



**AgEcon** SEARCH  
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

*The World's Largest Open Access Agricultural & Applied Economics Digital Library*

**This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.**

**Help ensure our sustainability.**

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

[aesearch@umn.edu](mailto:aesearch@umn.edu)

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

# AGRICULTURAL COMPETITIVENESS: MARKET FORCES AND POLICY CHOICE

PROCEEDINGS  
OF THE  
TWENTY-SECOND  
INTERNATIONAL CONFERENCE  
OF AGRICULTURAL ECONOMISTS

*Held at Harare, Zimbabwe  
22–29 August 1994*

Edited by  
G.H. Peters, International Development Centre,  
Queen Elizabeth House, University of Oxford, England  
and  
Douglas D. Hedley, Agriculture and Agri-Food, Canada

INTERNATIONAL ASSOCIATION OF  
AGRICULTURAL ECONOMISTS  
QUEEN ELIZABETH HOUSE  
UNIVERSITY OF OXFORD

1995

Dartmouth

## DISCUSSION REPORT SECTION IV

*P. Michael Schmitz (Germany)<sup>1</sup>*

Alexander Sarris has presented an interesting and stimulating paper which is based on various pieces of the recent trade, growth, public choice, risk, development and CGE literature, and which fruitfully combines theoretical and empirical analysis to answer the central question whether there is a need for governmental interference to improve the competitiveness of rural areas. The aim is to propose a specific development strategy for poor countries, and it is that issue which deserves further attention. Sarris questions the superiority of stabilization and structural adjustment programmes (SSAPs) to cope with poverty and hunger in the developing world. As a discussion opener, I will attempt to take the opposite position of defending stabilization and structural adjustment programmes. I must, however, admit that playing the role of an advocate of those programmes fits in very well with my personal views. Before I begin, I must say that there are central statements in the paper with which I fully agree and it is only because of my time restriction that I concentrate on four central points of doubt.

First, Sarris interprets competitiveness of rural areas as mainly determined by the competitive performance of the agricultural sector. This is certainly an acceptable narrowing of the subject for most developing countries, but is obviously less convincing for threshold and developed countries, where (1) even in rural areas non-agricultural sectors clearly dominate; (2) part-time farming is a widely accepted survival strategy generating income from other sources than agriculture; and (3) an efficient infrastructure allows commuting to work in urban areas while living in and enjoying the attractiveness of the countryside. Hence the point is that one should not overemphasize the role which agriculture has to play since, even in the developing world, agriculture is a shrinking sector which does not attract, but gives up, productive resources. Even in densely populated LDCs, labour-intensive industrial sectors might play a more important role in the development process than agriculture.

Second, productivity differences are a key issue, since in his theoretical sections Sarris uses a general equilibrium model developed by Bardhan which is in the Lewis tradition. It is argued that wage differentials between rich and poor countries are mainly caused by unequal labour productivities in agriculture, and hence that labour productivity in the agriculture of poor countries should be increased or grow faster than in rich countries to narrow the wage gap. Furthermore productivity increases in the non-agricultural sector (that is,

<sup>1</sup>University of Frankfurt.

the textile industry) will not contribute at all to removal of the wage gap. The critical points with respect to his model and its conclusions are the following:

- (1) The well-known factor price equalization theory gives more convincing arguments for existing and persistent unequal wages, namely, transport costs, trade barriers, full specialization and reversals of factor intensity. All are likely to occur in the real world, whereas wage differences in the Lewis-type model are exclusively generated by the fact that food trade between countries is excluded, and labour in the food sector of the poor country receives the average product as wage.
- (2) The Bardhan model itself produced different results and suggests another development strategy, especially if one takes the food and textile price rather than the domestic food price in the poor country as the money wage deflator. The model's results are very sensitive with respect to this point.
- (3) The results of the model, especially concerning the effects of productivity growth in the textile sector of the developing country, are in sharp contrast to those of the specific factors model presented by Anderson (Section I in our programme), where comparative advantage in densely populated developing countries shifts away from agriculture to unskilled labour-intensive industrial sectors.
- (4) In addition, treating food as a non-traded good, using only labour as factor input, and excluding all cross-price effects on the demand side, might lead to distorted results and misleading conclusions, because in the real world technical progress is not neutral with respect to factor use and the occurrence of immiserizing growth cannot be excluded.
- (5) The productivity figures in the paper do not support the hypothesis that productivity differences cause the real income gap between poor and rich countries. The figures just tell us there is simultaneous existence of productivity and real income divergence.

