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SUGGESTIONS FOR AGRICULTURAL ECONOMICS RESEARCH IN SOUTH AFRICA

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Uittreksel

Navorsingsvoorstelle vir landbou-ekonomie in Suid-Afrika

Hierdie artikel bespreek navorsingsonderwerpe van toepassing in die Suid-Afrikaanse landbou. Alhoewel die ontwikkelende en kommersiële sektore afsonderlik bespreek word, is die doel om aspekte te identifiseer wat beleidmakers heel moontlik sal aanspreek en wat die gemeenskaplike doelwitte van doeltreffendheid en billikheid sal beïnvloed. In die ontwikkelende sektor word klem gelê op landbougrond-markte en strukturele programme. In die kommersiële sektor word klem gelê op herverdeling van grond, inflasie, wisselkoerse, en bemarking- en arbeidswetgewing. Beskerming van die omgewing word in beide gevalle beklemtoon.

Abstract

This paper discusses research topics relevant to South African agriculture. Although the developing and commercial sectors are treated separately, the object is to identify issues that policy-makers are likely to address and which will influence the common goals of efficiency and equity. In the developing sector, emphasis is placed on land markets and structural programmes. In the commercial sector, emphasis is placed on land redistribution, inflation and exchange rates, and marketing and labour legislation. Protection of the environment is stressed in both cases.

1. Introduction

The object of this paper is to identify important research topics for agriculture in South Africa. For sake of brevity, agriculture in the self-governing territories is referred to as the developing sector. This sector differs markedly from South Africa's commercial farming sector with regard to property rights, farm sizes, technology, rural infrastructure, and institutional support. At present these sectors share few common research priorities and this paper deals with them separately. Nevertheless, the intention is to inform decisions aimed at promoting the overall goals of efficiency, sustainability and equity in South African agriculture.

2. The developing sector

This sector is characterized by very small farm sizes and low farm incomes. Farmer support programmes, focused mainly on institutional credit and extension, have not altered general trends. The vast majority of households are food importers, average yields are low and arable land lies idle despite intense population pressure. Stocking rates on grazing land tend to be high and herd off-take is low. From a consumer perspective, land is not used efficiently (Baber and Nieuwoudt, 1992). Policy must address the root of this problem otherwise investment in developing agriculture will do little to increase market supply - a key element in food security and economic growth.

2.1 Research to stimulate crop production

In 1986, Allan Low formulated a household economics model that contributed significantly to our understanding of resource allocation on small farms in Southern Africa.

According to Low (1986:50-53), population growth reduced farm sizes in the developing sector because households have an economic incentive to retain their land rights. At the same time, improvements in off-farm wages, education and mobility raised the opportunity cost of household labour in farming activities. Today most rural households are able to procure food and income at lower cost by allocating their workers to off-farm employment. However, this does not explain why arable land is underutilized, it only explains why so many households do not have an incentive to crop their arable land. Arable land is underutilized because these households cannot rent it to others who are willing and able to farm it more profitably. If the land rental market were efficient, households would lease their land to tenant farmers rather than leave it idle.

Current debate on methods of promoting agricultural output in sub-Saharan Africa has produced two schools of thought: Pricists want to improve price incentives whilst Structuralists argue that better prices will not elicit much response from farmers unless they are accompanied by other transformations. These include public investment in rural roads and communications, market outlets for farm inputs and products, appropriate technology, institutional credit, information and farmer training (Beynon, 1989). Indeed, predictions from an empirical study in KwaZulu (Lyne, 1989:108-110) indicate that higher food prices would not raise crop production significantly (price elasticity of supply for food grains is estimated to be 0,86), would reduce average household income because most rural households are net consumers of food, and would generate very few jobs on farms or in industries serving agriculture. Although these findings appear to support the Structuralist approach, it must be emphasised that structural programmes serve merely to

reduce unit production costs on farms. Consequently, response to structural programmes may be no better than the response to higher product prices as both approaches involve an increase in profit per unit output. What is of importance is that the potential gains to farmers generated by either higher product prices or lower unit production costs are scale dependent. This is why larger farmers are more responsive to price incentives and support programmes than small farmers (Welch, 1978). In KwaZulu where farms are very small, Lyne (1989:110-113) predicts that a decline in production costs will do little to raise household welfare or crop output (the elasticity of supply for food grains is estimated to be 0,71 with respect to input costs). Conversely, the introduction of a rental market for arable land is predicted to have a significant positive impact on production, household welfare and rural employment. Observations taken from three African countries show a strong positive correlation between land market activity, productivity and investment in farming (Migot-Adholla *et al.*, 1991).

