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Enabling policies and linking producers to markets

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Abstract

Many developing countries have been implementing economic reforms, leading to rapid growth. Adoption of market liberalization policies, in addition to heavy farm subsidies in industrialized countries, has resulted in a situation of domestic markets being exposed to a highly competitive global market. Thus, appropriate policies that enhance the competitiveness of smallholder producers in developing countries are key to catalyzing and deepening the progress of agricultural and economic transformation and poverty eradication. The synthesis reviewed what is meant by "policy research" and by "competitiveness", and summarised recent achievements and gaps, lessons learnt and best practices for policy research to develop enabling policies and link producers to markets. Policy research is a process aiming at change, the demand for which derives from the demand for institutional change to improve the status quo. Suggestions for best practices for agricultural policy and market research that can lead to effective policy formulation and institutional development, and enhance competitiveness and market access of smallholder producers are presented in this synthesis.

Key words: market liberalization policies, smallholder producers and institutional change

Background

Uganda has been undergoing a major transformation since the late 1980s towards economic growth and poverty reduction. In the 1990s, gross domestic product grew steadily by more than 6% per annum from a low rate of 3% in the 1980s (World Bank, 2004), and proportion of the population living under the "dollar a day" poverty line declined from 56% in 1992 to 35% in 2000 (Appleton, 2001). This remarkable turnaround from the slump associated with the political turmoil and economic mismanagement of the 1970's until the mid-1980s has been achieved through sound policies linked to investments and economic liberalization undertaken by the Government of Uganda (GoU) with support from the donor community. Despite the substantial progress made, including major developments in social services, several challenges remain in sustaining the momentum by way of increasing productivity, ensuring sustainable use of natural resources, and reducing poverty. For example, there is indication that the incidence of poverty has worsened recently, increased from 35% in 2000 to 38% in 2003 (Appleton and Ssewanyana, 2003). In addition, agricultural productivity has stagnated or declined for most farmers (Deininger and Okidi, 2001; Pender *et al.*, 2001), and declining soil fertility is perceived as one of the major causes (MAAIF, 2000; Pender *et al.*, 2001; Nkonya *et al.*, 2004).

Market reforms and trade liberalization have been key instruments of governments across sub-Saharan Africa (SSA), Uganda inclusive, in restructuring their economies. Over the past two decades, governments have withdrawn support for state-subsidized (parastatal) marketing companies, dramatically reduced input and output marketing subsidies, and relaxed regulatory restrictions on private trade. Kherallah *et al.* (2002) review the market reforms and evaluate their impacts. They show that private firms and traders have emerged to take over marketing functions in a cost-efficient manner, although there is concern over oligopolistic practices, which has been due partly to certain uncompetitive polices adopted by governments. The review further shows that marketing costs have generally fallen, and input (fertilizer) prices, relative to output prices, have declined in many countries, although they have increased in several others (often by more than 100%). Consequently, fertilizer use has increased only marginally, which in turn had equally small impacts on agricultural production, incomes and poverty, although drought, wars and disease disasters have had their toll. On the output side, market reforms have led to greater market integration (increased efficiency in price transmission) and reduction in marketing margins, although prices are still very volatile and there has been proliferation of informal traders. Reduction in food prices has benefited consumers, including producers as food buyers. However, as food net buyers, producers have

suffered, as changes in input and output prices have not been favourable to production. With low and stagnant or declining productivity, market liberalization also has exposed domestic markets to cheap imports (often due to heavy farm subsidies in industrialised countries), deepening the negative impacts.

Nevertheless, domestic policy reforms continue and they need to continue. However, governments need appropriate policies and institutions that will enhance the competitiveness of smallholder producers and their ability to reach markets and effectively participate in them, which are key to catalysing and deepening the progress made in agricultural and economic transformation and poverty eradication. As hinted earlier, the government of Uganda (GoU) has put in place several policies and institutions towards addressing these issues. The Poverty Eradication Action Plan (PEAP) and the Plan for Modernisation of Agriculture (PMA), among others, outline the government's strategies to further improve the situation.[1] However, responding to market opportunities by smallholder producers remains a key challenge to commercialisation of agriculture in Uganda, and other developing countries looking to transform their economies in similar directions. Accordingly, research in the mechanisms for development of responsive, enabling and sustainable policies and market institutions that will increase the competitiveness of smallholder producers is imperative. More challenging however, are the analyses of processes involved in effective policy formulation and the development of participatory approaches and tools to policy analysis that enhance effective policy formulation. Given that these approaches and methodologies may not be readily available, innovative approaches to policy analysis cutting across disciplines may be necessary. In addition, analysis of product markets provides vital information for producers on product attributes, quality and quantity required, thereby enabling farmers to respond and produce for the market. This information also can guide the technology generation process to produce outputs that address market needs. Likewise, analyses of markets and marketing systems can reveal the main bottlenecks in the marketing chain.

The aim of this paper is to provide suggestions for best practices for agricultural policy and market research to address the above challenges leading to effective policy formulation and institutional development that can enhance the competitiveness and market access of smallholder producers in Uganda. Research finding from Uganda and elsewhere are drawn upon, and so the synthesis are applicable to other developing countries. A bit of background on agricultural research in Uganda is necessary to show how this paper came about.

Agricultural research in Uganda

Agricultural research in Uganda is organized under the umbrella of the National Agricultural Research Organization (NARO). Recently, the GoU embarked on a new national agricultural research policy (GoU, 2003) to improve the management and enhance the contribution of agricultural research to agricultural commercialisation, economic growth and poverty eradication in Uganda.[2] The policy provides for the development of a National Agricultural Research System (NARS) and poses important implications and challenges for NARO, which was reorganized to be fully compliant to the new policy and to provide strategic direction for agricultural research in Uganda (GoU, 2003). Consequently, NARO's vision, mission and objective have been modified (see Box 1).

The PEAP is organized under five "pillars": economic management; production, competitiveness and incomes; security, conflict resolution and disaster management; governance; and human development (MFPED, 2004). The PMA, which is drawn up to contribute fundamentally to Pillar 3 of the PEAP (production, competitiveness and incomes), has seven priority areas: improving access to and quality of agricultural advisory services; promoting agricultural research and technology development; promoting agro-processing and improving access to markets;

Box 1: NARO's Vision, Mission and Objective

Vision: A centre of excellence spearheading generation and dissemination of improved and appropriate technologies in collaboration with partners and clients for sustainable development.

Mission: Contribute to improving the welfare of the people of Uganda and conserving the natural resources base by increasing the productivity and utilisation of crop, livestock, fisheries and forestry resources through the enhancement of sound scientific knowledge and the generation, adaptation and dissemination of improved technologies, methods and policy advice.

