

INDUSTRIAL POLICY RESPONSE AND TRADE CYCLE IN SOUTHERN AFRICAN DEVELOPMENT COMMUNITY (SADC)

Presented by Sand Mba Kalu
(PhD Candidate, University of Cape Town)



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Department:
Trade, Industry and Competition
REPUBLIC OF SOUTH AFRICA



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Industrial Policy in an era of global structural change: Implications for Southern Africa

1.0. INTRODUCTION

- Developing a strong industrial base is essential for countries seeking to diversify their economy away from over-reliance on commodities and towards a more competitive and value-added development trajectory.
- Governments across Africa are currently promoting industrialisation through initiatives such as Made-in-Africa under the African Continental Free Trade Area (AfCFTA) framework.
- Nation cannot fight a long-term battle against poverty, unemployment, and other social and economic problems without increasing output and income. Norsworthy & Tsai, (1998), Harisson, (2014). Similarly, Khan (2014) Yong (2020) opined that industrialisation, as shown theoretically and empirically, can support sustained overall economic growth more effectively than traditional primary commoditie

1.0. INTRODUCTION

- This paper aims to identify industrial policy responses and trade cycles in the Southern African Development Community (SADC), Regional Economic Community (REC) from 2000 to 2021.
- The subsections of this paper will cover the reviews of relevant literature, which analyses the implementation of different trade policy regimes across SADC.
- Theoretical framework, Model design, and outcome analysis are all covered in detail, while the final subsection covers the conclusion and policy recommendations.

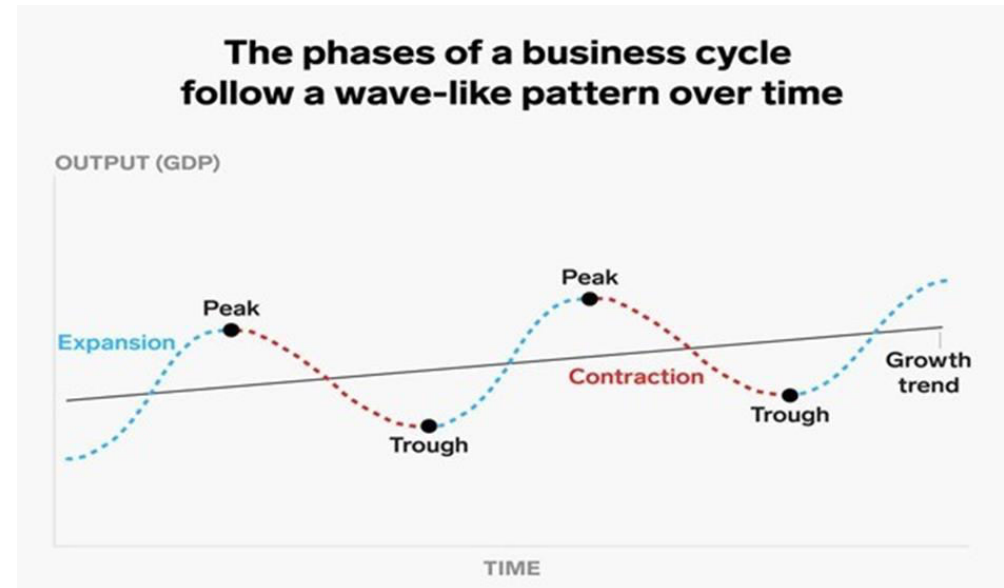
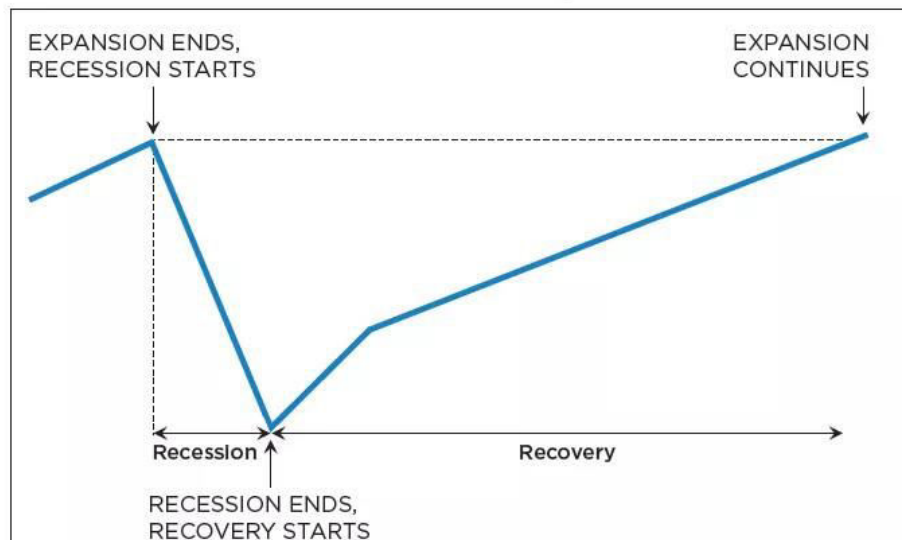
2.1. Conceptual Framework

