

Food Policy and Nutrition Economics in the SDG era

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Abstract

Despite significant global interest in food policy since the 1974 food price crisis, it was not until the close of the Millennium Development Goal era and the negotiation of the Sustainable Development Goals (SDGs) that the narrow focus of hunger and poverty was deliberately broadened to include nutrition explicitly (SDG2) and to include indicators that go beyond maternal and child health indicators. The recent widespread (re)appreciation of the role of nutrition as a fundamental element of development policy and a driver of economic growth generates the need for new analytical tools to determine the potential nutritional gains of development programmes and policies as well as the costs of not acting on nutrition imperatives in multisectoral public policy initiatives. The integration of global health targets for nutrition into agriculture, food security and development goals in SDG2 and many regional and national plans, shifts the focus of future policy analysis towards multidisciplinary and transdisciplinary domains. These developments create a need for training and research that spans multiple disciplines in which most graduates and professionals do not yet have the training and tools to conduct appropriate analyses. Capacity is essential in a domain with critical skills shortages, high demand and a constant need for continuous professional development to keep pace with change. This lecture identifies what the implications of recent

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development imply for Agricultural Economics training institutions, research and the profession in general and in particular in South Africa.

Keywords: food policy, malnutrition, agricultural economics, professional training, Sustainable Development Goals

1. Introduction

It is an honour and privilege to accept the invitation to present the FR Tomlinson Commemorative Lecture in 2018. I wish to express my sincere appreciation for the opportunity to present this lecture².

I have chosen not to focus my lecture on South African despite the award's recognition of the contribution made to the profession in South Africa. I do this for two reasons. Firstly, many members of the Association are already familiar with food security policy in South Africa. Secondly, much of my contribution to national policy is informed by engagement in the global and African food security system, and it is on this that I reflect in this lecture.

My involvement in the United Nations Committee on World Food Security's High Level Panel on Food Security and Nutrition (HLPE) has shaped and sharpened my engagement with food security and nutrition policy deliberations, stretched my thinking and helped develop an appreciation for the importance of understanding both the history of development issues as well as the need to think ahead – what will come next. Most of all, this engagement taught me the necessity for having an answer on hand to the question: If you were asked by a top decision

² I also express my sincere gratitude and thanks to Dr Petronella Chaminuka for all the hard work behind making the 2018 Lecture happen. Dr Moraka Makhura for his encouragement through the preparation for the Lecture. I acknowledge with appreciation the role Prof Mike Lyne and Prof Johann Kirsten have played in granting alternative pathways for my career when I faced career dead ends. Mike enabled me to switch to Agricultural Economics when Home Economics was phased out and Johann created the opportunity for me to move to the University of Pretoria. I wish to appreciate Bongeka Mdlaleni, my coach for Government 101. Thank you to my amazing family – Roelie, Kevin and Aidan – for all their support. They endure my excessive traveling with tireless patience and are my audience for discourses on African food politics.

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maker what the one most critical action to overcoming food insecurity and malnutrition is, what would this be?

In preparing for the lecture, I pondered at how fortunate I have been to have had this exposure to global and African food policy. I entered the world of academics just after the fall of sanctions that prevented many in the profession from engaging in such opportunities. Unlike many of the previous recipients of this award, I did not have the chance to know Prof Tomlinson nor am a pure-bred agricultural economist.

Nevertheless, I felt that a reflection on a somewhat neglected area of the profession – that of food policy and nutrition – would offer an opportunity to ponder the kind of policy savvy and skills a renowned professional such as Prof Tomlinson would have had to have to engage in the policy work he did. I hope I can inspire more interest in this vital policy area and provide some ideas of how the profession can equip professionals for the task of policy analysis and engagement to shape ‘our common future’.

2. The rapidly changing policy context

For analysts and academics alike, the world of development policy changes quickly. Decision makers are faced with increasing complexity and a growing list of elements that have to be taken into account in policy reform and design. It is tempting to reduce these elements to a simple list of tick boxes to show that women, youth, climate change, resilience have been mentioned along with issues related to sustainability and environmental concerns. Ensuring that the growing list of global concerns is addressed in an integrative manner is challenging for policymakers and analyst alike.

Despite the well-grounded and long-standing knowledge that nutrition is essential for development, and notwithstanding its centrality to many development approaches over the decades, it is not until recently that it has been taken seriously. Why? It is because its

importance has been stressed through graphic and miserable images of famine that we have become immune to? Is it because the urgency has never been presented as a business case? Perhaps food policy theory logic is all upside down? The benefits of improved nutrition facilitate human development, increased incomes for households that in turn raise demand for food and non-food resources, enrich livelihoods and lead to increased employment opportunities across the food system. Food policy theory states this the opposite way around.