Objective: To increase the quantity, quality and availability of technologies, methods and policy advice for the efficiency and profitability of agriculture while improving food security, equity and natural resources sustainability.

Source: NARO (2004)

increasing access to and availability of rural finance; promoting agricultural skills and knowledge through formal and informal education; promoting sustainable use and management of natural resources; and improving supportive physical infrastructure (MAAIF, 2000).

Promoting agricultural research (and technology development) is one of the seven priority areas of the PMA.

To achieve its vision, mission and objective, NARO has reorganized its research into five thematic areas:

- Theme 1: understanding people, their livelihood systems, demands and impact of innovations;
- Theme 2 : enhancing innovation process and partnership;
- Theme 3 : enhancing integrated management of natural resources;
- Theme 4 : technological options that respond to demands and market opportunities;
- Theme 5 : enabling policies and linking producers to markets.

In 2003, NARO announced a call for papers leading to the conference on "Integrated Agricultural Research for Development: Achievements, Lessons Learnt and Best Practice" to capture achievements and lessons learnt in agricultural research for development and identify key learning points for future research in Uganda and elsewhere in each of the five thematic areas.

In line with the aim of the paper stated earlier, this is intended to be a synthesis of the papers submitted and accepted on Theme 5 (enabling policies and linking producers to markets), highlighting: (a) achievements and gaps, (b) best practices and guidelines (including methodological issues), and (c) implications for policy and institutional development relating to the outputs of the theme (see Box 2). However, as only 12 papers were finally accepted and submitted on this theme, other relevant research in Uganda and outside, particularly the East Africa region, are included. The synthesis reflects more of author's knowledge of the topic rather than the state-of-the-art of knowledge on the issues related to the topic. Equally important, this paper is not a synthesis of the research achievements of NARO or of what type of research NARO should (or should not) undertake or how it should do it, although it may have implications for the latter two and include some of NARO's achievements.[1] In addition, this is not a review of the individual research papers regarding methodologies, analysis, and findings. Those papers are published in a separate conference proceedings (UJAS, 2004, pp730-796).

Some of NARO's research achievements, especially relating to the PMA, can be found in NARO (2003).

The remainder of the paper is organized as follows. In the next section, the meaning of competitiveness and process of policy (and market) research are explored to set the basis or form the conceptual framework for the discussion vis-à-vis polices for enhancing competitiveness and market access of smallholder producers. In section 3, key achievements and gaps in policy and market research regarding the outputs of Theme 5 are discussed. Also, existing and planned policies and institutions in Uganda addressing the bottlenecks (and gaps in addressing them) identified by research are discussed. In section 4, best practices and guidelines, including methodological issues, for agricultural policy and market research are discussed. This is followed by implications for policy and institutional development in section 5. Concluding remarks are presented in section 6.

Box 2: Goal, Outputs and Expected Impacts of NARO's Research Theme 5 (enabling policies and linking producers to markets)

Goal: The goal is to generate and disseminate information that will contribute to the formulation of appropriate policies and enable researchers and producers to respond to market opportunities

Outputs:
- Recommendations for formulation of policies that enhance competitiveness provided
- Policy options availed to key stakeholders
- Enhanced policy advocacy
- Information and mechanisms that lead to improved response and access to market opportunities by researchers and producers generated and disseminated

Expected Impacts:
- Improved policy formulation process
- Conducive policy environment for agricultural development
- Better understanding, ownership and implementation of policies
- Farmers effectively producing for local and international markets
- Market information integrated in research and development

Source: NARO (2004)

Competitiveness and Policy Research

What is competitiveness?

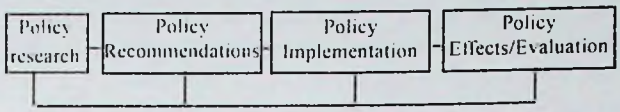
The term competitiveness is one of those new buzz words that are used by all disciplines and in all sectors of the economy. Thus, before launching into the main substance of the paper, it is useful to understand the concept of competitiveness in order to focus the paper on the policy and institutional relevant research issues. Krugman (1996) argues that trying to define competitiveness of a country is problematic than defining it for a corporation, since the concept of productivity on which the concept of competitiveness is based is elusive at the country level. Thus, as Krugman (1996) further argues, competitiveness is meaningful only at the corporate level, and applies to producers of goods and services, including farmers, traders, manufacturers, etc. In a standard dictionary, the word competitiveness is a noun that means *an aggressive willingness to compete*, which is not a helpful definition by itself, requiring further breakdown of the term 'compete'. In economic or corporate sense for that matter, it can be defined as continually sustained increases in productivity resulting in higher returns to labour and living standards. Competitiveness is characterized also by increasing market shares and, therefore, can be demonstrated by the ability to meet the test of free and fair markets while expanding real income (Tyson, 1992). In addition, competitiveness is based on generating more value through improved productivity, quality, product and innovation.

It is thus intuitive that competitiveness does not necessarily imply exports as in the traditional sense of selling outside national boundaries, but rather as in selling outside the production entity, such as the household farm. Furthermore, improving competitiveness involves more than provision of markets or market institutions, although the two are major underlying factors.

The Service Industries Branch of Industry Canada has developed a diagnostic exercise to enable small- and medium-scale enterprises (SMEs) assess their competitiveness and identify weaknesses for improvement or opportunities for enhancement (SIBIC 2003). They present these as "steps to competitiveness" related to finance, technology adoption, human resources, marketing, partnerships, quality assurance, and development of new products. These are very useful and they address all aspects of the definition of competitiveness pursued above.

What is policy research?

Policy research is research aimed at policy makers, the demand for which derives from the demand for institutional change to improve the status quo (Ruttan, 1984). As Figure 1 shows, policy research is a process aiming at change (see Ebong and Minde (2004) and Norton and Alwang (2004) for case studies). The first stage involves several activities, including problem definition, goal, purpose, objectives, expected outputs and expected impacts of the research project, methods for measuring the outputs and impacts



(including benefits and costs of the anticipated policy change), data collection and analysis, and interpretation of results. Results from this stage are communicated to policy makers in the form of policy recommendations. This is followed implementation and then evaluation. Results of policy evaluation (i.e. impacts of the policy or change) feed back into the previous steps. Later on in section 4, some of the best practices for undertaking policy research are discussed.