- Industrial Policy: Industrial policy is the term used to describe the state's strategic initiative to promote economic transformation. Government intervention to offer better prospects for economic growth
- industrial policy does fail
- It should be considered an important, valuable part of the industrialisation research and development framework
- Experimentation and learning by doing are necessary for the process

2.1. Conceptual Framework

- Trade Cycle: A trade cycle refers to the fluctuations and sequencing phases of an economy's expansion and contraction.
- Primarily gauged by changes in a nation's gross domestic product (GDP), which keeps repeating itself

Recession and Recovery



2.1. Conceptual Framework

- Southern African Development Community (SADC): The Southern African Development Community (SADC) is a Regional Economic Community comprising 16 Member States
- SADC's mission is to promote socioeconomic development and sustainable and equitable economic growth through effective, productive systems, deeper cooperation and integration, good governance, and long-lasting peace and security
- Theoretically, suppose there is increased intra-industry trade within SADC. In that case, greater trade integration is most likely to lead to the collective implementation of industrial policy to address the externality of the trade cycle.

2.2. Theoretical Framework

- The Theory of Infant Industry Promotion of selective protection, the exclusion of imported inputs from duties
- Lack of productive capabilities is the primary driver of underdevelopment, and enhancing these capabilities is crucial to economic growth
- It contrasts with the classical approach, though, in that it contends that these productive qualities can be improved over time by deliberate policy intervention.

2.3. Empirical Literature

- The continent confronts obstacles in achieving its development goals; according to a 2012 Economic Commission for Africa (ECA) and 2023 assessment, the demands exerted by growing industrial development and urban populations continue to put pressure on many governments. ECA, (2023)
- Among the top ten countries where wealth inequality was the highest, 7 of them (South Africa, Mozambique, Namibia, Zambia, Botswana, Angola, Malawi) are in the Southern Africa region

3.0. METHODOLOGY

- time series data from selected SADC nations for the measurement of industrial policy variables.
- The World Development Indicators of the World Bank and Trading Economics datserve as the database source for the majority of the secondary data . The time series data for 2000 through 2021
- The output from various industry subsectors, including manufacturing, chemical, food, beverage, and tobacco, textile and the manufacturing sector,.

3.0. METHODOLOGY

- Panel Autoregressive Distributed Lags Model (PARDL):
- Panel Autoregressive Distributed Lags (PARDL), which is based on the Autoregressive Distributed Lags model created by Shin et al. (2014), was used to examine the relationship between trade policy dynamics and the trade cycle
- The Autoregressive Distributed Lag model of order p and q, ARDL(p,q), is defined as follows for a scalar variable Yt:
- $$\Delta Y_{it} = \beta_0 + \sum_{j=1}^{p-1} \gamma_j \Delta Y_{it-j} + \sum_{j=0}^{q-1} \delta_j \Delta X_{it-j} + \Phi^i [(Yi)_{t-1} - \{\beta_0^i + \beta_i^i (Xi)_{t-1}\}] + \varepsilon_{it} \quad \text{--- 1}$$
- A descriptive model of a closed derived from the standard neoclassical production function by Solow (1956) was built as follows
- $$Y_t = F(L_t, K_t, A_t) \quad \text{--- 2}$$

Where sectoral output (Y) is a function of sectoral inputs which are Labour (L), Capital (K) and productivity (A).

3.0. METHODOLOGY

- Model Specification: Thus, equation 2 is presented as;
- $IND = F(GDP, XPT, MPT, GNE, MS, INT, TRD, TRS, POP)$ ----- - - -3
- With industrial output and its subsectors as dependent variables, the operational form of equation 3 becomes:
- $IND_t = \beta_0 + \beta_1 GDP_t + \beta_2 XPT_t + \beta_3 GNE_t + \beta_4 MS_t + \beta_5 TRD_t + \beta_6 POP_t + U_t$ ----- -4
- Introducing the ARDL and Error correction mechanism specifically to equation 4 and 5, we have
- $\Delta IND_{it} = \beta_0 + \sum_{t=1}^p \beta_1 \Delta IND_{t-1} + \sum_{t=0}^{q1} \beta_2 \Delta GDP_{i-1} + \sum_{t=0}^{q2} \beta_3 \Delta XPT_{i-1} + \sum_{t=0}^{q3} \beta_4 \Delta GNE_{i-1} + \sum_{t=0}^{q4} \beta_5 \Delta MS_{i-1} + \sum_{t=0}^{q5} \beta_6 \Delta TRD_{i-1} + \sum_{t=0}^{q6} \beta_7 \Delta POP_{i-1} + \phi ECT_{i-1} + \epsilon_{it}$ ----- -5

