This brief series was developed in preparation for the Foresight Breakout Session of the Global Conference on Agricultural Research for Development (GCARD 2012) and the Global Foresight Hub1. The briefs were written to communicate to a wider audience, such as policy makers, civil society organizations, researchers, and funders. The briefs were classified into three categories: Future Studies, Regional Update, and Visioning.

Bureau for Food and Agricultural Policy (BFAP): Your partner in decision making

Lulama Ndibongo Traub


“When one tugs at a single thing in nature … he finds it attached to the rest of the world.” John Muir (1838 – 1914), My First Summer in the Sierra (1911)

Introduction

The Bureau for Food and Agricultural Policy (BFAP) was established in 2004 with the dual purpose of facilitating decision making in the South African agricultural sector and developing capacity to increase the analytical and research skills available to the sector. Initial funding was provided by the Maize Trust, and today BFAP (www.bfap.co.za) is a virtual network linking individuals with multidisciplinary backgrounds to create a coordinated research system that informs decision making within the agricultural food and beverage system of South and southern Africa.

In order to facilitate decision making in the agricultural sector, BFAP aims to:

• develop a systemic understanding of the impact of global agricultural commodity trends on South African as well as southern African agriculture;
• provide analyses of future policy and market scenarios by measuring their impact on farm and firm profitability; and
• identify new policy options and test existing policies.

The core analytical team consists of independent analysts and researchers who are linked in a working partnership with international and regional organizations.3

Besides institutional partnerships, BFAP acknowledges and appreciates the invaluable insight of numerous industry specialists over the past years. Through interactions and collaboration with industry partners, a body of basic market intelligence has been developed, which underpins the actual modelling process described below.

Study framework and methodology

Baseline projections are generated by the BFAP sector model, which is a partial equilibrium model in which the important components of supply and demand are identified and equilibrium is established for each commodity.

2These include the Department of Agricultural Economics, Extension and Rural Development at the University of Pretoria, the Department of Agricultural Economics at the University of Stellenbosch, and the Directorate of Agricultural Economics at the Provincial Department of Agriculture, Western Cape.
3These include the Food and Agricultural Organization of the United Nations (FAO), Food and Agricultural Policy Research Institute (FAPRI) at the University of Missouri, Food Security Research Project (FSRP) at Michigan State University and the Indaba Agricultural Policy Research Institute (IAPRI) in Zambia.
In order to generate the baseline projections, a number of critical assumptions have to be made on a range of economic, technological, environmental, political, institutional and social factors. One of the key assumptions is that average weather conditions will prevail in southern Africa and around the world; therefore, yields will grow constantly over the baseline as technology improves. Assumptions regarding the outlook of macro-economic conditions are based on a combination of projections developed by the Organisation for Economic Co-operation and Development (OECD), the International Monetary Fund (IMF) and the World Bank. Baseline projections for world commodity markets are taken from the OECD-Food and Agricultural Organization of the United Nations (FAO) AglinkCosimo model and the FAPRI United States (US) and World Agricultural Outlook. Once the critical assumptions are captured in the BFAP sector model, the outlook for all commodities is simulated within a closed system of equations. This implies that, for example, any shocks in the grain sector are transmitted to the livestock sector and the biofuels sector, and vice versa.

However, it is important to note that markets are extremely volatile. Inherent uncertainties, including policy changes, weather and other market variations, make it almost inevitable that the future is highly unlikely to match baseline projections. Therefore, the baseline serves as a benchmark against which alternative exogenous shocks can be measured and should be interpreted as one possible scenario that could unfold where temporary factors (e.g. weather issues) play out over the short run and permanent factors (e.g. biofuels policies) cause structural shifts in agricultural commodity markets over the long run.