In discussing the achievements and gaps of policy research in enhancing the competitiveness of and market access of smallholder producers, section 3 is organized to examine: first, policy recommendations coming forth from policy and market research and extent to which they have been implemented in Uganda; second, nature of policy communications; and third, range of outputs of policy and market research for various stakeholders.

Achievements and Gaps in Policy Research

Recommendations for formulation of policies that enhance competitiveness

Of the Theme 5 outputs listed in Box 2, providing recommendations is perhaps the one that policy and marketing research has achieved the most, in terms of generating information through identifying the factors limiting or contributing to sustained increases in productivity and market participation or analysis of institutional and organizational mechanisms that link smallholder producers to markets. Each of the steps to competitiveness identified earlier (finance, technology adoption, human resources, marketing, partnerships, quality assurance, and development of new products) is examined, highlighting the achievements and gaps: of policy and market research in putting them on the policy agenda; and related policies and institutions in Uganda addressing them.

Finance

Research has shown that absence of a well-functioning (rural) financial system can substantially hinder producers' competitiveness and participation in markets. Lack of credit contributes to short-term perspective of producers, fuelling over-exploitation and degradation of the natural resource base (Pender, 1996; *Holden et al.*, 1998) and reduces ability to acquire purchased inputs needed for increasing agricultural productivity and improving sustainability of the natural resource base (Larson and Frisvold, 1996; Benin and Pender, 2001; Nkonya *et al.*, 2004; Pender and Gebremedhin, 2004). Given the high prices of purchased inputs (Omamo, 2002; Kherallah *et al.*, 2002), credit is especially important for smallholder producers with low purchasing power. By limiting purchase or adoption of appropriate post-harvest technologies, including processing

and storage facilities and fumigants, lack of credit also reduces marketable surplus (Archambault, 2004). Consumption credit can enhance the benefit of market participation, as producers are able to smooth consumption and, thus, hold produce when prices are at their lowest immediately following harvest until later when prices become more profitable (Archambault, 2004).

Research shows that most producers have access to some form of credit, but very few have access to formal credit, which offers more scope for agricultural development as it is often linked directly to purchased inputs and technologies (Deininger and Okidi, 2001; Kappel *et al*., 2004; Mauyo *et al.*, 2004; Nkonya *et al.*, 2004). For example, Deininger and Okidi (2001) report that only about 17% of households in Uganda obtained a loan in 1999, mostly from relatives, and most of the loans were used for purposes (e.g. health and education expenditure) other than direct investment in agriculture, such purchase of land, livestock or inputs, highlighting again the importance of consumption credit.

The main constraints for low use of formal credit by smallholder producers include stringent collateral requirements and high interest rates (Deininger and Okidi, 2001; Archambault 2004; Mauyo *et al.*, 2004). Ignorance of availability of credit and lack of knowledge of application procedure are also important (Deininger and Okidi, 2001; Archambault, 2004). So are lack of micro-financial institutions (MFIs) and rural banks, small loan sizes, and limited proportion of loanable funds allocated to the agricultural sector (Kappel *et al.*, 2004). Gender bias in access to and utilization of formal credit has also been identified as an important constraint (Quisumbing *et al*, 1998; Mauyo *et al.*, 2004).

Several steps have been taken by the GoU to address these bottlenecks. For example, one of the seven priority areas for action is increasing access to and availability of rural finance in the PMA implementation process. Although, this component of the PMA is yet to be implemented, a milestone in the right direction is passing of the 2003 Microfinance Deposit-Taking Institutions Act, which the Bank of Uganda (BOU) is expected to adopt regulations for its implementation (MFPED, 2004). Also encouraging is the anticipated operationalization of the Microfinance Outreach programme, aimed at expanding coverage into less served geographical areas and funding activities, particularly agriculture, and enhancing the link between producers and the formal financial sector through the development of the warehouse receipt system (MFPED, 2004).

A major gap in policy and marketing research in generating recommendations for formulation of policies leading to a well-functioning (rural) financial system is probably that very few studies have examined the supply-side of the system. An important policy research question is the extent to which MFIs are equipped (or ill equipped) to address the needs of smallholder producers (Mugume and Obwona, 2001). Implementation aspects have also not been adequately studied, although there is great opportunity to address this in Uganda as the government and the Bank of Uganda prepares to roll its plans. This requires a pro-active role on the part of policy researchers to get involved. Another gap in studying the impacts of access to or use of credit is the lumping of credit into a discrete choice variable in the analyses: whether there is access to credit or not or whether credit is used or not, without much analysis on what the credit is used for or how much credit is obtained. This is an important issue as the finding of, for example, a negative impact of credit use on technology adoption (Benin *et al.*, 2004a; Holden and Shiferaw, 2004) can be misinterpreted. However, such a finding highlight the importance of credit in rural development in general, as households may reallocate resources among enterprises or livelihood strategies when they have the opportunity to do so, with increased credit to continue the example.

Technology adoption

Use of technology in the resource-to-consumption continuum, (natural resource management, production, post-harvest storage and handling, and marketing) can help smallholder producers better manage growth, improve productivity and gain competitive edge over those who do not use technology. Several studies show a positive relationship between use of various technologies and reduction in degradation of the natural resource base (Tiffen et al. 2001; Nkonya *et al.*, 2004). Deininger and Okidi (2001) and Benin *et al.* (2004b) show that the returns to use of chemical fertilizers can be more than 100% in parts of Uganda and parts of the highlands of Ethiopia, respectively. Similarly, use of appropriate processing and storage facilities and pesticides can substantially reduce post-harvest losses, improve product quality, and increase profit margins (Archambault, 2004), while use of market information on prices and quantities can reduce uncertainty and increase efficiency (Zilberman and Heiman, 2004). Increase marketing margins (Ferris *et al.*, 2004) and improve market integration (Rashid, 2004).

Research shows that average annual soil nutrient depletion rates are very high in SSA, and the rates Uganda represents some of the highest (Stoorvogel and Smaling, 1990; Wortmann and Kaizzi, 1998). Agricultural productivity is also low (Deininger and Okidi 2001; Pender *et al.*, 2001) and declining soil fertility is perceived as one of the major causes (Pender *et al.*, 2001; Nkonya *et al.*, 2004). Yet, several studies show that adoption of technologies for sustainable natural resource management and improving agricultural productivity is low. For example, Nkonya (2002a) shows that only 27% of plots in Uganda had some form of soil and water conservation (SWC) structures on them, and only slightly higher (32%) in southwestern highlands where land degradation is more prevalent and of greater concern. Deininger and Okidi (2001) report fertilizer use on only 3% of plots in Uganda, while Benin *et al.* (2004b) report use on about 29% of plots

in parts of the Ethiopian highlands. Use of high yielding varieties and pesticides are also reportedly low (Deininger and Okidi, 2001; Benin, 2004; Nkonya *et al.*, 2004; Pender and Gebremedhin, 2004). Note that, although estimates on adoption rates vary by study, they are generally low and rarely exceed 35%.