Third, is structural adjustment less preferable than productivity growth? Sarris develops his own stylized CGE model using data from African countries. Unfortunately, the structure of the model is not in the paper. On the one hand, it seems to be an expanded version of Bardhan because food is introduced as a tradeable good and the Armington assumption is made. On the other hand, however, there is only one country in the model, and the terms of trade are fixed under the small-country assumption. Hence one can say nothing about the income gap between rich and poor countries. Nevertheless, Sarris runs some simulations, adjusting the trade and domestic policies as well as some exogenous variables in his model, and compares the general equilibrium elasticities in order to conclude that structural adjustment programmes are less preferable as development strategy than the productivity growth option. The critical points are the following:

- (1) The comparisons of elasticities are misleading because adjustment programmes imply dramatic absolute changes of the policy measures instead

of marginal ranges, whereas productivity growth in agriculture is certainly limited to a few percentage points.

- (2) SSAPs are certain to encourage investments in agriculture and rural areas, a point which has evidently been neglected in the model. In addition, the adverse growth implications of some policy simulations are addressed although the model is static in others.
- (3) Wage earner welfare is certainly not an adequate welfare indicator to evaluate the total welfare status in different situations. One would prefer a money metric based on the utility function of both rural and urban households.
- (4) Although the complete structural adjustment run, including the effects of all four policies simultaneously, has not been shown in the paper, Sarris reports that SSAPs have a clear-cut positive impact only on agricultural production and exports, whereas the effects on other variables, such as welfare, are unequal. In other words, he himself raises doubts about the effectiveness of SSAPs. This is in sharp contrast to the author's own statement, at the beginning of the paper, that worldwide policy distortions are mainly responsible for adverse effects on trade and welfare, overall unemployment, undesired distribution effects and destabilization, with the result that liberalizations would lead to substantial benefits worldwide.
- (5) Hence, in my view, the productivity growth strategy has not been proved to be superior to structural adjustment policy, at least not from the model results.

Fourth, should more emphasis be laid in LDCs on building infrastructure and less on 'getting prices right'? The reasoning from Sarris is that supply response is limited at low levels of development. However, the empirical evidence offered by the author is not convincing, because technical progress in LDCs compensates for the negative price effect on production, thus creating an apparently low total supply response, although supply in fact is price-elastic. Furthermore, might it not be that higher prices initiate private investments and regional public investments in local infrastructure and that they give rise to a more sensitive supply response? It is certainly an interactive process between building infrastructure and getting prices right and I would hesitate to give one of them priority. In addition, the strategy of 'getting prices right' seems to hold even for infrastructural services which are very often offered inefficiently by the state at heavily distorted prices and might sometimes better be offered by private agents.

I do share the author's view that risk reduction, as an important part of development strategy, should not be administered by direct market interventions by governments, but instead by supporting the creation of efficient risk insurance markets and private risk-sharing activities. This is in line with my overall conclusion that there is limited need for further government interference, which should become less important in the future, and is by no means as crucial as the paper implies.

