

South Africa's agricultural product space: Diversifying for growth and employment

Ernst Former Idsardi

22753184

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Promoter: Prof H.D. van Schalkwyk

Co-promoter: Prof W. Viviers

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By

Ernst Former Idsardi

Degree: Ph.D. International Trade

School: Economics

Promoter: Prof H.D. van Schalkwyk

Co-promoter: Prof W. Viviers

ABSTRACT

South Africa's sluggish economic growth and limited structural transformation are at the core of the country's high levels of unemployment and poverty. Why some countries are able to grow and others not has been the subject of much academic debate, with recent literature throwing fresh light on the phenomenon by exploring the relationship between growth and a country's productive structure. It is argued that countries' heterogeneous productive structures stem from differences in entrenched capabilities and know-how in producing and marketing a very specific set of products. Investigating and comparing what countries actually produce and how this supports economic development yield valuable insights into why countries differ and what their transformation priorities should be.

In this study a new analytical approach is adopted to determine the potential growth paths of South Africa's broader agricultural sector, the so-called agro-complex. Comprising 1 456 primary and processed products as well as production inputs within the food, feed and fibre segments, this broad sector makes an important contribution to economic development through its direct and indirect linkages with other economic sectors as well as its relatively high labour absorption rate.

The wide-ranging economic challenges that South Africa faces have clearly gripped the country's agro-complex. A growing dependency on imports of higher value, processed food



has led to deteriorating terms of trade, while limited innovation and diversification in agricultural exports (coupled with a high proportion of re-exports) is seriously constraining the positive impact that the agro-complex could have on the country's growth rate.

In this study, the productive structure of the agro-complex is analysed through the application of the 'product space' framework. This methodology investigates the relatedness between products as reflected in the conditional probability of a product being exported in tandem with another product, considering all global trade flows. The proximity value, the measurement of relatedness, between all 1 456 products is used to arrive at the structure and visible evidence of an agricultural product space network. This structure allows potential diversification pathways to be analysed. Research has shown that a country's diversification process involves moves along pathways to nearby - and thus related - 'new' products, which simplifies the redeployment of existing productive capabilities and knowledge. These pathways are identified according to three strategic values, namely structural transformation, market potential and employment creation.

The potential for structural transformation is determined by using a product-level measure of complexity, with higher level complexity (i.e. upgrading) going to the core of structural transformation. The potential market demand is determined by examining the prospects for import substitution; producing re-exported products locally; producing new, high-potential export products; and diversifying into new markets with existing export products (with the latter two categories evident in the results of a Decision Support Model (DSM)). Finally, the potential for employment creation is analysed in the light of labour and human capital intensities at product level.

The study found that South Africa's position in the agricultural product space is relatively dispersed. This position is characterised by a proportionally high level of core competencies within the primary agricultural cluster and a limited amount of vertical linkages. Furthermore the analyses showed that, especially the products for which South Africa has developed a significant high level of specialisation such as plums and wines are located in the sparser, less promising, parts of the agricultural product space. Notwithstanding, a total



of 60 realistic diversification opportunities are within “reach” from the countries core competencies in the agro-complex.

The analysis on structural transformation established that the level of product complexity within the agro-complex is more important for economic development than product diversity per se. It was revealed that South Africa only ranked 69th globally with regards to the complexity of its agro-complex. It was determined that upgrading within the forestry and agro-processing of food clusters hold the most potential for improving this position.

The investigation into the potential for diversification driven by market potential revealed fore mostly that the potential for substituting imports as well as re-exports with local production is limited. The market prospects for exporting “new” products and expanding the export destinations of existing products within the agro-complex is much more favourable.

It was estimated that most employment creation could be derived from diversification within the primary agricultural cluster although its number of opportunities are limited. Diversification within both the primary agricultural and agro-processing of food clusters was found the have to most favourable prospects for developing the level of human capital within the agro-complex.

Based on all three strategic values, the most promising diversification opportunities are located within the forestry cluster. The range of realistic opportunities within the five clusters of the agro-complex form the core for developing product-level diversification strategies. This will ultimately strengthen the position of the agro-complex and boost South Africa’s growth path for the next decade. Hence, the main contribution of this study includes the determination of the structure of South Africa’s agro-complex from a product perspective and its implications for potential growth and development.