The literature on the factors affecting adoption of various technologies is fairly well established. The factors identified include: high cost of fertilizers relative to output prices and low returns (Krueseman *et al.*, 2004; Pender and Gebremedhin, 2004), poor access to credit (see previous section on finance), poor access to infrastructure (markets, roads, irrigation) (Benin, 2004; Nkonya *et al.*, 2004), subsistence production objective or depends on the livelihood strategy (Nkonya *et al.*, 2004), access to technical support (Deininger and Okidi, 2001; Nkonya *et al.*, 2004), land tenure (Nkonya *et al.*, 2004), gender bias in access to and utilization of technologies (Quisumbing *et al.*, 1998; Mugisha *et al.*, 2004), human capital requirements (labour, education, health) (Benin, 2004; Benin *et al.*, 2004b; Nkonya *et al.*, 2004; Tamale and Namuwoza, 2004), awareness, perceptions and attitudes (Benin *et al.*, 2004b; Nangoti *et al.*, 2004), and security (Tamale and Namuwoza, 2004).

Supply side factors are also important, including development, adaptation and distribution of technologies. Looking at the seed sector for example, the formal sector, which involves breeding, testing, certification and regulation, meets only up to about 10% of the market demand, with remaining 90% being met by farmers' own saved seed or obtained through farmer-to-farmer exchange or from the output market (Ebong and Minde, 2004; Muyanga, 2004; VECO/Actionaid, 2004).

There are several policies in place in Uganda addressing most of the bottlenecks identified by research. The two notable ones discussed here are the 1998 Land Act and the National Agricultural Advisory Services (NAADS).[1] The Land Act (and its accompanying amendments and governing bodies (Land Registries, Land Board and Land Tribunals)) aims to improve tenure security of the four recognized systems (customary, freehold, leasehold and *mailo*) and address gender inequality and other disadvantaged groups in access to and utilization of land. NAADS is one of the seven priority areas of the PMA and became operational in 2001. NAADS has developed an innovative privatised extension service delivery approach, which develops and uses farmer institutions and empowers them to procure advisory services, manage linkage with marketing partners, and conduct demand-driven monitoring and evaluation (M&E) of the advisory services they receive and their impacts. The NAADS programme started with a pilot in a few districts and is now in the process of extending it to new districts, and eventually rolling out to the entire country within the next four years, depending on a favourable assessment of the programme as well as availability of resources (MFPED, 2004).

Several policy research questions arise as NAADS plans to expand into the sub-counties of each district, including: what the impacts have been of the approach on technology adoption, agricultural production, and environmental degradation; how the approach can be made more effective and demand-driven; and, more fundamentally, is the capacity of NAADS, farmers and other stakeholders adequate to undertake M&E, given that the programme is working with farmers with limited physical and financial assets, skills and knowledge (MFPED, 2004).

There are also several non-governmental and community-based organizations and donor organizations' projects fulfilling roles in technology transfer and technical support and in rural development in general traditionally undertaken by government programs (Jagger and Pender, 2002). Some of the policy questions raised on the NAADS programme also apply here, especially where farmers' involvement with these organizations and projects are not having a positive impact.

Regarding other gaps, it seems here too that very few studies have examined the supply side of technology development, adaptation and distribution. Also is the lumping of technology or access to technical support into a single dummy variable in the analysis, similar to case of credit use discussed earlier, with little analysis on the intensity of use at the plot level or what aspect of technical support is obtained or how frequent.

Emerging policy issues regarding use of biotechnology need to be addressed very soon. The National Council on Science and Technology has been charged with developing policies and regulations for bio-safety on this, and to deal with planning and implementation of policies on science and technology, research and development, information and communication technology, biodiversity, and indigenous knowledge (MFPED, 2004).

Human resources

It is common knowledge that having an adequate competent and healthy labour force, with the skills, knowledge, and experience is imperative for agricultural and economic development. The impact of these on incomes and sustainable agricultural development suggest improvement in human capital. There are several studies that show: positive impacts of education (Deininger and Okidi, 2001; Place *et al.*, 2002; Fan *et al.*, 2004; Mugisha *et al.*, 2004; Nkonya *et al.*, 2004); lower productivity associated with female-headed households (Deininger and Okidi, 2001); lower productivity and incomes associated with households that have larger dependents or aged heads (Deininger and Okidi, 2001; Nkonya *et al.*, 2004); positive impacts of training (Nkonya *et al.*, 2004); and negative impacts of ill health (Bloom and Sachs, 1998; Bonnel, 2000; Fan *et al.*, 2004; Zhang, 2004). Regarding the latter, MPS (2001), for example, estimates that about 42% of Ugandan households on average have a sick person each month but fail to get medical treatment. The main constraints include poor access to a hospital or treatment centre (Deininger and Okidi, 2001) and low affordability of medical services (MPS, 2001).

Fortunately, human development is one of the five pillars of the PEAP to address various aspects of human development, including mainstream and agricultural education, HIV/AIDS, malaria and other health issues, labour market, gender inequality, etc. The Universal Primary Education (UPE) policy, which allows for all children in the family to attend primary school (the first four free of charge) and the Functional Adult Literacy (FAL) Programme have had significant impacts on human development; raised the national average literacy level from 65% in 1999/00 to 70% in 2002/3, benefiting women more than men (MFPED, 2004). Plans to establish a labour market information system and network will be beneficial, as well as enacting the National Agricultural Education Policy (MES, 2004), currently in draft form, and aimed at restructuring the agricultural education curriculum to make agriculture more entrepreneurial and business-like. Similarly, plans to establish a National Pension Scheme and implement a National Gender Policy (MFPED, 2004) are all steps in the right direction. Improvements in health are also commendable, including reduction in the prevalence of HIV/AIDS in the last three years from 6.8% in 1999/00 to 6.2% in 2002/03 (MFPED, 2004).

Being crosscutting, improvement in human capital development can have competing impacts within the household, particularly on agricultural production versus non-farm employment opportunities when opportunities for resource allocation are present within the household to do so. Thus, finding of a negative impact of human capital, say education, on agricultural production should be explored further by examining trade-offs of the nature discussed above. However, the current demographic structure of Uganda, with for example about 50% of the population below the age of 18 (MFPED, 2004), poses a challenge to agricultural and economic development, by exerting limitations on the availability and supply of adult labour.