Alberto Valdés (Chile)<sup>2</sup>

Fafchamps, de Janvry and Sadoulet have selected an important topic. Most economists familiar with developing countries would agree that market failures and 'high' transaction costs are fundamental concerns in understanding agricultural development in the Third World. This recognition is reflected in the vast emerging literature on various aspects of this topic. In fact, it is also part of an older concern with the various deficiencies that prevail in the market systems in underdeveloped economies. In the 1960s and 1970s, economists such as H. Myint and T.W. Schultz were already discussing the policy implications of the 'incomplete' development of product and factors markets, the various 'imperfections' of those markets and possible divergences between social and private costs. Twenty-five years later we have sharpened our theories and made considerable progress in learning which policy responses have a reasonable chance of success and which types of intervention are likely to fail miserably. As argued by Fafchamps *et al.* in their paper, it has been a failure of extensive state intervention which has, however, led to doubts about the capacity of such policies to deal successfully with market failures and transaction costs, though I must say that I do not see the economics profession as being so deeply divided on this broad issue as is implied by the authors. Hardly anybody argues that, in general terms, the state does not have a fundamental role; the question is more of a practical one as to how to better define the true nature of the 'public good' in each case, and to assess realistically what is feasible given the competence (or incompetence), rent-seeking trends and other attributes of the government apparatus in the country in question.

One question I would ask is whether the absence of a market necessarily implies a market failure. It might well be desirable to have markets for food nearly everywhere, to eliminate liquidity constraints for small farmers, and for them to be able to insure all risks. Nevertheless, the cost of government interventions in developing some of these markets might be significantly above their potential benefits. Crop insurance, for example, is a case that readily comes to mind. Except for very specific types of risk coverage, it usually is not worthwhile, and it is no mystery that most crop insurance programmes are highly subsidized and their net benefits questionable.

In my opinion, the most important contribution of this paper is the taxonomy offered in the second half where, in discussing the justification for government interventions, the authors argue that focusing on transaction costs as a determinant of competitiveness and welfare opens a vast array of instruments for policy intervention. This is very useful. It helps us to organize our thinking on the subject, it brings to bear an enormous knowledge of the literature and warns us that the history of rural development intervention suggests that effective interventions are few – it is indeed a treacherous path. We should be grateful to the authors for their pertinent contribution in bringing the point to our attention.

<sup>2</sup>World Bank, Washington, DC. The opening was presented by T.C. Pinckney, Williams College, Massachusetts, USA.

*Elizabetta Croci-Angelini (Italy)*<sup>3</sup>

The paper by Michael Reed and Joseph Salvacruz, which I have been asked to discuss, is concerned with international trade and in particular with how to reconcile the Heckscher–Ohlin theorem (H-O) with endogenously determined technical progress. The authors seek to combine the exchange feature of international trade, based on gains from trade resulting from differences in factor endowments, with the production side, based on differences in technology. I do like the attempt to test a hypothesis empirically, for a specific time period, over space (the ASEAN countries), for a number of economic sectors (agriculture and agribased manufacturing) and by commodities.

The authors claim that three features differentiate their work from existing literature: they have endogenous rather than exogenously determined technology, they move beyond the ‘manufacturing’ sector and their case study is of less developed economies rather than those at a higher level of income. On the first of these, they are dealing not only with the old issue of how to include technical change in an H-O model, but how to recognize its endogenous role and to stimulate change. The answer is that emphasis needs to be placed on encouraging innovation and effective transfers of technology. The second point leads to the conclusions that their models fit both the agriculture and the agribased manufacturing sector; both experience endogenous technological development. Third, in the economies studied, the relative factor endowment variable provides the expected result in the agribased manufacturing sector (which supports the H-O theorem), but is non-significant for agriculture.

