slower convergence as identified drivers widen the gap in the short term when applied with no structural support. Under the pessimistic scenario, the income gap falls from 0.208 (2025) to 0.014 (2030) demonstrating faster convergence. This comes about as stagnation in the identified drivers reduces their income gap widening effect.

The same trajectories are visually presented in Figure 1. The three lines represent the path under each scenario, and they show a downward trend is confirming the potential for Zimbabwe to reach UMIC status. The changes in the underlying drivers bring about the gradual widening of the gap

between each scenario and this shows sensitivity of convergence outcomes. The position of the pessimistic scenario, under the baseline, shows some consistency and subsequently faster convergence compared to the optimistic scenario. The figure complements what has been presented in Table 9 by giving a clear picture of how assumptions made can influence changes in the income gap until 2030.



Overall, findings show the need to have targeted interventions and policies meant to enhance outcomes in health and education. Favorable policies and demographic improvements can mitigate against the negative effects of identified drivers using the parsimonious model. These structural changes can complement the identified drivers to assist the economy move towards sustainable and high development thresholds.

Table 9: Projected DIS Values for 2025–2030 under Different Scenarios

Year	Baseline DIS	Optimistic DIS	Pessimistic DIS
2025	0.216	0.223	0.208
2026	0.083	0.091	0.076
2027	0.041	0.048	0.033
2028	0.027	0.034	0.019
2029	0.022	0.03	0.015
2030	0.021	0.028	0.014

6. CONCLUSIONS AND POLICY IMPLICATIONS

The study examined whether Zimbabwe’s current economic structure supports convergence towards the World Bank’s upper middle-income country (UMIC) threshold by 2030. A panel error correction framework was used to examine both short adjustment dynamics and long-term relationships. The sample comprised of sixteen (16) comparable developing countries for the period 1980 - 2024. A fixed effects model was used to estimate drivers of UMIC using the entire sample, while an error correction model (ECM) was applied on Zimbabwe data to examine short run dynamics. Results from the latter were used to examine different pathways through convergence to UMIC status can be achieved.

The study showed that human capital development, structural transformation, macroeconomic stability and resource wealth influence the income gap. Based on the entire sample, findings revealed that dependence on natural resource rents (NRR), and merchandise exports (MEX) increased the income gap in both short run and long run while life expectancy at birth (LEP) reduced the income gap. Furthermore, human capital as proxied by secondary school enrollment (SEG), and investment in physical capital (GCF) reduced the income gap in the long run and short run respectively. Factors like foreign direct investment flows (FDI), manufacturing value added

(MVA) and an inflationary environment (CPI) increased the income gap. Using the ECM, both the full and parsimonious models for Zimbabwe confirmed that NRR and MEX has a positive impact on the income gap while LEP narrowed the income gap.

Improvements in manufacturing activity alone cannot bring about convergence. There are other complementary factors that must be considered like better technology, value addition and participation in the global value chain. Human capital played a critical role in bringing convergence and structural transformation. It supported technological absorption, from FDI flows, while building capacity to move to higher productive sectors of the economy. Convergence increased in the short run by due to a rise in physical capital investment (GCF) which built capacity to strengthen structural transformation. Focusing on export diversification alone with no supporting mechanisms in form of high productivity and technology cannot reduce the income gap. FDI does not support convergence when it is channeled to low value-added extractive sectors. The study showed that there is strong speed of convergence to a long run equilibrium.

The Zimbabwe specific models showed that reliance on NRR and MEX increased the income gap while improvements in LEP brought convergence. There was adjustment to the long run equilibrium. The country's convergence was driven further by post 2009 policy reforms and macroeconomic stabilizers. However, the weakening of the adjustment mechanism showed that post 2009 reforms were not adequate in sustaining long term convergence. Thus, convergence to UMIC status is not possible by making transitory changes. The study showed the need for more sustainable changes anchored by effective management of resource rents, upgrading of exports, and investment in human and productive capital.

The adverse effect of NRR and MEX on the income gap can be avoided by prioritizing policies that ensure that resource rents are used to diversify the economy into higher productive sectors.

Industry policy should support participation in global value chains, innovation, building of industrial clusters and technology transfer. Investment in health systems and skills development through vocational training and raising public health outcomes will strengthen human capital which enhances productivity and convergence. Productive capital formation is required in areas like energy, digital and infrastructure development. Regulations that compel FDI to be channeled towards meaningful sectors are ideal for convergence. The capacity to monitor changes in key metrics, overtime, like human capital, export sophistication, and investment will reduce structural constraints and assist in the attainment of UMIC status.