Marketing

Although withdrawal of governments from agricultural markets and marketing may have left a gap in infrastructure (roads, ports, storage facilities, processing facilities, electricity, transportation, etc.) (Kherallah *et al.*, 2002), private firms, organizations and traders have emerged to take over marketing functions. There is evidence of increased participation of smallholder producers in markets (Larson and Deininger, 2001) and increased competition and number of traders and marketable volume (Gabre-Madhin, 2001; Kherallah and Gruhn, 2001; Nkonya, 2002b; Rashid, 2002; Benin, 2003; Jabbar and Benin, 2003), and greater market integration (Rashid, 2004).[2] The benefit associated with these is greater economic surplus, associated with reduced marketing cost, higher farm gate prices for producers, and lower output prices for consumers.

IFAD (2003) has identified lack of understating of the markets or how they operate, limited business and negotiation skills, lack of producer organizations, and difficulty in accessing rich countries' markets as the major factors limiting market access and participation by smallholder producers. Other influential factors include access to and use of extension and technical assistance (Holloway and Ehui, 2002; Lapar *et al.*, 2002), gender, education and access to credit (Larson and Deininger, 2001), distance to markets (Larson and Deininger, 2001; Holloway and Ehui, 2002; Kleih *et al.*, 2004; VECO/Actionaid, 2004), condition of roads and availability and cost of transportation (Rashid, 2002; Kiiza *et al.*, 2004; Kleih *et al.*, 2004), lack of market information or information asymmetry (Rashid, 2002 and 2004; Ferris *et al.*, 2004; Nyampedi *et al.*, 2004), low output prices relative to input prices (Kiiza *et al.*, 2004), low productivity and, hence, low marketable surplus (Kleih *et al.*, 2004; Nyampedi *et al.*, 2004), and low marketable volume due to loss from poor processing and storage (Archambault, 2004; Kiiza *et al.*, 2004). Other factors limiting participation in supermarkets are high quality requirements (Nyampedi *et al.*, 2004). Jagger and Pender (2001) also identified constraints associated with transportation, access to small-scale processing facilities, and lack of intermediaries or organizations for smallholder aquaculture fisheries in remote places.

Even when market information exists, there are problems associated with utilization, including language problems, time of broadcast, usefulness of information for all stakeholders (farmers, traders, etc), and access to market information media (newspapers, radio, cell phones, etc) (Ferris *et al.*, 2004; Kleih *et al.*, 2004). The benefits associated with market information are substantial. For example, Ferris *et al.* (2004) show that farmers obtained 5-15% higher farm gate prices, as they were able to negotiate a higher price, hold on to product until price was higher, or sell in a different market where the price was higher. However, management of marketing information system can be costly, especially given its semi-public good characteristic (Ferris *et al.*, 2004).

Market structure, conduct and performance studies also shed light on the organizational and institutional mechanisms associated with markets. For example, Gabre-Madhin (2001) characterised the grain market in Ethiopia as being by dominated by small scale and personalized trading, with physical marketing costs related to transportation, handling and others accounting for more than 83% of gross margin of traders; although trading is very competitive, as traders' margins are less than 5% of the sale price. Other constraining factors include weak market information, lack of grades and standards, prevalence of oral compared to written contracts, limited legal enforcement (which increases risk of commitment failure), and lack of trust (Gabre-Madhin, 2001). Lack of trust leads to personalized trading and trading over short distances, which in turn increases handling costs and reduces farm gate prices. Gabre-Madhin (2001) also finds transactions costs (associated with coordination of exchange, cost of obtaining and processing market information, negotiating contracts, and monitoring transactions) to be quite high, about 19% of total marketing costs. Furthermore, although brokers played

an important role in reduction of transaction costs, they were not utilized as much: they handled only 16% of the total marketed surplus and were used only in 25% of traders' transactions, but slightly higher (33-55%) when long distance trading was involved. Using brokers was shown to increase total economic surplus by 60% (Gabre-Madhin, 2001).

Another important constraining factor is the regressive nature of market taxes and fees identified by Bahiigwa *et al.* (2004): that because flat rates are levied on transactions, small scale traders (those selling in smaller units e.g., tin) paid a higher proportion (about 47%) of their gross margin as tax while relatively larger traders (those selling in larger units e.g., bags and sacks) paid much (only up to 5%), a similar pattern was observed with livestock trade % poultry and small ruminants versus large ruminants.

Mauyo *et al.* (2004) have also identified some constraints associated with cross-border trade including certification requirements, high export taxes, and lengthy customs documentation. These are also applicable to regional and international markets.

Liberalization of markets in Uganda is a major achievement.[3] This is characterized by the involvement of more farmers in commercialised activities, emerging trade opportunities (e.g. African Growth and Opportunity Act (AGOA), and establishment of an export promotion board. In addition, major constraints identified above are being taken into account in the development of a Marketing and Agro-Processing Strategy (MAPS, 2004). The MAPS has four priority areas, briefly: (1) improve collective action in marketing by developing capacity of producer organizations and farmers to engage effectively in market transactions; (2) improve marketing infrastructure (roads, rail, electricity, markets, post harvest facilities, agro-processing); (3) adopt comprehensive trade policies and regulatory frameworks and introduce quality grades and standards (in association with a warehouse receipt system and agricultural commodity exchange; and (4) improve access to accurate and timely market information, by expanding the pilot market information system (MIS) in 16 districts to a national MIS, and improve capacity of beneficiaries to utilize market information.

The main gap in policy and market research has been the focus on export crops and international trade, with little attention to regional and domestic markets. Where regional and domestic markets are addressed the emphasis has been on cereals or dairy. Thus, the bottlenecks identified (education, storage and handling, credit, extension, technology and purchased inputs, organizations, market information, etc) are less constraining in export trade, if at all (Nkonya, 2002b; Rashid, 2002), than in other markets. It also seems that credit for output marketing, compared to production, is more constrained (Rashid, 2002). Also, research on the mechanisms for reducing transport and marketing costs (e.g., taxes) is lacking.

On identifying market opportunities, Diao *et al.* (2003) shows that non-traditional exports (e.g., cut flowers, vanilla, fish, hides and skins in Uganda), which have become important in recent years, have a small base and so cannot produce huge positive impacts on overall productivity and incomes. Thus, it is important for research to identify new markets opportunities to expand promotion. Diao *et al.* (2003) also shows that SSA's demand for its own food is huge, although even slight improvements in production will depress prices. Research to identify market opportunities including agro-processing is imperative (Kiiza *et al.*, 2004). Another market opportunity derives form the livestock revolution predicted by Delgado *et al.* (1999) of substantial growth in livestock demand due to population growth, urbanization and rising incomes, especially in developing countries.