The recent and widespread (re)appreciation of the role of nutrition as a fundamental element of development policy and a driver of economic growth is also not new in development discourse and focus. History demonstrates that even when the importance of food security and nutrition in development is appreciated, policy actions do not necessarily lead to significant reductions in widespread hunger and malnutrition. Only near the close of the Millennium Development Goal (MDG) era and in the negotiation of the Sustainable Development Goals (SDGs) was the MGD's narrow focus of reducing extreme hunger and poverty (MDG1) broadened to include food security and nutrition (SDG2). SDG2 seeks to end hunger, achieve food security and improved nutrition and promote sustainable agriculture (UN 2015).

Perhaps the separate trajectories of development policy and the lack of a cadre of professions able to think not only in the box (discipline), outside of the box (beyond their discipline) but without a box (not constrained by discipline boundaries) has deprived millions in developing countries the realisation of the inalienable right to be free from hunger and malnutrition.

3. Food policy's conceptual development journey

Throughout history, food policy has tried to balance production and consumption issues. The first documented reference to global food policy arose in a 1935 League of Nations meeting that concluded that agricultural overproduction, particularly of food, was the primary cause of the 1930a economic crisis (Cépède 1984). A significant proportion of the world's population

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did not have access to enough food to remain healthy and productive and for children to grow and develop (Cépède 1984).

It took a further food crisis in the 1970s to get the issue of hunger on the table. The crisis led to the 1974 World Food Conference where the Universal Declaration on the Eradication of Hunger and Malnutrition was proclaimed, stating that every man, woman, and child has the inalienable right to be free from hunger and malnutrition. The 1973/4 crisis led to the emergence of food policy as an area of study and the focus of development efforts, supported by the establishment of multiple inter-governmental structures, the Food Policy Research Institute (IFPRI) and the journal *Food Policy*. The early volumes of *Food Policy* provide rich documentation of the thinking of the time and the design and approach of food policy. The reasoning of the time is also captured in Timmer, Falcon and Pearson's 1983 *Food Policy Analysis* text that has become the core for the training of analysts for over 40 years.

It is important to point out that this period of history covers the early days of the post-independence period in Africa; termed then as part of the 'Third World'. A reading of these early papers and texts demonstrates the ability of a cadre of thinkers to embrace the complexities of the global food problem and the challenges of development in this period. The policy architects of the time were acutely aware of the magnitude of the diverse challenges of hunger and malnutrition in the Third World. For example, Josling (1975), in a paper in the first issue of *Food Policy*, observes that a large proportion of the world's population is born into poverty. While acknowledging that not all the poor are undernourished, malnutrition and hunger are concentrated among such communities. However, Josling (1975), noted that: "... the poor are, almost by definition, outside the mainstream of economic activity. This fact alone presents a major difficulty in finding solutions".

It was recognised that a simple production response would not solve this problem as there is no practical way of ensuring that those who need the food would have access to it. Only a comprehensive and integrated strategy could deal successfully with the complex factors involved in the causation of malnutrition and hunger (Escobar 1988). Therefore, food and nutrition policy had to be an integral part of national development (Escobar 1988).

Despite the carefully articulated understanding of the complexities of the interconnectedness of agriculture and nutrition in food policy, when it came to getting down to business, the professional constructs of policymakers, analysts and practitioners alike confined their long-term attention and actions to their familiar domains. This has led to three usually disparate and sometimes interconnecting areas of policy development and practice: agriculture, nutrition and sustainable development³. It is only in the SDGs that these three areas, at last, come together. To explain, let me turn to a brief historical overview of the trajectory of these three domains.

2.1 The foundational theory of food policy

Food policy encompasses the collective efforts of governments to influence the decision-making environment of food producers, food consumers and food marketing agents to further social objectives (Timmer et al. 1983). These objectives nearly always include improved nutrition for inadequately nourished citizens and more rapid growth in domestic food production leading to more equal income-earning opportunities and security against famines and other food shortages (Timmer et al. 1983). Timmer (2010) explains that the central organising theme of food policy analysis post the 1974/5 food crisis was the "food price dilemma." Their *Food Policy Analysis* text, therefore, sought to reiterate the centrality of food prices—and the signals they sent to farmers, traders, consumers and finance ministers.

³. One could add a fourth overlapping area to the discussion in poverty reduction strategies, but this had its advent later in the 1990s. Suffice to say that poverty reduction was an intended outcome of food policy; I will mention the approach of national poverty reduction strategy policies later in this paper rather than discuss this in full

The early food policy thinkers recognised that eliminating hunger was more likely through “coordinated effort involving many sectors and a complicated array of policies with partially conflicting objectives and effects”. Food policy analysis, therefore, sought to identify these relationships and find ways to reduce the conflicts and enhance the nutritional effects (Timmer et al. 1983, p 61). This approach was deemed controversial (Timmer 2010). In fact, Timmer (2010; 2013) admits that at its drafting stage there was not even an agreement in the development profession that such a goal was feasible. This begs the question of whether we can leave it to market signals and the system to change the lot of the poor? Can solving the price dilemma solve the nutrition dilemma? Or has focusing on the price dilemma lead to a malnutrition dilemma?