A' priori expectations:

- $\beta_0 \beta_1 \beta_2 \beta_3 \beta_4 \beta_5 \beta_6 \beta_7 > 0$

4.0. DATA AND RESULT INTERPRETATION

- Statistical data sourced from Trading Economics and the World Bank's World Development Indicators (WDI) were used to analyse the variables of the study. In Table 3.1, the relevant variables are displayed, because Stata14 is efficient and effective at analysing time series data using ARDL model estimators of the Mean Group (MG), Pooled Mean Group (PMG), or Dynamic Fixed Effect (DFE) estimators, Stata14 is used to estimate the model.

4.0. DATA AND RESULT INTERPRETATION

- The study uses yearly time series data from 15 SADC, covering the period from 2000 to 2021.
- Due to data unavailability, Comoros was dropped from the analysis; hence, the analysis covers 15 out of the 16 SADC countries.
- Some variables used in this study, including industry value added (IND), export (XPT), gross national expenditure (GNE), money supply (MS), and trade (TRD). This is a result of data unavailability for some countries in this study. Gross domestic products (GDP) and population (POP) have a complete number of observations, that is, 330.

Table 4.1: Summary statistics

Variable	Mean	Std. Dev.	min	max	skewness	kurtosis	N	range
IND	28.602	10.966	10.937	72.123	.818	3.794	315	61.186
GDP	3668.693	8322.115	61.488	45820.151	3.572	15.044	330	45758.663
XPT	39.712	19.559	10.809	107.994	1.253	4.453	321	97.185
GNE	107.968	15.501	67.689	169.374	1.183	6.14	306	101.684
MS	39.69	28.03	2.857	159.329	1.466	5.205	322	156.472
TRD	87.495	40.795	23.981	225.023	1.188	4.235	321	201.042
POP	4.989	1.138	0.371	6.759	-.464	2.548	330	6.387

Table 4.2: Matrix of correlations

Variables	(1) IND	(2) GDP	(3) XPT	(4) GNE	(5) MS	(6) TRD	(7) POP
(1) IND	1.000						
(2) GDP	0.080	1.000					
(3) XPT	0.241	-0.191	1.000				
(4) GNE	-0.414	-0.235	-0.123	1.000			
(5) MS	-0.204	0.233	0.448	0.045	1.000		
(6) TRD	0.078	-0.273	0.922	0.268	0.453	1.000	
(7) POP	0.172	-0.082	-0.379	-0.210	-0.602	-0.451	1.000

4.2. Model Estimation

- Industrial Policy Short-run Impact: In the short run, export (XPT), gross national expenditure (GNE), broad money supply (MS) and trade (TRD) are statistically significant in explaining the changes in industrial output in SADC at the 5 percent level of significance.
- Industrial Policy Error Correction: It shows the speed of adjustment to equilibrium in the long-run when there is disequilibrium in the short-run.
- Industrial Policy Long-run: In the long-run, all the variables except broad money supply (MS) are statistically significant in explaining the changes in industrial output in the SADC at the 5 percent level of significance.
- Industrial Policy Implications: the industrial output should be concentrated on exports of goods and services Reconfiguring Industrial Policy: A Framework with an Application to South Africa”,

4.3. Country-Specific Model Estimation

- Angola,
 - The error correction term (ECT) of the model shows that there is no cointegration for Angola. However, the short-run specific result shows that trade (TRD) and population (POP) have a positive relationship with industrial output (IND) while gross national expenditure (GNE) has a negative relationship with IND
- Botswana
 - The error correction term (ECT) of the model shows that there is cointegration for Botswana at 0.004 probability value. The speed of adjustment is -0.478, meaning that any deviation from the long-run equilibrium will be corrected at 47.8 percent adjustment speed. Thus, equilibrium will be restored in just a little over a year.