Future studies should widen the sample size to improve generalizability of findings. Studies can capture some key structural dimensions like quality of human capital, systems driving innovation and technical capabilities. The role of factors like digitalization and skills development is still to be explored. This study relied on aggregated data which limits understanding dynamics at industry or sector level and their contribution to convergence.

REFERENCES

1. Abdul Rahman, Y., Osei-Fosu, A. K., Sakyi, D. (2025). The impacts of convergence policies on macroeconomic stability in the West African monetary zone. *African Journal of Economic and Management Studies*, 16(3), 410-425. <https://doi.org/10.1108/ajems-12-2023-0472>
2. Acemoglu, D., Johnson, S. (2007). Disease and development: the effect of life expectancy on economic growth. *Journal of Political Economy*, 115(6), 925-985. <https://doi.org/10.3386/w12269>
3. Ajayi, S. O., Muhammed, A. A. (2025). Effect of bank stability on economic development in sub Saharan Africa. *African Banking and Finance Review Journal*, 20(3), 1-19.
4. Alfaro, L., Chanda, A., Kalemli-Ozcan, S., Sayek, S. (2004). FDI and economic growth: the role of local financial markets. *Journal of International Economics*, 64(1), 89-112. <https://doi.org/10.2139/ssrn.305762>
5. Arezki, R., Brueckner, M. (2021). Between a Rock and a Hard Place: A New Perspective. Working Paper No 351. Africa Development bank. <https://www.afdb.org>

6. Auty, R. M., Furlonge, H. I. (2018). *The rent curse: Natural resources, policy choice, and economic development*. Oxford University Press. <https://doi.org/10.1093/oso/9780198828860.001.0001>
7. Azolibe, C. B. (2021). Determinants of external indebtedness in heavily indebted poor countries: what macroeconomic and socio-economic factors matter?. *The American Economist*, 66(2), 249-264. <https://doi.org/10.1177/0569434520938326>
8. Baldwin, R., Lopez-Gonzalez, J. (2015). Supply-chain trade: A portrait of global patterns and several testable hypotheses. *The World Economy*, 38(11), 1682-1721. <https://doi.org/10.1111/twec.12189>
9. Barro, R. J. (1991). Economic growth in a cross section of countries. *The Quarterly Journal of Economics*, 106(2), 407-443. <https://doi.org/10.3386/w3120>
10. Barro, R. J., Sala-i-Martin, X. (1992). Convergence. *Journal of Political Economy*, 100(2), 223-251. <https://doi.org/10.1086/261816>
11. Barro, R. J., Lee, J. W. (2013). A new data set of educational attainment in the world, 1950–2010. *Journal of development economics*, 104, 184-198. <https://doi.org/10.1016/j.jdeveco.2012.10.001>
12. Borensztein, E., De Gregorio, J., Lee, J.-W. (1998). How does foreign direct investment affect economic growth? *Journal of International Economics*, 45(1), 115–135. [https://doi.org/10.1016/S0022-1996\(97\)00033-0](https://doi.org/10.1016/S0022-1996(97)00033-0)
13. Bruno, M., Easterly, W. (1998). Inflation crises and long-run growth. *Journal of Monetary Economics*, 41(1), 3-26. [https://doi.org/10.1016/s0304-3932\(97\)00063-9](https://doi.org/10.1016/s0304-3932(97)00063-9)
14. Bulman, D., Eden, M., Nguyen, H. (2017). Transitioning from low-income growth to high-income growth: is there a middle-income trap? *Journal of the Asia Pacific Economy*, 22(1), 5-28. <https://doi.org/10.1596/26012>
15. Cadot, O., Carrère, C., Strauss-Kahn, V. (2011). Export diversification: what's behind the hump? *Review of Economics and Statistics*, 93(2), 590-605. <https://doi.org/10.1596/5484>
16. Celik, E. U., Omay, T., Tengilimoglu, D. (2023). Convergence of economic growth and health expenditures in OECD countries: Evidence from non-linear unit root tests. *Frontiers in Public Health*, 11, 1125968. <https://doi.org/10.3389/fpubh.2023.1125968>
17. Chamisa, M. G., Sunde, T. (2024). Key determinants of tax revenue in Zimbabwe: assessment using autoregressive distributed lag (ARDL) approach. *Cogent Economics & Finance*, 12(1), 2386130. <https://doi.org/10.1080/23322039.2024.2386130>
18. Chinamatira, D. R., Śmiglak-Krajewska, M. (2025). Agricultural Production and Economic Growth in Zimbabwe. *Journal of Agribusiness and Rural Development*, 78(4), 405-415. <https://doi.org/10.17306/j.jard.2025.4.00029r1>
19. Ciccone, A., Papaioannou, E. (2009). Human capital, the structure of production, and growth. *The Review of Economics and Statistics*, 91(1), 66-82. <https://doi.org/10.2139/ssrn.899270>