Recognizing this uncertainty, BFAP incorporates scenario planning and risk analyses in the forecasting process of agricultural markets. In general these scenarios and risk analyses are not publicly available; they are prepared as confidential reports for individual private-sector partners. The objective is to identify leverage points for the private sector within complex situations with high uncertainties. However, given that the intellectual property right of the underlying model resides with BFAP, an impact analysis is presented at the Annual Baseline Launch in order to demonstrate to both private and public agricultural sector stakeholders the potential application or use of the baseline information in their decision-making process.

**Illustrative cases**

In order to demonstrate the forecasting aspect of the BFAP process, two illustrative situation analyses and their findings are presented below. The first looks at the impact of the 2010 Soccer World Cup on the red meat industry; the second explores the employment growth potential of the South African agricultural sector.

**Impact potential of the 2010 FIFA World Cup on the South African beef industry**

The study was commissioned by the Red Meat Producers’ Organization of South Africa and the objective was to develop various scenarios for the 2010 FIFA Soccer World Cup and highlight the possible impacts of these scenarios on the red meat industry. The key assumptions were that: (1) all the available tickets would sell despite the global recession; (2) between 300 000 and 500 000 international visitors – originating primarily from Australia, France, Germany, Italy, the Netherlands, the UK and the USA – would attend; (3) the average length of stay would range from 10 to 20 days; (4) the expected expenditure for international visitors would amount to €280 per day; and (5) the dominant consumption pattern would be “away from home meals”, implying a lower impact at the retail level as visitors’ meat consumption would occur at the restaurant level.

The two most prominent critical uncertainties for the 2010 FIFA World Cup were:

- the composition/mix of foreign visitors, based on their country of origin. This would influence the consumption habits and meat preferences; and
- the length of stay measured as the total number of overnight stays.

Given the underlying rules, assumptions and key uncertainties, various scenarios were used in order to determine the impact of the 2010 FIFA World Cup on the South African red meat industry (see Figure 1). The key findings included the following

- With the highest number of overnight stays, total meat consumption would increase by 2 636 MT, and with the lowest number of overnight stays, total meat consumption would increase by 760 MT.
- The net effect on the red meat industry would be relatively small in terms of absolute shifts of consumption patterns. Under the best case scenario for the red meat industry (scenario 1), 875 MT of additional beef and 67 MT of additional lamb would be consumed, and under the worst-case scenario (scenario 4), 164 MT of additional beef and 23 MT of additional lamb would be consumed.
- The estimated overall meat consumption for visitors would be approximately 250 grams per person, per day.
- The largest impact would be on the high-valued fresh cuts for the hospitality industry (i.e. restaurants and overnight stays).
Given the scenario outcomes, to maximize the positive impact of the 2010 World Cup, it was recommended that the red meat industry focus on producing the “right” product (i.e. cuts), providing the required quality and supplying the correct volume within the specific time frame at the correct market location during the World Cup. Due to the proprietary nature of the strategic planning developed by the beef industry as a result of this scenario exercise, very little can be said about the direct impact of this work. Suffice it to say that the outcomes/recommendations were incorporated in the strategic planning of the industry in anticipation of the World Cup. Subsequent follow-up indicated that scenario 1 played out during the World Cup and the projected consumption and prices trends were significantly close to the observed consumption quantity and prices.

**Scenario 2**  
*Fans only*  
- Low impact on red meat  
- Focus on higher-value products  
- Less adventurous substitution  
- Marginal impact on hospitality industry

**Scenario 1**  
*Fans & family*  
- Largest impact on red meat  
- Increase in prices  
- Impact on hospitality industry  
- High-value products required  
- Adventurous substitution

**Scenario 4**  
*Fans & schnitzel*  
- Lowest impact on red meat  
- Focus on high-value white meat products (pork)  
- Less adventurous substitution

**Scenario 3**  
*Fans, family & schnitzel*  
- 2nd largest impact on red meat  
- Largest impact on white meat  
- Adventurous substitution  
- High-value pork products required

Figure 1: 2010 FIFA World Cup Scenarios for the red meat industry

**Natural resource use and employment in South Africa**

The quest for creating more jobs in South Africa was strongly emphasized by the New Growth Path as laid out in 2011 by the Minister of Economic Development, Ebrahim Patel. The central aim of the New Growth Path is to generate five million new jobs by 2020 through various initiatives across the economy. Subsequently, BFAP was approached by the National Planning Commission to quantify the employment growth potential of the South Africa agricultural sector in order to identify key areas for government investment under the national strategic plan, should it be adopted by Parliament.