It is not clear why households that need or want to farm cannot increase their farm size by hiring unused land from willing lessors. Recent findings suggest that land rental is constrained by risk. In KwaZulu, rental contracts are not enforceable owing to a 'conflict of laws', and households may be dispossessed if they lease land to tenant farmers (Thomson, 1991:10-17). Constraints to land transfer must be identified and their relative importance ranked. The cost, equity and efficiency implications of proposals to alleviate these constraints (eg. land registration and changes to the administrative and legal environment) must be analysed, and objective information passed on to policy-makers. For example, a rental market in land may generate less investment than a sale market but it does not interfere with residential rights, avoids the 'landless class' problem and does not require titling.

In summary, priority should be afforded to researching institutional changes needed to stimulate the land market. Thereafter, consideration can be given to the costs and benefits of implementing or improving structural programmes (eg. providing information, credit, markets, and technology). It would not be feasible to administer separate Pricist policies in the developing and commercial sectors. Macroeconomic policy or sectoral programmes that raise input or food prices will reduce incomes in the developing sector.

2.2 Research to promote livestock production

High stocking rates have resulted in poor calving, high herd mortality and low off-take (Baber and Nieuwoudt, 1992). Anim (1992:16,49) and Lyne (1989:52) report off-take rates of 3-7 per cent. For consumers this is inefficient, particularly if overstocking damages resources and detracts from future productivity.

One reason for high stocking rates is that grazing land, unlike arable land, is a common property resource. When access to common grazing is open, the equilibrium stocking rate exceeds the economic optimum stocking rate. However, this does not imply that the equilibrium stocking rate will exceed the maximum biological stocking rate. Under conditions of open access, stocking rates are determined by the private cost of keeping cattle on the common (Pc) and the perceived value of holding cattle. Many households invest in cattle because their value as a store of wealth is high relative to the private cost of keeping them (Lyne and Nieuwoudt, 1990).

Where access to communal grazing is restricted to a particular group of users, there is an incentive for the group to make and apply rules that prevent economic overstocking as rents will accrue to the members. Of course, these rents also encourage members to 'break the rules' and defections are difficult to police when the group is large. This seems to be the case in the developing sector; user groups are typically large and there is little evidence of self-imposed rules restricting the number of livestock that individuals may graze on the common. Under these conditions the overstocking problem can, in theory, be resolved by imposing taxes (raising Pc) or quotas on cattle. However, experience has shown that quotas enforced by government are not acceptable and that cattle taxes are difficult to collect (Anim, 1992:49). More importantly, these 'solutions' do not create incentives for individual stockowners to invest in pasture improvement because the benefits of their investment accrue largely to other users. Although programmes aimed at restricting access to smaller groups (cooperatives) have been accepted, they have proved difficult to administer. Apart from the problem of enforcing stock reduction, active members tend to withdraw support when other members free-ride.

From an economic perspective, privatization of grazing land is the only stable solution to overstocking and low investment as it internalizes both the cost of resource degradation and the benefit of investment. Recent research indicates that exclusive use rights granted to stockowners by some tribal authorities have promoted commercial livestock production even though the land cannot be sold or bequeathed to heirs (Anim, 1992:18,46). Clearly this limited form of privatization has advantages for consumers and potential farmers and is not totally unacceptable to local communities. Exclusive use rights are also a necessary (but not a sufficient) condition for a market in grazing land. There are many efficiency and equity advantages inherent in a land rental market (Thomson, 1992) and researchers should give this option the attention it deserves. The positive role that tribal authorities could play in implementing policy should not be overlooked. In Zimbabwe, tribal authorities have been reinstated as local administrators (Mudimu, 1991).

3. The commercial sector

The commercial sector is characterized by a wide variety of agricultural enterprises. In 1990/91, enterprises (excluding forestry) with estimated gross values exceeding one billion rand were maize (R2,8 billion), fowls slaughtered (R2,7 billion), cattle and calves slaughtered (R2,4 billion), hay (R1,1 billion), deciduous and other fruit (R1,1 billion) and sugar-cane (Directorate Agricultural Information, 1992:83). The importance of maize has decreased over time owing to decreasing relative profits.

Changes in government policy, especially monetary, fiscal and agricultural policy, influence farmers' decisions and therefore impact on key issues like food prices, employment, export earnings and the environment. In South Africa the potential for policy change is high. The following sections draw attention to relevant policy issues and their implications for agriculture and research.