Organizations

Organizations are very important, as they help pool strengths of individuals and exchange technological know how for collective action and to achieve economies of scale. Farmer organizations can tackle marketing problems by procuring their own inputs (including extension) and handling distribution and marketing of outputs, usually following some bulking or processing. Other organizational mechanisms such as contract farming and out-grower schemes are also important. Knowledge on organizations and institutional mechanisms is very advanced for the dairy sub-sector (Staal, 1995; Staal *et al.*, 1997) as well as for export crops, especially non-traditional export crops (Dijkstra, 2001). Mugisha *et al.* (2004) looks at the organizational mechanism for extension demand and delivery associated with the NAADS programme in Uganda.

There are several benefits to individual members of such organizations, including assured supplies of timely and desired inputs, assured output market (with often higher negotiated prices), and collective collateral for credit. The main constraints identified are related to limited capacity, lack of skill and knowledge in storage and handling management, and lack of trust in management (Archambault, 2004). The capacity issue arises because a large number of smallholder producers are needed in order to generate a substantial demand or supply if they are to be effective in negotiating deals. For example, to meet a 50 metric tonnes of grain requirement would require about 250 farmers assuming each has 200 kg marketable surplus grain. The large number can also lead to management problems with bulking and transportation as members are spread thin on the ground. The lack of trust probably derives for the poor performance and mismanagement associated with cooperatives in the past (de Janvry *et al.*, 1993; Akwabi-Ameyaw, 1997). Chemonics (2004) has also identified lack of paid membership, leadership, permanent staff, offices, and finance and credit as other constraining factors.

Under the NAADS programme, about 5,005 farmer groups had registered by July 2003 to be supported, while a further 3,633 had been identified and were waiting to register (MAPS, 2004). The main support activities include training in marketing and produce quality improvement, and there

are several NGOs, CBOs, and donor organizations' projects involved in these efforts.

More generally, institutional innovation in addressing delivery of services is needed to improve competitiveness and market access of farmers, and is essential for all steps discussed so far (finance, technology adoption, human resources and marketing) as well as in research and development. Research that embraces new thinking in this regard is essential.

Some of the policy questions raised on the NAADS programme also apply here, especially where NGOs, CBOs, and donor organizations' projects are not having positive impacts on farmer groups. Furthermore, case studies of successful and failed farmer organizations will be beneficial in improving their operations.

Quality assurance

It is common knowledge that quality and continuous improvement of products are key factors in obtaining a competitive edge over others. Nyampedi *et al.* (2004) find that farmers are unable to take advantage of higher prices paid by large supermarkets because they are unable to meet their quality requirements. Archambault (2004) find that poor product quality, characterized by infestation, broken grains, mould, high moisture content and dirt, was very common. The "chicken-and-egg" dilemma is paramount. On one hand, it is argued that low output prices do not provide incentives to producers to improve the quality of their products. On the other hand, it is argued that low prices are paid because the quality is low. The problem seems to be lack of grades and standards.

In this direction, there is a plan for the Uganda National Bureau of Standards, in collaboration with key private-sector players, such as the Uganda Grain Traders Ltd., to draw up grading standards and quality regulations for the principal crops and livestock products, i.e. those with potential to be marketed in significant volume or value (MAPS, 2004). This will be important also for the establishment of the planned agricultural commodity exchange and warehouse receipts or inventory credit system. It will also enhance market efficiency, by reducing transaction costs and allow price premiums to be paid for higher quality product. Development of grades and standards will also improve the usefulness of market information. A good opportunity is linking the development of grades and standards with the work by the Association for Strengthening Agricultural Research in East and Central Africa (ASARECA) and the East and Central Africa Programme for Agricultural Policy Analysis (ECAPAPA) in harmonizing seed standards in East and Central Africa (Ebong and Minde, 2004).

Identifying market opportunities has implications for improving quality. For example, Diao *et al.* (2003) shows that there does not seem to be much regulation regarding non-traditional exports, but the situation may soon change, and so there is opportunity for researchers and producers to get ahead of the game by improving quality. Also, there is little indication that prices of traditional exports will improve, but the situation can be salvaged by improving quality to target niche markets (You and Chamberlin, 2002; Diao *et al.*, 2003; You and Bolwig, 2003; Kiiza *et al.*,2004).

New product

Development of new products relates more to agro-processing, as in the manufacturing world, creating and successfully promoting a new product is closely associated with profitability (SIBIC, 2003). Diao *et al.* (2003) shows that SSA's demand for own food is huge, although even slight improvements in production will depress prices. Thus, research to identify market opportunities including processed products, especially of perishable products is critical (Kiiza *et al.*, 2004).

For example, Kiiza *et al.* (2004) report there are about 200 processed banana products in Uganda, including juice, wine (*tonto*), gin (*waragi*), banana pulp based bakery (*kabalagala*) and derivatives from fibres and stems. However, only few of these products are fully developed and industrialized (e.g. gin), and are mostly produced on small-scale basis and often of poor quality. Pancakes made of cassava flour and banana pulp (*kabalagala*) are the most common products, followed by juice and their derivatives like gin and beer. Banana-flour based bakery is less common and so are banana chips. In general, few people consumed processed banana products at all. Those who did not buy or consume them did not know them or they were not available, suggesting lack of product promotion and under-developed distribution system, respectively. Most of the products are available mainly in small shops or market stalls, and supermarkets do not play a big role in the trade. Underlying the ill-developed marketing system is that processed products are not advertised.[4] Most of the information on processed products seems to be spread locally through friends and relatives, and little through training. Issues concerning quality, taste or price did not seem to be major issues yet. As with other food crops, especially the perishable ones, the potential for banana processing and marketing of processed products is unexploited.

A major limiting factor in agro-processing has been the lack of electricity, on which the MAPS (2004) elaborates on the government's five-year Energy for Rural Transformation intervention, supported by the World Bank. On linking this with other major investments such as road development, knowing where the returns to such investments are greatest will be crucial. There are a also a number of accomplishments laying the foundations in promoting agro-processing, although they have been more in support of export crops (MAPS, 2004).

Next, achievements and gaps in making policy recommendations available to key stakeholders and improving policy advocacy are discussed.