2.2 The centrality of nutrition in food policy

Despite the awareness that nutrition was essential for development, attention has waxed and waned in development discourses over the decades (from the 1960s). During the 1960s and 1970s, it was widely acclaimed that lowering the prices of food staples, the most inexpensive sources of energy in the diet would alleviate malnutrition (Pinstrup-Andersen 2000). The 1974 World Food Conference was a turning point for development as hunger was no longer viewed merely as a food supply problem solved by agricultural production nor a health problem within the biomedical domain. However, this knowledge was somewhat forgotten in the early days of food policy work.

A major stumbling block at the time was that ready solutions were not available. As Berg and Austin (1984) report, when Arturo Tanco, President of the World Food Council and Minister of Agriculture of the Philippines, asked for a set of nutrition guidelines for the agriculture ministers of the world in the mid-1970s, the response from the international nutrition community was meagre and mostly unfeasible. Similarly, in 1977 a group of senior planners

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who met at the University of California at Berkeley discovered that academia had fewer practical answers than they had expected (Berg and Austin 1984).

Berg and Austin (1984), have also reported that although nutrition had undergone a technological boost at the time. However, none of the technological fixes (e.g., single-cell protein, fish protein concentrate, synthetic amino acid fortification and oilseed protein isolates), did much to reduce malnutrition. Berg and Austin (1984), suggest that these failures facilitated a willingness to entertain a much broader approach to nutrition than would traditionally have been accepted. The appetite for innovation came from four fundamental propositions:

- i. Mass alleviation of protein-calorie deficiencies would not be achieved through medical treatment and health systems.
- ii. Although malnutrition was redefined as a food problem, the main issue was access to food rather than the total supply of food – a shift that focussed on poverty, income distribution and employment.
- iii. Although malnutrition was strongly related to poverty, some nutritional improvements were possible without increases in incomes as dietary diversity could improve without calorie intake *per se*.
- iv. Malnutrition was seen as both a consequence of and contributor to underdevelopment, therefore, finding solutions required that disciplines beyond nutrition (primarily economic and managerial disciplines) work together to find policy solutions.

Integrated nutrition planning arose and the drafting of national nutrition plans was encouraged as well as the establishment of inter-ministerial councils. Amidst political and administrative obstacles to applying the methodology, FNPP was phased out after 1982, having failed to fulfill its initial promise. Harriss (1987) claims that its failure was partly attributed to thinking that

international agricultural research could design technical solutions to social problems reduces the agenda of social and political change. Like Integrated Rural Development that fell out of favour at roughly the same time, nutrition planning was mostly oblivious to implementation problems related to pluralistic programmes (Berg and Austin 1984; Maxwell 1998). Nutrition mostly fell between sectoral stools and suffered from an identity crisis, delegated to economic planners and scientists who possessed little political influence or operational authority (Field 1987).

Nutrition planning did not address how changes in broader national policies could be incorporated into nutrition plans or how nutritional considerations could be included in the plans of other sectors (or even the extent to which nutrition policy objectives are compatible with policy goals in the other sectors). Moreover, analysis of malnutrition causality focused primarily on attributes of the malnourished and their families, not on the social, economic, and political order around them (Berg and Austin 1984)

Slowly this emphasis shifted to protein-energy malnutrition (Underwood 2000) and then to income increasing strategies in the 1980s (Kennedy and Haddad 1992). As a result of much new research in the 1980s and 1990s and a sequence of conferences (the 1990 World Summit for Children, the 1991 Policy Conference on Hidden Hunger and the first International Conference on Nutrition in 1992), that continued to expose the plight of under nutrition, malnutrition became more widely accepted as a public health concern requiring government action (Underwood 2000). Deficiencies of vitamins, such as vitamin A, and of minerals, such as iron and iodine, were added to the list of scourges frequently associated with protein-energy malnutrition and deserving of particular attention (Underwood 2000). Later, attention turned to questions of whether merely producing more low-cost, energy-dense foods that were widely consumed by the poor (such as maize, rice, wheat or even cassava), could solve the problem of

malnutrition, or whether greater emphasis should be placed on crops with higher per unit protein content such as legumes and livestock (Underwood 2000).

As evidence accumulated that some interventions had positive impacts, nutrition gained more traction in development circles. This led to surprises that were not expected from the food policy experiments of the 1970s and 80s that challenged the foundations of food policy theory. First, although food supply was significantly improved and millions were saved from starvation in India, the Green Revolution did not bring about significant improvements in nutrition. Kennedy and Haddad (1992) explain that some of the explanations for this lie in the misconception that eliminating hunger will solve the malnutrition problem.