20. Eichengreen, B., Park, D., Shin, K. (2012). When fast-growing economies slow down: International evidence and implications for China. *Asian Economic Papers*, 11(1), 42-87. https://doi.org/10.1162/asep_a_00118
21. Erten, B., Schwank, O. (2021). Rethinking unconditional convergence in manufacturing in the age of new Technologies. *Journal of Globalization and Development*, 12(1), 1-45. <https://doi.org/10.1515/jgd-2020-0011>
22. Felipe, J., Abdon, A., Kumar, U. (2012). Tracking the middle-income trap: What is it, who is in it, and why? *Levy Economics Institute, Working Paper*, (715), 1-59 <https://doi.org/10.2139/ssrn.2049330>
23. Felipe, J., McCombie, J., Mehta, A. (2025). Is anything left of the debate about the sources of growth in East Asia 30 years later? A critical survey. *Journal of Evolutionary Economics*, 35(2), 247-280. <https://doi.org/10.1007/s00191-025-00894-w>
24. Fischer, S. (1993). The role of macroeconomic factors in growth. *Journal of monetary economics*, 32(3), 485-512. <https://doi.org/10.3386/w4565>
25. Freund, C., Pierola, M. D. (2012). Export surges. *Journal of Development Economics*, 97(2), 387-395. <https://doi.org/10.1016/j.jdeveco.2011.06.008>
26. Gafsi, N. (2025). Natural Resource Rents and Economic Growth in Tunisia: Assessing the Role of Resource Diversification in Sustainable Development. *Resources*, 14(12), 187. <https://doi.org/10.3390/resources14120187>
27. Hanke, S. H., Kwok, A. (2009). On the Measurement of Zimbabwe's Hyperinflation. *The Cato Journal*, 29(2), 353 - 364
28. Hanushek, E. A., Woessmann, L. (2023). *The knowledge capital of nations: Education and the economics of growth*. MIT press. <https://id.hse.ru/>
29. Hausmann, R., Hwang, J., Rodrik, D. (2007). What you export matters. *Journal of Economic Growth*, 12(1), 1-25. <https://doi.org/10.1007/s10887-006-9009-4>
30. He, L., Li, N. (2020). The linkages between life expectancy and economic growth: some new evidence. *Empirical Economics*, 58(5), 2381-2402. <https://doi.org/10.1007/s00181-018-1612-7>
31. Imbs, J., Wacziarg, R. (2003). Stages of diversification. *American Economic Review*, 93(1), 63-86. <https://doi.org/10.1257/00028280321455160>
32. Kaufmann, D., Kraay, A., Mastruzzi, M. (2010). Response to ‘What do the worldwide governance indicators measure? *The European Journal of Development Research*, 22(1), 55-58. <https://doi.org/10.1057/ejdr.2009.49>
33. Kuznets, S. (1967). Population and economic growth. *Proceedings of the American philosophical Society*, 111(3), 170-193. <https://doi.org/10.2307/2229354>
34. Lederman, D., Maloney, W. F. (2007a). Trade structure and growth. *Natural resources: Neither curse nor destiny*, 15-39. https://doi.org/10.1111/j.1477-8947.2007.151_5.x
35. Lederman, D., Maloney, W. F. (2007b). Neither curse nor destiny: Introduction to natural resources and development. *Natural Resources*, 1, 1-396. <https://doi.org/10.5860/choice.44-5161>