The main problem which I have with the paper lies in the latter issue. In essence the H-O theorem suggests that any country has a production bias towards, and hence tends to export, the commodity which intensively uses the factor in which it is relatively well endowed. The problem of testing therefore lies in careful measurement of capital to labour ratios. Intuitively, statistical material relating to a manufacturing-type sector (the agribased industries in this case) can be obtained by observations on the relevant plants, or on official data relating to them. But for crops it might be another matter. On a farm the same person may work on various tasks, and the same capital item (tractors!) may be used in the same way. Determining the appropriate capital to labour ratio then becomes a notoriously difficult task. It is compounded by the need for aggregation (using prices in this case, but without depreciating the tractor stock in any way). Furthermore, the pooling of the data across countries suggests that great care needs to be taken in deciding which set of prices to use. It is unclear whether domestic and international prices coincide in this case, how exchange rates affect the situation, and what has finally emerged. There is considerable variation in the capital to labour ratios between corn, on the one hand, and sugar and tobacco, on the other, which does not seem entirely plausible.

In addition, my doubts about the data have to be taken in conjunction with some confusion over the econometrics. Pooling of cross section and time-series data collected from several countries is, in principle, a useful method of

<sup>3</sup>University of Siena.

providing enhanced understanding of underlying phenomena, though in this case there are problems over the use of dummy variables to identify countries and years. I cannot immediately grasp their importance in the results which have been presented – they may be explaining ‘too much’. In addition, some of the variables (foreign aid and the inflow of direct investments, for example) might have been introduced with greater time lags since their impact is unlikely to be rapid even under the assumptions made in the specification of the recursive system. Hence, while commending the attempt to answer difficult questions about a central trade theory issue, I remain doubtful about the extent to which the conceptual framework has been satisfactorily linked to the empirical testing.

*Vinus Zachariasse (Holland)<sup>4</sup>*

The description of the success of the ‘green revolution’ in Asia given by Otsuka and Delgado is correct. The introduction of MVs, promotion of fertilizer use and ongoing adaptive research in relatively homogeneous rice producing areas have been conducive to the quantum leaps in Southeast Asia’s major staple food production. Everybody remembers that only two decades ago India was considered to be an area with severe problems.

Despite the past success, the authors do correctly state, in their section on the ‘green revolution’ and equity in Asia, that rice yields have recently been stagnant. They claim that this is caused by low prices (which they advocate as a central message for Africa) and, more importantly, the declining productivity of rice research. In my view, there is possibly an even more important reason for the declining yields which should not be ignored, especially if lessons are to be learned for Africa. The ‘green revolution’ has largely been a nitrogen revolution. Enormous results were achieved with urea, which is reflected by the huge imports, both donated and commercial, and the expansion of production capacity in countries such as Indonesia, Pakistan, India and Bangladesh, which has become a urea exporter. This situation has led to massive unbalanced fertilization which depleted the soils of other nutrients, notably phosphorus, but in some areas also micro nutrients such as manganese and zinc. FADINAP, the Fertilizer Advisory, Development and Information Network for Asia and the Pacific, has therefore taken multi-nutrient balanced fertilization as its central issue. Also organizations such as IFDC in Bangladesh are now promoting the use of compounds. Moreover, the efficiency of urea, broadcast on wet rice lands, is rather low, hence the many experiments with regard to deep placement of urea prills (injection) and (super) granules. Even so, it remains true that the (semi-) dwarf varieties have greatly reduced the organic materials available for the soils. Deforestation and lack of feed, which are poverty-induced phenomena, have also led to a declining organic matter content of the soils; hence an important medium for fertilizer efficiency is being depleted.

<sup>4</sup>Agricultural Economics Research Institute, The Hague. Frans Makken of the Ministry of Foreign Affairs assisted in the assembly of material.



In the same section the authors assert that low rice prices induce diversification, which is hailed as a mitigating effect for farmers and labourers in low-potential areas. Although they list the production constraints for producers in the latter areas, they are optimistic that these farmers can compete with their colleagues in high-potential areas in non-rice crops. In reality, the high-potential areas are well watered and fertilized and thus also have many advantages for non-rice production. A clear example is Java, Indonesia, where rice self-sufficiency led to the compulsory growing of one 'dry' crop (Palawidja) in rotation with rice. This, to my knowledge, has in no way benefited the rather dry eastern part of the island. Though I make these qualifications, the conclusion of the section that a more decentralized and coordinated technology development is called for in Asia, with special attention for biotechnology, is nevertheless valid.