Second, supply did not always elicit a perfect response as farmers were often constrained either by limited land (as in many parts of Asia) and/or scarce labour (as in many parts of Africa) (Kennedy and Haddad 1992). It, therefore, came as a surprise to some that higher production prices made some farmers more food insecure; primarily because they were net purchasers of food and increases in food prices outweighed the profit from increased producer prices.

Third, researchers have also found that the increases in caloric consumption were lower than expected and often as household income increased, dietary diversity increased more than calories *per se*. This implies that earlier research underestimated the increases in revenue needed to fill the energy gap. Likewise, the control of income, the source of income and the flow of income that is important in influencing household food security, especially for women (Kennedy and Haddad 1992).

A fourth unexpected consequence seldom mentioned in food policy discussions is pointed out by Gómez et al. (2013). From the 1970s to the mid-1990s the price of staple foods in much of Asia decreased relative to the cost of micronutrient-rich foods (for example vegetables and pulses). Gómez et al. (2013), attribute this to higher productivity gains in staple foods and the

resulting reallocation of land towards those crops. But as a result, micronutrient-rich foods became relatively (and in some cases, entirely) less affordable, particularly to the poor (Bouis 2000; Kennedy and Bouis 1993; Kataki 2002).

Many of these observations are explained through Delgado et al.'s (1998) study of agricultural growth multipliers. Their analysis of expenditure data in Burkina Faso, Niger, Senegal and Zimbabwe showed that rising rural incomes were likely to put considerable upward pressure on the relative prices of many farm goods, mainly local food items, some non-farm goods, and services. Many of these items were tradable and therefore, did not have a highly elastic supply of imports to alleviate these pressures.

Fifth, substitution led to more calorie-rich, but less diverse and micronutrient-poor diets. As people move from manual agricultural labour to less vigorous non-farm activities, their energy expenditure falls. Unless intakes are adjusted, at some point energy intake begins to contribute to excess calorie intake manifest in overweight and obesity (Gómez et al. 2013). The rising rates of overweight and obesity, even in developing countries and rural areas bear witness to this shift.

4. From production, consumption and trade to nutrition-sensitive food systems and sustainability

Midway through the MDG period, the centrality of nutrition in development was stressed through the 2006 World Bank Report. However, it was the 2007/8 global food price crisis that gained real attention for nutrition. Following the global food price crisis of 2007/8, food security debates shifted focus to the significant levels of vulnerability, volatility and uncertainty arising from a confluence of complex and interconnected globalisation and geopolitics. These further confound the complexity of food policy and relate to climate change, conflict,

competition for land, energy, urbanisation and water. Add to this emerging debate on youth unemployment that has brought renewed interest in rural development.

Recent interest in food systems emerged from one of the HLPE's 2014 reports. This concept revisits Timmer et al's. (1983), assertion that the food system⁴ “frequently leaves many poor people inadequately fed but at the same food system offers vehicles for the policy interventions that reach poor people with sustainable improvements in their access to food (Timmer et al. 2013). Yet, as Gomez et al. (2013) state food systems today are radically different to those in existence at the conception of the food policy approach. The nature of today's malnutrition problems, together with the continued transformation of food systems in developing countries, call for broader strategies and interventions aimed at improving nutritional outcomes than was the case a generation or two ago (Gomez et al. 2013). While much is known about the most effective nutrition-specific interventions (such as supplementation, complementary feeding for children and food parcels), nutrition-sensitive programmes address nutrition more directly, increasing the supply and availability of affordable, nutritious foods.

While remarkable progress has been made during the last two decades in reducing extreme hunger and poverty in Africa (Malabo Montpellier (MaMo) Panel 2017), population growth, demographic changes, and urbanisation continue to place pressure on food systems to increase yields and make more food available. At the same time, there is pressure to making more diverse, affordable and nutritious foods available to address all forms of malnutrition (MaMo Panel 2017).

⁴ The recent definition of a food system is that it consists of all the elements (environment, people, inputs, processes, infrastructures, institutions, etc.), and activities that relate to the production, processing, distribution, preparation and consumption of food, and the outcomes of these activities, namely nutrition and health status, socio-economic growth and equity and environmental sustainability (HLPE 2014).

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Increasingly, even rural households in Africa rely on purchased staple foods. Urbanisation will also influence dietary patterns and may well lead to nutrition transitions in African cities (Jayne and Ameyaw 2016).

Despite the changing landscape of nutrition, most food and nutrition policies in Africa still focus on undernutrition, neglecting the high rates of micronutrient deficiencies and oblivious to the rising levels of overweight and obesity that will burden health systems in future. Rising awareness of growing rates of overweight and obesity – not only in developed but also in developing countries – has now given rise to an interest in understanding the ‘nutrition transition.’ A nutrition transition happens when the food environment no longer supports healthy eating and consumer's food choices are limited to high energy, high-fat food alternatives with severe negative consequences for nutrition and health. Rapid food system transformation can induce a nutrition transition that will see consumption preferences shifting to include more aspirational than affordable, sugar-laden soft drinks, mass-produced confectionary and fast foods.