Key words: *South Africa, agro-complex, economic development, diversification, product space, structural transformation, market potential, employment*



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LIST OF ACRONYMS

ACI	Agricultural Complexity Index
ADLI	Agricultural-demand-led-industrialization
AF	Agro-processing of food
AGOA	African Growth and Opportunity Act
AGRA	Alliance for a Green Revolution for Africa
AgriBEEE	Agricultural Black Economic Empowerment Programme
Agric.	Agriculture
AI	Agricultural inputs
AN	Agro-processing of non-food
ARC	Agricultural Research Council
ARG	Argentina
ASGISA	Accelerated and Shared Growth Initiative of South Africa
AUS	Australia
BFAP	Bureau for Food and Agricultural Policy
BRA	Brazil
BRIC	Brazil, Russia, India, China
CAADP	Comprehensive Africa Agriculture Development Programme
CEEC	Central and Eastern Europe
CEPII	Centre d'Etudes Prospectives et d'Informations Internationales
CHL	Chile
COMESA	Common Market for Eastern and Southern Africa
DAFF	Department of Agriculture, Forestry and Fisheries
DFID	Department for International Development
DRC	Democratic Republic of Congo
DSM	Decision Support Model
DTI	Department of Trade and Industry
e.g.	<i>exemplī grātiā (for example)</i>
EAC	Eastern African Community
ECI	Economic Complexity Index



EFTA	European Free Trade Area
EM	Extensive Margin
EMIA	Export Marketing and Investment Assistance
EPA	Economic Partnership Agreement
et al.	et alii (<i>and others</i>)
EU	European Union
Exp	Exports
FAO	Food and Agricultural Organisation of the UN
FAOSTAT	Statistics Division of the FAO
FDI	Foreign Direct Investment
FO	Forestry
FRA	France
FRBSF	Federal Reserve Bank, San Francisco
GATT	General Agreement on Tariffs and Trade
GDP	Gross Domestic Product
GMO	Genetically Modified Organism
GSP	Generalised System of Preferences
Ha	Hectares
HHI	Herfindahl-Hirschman Index
H-O	Heckscher-Ohlin
HS	Harmonised System
HS6	Harmonised System at the six digit level
i.e.	id est (<i>in other words, that is to say</i>)
ICT	Information and communication technology
IDC	Industrial Development Corporation
IEMP	Index of Export Market Penetration
ILO	International Labour Organisation
IM	Intensive Margin
IMF	International Monetary Fund
Imp	Imports
IND	India
IPAP	Industrial Policy Action Plan



ISI	Import Substituting Industrialisation
LDC	Least Developed Countries
LI	Labour Intensity
LSU	Large Stock Units
MECP	Manufacturing Competitiveness Enhancement Programme
MERCOSUR	Mercado Común del Sur (<i>Southern Common Market</i>)
n.e.s	not elsewhere specified
NAFU	National African Farmer's Union
NAMC	National Agricultural Marketing Council
NDP	National Development Plan
NEDP	National Exporter Development Programme
NPC	National Planning Commission
OECD	Organisation for Economic Cooperation and Development
ONDD	Office National du Ducroire
PA	Primary agriculture
PCI	Product Complexity Index
PPD	Product Process Development Scheme
PPP	Purchasing Power Parity
R&D	Research and Development
RCA	Revealed Comparative Advantage
RPCI	Revealed Physical Capital Intensity
RE	Re-exports
RHCI	Revealed Human Capital Intensity
RLRI	Revealed Land Resource Intensity
RMA	Revealed Comparative Import Advantage
RTA	Revealed Trade Advantage
SA	South Africa
SACU	Southern African Customs Union
SADC	Southern Africa Development Community
SAM	Social Accounting Matrix
SIC	Standardised Industry Classification
SITC	Standardised International Trade Classification



SMME	Small, Medium and Micro Sized Enterprise
SPII	Support Programme for Industrial Innovation
SSA	Sub-Saharan Africa
StatsSA	Statistics South Africa
TDCA	Trade, Development and Cooperation Agreement
THA	Thailand
THRIP	Technology and Human Resources for Industry Programme
TIA	Technology Innovation Agency
TII	Trade Intensity Index
UK	United Kingdom
UN	United Nations
UNCTAD	United Nation's Conference on Trade and Development
USA	United States of America
USD	United States Dollar
WEF	World Economic Forum
WHO	World Health Organisation
WITS	World Integrated Trade Solutions
WTO	World Trade Organisation
ZAF	South Africa