In the matter of the questions raised for Africa, and particularly whether its variable high-potential environments can nurture a 'green revolution' comparable to that of the Asian rice story, I agree with their depiction of Africa's problems. However, I think it is important to add that the African continent is much more sparsely populated, which means that markets are relatively small, that inputs and outputs have to travel long distances, and that the need for intensification has so far been much smaller. In other words, for poor farmers extensification and soil mining is for the time being a more realistic short-term option. Even more prosperous farmers, such as the cotton growers in Mali, use their fertilizers in a rather extensive way. The conclusion must be that targets for 'green revolution' in Africa will be harder to achieve, will be more scattered, will involve a more varied cropping pattern and will involve more political trade-offs, based on the ethnic income distribution impacts of regional priorities. It is a wide spectrum of critical factors in different combinations that hampers development, by region, in Africa. We have heard similar views in the paper by Dunstan Spencer and Ousmane Badiane who stressed the differences in infrastructure and an enabling investment climate between the continents.

There is a 'strong' conclusion at the end of the section on whether an Asian-style 'green revolution' can be led by non-food commodities that there should be marked complementarity between food and non-food sectors in Africa's semi-open rural economies. This has an obvious element of truth, though I fear that this complementarity exists predominantly *within* the high-potential areas and that the low-potential areas can only with great difficulty benefit from prosperity in these fertile areas. We may assume that the authors have probably reached the same conclusion if we look at their next question about the future for low-potential areas if technological change occurs in the high-potential zones. As was the case for Asia, the authors count on the trade opportunities between high- and low-potential areas to mitigate welfare differences. At the same time, they point out how difficult this is, even when the government does not intervene in trade relations. The key is raising purchasing power in the low-potential areas, to allow access to cheap maize produced in the high-potential areas. Unfortunately, there are a host of problems impeding such a development path. First, hybrid maize has poor storability, is susceptible to insect attack and has, according to many (rural) Africans, a poor taste. Also maize is not everywhere a preferred staple. Second, an influx of cheap food

grains into low-potential areas may kill incentives to produce for the market, or prevent farmers from buying inputs. Third, the very low wage levels in low-potential areas and the weak returns to labour in farming have driven many able-bodied men to urban areas; hence labour-intensive farming practice may not even be a realistic option. Yet the authors expect that prosperity in high-potential areas will spill over through free trade. In fact, in the vast low-potential areas of Africa, with their harsh conditions, where farming is an extremely risky, low-paid business, and where population pressure is mounting on soils with a very low carrying capacity, trade can only prosper when output prices allow investment in soils, inputs and, eventually, agrobased industries and services.

This is vital with respect to the authors' 'central message'. They are basically right when they make their plea for stable and low food prices, based on high productivity and allocation of production factors on the basis of regional comparative advantages. But the big question that needs answering is how to arrive at such a situation. What are the roles of the private sector and the government, the donor community and researchers? Intensification in high-potential areas and diversification in low-potential areas may be the key, but the authors correctly imply that for Africa there is no single key, rather a bunch of keys for every region. The authors do not elaborate on this bunch of keys. I have the feeling that they are expecting too much from the strategy of intensification of development in the high-potential regions. Unlike the case of Asia, the main strategy should be focused on tailor-made solutions for the individual, in natural and economic production circumstances which are very different. In addition to natural and economic factors, there are also different social and cultural patterns in the many regions of Africa which should be taken into account to a greater extent than the authors seem to do, particularly as they are probably more complex than in most parts of Asia. The risk factor is also very important in the behaviour of farmers. Their way of thinking, deciding and acting has to be taken into account and, if possible, has to be brought into line with the potential directions for development of each region. In short, the emphasis put on the human factor in many of the contributions of this congress is missing in this paper. To a certain extent, higher productivity, which is the essential element in the authors' message, may be bought through adopting modern varieties and applying inputs such as nitrogen. However, a higher productivity level is realized by doing things better and more intelligently. This has to be acquired by learning, and that is quite different from buying physical inputs.