There is no doubt that future food production and consumption systems will need to be more efficient and more sustainable to avoid overstepping boundaries of natural resources. They will also need to become more resilient in the face of climate change. This challenges the initial focus of food policy, forcing future policy considerations to include food systems thinking, shifting away from production to considering how transformation along the entire food value chain can lead to opportunities for sustainable livelihoods, increases in income, job opportunities and greater equality. So too, future food policy will have to be cognoscente of the need for sustainable production, sustainable consumption and nutrition-sensitive systems. The current context complicates the foundations of food policy as initially proposed (see Timmer et al. 1983). Could the latest development paradigm, the Sustainable Development Goals provide some of the solutions for development planners?

5. SDGs – the bridge between food policy, nutrition and sustainable development

Parallel to the development of food policy, the theoretical framework for sustainable development evolved between 1972 and 1992 through a series of international conferences and initiatives (Drexhage and Murphy 2010). In 1983, sustainable development was defined by the landmark publication *Our Common Future* (or the Brundtland report) as “development that meets the needs of current generations without compromising the ability of future generations to meet their own needs” (WCED 1987, p. 45).

The Brundtland report provided the foundation for the 1992 Earth Summit and Agenda 21, followed by the 1997 Earth Summit+5 in New York. The 2002 World Summit on Sustainable Development in Johannesburg led to a significant shift in the perception of sustainable development—away from environmental issues toward social and economic development. At the Rio+20 Conference, Member States launched a process to develop a set of Sustainable Development Goals (SDGs), which were to build upon the MDGs and chart the way for a post-MDG development focus.

Unlike the MDGs that only applied to developing countries and in which the environment was an afterthought, the SDGs include a focus on the environment but are universal – meaning all countries have to address them and are being judged on their progress. "All countries and all stakeholders, acting in collaborative partnership, will implement this plan. We are resolved to free the human race from the tyranny of poverty and want and to heal and secure our planet. We are determined to take the bold and transformative steps which are urgently needed to shift the world on to a sustainable and resilient path. As we embark on this collective journey, we pledge that no one will be left behind" (UN 2015, p 1).

It is accepted that sustainable development calls for a convergence between the three pillars of economic development, social equity and environmental protection (Drexhage and Murphy

2010). In this context, it is fitting that the SDGs move beyond the MDG1 focus on eradicating extreme hunger and poverty, to a more appropriate commitment to "end hunger, achieve food security and improved nutrition and promote sustainable agriculture." All 17 SDG goals include food security-related indicators and 12 contain nutrition-related goals. This raises hope that progress on overall development will bring about more significant strides in SDG2-specific targets. As with the initial food policy approach (Timmer et al. 1983), malnutrition is seen as a lever for mobilizing development efforts to deal with poverty and the basic needs of the poor, supported by substantial scientific evidence, accumulated over the previous decades that points to the significant personal and social costs of malnutrition.

Despite significant advances since the start of the MDG era in 2000, the 2017 SDG Report (UN 2017) claims that at the current rate of progress, the world will not meet the zero hunger target (SDG2) by 2030. During the MDG period, the proportion of undernourished people worldwide declined from 15 percent in 2000-2002 to about 11 percent in 2014-2016 (UN 2017). The least developed countries and landlocked developing countries have made the most progress. Nevertheless, almost one in four persons still suffer from hunger in those countries. Globally, about 793 million people were undernourished in 2014-2016, down from 930 million in 2000-2002 (UN 2017). In sub-Saharan Africa, the hunger rate dropped by seven percent from 2000 levels. Still, the number of undernourished sub-Saharan Africans has increased by 16 million—reaching 218 million—partly attributed to the region's high population growth rate. Asia and Africa accounted for 63 percent of undernourished people globally in 2014-2016 (UN 2017).

In Africa, the 2030 Agenda has been integrated and adopted in the African Union Agenda 2063 (AU 2015) and reiterated in the Malabo Declaration on Accelerated Agricultural Growth and Transformation for Shared Prosperity and Improved Livelihoods (AU 2014). This provides integration of international and continental visions and targets, supporting focused action. Implementing the Malabo Declaration is being carried out through the revision and updating

of the earlier Comprehensive Africa Agricultural Development (CAADP) National Agriculture and Food Security Investment Plans (NAFSIPs) and progress monitored through the Biennial Review mechanism (AU/NEPAD 2017).

6. How different is the situation today?

Ending hunger is still central to the global development agenda and the challenge of doing so is just as daunting as ever. In some ways, the context for food policy is entirely different to that of the 1970s and 80s. The global food balance is much more favourable than before the Green Revolution era and global trade has soared (AGRA 2017). Governments have many more options in meeting food needs through a mix of production, import and export options than in the 1970s (AGRA 2017).