Making policy options available to key stakeholders and improving policy advocacy

This is the stage in the policy research process that policy researchers and analysts are constantly grappling with. However, policy makers have articulated that research that directly informs the policy process is of particular interest to them (Benin *et al.*, 2002; Pardey and Smith, 2004). This was again articulated at the NARO conference and is very encouraging. As such, it is not surprising that results of policy research are increasingly being used in preparing strategy documents, such as poverty reduction strategy papers and sector plans. For example, several of the studies referred to in this paper are also cited in the PEAP and MAPS strategy documents. Traditionally, policy recommendations have been made available to policy makers through policy conferences, workshops and seminars, technical reports, and policy briefs. More recently, however, researchers are increasingly being invited to present their findings at special fora, including parliamentary and PMA sub-committee meetings. Researchers are also represented on several policy development and implementation committees such as the PMA sub-committees. Debates on national television programmes and interviews and quotes in newspapers are also utilized. A huge success in policy communication is the recent Africa Conference (and follow-up briefs and messages) on Assuring Food and Nutrition Security in Africa by 2020 that was hosted by the GoU in Kampala on April 1-3, 2004 (IFPRI, 2004).

The main gaps in policy communications and advocacy are the limited number of policy briefs generated from research projects. Also, there seem to be little follow up and monitoring and evaluation of usage of policy and workshop recommendations and eventual implementation.

Generating and disseminating information and mechanisms that lead to improved response and access to market opportunities by researchers and farmers

Figure 1 gives the impression that policy recommendations are the only outputs of policy and market research. This is not correct, as is evident from the discussions. There are several types of output of relevance for different stakeholders besides policy makers – including other researchers, traders, farmers, development agents, donor organizations, etc. For example, some of the outputs are simple economic information on prices and quantities, which are more useful to farmers and traders. Yield impacts of technologies and factors affecting adoption of technologies, for example, are more useful to other researchers to help in reshaping them to meet farmers' expectations. Such types of information also are useful to development agents and service providers to help promote best-bet (or profitable) technologies. Outputs related to institutional and organizational mechanisms may be more useful to NGOs and CBOs and other donor organizations to help them design better training programs for improving collective action, for example. And then there are policy recommendations aimed at policy makers and donor organizations. See Zilberman and Heiman (2004; Table 12.1) for an illustration of the types of outputs from economic research in general, likely users of the outputs, and benefits associated with them.

Information useful to other researchers is mainly disseminated through lectures, seminars, journal articles, professional meetings, and technical papers. Having more multi-disciplinary journals can ease cross sharing of information.

Regarding farmers, the main achievement in Uganda is provision of market information on commodities, quantities, prices and markets. These are broadcast over the radio, in newspapers, and through cell phone text messages. To improve utilization of information, there is training of farmers in interpretation (Ferris *et al.*, 2004; Kleih *et al.*, 2004). The main gaps are inadequate coverage of commodities and markets, lack of forecasts, and lack of promotion of local market opportunities. In addition, the information is only broadcast or delivered on a weekly basis. Without grades and standards too, the information can be ambiguous.

Best practice guidelines for policy research

Policy research process

As budgets tighten, policy makers are requesting more evidence of the impacts of policy research and are less eager to implement recommendations (Norton and Alwang, 2004). For example, at a recent policy conference hosted by IFPRI to share results from one of its research projects, one policy maker voiced his concern regarding the riskiness and applicability of the policy recommendations and suggested the need for pilot experiments to further validate the recommendations (Benin *et al.*, 2002). This is not surprising given that there have been several misguided policy prescriptions deepening governments' indebtedness. Krueger (2004) describes the import substitution fiasco as a case in point where policy prescription was endorsed against one of the greatest principles of economics – comparative advantage.

In what follows, best practice guidelines (i.e., likely to increase acceptance and implementation of recommendations) for policy and market research are discussed. Timmer (2004) recommends that in doing policy research, policy analysts must show what practices are best, communicate trade-offs (showing the gainers and losers) and options and not just recommendations, whether or not the recommendations can be implemented (i.e. considering the economic, political, social and cultural dimensions), and evaluating the policy to see whether it works or not (see Figure 1). Thus, it is crucial to involve all stakeholders (other

researchers, policy makers, donors, NGOs, farmers, etc.) in all aspects of the research processes from the onset. Allowing key civil servants (for example, those that provide the link between ministers, field level extension agents and farmers) to be actively involved in identifying the research questions may ensure a demand driven approach to research, as well as increasing the likelihood that policy recommendations will be heard and internalised by policy makers. However, there are inherent challenges in bringing together the various stakeholders, as researchers often seek to focus on the technical aspects of methods and approaches, whereas policy makers and others look for brief synopses of research findings that can be translated into effective policy prescriptions (Benin *et al.*, 2002).

Another important aspect of policy research is to have a clear understanding of the expected impacts of the policy change at the start of the research project. Consequently, there is need to research existing or related policies to understand their shortcomings or what aspect(s) of existing policies the research expects to change. Also, the research project needs to consider the policy dialogue and evaluation phases at the start of the project.

Of equal importance is the degree to which the primary beneficiaries of the policy change (e.g. farmers) participate in the research project, besides responding to survey questions. Farmers should also be involved in the interpretation of the research findings, especially the puzzling ones (Benin *et al.*, 2002). Thus, researchers need to go back to the target communities and farmers to engage them in helping to interpret data and validate research findings.

Policy recommendations should derive from the analysis and made at relevant level, based on the statistical properties of the data used in the analysis. A common critique of policy research papers is the disconnect between policy recommendations and results of the data analysis. Policy recommendations also should be effectively packaged and marketed. In addition to providing policy briefs that are concise and reader friendly, active involvement in policy dialogue and lobbying are important.

Government pilot programmes (e.g. NAADS programme) offer the ideal scenarios in which policy research can potentially have impact on influencing how programmes can be modified and scaled out, undertaking appropriate baseline and monitoring surveys, based on the objectives and anticipated impacts of the project. Often however, policy analysts are invited only at the evaluation stage, to find that baseline surveys are incomplete or not carried out. Lobbying also by policy researchers for involvement in such pilot projects is essential.

Also important is an evaluation of the policy research itself, for example by asking what would have happened without the policy research. Pardey and Smith (2004) have put together a nice collection of papers looking at the value of economics policy research and methodologies that can be utilized in making a valuation.