*P. Halmai (Hungary)<sup>5</sup>*

In the absence of J.S. Zegar, his paper on 'The Impact of Economic Transformation on the Development of Rural Areas in Central and Eastern European Countries' was presented by the scheduled discussion opener, who then participated in the floor debate. This was largely concerned with the risks associ-

<sup>5</sup>University of Agricultural Sciences, Budapest.

ated with the privatization of agriculture. Uninhibited privatization might lead to polarization, with a narrow entrepreneur stratum becoming rich and large groups of rural people being impoverished, which in turn would sharpen social tensions in rural areas. There are some indications of this occurring in East Germany. On the other hand, excessive fragmentation of the land and the establishment of dwarf farms would be accompanied by a deterioration of the competitiveness of agriculture, which appeared to be a danger in some Baltic states. Possible solutions could be the establishment of market institutions which are currently absent but which should allow purchase and sale of land, and particularly initial support to the acquisition of land by individuals employed in farming. It would also be useful to focus effort on small-scale rural development projects which would include non-agricultural businesses capable of absorbing rural labour, thus curtailing migration from farming areas.

*Caroline G. Hoisington (Holland)*<sup>6</sup>

Rekha Mehra's contribution on the role of women farmers in increasing agricultural productivity usefully covers a great deal of ground, and its argument is clear and compelling. Nonetheless, I had one big disappointment in reading it. As far as the content goes, it could have been written as much as 10 or 20 years ago. The reason for this does not lie with the author; it is a function of the gender situation which is fully reflected in the telling observation, at the start of the paper, about women being a large and significant group of farmers who, so far, have been relatively neglected in attempts to raise farmer productivity. In my experience in field work, this statement is largely true.

Research shows that the marginal product of women's labour is generally lower than that of men, a feature which Mehra suggests is due to differences in endowment and access to resources, and not technical efficiency. Other writers have recently pointed out that a number of complex relationships exist whereby asymmetrical arrangements built around gender can also cause markedly adverse environmental effects. There are examples of women being unable to sell animals when drought begins (with predictable results) and others where women were not allowed to plant trees because they were not owners of land, and tree planting – which would have had environmental benefits – was considered an act of asserting ownership.

I would like to suggest that the degree of effort required to reach women farmers should not be underestimated. A large part of the problem may be the bias of technical assistance experts from northern cultures, combined with the similar biases of public-sector managers in developing countries. Since most of these people are men, it has been easier for them to deal with men! It seems to me that, in order to reach women, it will be necessary to treat them as a separate group of farmers, with it being very likely that female extension agents and credit officers will be needed to work with them.

Mehra argues that, in order to realize the possible gains in women farmers' productivity, policy makers, donors and programme personnel should (1) re-

<sup>6</sup>Euroconsult (Netherlands).

cognize when women are really farmers and treat them as such; (2) take the needs of women farmers into consideration when designing projects; (3) make agricultural extension services available to women farmers, most likely by hiring women extension agents; (4) make improved technologies and inputs available to women farmers; and (5) improve women's access to credit. I fully agree and suggest that we should all, in the field, and as researchers and advisors, be seizing the opportunity to take up these suggestions.

Chairpersons: Theodore Dams, Peter Hazell, Ewa Rabinowicz.

Rapporteurs: Masayoshi Honma, Awudu Abdulai, A. Dubgaard, J. Kirsten.

Floor discussion: J. Freebairn, J.-M. Boussard, P.K. Mishra, D.G.R. Belshaw, F. Johnson (2), D. Byerlee, Ellen Hanak Freud, M.A.J. Moll, J. von Braun, U. Koester (2), S. Hildebrand, Maria Chonquila, J. Riddell, N. Gakonyo.