These gains are threatened by some formidable challenges. One of these is climate change. Climate change will have far-reaching impacts on crop, livestock and fisheries production, and will change the prevalence of crop pests. Climate change is a significant threat to agriculture and food systems, increasing food losses at all stages of the food system. Reductions in the supply, of course, lead to increases in price, affecting affordability for consumers and declines in income for producers (Campbell et al. 2016; Asseng et al. 2014). Population growth and agricultural system change have significant implications for food policy – regarding production, consumption and trade. Population growth in Africa is likely to continue to put pressure on food, land and water resources. The geography and demography of Africa are likely to change considerably by 2030.

The so-called youth bulge will add to the pressure. Not only will the number of mouths to feed increase, but many will also migrate to urban centres in search of employment and opportunities. This will change the dynamics of rural areas, particularly concerning labour supply and the ratio of producers to consumers. With such change comes consumption

preference change, leading to demand convenience and ready prepared foods that require little or no energy for preparation. Food systems are likely to become more urban-based and consumer-driven, with a premium on quality and food safety (AGRA 2017).

Notwithstanding the growing list of challenges that translate into an increasing number of priorities that policymakers need to attend to, the problem of how to stimulate and sustain economic growth that reduces poverty, generates employment and fosters equality; while at the same time improving nutrition for all persists. Resilience rather than efficiency alone has emerged as a significant concern in policy circles. While climate change modellers continue to model production and supply, there is a growing movement around the development of models and skills for scenario planning and futures around food systems.

Most of these models look at aggregate supply and demand, relying on extensive datasets for precision. Nutrition is achieved at the individual level and the requirements for adequate nutrition are particular to the stage in the life-cycle, level of activity and sex. Aggregate data masks the realities of deprivation and neglect at the individual level. As more population-wide nutrition data becomes available and technology reduced the cost and burden of collecting such data, new tools and methods of analysis could help us more clearly understand the responses and impacts of policy change on individuals and help us target specific interventions more precisely. One such area is that of nutrition economics, an emerging field of applied economics that uses existing tools to explore nutrition topics.

It is now recognised that most of the economic growth in Africa over the MDG era has been characterised by rapid urbanisation without industrialisation⁵ (Rodrik 2016). Nearly all non-agricultural growth in Africa has been in the services sector where workers earn low wages in

⁵ The services sector is now the largest sector in Africa, and already accounts for over half of Africa's total GDP (AGRA, 2017 citing Rodrik, 2016).

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low productivity jobs (AGRA 2017). Such transitions have limited prospects for more rapid and sustained incomes needed to raise per capita incomes (AGRA 2017). Africa is entering a phase of agricultural transformation, with value-added and employment being created by small enterprises across and along value chains (AGRA 2017). Large agribusiness in the form of seed and fertiliser companies, agro-processing and supermarkets have started to play an increasing role in the food system. This changes the dynamics of food policy in the 2030 Agenda. Agricultural transformation in Africa will need to reform the entire food system. This will have to include the core elements of food policy – production, consumption and trade but with the criteria of inclusion, sustainability and resilience across the entire system.

But unlike the development planning of the past, the responsibility for driving such policy reform is no longer the development community but African governments themselves. Food policy governance is also different today. Whereas in the past, food policy was primarily used to indicate the whole range of policy efforts that affect food system outcomes, more recently, food policy has emphasised the need for integrative strategies that align policy efforts across sectors to achieve a shared vision (Candel and Pereira 2017).

Many governments now realise that multisectoral action is an absolute necessity for dealing with the complexities of recent crises and cross-cutting issues threatening the economy, society and environment. Many have recognised that multisectoral coordination and action is necessary for food security (MaMo Panel 2017). Many have put in place transversal development policies with food security and nutrition goals and many of these are managed through high-level centrally coordinated systems (MaMo Panel 2017). In fact, the MaMo Panel (2017), demonstrates that African countries that made the most significant reductions in undernourishment in the MDG era established some form of the multisectoral governance structure.

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Perhaps, finally, the convergence of food policy, nutrition and sustainable development in the SDGs offers some hope for development planners in overcoming the challenges of complexity? If so, what does the agricultural economics profession provide to support the delivery on the SDGs and development agendas in the SDG era?

7. How can the Agricultural Economics profession do to support achievement of Agenda 2030?

I propose the profession has much to offer regarding analysis, the provision of evidence-based policy input and the supply of critically needed human capital. Are we ready to step up to the challenge? If not, what needs to change? Delivering on Agenda 2030 and Africa's Agenda 2063 will require a revisited form of food policy that embraces the increased complexities of climate change, urbanisation, agricultural transformation and the youth challenge amidst changes in the locus of control in planning (from external agents to governments themselves) and more inclusive forms of engagement and ownership of public policy discourse.