36. Lucas Jr, R. E. (1988). On the mechanics of economic development. *Journal of Monetary Economics*, 22(1), 3-42. [https://doi.org/10.1016/0304-3932\(88\)90168-7](https://doi.org/10.1016/0304-3932(88)90168-7)
37. Lyeonov, S. V., Vasylieva, T. A., Lyulyov, O. V. (2018). Macroeconomic stability evaluation in countries of lower-middle income economies. *Scientific Bulletin of the National Mining University*, (1), 138-146.
38. Majenge, L., Mpungose, S., Msomi, S. (2024). Econometric analysis of South Africa's fiscal and monetary policy effects on economic growth from 1980 to 2022. *Economies*, 12(9), 227. <https://doi.org/10.3390/economies12090227>
39. McMillan, M., Rodrik, D., Bacchetta, M., Jensen, M. (2011). Making globalization socially sustainable. ed. *Marc Bacchetta and Marion Jansen, Chapter Globalization, Structural Change, and Productivity Growth. Geneva: International Labour Organization and World Trade Organization.*
40. Mankiw, N. G., Romer, D., Weil, D. N. (1992). A contribution to the empirics of economic growth. *The Quarterly Journal of Economics*, 107(2), 407-437. <https://doi.org/10.2307/2118477>
41. Mehlum, H., Moene, K., Torvik, R. (2006). Institutions and the resource curse. *The Economic Journal*, 116(508), 1-20. <https://doi.org/10.1111/j.1468-0297.2006.01045.x>
42. Mukoka, S. (2024). Modelling the Zimbabwe Inflation and Economic Development for Policy Reform. *Zimbabwe Journal of Business, Economics and Management*, 3(1), 412-420
43. Mverecha, J. (2025). Money Supply Growth, Exchange Rate and Inflation Dynamics in Zimbabwe: An Autoregressive Distributed Lag-Error Correction Model. *International Journal of Economic Policy*, 5(4), 1-21. <https://doi.org/10.47941/ijecop.3051>
44. Niyitunga, E., Gwakwara, C. (2024). Public Policy Reforms: A Scholarly Perspective on Education 5.0 Primary and Secondary Education in Zimbabwe. *International journal of technology-enhanced education*, 3(1), 1-18. <https://doi.org/10.4018/ijtee.338364>
45. Nyathi, L. D., Nkala, M., Mlobane, M. (2024). Trade openness and total sector productivity in Zimbabwe: Empirical analysis using ARDL and Granger causality approach. *International Journal of Research and Innovation in Social Science*, 8(11), 2782-2793. <https://doi.org/10.47772/ijriss.2024.8110213>
46. Okoth, E., Omar, A. E. (2025). Urban Expansion, Governance, and Environmental Quality: Decoding the Drivers of Human Development in SADC Countries (2000-2020). *SAGE Open*, 15(2), 21582440251335192. <https://doi.org/10.1177/21582440251335192>
47. Pesaran, M. H., Shin, Y., Smith, R. P. (1999). Pooled mean group estimation of dynamic heterogeneous panels. *Journal of the American statistical Association*, 94(446), 621-634. <https://doi.org/10.1080/01621459.1999.10474156>
48. Reinhart, C. M., Rogoff, K. S. (2010). Growth in a Time of Debt. *American economic review*, 100(2), 573-578. <https://doi.org/10.1257/aer.100.2.573>
49. Rodrik, D. (2013). Structural change, fundamentals, and growth: an overview. *Institute for Advanced Study*, 23, 1-12. https://doi.org/10.1057/9781137333117_2

50. Rodrik, D. (2016). Premature deindustrialization. *Journal of Economic Growth*, 21(1), 1-33. <https://doi.org/10.1007/s10887-015-9122-3>
51. Rodrik, D. (2018). An African growth miracle?. *Journal of African Economies*, 27(1), 10-27. <https://doi.org/10.1093/jae/ejw027>
52. Rodrik, D., Subramanian, A., Trebbi, F. (2004). Institutions rule: the primacy of institutions over geography and integration in economic development. *Journal of Economic Growth*, 9(2), 131-165. <https://doi.org/10.1023/b:joeg.0000031425.72248.85>
53. Sachs, J. D., Warner, A. M. (2001). The curse of natural resources. *European economic review*, 45(4-6), 827-838. [https://doi.org/10.1016/s0014-2921\(01\)00125-8](https://doi.org/10.1016/s0014-2921(01)00125-8)
54. Saha, S. K. (2023). Does the impact of the foreign direct investment on labor productivity change depending on productive capacity?. *Journal of the Knowledge Economy*, 15(2), 8588-8620. <https://doi.org/10.1007/s13132-023-01444-0>
55. Siddique, H. M. A., Kiani, A. (2018). Health, education and economic growth nexus: Evidence from middle income countries. *Global Social Sciences Review*, 3(4), 68-86. [https://doi.org/10.31703/gssr.2018\(iii-iv\).05](https://doi.org/10.31703/gssr.2018(iii-iv).05)
56. Solow, R. M. (1956). A contribution to the theory of economic growth. *The Quarterly Journal of Economics*, 70(1), 65-94. <https://doi.org/10.2307/1884513>
57. Tekwa, N. (2024). Leveraging land and water sector reforms for trade: Constraints and opportunities for women producers in Zimbabwe. *African Journal on Land Policy and Geospatial Sciences*, 7(4), 946-960.
58. Victoria, J. S. (2015). Human capital investment and economic growth in Nigeria. *Developing Country Studies*, 5(21), 88-95. <https://doi.org/10.7176/dcs/15-2-09>
59. Yu, Y. (2023). Role of Natural resources rent on economic growth: Fresh empirical insight from selected developing economies. *Resources Policy*, 81, 103326. <https://doi.org/10.1016/j.resourpol.2023.103326>