Methodologies

First, the main limitations of the methods used in the papers submitted and accepted on Theme 5 are discussed. This is followed by a discussion of best practices. Two main areas are examined: conceptual framework and empirical approach (surveys, data collection and analysis of the data). There was not much emphasis on theoretical concepts motivating the papers. It is encouraging however that several of the papers used primary data, although it was not clear whether the authors were involved in the actual data collection or not. In a few cases, the surveys were very localized or samples too small for generalization to a higher level, where most policies are relevant. Regarding the analysis of data, most of the papers employed simple descriptive statistics, lacking in cause-effect relationships that are necessary to examine the impact of the relevant policy variables. The lack of sophisticated analysis, e.g. econometrics, underlies the limited capacity in policy research in Uganda, which again is reflected by the few papers submitted on the theme, compared to the other themes. This limitation was also highlighted at the conference.

Some conceptual frameworks of relevance to the papers submitted and the discussion here include, but are not limited to: agricultural household farm analysis (Singh *et al.*, 1989; de Janvry *et al.*, 1991); innovation and adoption of agricultural technologies (Feder *et al.*, 1985; Feder and Umali, 1993); property rights and investment decisions (Barrows and Roth, 1990; Feder and Feeny, 1993; Place and Hazell, 1993; Besley, 1995; Pender and Kerr, 1999); land rental markets and agricultural efficiency (Otsuka and Hayami, 1988; Otsuka *et al.*, 1992; Pender and Fafchamps, 2001); innovation and changing factor prices (Boserup, 1965; Hayami and Ruttan, 1985; Pender, 1998); theories of collective action (Olson, 1965; Ostrom, 1990; Baland and Platteau, 1996); market and institutional development (North, 1990); and rural organisation (Bardhan, 1987).

There are several empirical tools and approaches of relevance here. Econometrics is one of them and it is a widely used method; it is a powerful tool as it provides a great deal of information about how various factors influence the variable of interest holding other factors constant, and is very revealing when it comes to identifying patterns of change. Although a few of the papers used this, they failed to address (or discuss) various problems associated with model specification and data (Greene, 1993; Maddala, 1983) to generate greater confidence in the results obtained. Econometrics can be used for price analysis and demand and supply analysis. Methods for markets and marketing research include structure, conduct and performance models of industrial organization theory, transaction cost analysis, and trader and investment behaviour (Goletti and Govindan, 1995; Gabre-Madhin, 2001).

Simulation models are also important, especially for ex-ante impact assessments. These include multi-market

modelling, bioeconomic modelling, and economy-wide and CGE modelling. The Dynamic Research Evaluation for Management (DREAM) model, developed by IFPRI and designed to measure economic returns to commodity-oriented research under a range of market conditions, allowing price and technology spillover effects among regions because of the adoption of productivity-enhancing technologies or practices in an innovating region (Wood *et al.*, 2000), is also useful. For example, in identifying export market opportunities for Ugandan coffee and cotton, You and Bolwig (2002) and You and Chamberlin (2002) used the DREAM model to examine the impacts of productivity and quality improvements in those commodities on incomes and welfare.

Other approaches include historical case studies (can be used to examine successful and failed institutions and organizations), other impact assessments (cost-benefit analysis and risk analysis), farm budget analysis and relative profitability of various technologies, and market feasibility studies. This diverse toolkit underlies the need, besides economists and agricultural economists, for an equally diverse social science disciplines in economic history, sociology, anthropology and political science.

Implicationsfor Institutional Development

Agricultural research and development (R&D) in Uganda is spearheaded by NARO; consumed about three-quarters of the total spending and research staff in 2000 (Beintema and Tizikara 2002).[5] Makerere University accounted for 20% of the total agricultural R&D spending and staff, with most of the research being conducted by researchers in the Faculty of Agriculture and to a lesser extent by those in the Faculty of Veterinary Medicine and the Faculty of Forestry and Natural Conservation; and faculty members spent between 10-30% of their time on research. Private agricultural R&D is not common, accounted for about only 2% of the total agricultural R&D spending in 2000, which was mostly contracted out to NARO.

Since the early 1980s, the total number of agricultural researchers in Uganda increased only slightly, although those in the higher education sector quadrupled, but it was offset by contraction in the government sector by about 10% (Beintema and Tizikara, 2002). NARO is highly dependent on donor funding. For example, between 1995-2001, close to two-thirds of its total funding was obtained from donors; and in 2002/03, 75% of the donor funding was obtained from the World Bank (NARO, 2003). There were a total of 658 staff members (172 female and 568 male) in 2003, of which 154 were scientists (36 female and 118 male). Crops accounted for about 55% of its commodity research (of which banana and cassava made up 20% and 19%, respectively), livestock 20%, fisheries 15%, and forestry 10% (NARO, 2003). By thematic representation, crop genetic improvement, pest and disease control were the main themes.

Theme 5 is a relatively new and small area for NARO. Although budget allocation to the theme was not available, it is likely to be equally small. For NARO as a whole, it is expected that donor funds will decline by about one-half within the next few years (Beintema and Tizikara, 2002). Thus, partnerships will be essential in maintaining agricultural R&D in Uganda in general, and agricultural policy research relating to Theme 5 in particular. Bringing together NARO, policy makers, donor organizations, researchers at academic institutions, international agricultural research centres, networks, NGOs, CBOs, private sector (including farmers), and civil society organizations in agricultural policy research will be essential. Such partnerships also will address data and analytical capacity limitations through data sharing and capacity strengthening activities. Mechanisms for fostering such partnerships include requiring project proposals and projects to be cross-thematic and multidisciplinary.

Conclusions

Their track record shows that policy analysts can make mistakes and prescribe misguided recommendations, even with good theoretical and empirical models (Krueger, 2004) and so incorporating policy recommendations into policy process does not guarantee success or improved well being. However, as Krueger (2004) further argues, policy research can become more valuable to the policy process if policy researchers gladly pursue a process in which existing ideas are challenged by new hypotheses, and data about competing hypotheses are evaluated. Thus, policy research must not only produce results, but those results must be potentially useful (Linden, 2004; Gardner, 2004).

As the synthesis has shown, policy and market research has generated a lot of useful information and recommendations leading to enactment of various policies to enhance competitiveness and market access of smallholder producers. The main limitations are the commodity bias (export crops, grains in regional markets, and dairy in domestic markets) and unbalanced levels of analysis (micro vs. meso vs. macro), often too many localized micro studies for effective policy recommendation. In addition, more needs to be done in terms of policy communications and evaluation of policy research. Emerging policy issues associated with use of biotechnology needs to be addressed sooner than later, and identifying operational organizational and institutional mechanisms for improving input and service delivery as well as marketing of outputs is critical. Linked to these are issues regarding grades and standards and market information. Given limitations in funding, strategic partnerships for data sharing and strengthening local analytical capacity will be

essential to achieve the goal and objectives of Theme 5, enabling policies and linking producers to markets.

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