De Shutter (2017a) claims that governments and development agencies are trapped in a short-term mode of thinking. Getting out of this mode requires a food policy with a clear vision, defined timelines, alliances to drive change and the allocation of responsibilities across sectors. This requires (i) a pathway to change designed through the consideration of (ii) policy instruments and options and (ii) the selection of those most likely to bring about the impact required to see significant change. Implementing food policy requires the human capacity for a variety of functions including advocacy, analysis, engagement, institution building, monitoring and evaluation, negotiating, partnership management, planning, policy making and training (De Shutter 2017a). Timmer (2010) states that a successful food policy analyst needs an unusual blend of technical skills, mostly economic and a broad vision of how food systems

interact and evolve. In today's world and in the future, flexibility and life-long learning are essential.

The scope of food policy is too broad to have every graduate expertly trained on every topic. Instead, we should ensure that graduates have a well-grounded foundation and a commitment to continued learning and up-skilling to keep abreast or (better still) ahead of the rapidly changing policy context. However, a few essential elements need to be embedded in training systems to ensure the current cadre and future professionals are equipped for the task. These essentials include an introduction to the broad scope of policy issues, knowing what policy options are available, an understanding of the political economy and the policy cycle, how to leverage data for decision making and a set of soft skills. I will discuss five key areas of importance.

7.1 Knowledge is power

Knowledge is the starting point and critical factor for implementing policy change. Knowledge and information raise the need for policy change, are used to advocate for change, inform the design of policy revisions, shape implementation modalities and assist in the identification of what to monitor and evaluate in policy cycles. The rapidly changing face of complexity on food policy demands the command of a large body of sectoral information and the constant appraisal of changes in multiple domains. I hope I have been able to demonstrate the dire need for keeping up to date with the development of understanding and the frequent revisions to theory over time. It is entirely impossible for one discipline to keep abreast of such rapid change and development across the range of policy domains that affect food policy, food security and nutrition. Team effort is required.

The agricultural economist is an essential part of this team effort. With our broad exposure to economics and development grounded in real-world applications, the agricultural economist

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can play a critical role in food policy discussions, offering insights that can bridge production, consumption and trade. However, Kirsten (2002, p 2) has warned that: "Our preoccupation with the tools of our trade made us lose sight somewhat of the relevance of our trade. So while engrossed in our micro-applications, the world of business and policy faced new macro challenges that we seem less attuned to".

Exposure to critical and emerging issues at the undergraduate level would ensure that graduates are exposed to the latest challenges in the field. It would be best to engage experts in the field in these modules. Such exposure develops an appreciation for another areas of knowledge, exposes students to the philosophies and approaches of other disciplines and develops an understanding of who to go to for information and expertise in the diverse range of topics required for effective food policy. The latter is an essential skill in working in multisectoral policy analysis and policymaking.

However, in my experience in graduate training of agricultural economics students, it is rare to find that agricultural economics students have been exposed to the economics of poverty (such as the work of Aymarta Sen), behavioural economics (stemming from consumer studies) and nutrition. Ensuring that students are grounded in the basics of these elements will significantly improve their capacity to engage in current food policy work.

A rapid survey of some of the most influential agricultural economists⁶ engaged in global food and nutrition policy revealed that their early exposure to hunger and nutrition shaped their career paths and influenced their work. Many report that travel or field work for a PhD or Post Doc on other topics exposed them to the realities of hunger and malnutrition and led to a personal commitment to engage in finding solutions. Others report having been exposed to

⁶ Suresh Babu, Stuart Gillespie, John Mellor and Joachim von Braun.

nutrition and food policy as part of their graduate training programme. Many of these agricultural economists have made significant contributions to nutrition.

7.2 Knowing the options

As pointed out, one of the constraints in food policy is the lack of available solutions. Often African governments rely on single consultants to draft policy frameworks and strategies. These consultants tend to rely on the pool of existing and known programmes – some of which are successful and other that are dismal failures. Sometimes, these consultants promote whatever is in vogue at the time. De Shutter (2017b) outlines another problem with food policy, what he claims political scientists call the ‘garbage can’ logic. This occurs when issues are framed depending on what solutions were at hand. If ready-to-implement solutions are not available, the problem is ignored.

There is much talk in policy circles today of ‘evidence-based policymaking.’ The approach helps policymakers make better decisions and achieve better outcomes by drawing upon the best available evidence from research and evaluation and other sources (DPME 2014). Other refer to this as ‘lessons learned’. Gathering evidence of what worked and did not work in the past helps identify policy options and evaluate their possible outcomes, trade-offs and consequences (intended or unintended).