Given the reality that natural resource availability is a critical constraining factor for agricultural production and possible expansion, there were two objectives of the report. The first was to conduct a “stock-taking” exercise of natural resources, which included land and water availability and utilization. Given the resource stock, the second objective was to identify the key labor-intensive agricultural industries with the highest growth potential. The potential for expansion in these industries was based on industry stakeholders’ expert opinions, basic market analyses and long-run projections in the case of commodities that are captured in the BFAP Sector Models.

From the stock-taking exercise on land and water resources, it was found that there were potentially two million hectares of arable land available for agricultural expansion. Since land with sufficient precipitation for rainfed cash crop production is constrained, water was a key natural resource that needed to be considered. The outer boundary of irrigation potential was almost 700 000 hectares (approximately 1.3 million hectares are currently under irrigation). This estimate assumes the provision of additional storage capacity. This is a long-term scenario, and therefore a more conservative expansion over the shorter period considered (i.e. up until 2020) would be 145 000 hectares.

In identifying the “winning” crops, the key determinant was that production and processing had to be sustainable in the long run. In other words, the expansion must not only be driven by higher levels of productivity, but also has to be supported by domestic and/or international market demand (see Figure 2). Given the estimated labor multipliers, the industries with high growth potential could contribute an estimated 200 000 direct employment opportunities with 100 000 downstream jobs in value chains. In addition, industries that are not labor-intensive, such as field crops and livestock, could provide 50 000 direct opportunities with 30 000 downstream jobs.
In all, it was estimated that approximately one million jobs could be created in primary agriculture and the associated agro-processing and farm input industries, given reasonably conservative estimates of the availability of arable land and irrigation water.

In terms of impact, this study went into informing the National Planning Commission’s National Development Plan which was endorsed by President Jacob Zuma. As of November 2011, the Development Plan was made publicly available and is currently under consideration by Parliament.

**Regional outlook and the way forward**

Many institutions frequently present an outlook for global agricultural markets. The presentation and content of these projections vary mainly on the bases of commodity, country coverage and the outlook period. In general, the agricultural markets in developed countries as well as in emerging economies (such as Argentina, Brazil, China and India) are well-informed and supported by comprehensive databases since the potential impact of these markets on global conditions can be significant. In comparison, the coverage of agricultural markets in sub-Saharan Africa is limited and so aggregate models and/or approaches are often used in an attempt to capture key underlying trends for the continent.

The severe impact on sub-Saharan Africa of the 2007-2008 global food and subsequent financial crises has made it imperative that in order to ensure regional food security, a more comprehensive understanding must be developed of the complex relationship between world food prices and those within Africa. While changing conditions in world markets do have an undeniable effect on prices within the African region, studies have shown that other factors (e.g. market structures, policy environment, weather-related supply shocks, regional trade flows) have a significant impact on the price discovery process and need to be accounted for when attempting to project future prices within these markets. However, the development of such models presents a unique set of challenges, and many key drivers in African agricultural markets cannot be captured in a quantitative model. This is why the development of an African Outlook is a gradual process in which a certain body of basic market intelligence gleaned from the relevant stakeholders needs to be established before the actual modelling process can commence.

To facilitate this development, BFAP is in the process of forming a network of policy institutions within Africa. The proposed partners include the Indaba Agricultural Policy Research Institute in Zambia, Tegemeo Institute in Kenya and Sokoine University of Agriculture in Tanzania. The purpose of this initiative will be to produce an African Outlook which informs regional trade policy, private and public sector investment and food-security initiatives within the agricultural subsectors of the region.

**Citation:**


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