3.1 Land policy

There is widespread concern about the skewed distribution of land occupancy in South Africa. Without visible redistribution "we can expect an outburst of uncontrol-

lable political anger" (ANC Land Commission, 1991). Redistribution through political intervention is perhaps justifiable if it promotes social stability and investment, even if there is some loss of agricultural output in the short-run. Political intervention could take many forms and the long-run implications of certain programmes will be better (in terms of both efficiency and equity) than others. Accurate information about the likely consequences of policy options should be widely disseminated as decisions taken by politicians will most likely reflect the majority view.

Non-market land transfers have appeal as they do not burden the Treasury. However, such transfers create uncertainty. Human and financial capital will leave agriculture and land prices will fall (Baber, 1991:126-128). This could collapse the banking system and will no doubt damage South Africa's credit-worthiness on foreign capital markets (Fiske, 1990). There is also the question of how new entrants are to be settled. Eastern Bloc experience has shown that investment and efficiency in farming suffer when farmers do not have exclusive rights to land that they can sell and bequeath to heirs.

The proposal that land be redistributed through the market process has been criticised on the grounds that poor people cannot afford to purchase farms. Redistribution through an unconstrained land market will be slow, and this might result in social unrest. Indeed, intervention may be necessary to ensure the survival of the market and its long-term efficiency advantages. Such intervention could take the form of progressive land taxes, maximum limits on farm size and subsidies on loans made to small farmers for land purchase or rental.

A progressive land tax will promote redistribution but it will not bring unutilized land into production (Nieuwoudt, 1990). A farmer would not leave land idle if he could sell or rent it to others profitably. Idle land is often unproductive land that has no market value. Such land is of little use to small farmers. Other explanations for idle land can be found in imperfect land markets, high transaction costs and tax legislation. In this regard, the subdivision act (which prevents farmers from selling land that they cannot afford to develop) and inadequate 'ring-fencing' (which allows non-farmers to reduce their income tax by holding farm land) ought to be investigated. The cost of administering land taxes should be weighed against revenue earned as the latter is unlikely to exceed one per cent of current government expenditure. Also important is how land taxes will affect farmers' ability and incentive to invest in fixed improvements (in practice it may not be possible to exclude all improvements from the tax).

If maximum limits on farm size were enforced (enforcement would be very difficult) land prices would fall and farms would become more affordable to new entrants. However, good managers and capital would leave the industry and, if maximum sizes are too small, production may fall dramatically with severe consequences for low income consumers.

Interest subsidies on loans made to small farmers for land purchase may be an equitable form of market intervention (Baber, 1991:137). Some of the benefits to new entrants will be eroded as the subsidy will cause land prices to rise. Obviously this distortion could not proceed indefinitely as it would penalize successful managers that want to acquire larger farms. Institutional arrangements to support affirmative action need to be considered. For example, should soft loans be adminis-

tered by the State when commercial banks already have the infrastructure and expertise needed to screen applicants and to advance loans? Who should provide complementary services like farmer training and extension?

3.2 Macroeconomic policy

Many economists agree that inadequate control of money supply is a major cause of inflation. A high inflation rate leads to high nominal interest rates and cash flow problems for commercial farmers. The cost-price squeeze (when input prices rise faster than output prices) is also of major concern to farmers in the short to medium term owing to negative impacts on cash flows. Farmers need to adapt to changing price relationships if they are to survive.

Subsidizing high interest rates has the effect of capitalizing the benefit into prices of fixed resources, mainly land. Although a land purchaser who obtains cheap credit has the benefit of paying a lower interest rate on his bond, he pays a higher price for his land. If the subsidy is available to all buyers, its benefits will be completely offset by higher land prices.

Higher inflation in South Africa relative to its main trading partners leads to a depreciating rand in the absence of government intervention. This benefits exporters but leads to higher import costs. A depreciating rand would benefit producers of commodities that are exported, such as fruit, sugar, timber and wool. Other products may also become more competitive with a depreciating currency.

Any future government should be very circumspect about its exchange rate policy. Many African governments have overvalued their exchange rates to the detriment of export-oriented agricultural industries which, under a policy of fair exchange rates, could have played a major role as earners of desperately-needed foreign exchange. Overvalued exchange rates are expected to have a pronounced negative impact on domestic agricultural export industries, with concomitant negative impacts on regional employment and development. Further research is needed to quantify the effects of inflation and exchange rate policy on regional agriculture and the wider economy.

3.3 Agricultural marketing and food price policy

Institutional arrangements play an important role in determining food prices. At present, South Africa has 21 Control Boards for commodities that account for almost 90 per cent of the total value of agricultural production. In recent years these Boards have become more market-oriented in their pricing policies. However, the Boards are responsible for other forms of market intervention (eg, restrictions on the free flow of maize, wheat and meat products) that influence food prices. Research into inefficient food markets should be given high priority. In particular, the extent and impact of import controls on food staples deserve further investigation.