4.3. Country-Specific Model Estimation

- Democratic Republic of Congo,
 - The model's error correction term (ECT) shows that there is cointegration for DR Congo at 0.004 probability value. The speed of adjustment is -0.342, meaning that any deviation from the long-run equilibrium will be corrected at 34.2 percent adjustment speed. Thus, equilibrium will be restored in about three years
- Eswatini,
 - The error correction term (ECT) of the model shows that there is no cointegration for Eswatini. However, the short-run specific result shows that population (POP) has a positive relationship with IND

4.3. Country-Specific Model Estimation

- Lesotho,
 - The error correction term (ECT) of the model shows that there is no cointegration for Lesotho. There is no short-run significance for Lesotho among the variables except for export (XPT) and trade (TRD),
- Madagascar,
 - The error correction term (ECT) of the model shows that there is no cointegration for Madagascar. The short-run result specific to Madagascar shows that gross domestic product (GDP) has a positive relationship with industrial output (IND).

4.3. Country-Specific Model Estimation

- Malawi,
 - The error correction term (ECT) of the model shows that there is no cointegration for Malawi. Even though the probability value is significant at 0.052, the model is not rightly signed, hence, it is explosive and will not adjust back to equilibrium. The short-run result specific to Malawi shows that broad money supply (MS) and population (POP) have a negative relationship with IND.
- Mauritius,
 - The error correction term (ECT) of the model shows that there is cointegration for Mauritius at 0.016 probability value. The speed of adjustment is -0.042, meaning that any deviation from the long-run equilibrium will be corrected at 4.2 percent adjustment speed. Thus, the speed of adjustment is very slow.

4.3. Country-Specific Model Estimation

- Mozambique,
 - the model's error correction term (ECT) indicates that there is no cointegration for Mozambique. The short-run result specific to Mozambique shows that the broad MS has a negative relationship with IND.
- Namibia,
 - The error correction term (ECT) of the model shows that there is cointegration for Namibia at 0.007 probability value. The speed of adjustment is -0.181 meaning that any deviation from the long-run equilibrium will be corrected at 18.1 percent adjustment speed. Thus, equilibrium will be restored in over five years

4.3. Country-Specific Model Estimation

- Seychelles,
 - The error correction term (ECT) of the model shows that there is no cointegration for Seychelles. However, the short-run result specific to Seychelles shows that POP has a positive relationship with IND.
- South Africa,
 - ECT of the model shows that there is no cointegration for South Africa. However, the short-run result specific to South Africa shows that export (XPT) and gross national expenditure (GNE) have positive relationships with industrial output (IND) while trade (TRD) has a negative relationship with IND.

4.3. Country-Specific Model Estimation

- United Republic Tanzania,
- The error correction term (ECT) of the model shows that there is cointegration for Tanzania at 0.000 probability value. The speed of adjustment is -0.742 meaning that any deviation from the long-run equilibrium will be corrected at 74.2 percent adjustment speed. Thus, equilibrium will be restored in less than two years
- Zambia
- The error correction term (ECT) of the model shows that there is no cointegration for Zambia. However, the short-run result specific to Zambia shows that export (XPT) has a positive relationship with industrial output (IND) while trade (TRD) has a negative relationship with IND

4.3. Country-Specific Model Estimation..CONT

- Zimbabwe,
- The error correction term (ECT) of the model shows that there is cointegration for Zimbabwe at 0.000 probability value as depicted in Table 4.20. The speed of adjustment is -0.823 meaning that any deviation from the long-run equilibrium will be corrected at 82.3 percent adjustment speed. Thus, equilibrium will be restored in less than two years

5.0. CONCLUSION AND RECOMMENDATIONS

- Many African governments have expressed an interest in industrializing their economies. This is due to industrialization's capacity to increase a variety of factors such as employment possibilities, per capita income, and economic growth and development.
- Study discovered that in the short-run, exports and gross national expenditure are substantial in determining changes in industrial production
- It's important to consider factors GDP and trade when analyzing long-term trends in industrial output. Focus on exporting goods and services and increasing gross national expenditure in the short term.

5.0. CONCLUSION AND RECOMMENDATIONS

- The following recommendations are given in light of these findings:
- Reduce tariff and non-tariff barriers to trade.
- Give Production subsidy/incentive
- Create New Markets - AfCFTA
- Target Gross Domestic Product (GDP) growth

5.0. CONCLUSION AND RECOMMENDATIONS

- Southern African countries should intensify efforts to boost their GDP with a combination of the following strategies:
- Lower interest rates to reduce the cost of borrowing and stimulate consumer spending and investment.
- Increase real wages to boost consumer disposable income and demand.
- Invest in education and training to improve human capital and productivity.
- Build and maintain good infrastructure to facilitate production and transportation

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