Evaluating evidence and analysing available data helps predict how long a programme will take to render results and what the costs of implementing it will be. Issues of cost-benefit and the sustainability - economically, socially and environmentally - can be considered before deciding on a specific policy or set of interventions. Such analysis will become more critical as the complexity of the context increases. This is an area where agricultural economists can have significant influence in food policy if they master the range of necessary analytical tools and methods and keep up to date with new development in the field of analysis. Applying

theoretical approaches and methodologies to real-life contexts is essential to building the confidence to use these tools in professional settings.

Being able to translate technical knowledge into policy recommendations is an area where professionals across disciplines fall short. Excellent technical reports, drafted by the world's best experts on a topic, will not translate into policy actions if not presented in ways that make policy makers take notice. Typically, these technical solutions have to relate to the political context and offer solutions to the economic, social and environmental (including institutional elements) to be taken note of.

7.3 Understanding the political economy of food policy and the policy process

Policy actors will have different perceptions about what challenges are most pressing and how to solve them depending on their backgrounds and associated interests (Candel and Pereira 2017). They may well not even agree on the problem (as illustrated earlier). Sectoral budget allocations and traditional performance appraisal systems typically work against novel multisectoral approaches. Formulating food policy goals thus implies making political choices (Candel and Pereira 2017). Being clear about goals, instruments, sectors, and levels, while embedding these within a policy frame and governance vision will help facilitate the adoption of innovative policy and programme ideas (Candel and Pereira 2017). Early exposure to political science and especially the political economy of food is essential in charting the politics of a multisectoral development agenda. Understanding the policy process, its stakeholders, agents and the policy cycle provides professionals with the insight to understand positions and navigate institutional obstacles to progress.

7.4 Evidence-based policy input: The power of data

McDermott et al. (2015), state that current efforts to improve nutrition outcomes at scale are severely hampered by data and evidence gaps that prevent better decisions and faster learning.

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Multisectoral actions require better metrics, indicators and research studies and better evaluation methods across a range of topics. With increasing leanings towards open data policies, more data are becoming available and advances in technology are improving the analytical power of big data sets. This holds great potential for the analysis of multisectoral systems. Scenario analysis in global change, vulnerability, policy adaptation, and mitigation is essential for comprehensive food security assessment.

With our broad exposure to economics and development grounded in real-world applications, the agricultural economist can contribute knowledge and empirical skills to analysis, appraisal and forecasting scenarios related to possible interventions and their potential impact and outcomes. But exposure to innovations and analysis in econometrics, statistics and computing are essential to equip professionals for dealing with complexity. Broad exposure to systems in use as well as advances and potential new directions is vital. An application of knowledge to new situations is demonstrated in the emerging field of nutrition economics. For example, Babu et al. (2016) in a new book - *Nutrition Economics: Principles and Policy Applications* - introduce basic economic concepts and their policy applications to scholars with nutrition and some quantitative background. The text is most useful to agricultural economists wanting to engage in this exciting new field of research that directly supports the achievement of SDG2. The book applies several analytical methods to real-world data to explore nutrition-related policies.

7.5 The essential soft skills for engagement and impact

Reflecting on the life and work of Prof Tomlinson (van Rooyen 2000), one realises that he was not only an experienced economist but had to have had a set of powerful soft skills at his disposal. These would have included communication, persuasion and negotiation skills. Diplomacy would have been necessary for the circumstances he found himself. Such skills are essential for working in multisectoral domains such as food policy where one could find

yourself in the mire of ideological, political and disciplinary diversity: a space where an analyst's true mettle is tested to the core. The ability to present robust evidence, defend the integrity of data, admit limitations and face the possibility of conflicting trade-offs is essential.

I wonder if it is only in a thesis defence that a student gets such exposure? Should we not be building more place for debate and the honing of skills essential for dealing with multi-sectoral and multi-stakeholder engagement through a student's training?

8. Conclusion

In closing, I would like to reiterate that the role of the agricultural economist in achieving the SDGs is pivotal. Armed with knowledge, skills and tools not common to nutrition in particular, the agricultural economist offers analytical power and the ability to produce evidence for decision-making. Unless equipped with the ability to think inside, outside and without a box, the contribution to teamwork will be limited. Exposing agricultural economics students to a broader domain than consumption theory within the supply-demand confines is essential to building an appreciation for nutrition, behavioural science and poverty dynamics in particular. Updating syllabi with food systems thinking, critiques of planning approaches and the mastery of essential soft skills are crucial for training the next generation of professionals.

I am grateful for the opportunities to move between the global, continental and national system, taking lessons and experience from one to another as well as into the classroom to train the next generation of professionals who are likely to face increasing complexity. I hope that through this Lecture, I have demonstrated the necessity for us as professionals to have an answer on hand to the critical question of what is the *one* most critical action to be taken to overcoming food insecurity and malnutrition is?

It would be disappointing if your answers were all the same! If you answer this question alone, you are in the box. If you consult others before responding, you may be thinking out of the box.

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Unless you are immersing yourself in multidisciplinary problem solving, you cannot think without a box and development will be poorer for it!

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