Any future government will be under pressure from its urban constituency to decrease food prices, ie to have a 'cheap food policy'. Many African countries have legislated food prices below market-determined prices, with obvious detrimental effects on domestic agricultural production. In an economic sense, resources are used most efficiently when markets are competitive and production is in the hands of private farmers. However, efficiency does not mean that food prices will be

affordable to all consumers. Researchers need to evaluate ways of improving food security (eg, through product subsidies and food stamps) amongst low income households.

Farmers operate in an uncertain environment. Commercial farmers will most probably have to bear greater risk in the future as government withdraws support from that sector. Interest in risk-reducing and improved risk-bearing strategies is expected to increase. Such strategies might include enterprise diversification, crop insurance, forward contracting, off-farm investments, part-time employment, and maintaining financial or credit reserves. Farmers will also be seeking new production, marketing and financial information that update and improve their expectations on future events (Barry and Fraser, 1976:289). Clearly, there will be increased demand for education and information. Research into risk management and information sources (eg, futures markets) is therefore important.

The question of whether farms should be 'small' or 'large' does not warrant research. There are many optimum farm sizes because resources such as land, labour, productive facilities and management are specialized to the farm "in the sense that it is impossible to duplicate the resources of any particular firm" (Pasour, 1981:140). Opportunity costs are subjective and vary from one manager to the next. Some farmers are outstanding managers of large concerns while others prefer to manage small farms. If the land market is efficient, market forces will eliminate inefficient farmers and determine optimum farm sizes.

3.4 Labour policy

Efforts have been made to organize farm workers into unions. This has never been easy where there are a large number of spatially-dispersed farms. Trade unionism has been more successful where a few large companies are involved in agriculture, such as in the timber, poultry and sugar industries.

Minimum wage legislation applied to agricultural workers will most likely have detrimental effects on labour employment in agriculture owing to the high price elasticity of demand for labour in South Africa. This implies that a certain percentage increase in wages would have a more than proportionate negative effect on employment. Subsidizing rural education and labour housing, providing tax relief on labour rather than on capital, and active encouragement by agricultural unions and industries for farmers to improve wage and working conditions of their workers, may be a more positive route to follow. The sugar and timber industries appear to have had positive results with the latter approach.

Educating farm workers is likely to increase labour productivity and wages in the agricultural sector. Galasch and Gardner (1978) concluded that improved schooling (of farm workers) would increase the average wage and decrease employment in agriculture, as would a minimum wage. However, the social impacts of the two strategies would differ. A better educated worker is more likely to find a satisfactory job elsewhere than a person displaced by the imposition of minimum wages.

3.5 Environmental policy

Issues of major concern are the effects of agricultural chemicals and fertilizers on the environment, and

groundwater in particular. Poor farming methods can also impact negatively on the environment through soil erosion. Sources and effects of agricultural pollution must be identified and the benefits and costs of alternative courses of action need to be evaluated. For example, what are the private and full costs (benefits) of agricultural chemicals (conservation works)? Can this market failure be addressed by imposing taxes on chemicals, or subsidies on conservation? If the price elasticity of demand for agricultural chemicals is low, would quotas (pollution rights) be more effective? What are the degrees of substitutability or complementarity between chemicals (fertilizer) and other inputs such as land, labour, machinery and information? Can property rights be extended and transaction costs be reduced so that individuals disadvantaged by pollution can take legal action against offenders? What are the trade-offs between farmers, consumers, taxpayers and society at large?

These issues are relevant to many of the farming industries in the commercial sector which have relied on chemicals and commercial fertilizers to produce high yields, for example the sugar-cane, maize and vegetable industries. Producing sufficient food at reasonable prices may be an important policy goal in a future South Africa, but the sustainability of food production is also important.

4. Conclusion

For the developing sector it is recommended that research be directed at land markets. Reasons for market failure must be identified and solutions proposed and analysed. Thereafter, consideration should be given to the costs and benefits of implementing or improving structural programmes (that is, providing information, credit, markets, technology, etc).

In the commercial sector there is an urgent need for unbiased information about the efficiency and equity effects of possible land redistribution programmes. Current marketing policies should be analysed, particularly those which restrict the free flow of commodities. Removing imperfections in food markets will reduce food prices but will not eliminate the problem of affordability experienced by low income consumers. The relative merits of product subsidies, food stamps and other methods of promoting food security in poor households should be evaluated. Accurate information about the effects of changes in labour costs, inflation and exchange rates is important. Sources and effects of agricultural pollution must be identified and the costs and benefits of alternative agricultural production strategies should be evaluated. Priority should also be given to ways of improving the flow of information to farmers to help them make better decisions.

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