

Full Length Research Paper

Economy-wide effects of drought on South African Agriculture: A computable general equilibrium (CGE) analysis

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Received 24 August, 2016; Accepted 19 October, 2016

South Africa's agricultural sector is comprised of livestock, field crops and fruit in their order of size, in gross value terms. Agriculture in South Africa accounts for a relatively low share in the economy (3% of gross domestic product - GDP), 6% of employment and about 10% of exports (over R144 billion in 2015). Currently (2015/16), South Africa is experiencing the worst drought in over 100 years, which has resulted in significant effects on agriculture, with eight of the nine provinces being declared disaster areas. The motivation of the study was to understand the severity of drought on agriculture as well the impact on the whole economy (to quantify the economy-wide effects/losses emanating from the drought). To quantify these effects a single-country computable general equilibrium (CGE) model was used. Four scenarios were developed: Impact of field crops losses; impact of livestock losses; impact of aggregated agriculture losses; and impact of aggregated agriculture losses plus drought relief. The analysis shows that all scenarios led to a negative impact on GDP, employment and exports while the drought relief was found to have saved some jobs, albeit not significantly.

Key words: Drought, computable general equilibrium (CGE) model, field crops, livestock and fruit, GEMPACK.

INTRODUCTION

Based on gross value of production, South Africa's agricultural sector is comprised of livestock (e.g. beef, poultry, game, sheep and others) as the biggest sub-sector, followed by field crops (e.g. maize, wheat, sugar, beans, barley, sorghum and oilseeds) and fruit (e.g. fruits, nuts, flowers and vegetables). Agriculture accounts a relatively small share in the economy (3% of GDP),

6% of employment and about 10% of exports (over R144 billion in 2015) (StatsSA, 2015). From a developmental viewpoint, agriculture plays a pivotal role in ensuring food security and providing jobs for low skilled people in the country. Furthermore, agriculture provides raw materials to secondary sectors such as manufacturing and retail which reduces the country's dependency on international

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Economics Of African Agriculture

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Table of Contents Economics Of African Agriculture

1. Understanding the eBook Economics Of African Agriculture
 - The Rise of Digital Reading Economics Of African Agriculture
 - Advantages of eBooks Over Traditional Books
2. Identifying Economics Of African Agriculture
 - Exploring Different Genres
 - Considering Fiction vs. Non-Fiction
 - Determining Your Reading Goals
3. Choosing the Right eBook Platform
 - Popular eBook Platforms
 - Features to Look for in an Economics Of African Agriculture
 - User-Friendly Interface
4. Exploring eBook Recommendations from Economics Of African Agriculture
 - Personalized Recommendations
 - Economics Of African Agriculture User Reviews and Ratings
 - Economics Of African Agriculture and Bestseller Lists
5. Accessing Economics Of African Agriculture Free and Paid eBooks
 - Economics Of African Agriculture Public Domain eBooks
 - Economics Of African Agriculture eBook Subscription Services
 - Economics Of African Agriculture Budget-Friendly Options

6. Navigating Economics Of African Agriculture eBook Formats
 - ePub, PDF, MOBI, and More
 - Economics Of African Agriculture Compatibility with Devices
 - Economics Of African Agriculture Enhanced eBook Features
7. Enhancing Your Reading Experience
 - Adjustable Fonts and Text Sizes of Economics Of African Agriculture
 - Highlighting and Note-Taking Economics Of African Agriculture
 - Interactive Elements Economics Of African Agriculture
8. Staying Engaged with Economics Of African Agriculture
 - Joining Online Reading Communities
 - Participating in Virtual Book Clubs
 - Following Authors and Publishers Economics Of African Agriculture
9. Balancing eBooks and Physical Books Economics Of African Agriculture
 - Benefits of a Digital Library
 - Creating a Diverse Reading Collection Economics Of African Agriculture
10. Overcoming Reading Challenges
 - Dealing with Digital Eye Strain
 - Minimizing Distractions
 - Managing Screen Time
11. Cultivating a Reading Routine Economics Of African Agriculture
 - Setting Reading Goals Economics Of African Agriculture
 - Carving Out Dedicated Reading Time
12. Sourcing Reliable Information of Economics Of African Agriculture
 - Fact-Checking eBook Content of Economics Of African Agriculture
 - Distinguishing Credible Sources
13. Promoting Lifelong Learning
 - Utilizing eBooks for Skill Development
 - Exploring Educational eBooks
14. Embracing eBook Trends
 - Integration of Multimedia Elements

- Interactive and Gamified eBooks

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