



# *Syarah* **INAUGURAL**

LG  
396  
P4  
S981  
no.5

oleh

**PROF. DR. ARIFF BIN HUSSEIN**  
Dekan, Pusat Pengajian Siswazah  
Universiti Pertanian Malaysia



# CHANGING ROLES OF AGRICULTURAL ECONOMICS

By

Mohd. Ariff Hussein, Ph.D.

## Introduction

Not so many years ago universities around the world were generally the most pampered institutions on earth. Governments showered them with money. They were seen by right wing governments as engines of economic growth, by left wing governments as engines of social equality, and by citizens in general as avenues of social mobility. Economists such as Lionel Robbins had argued that universities have discovered the secret of growth; the more a society invested in higher education, the faster the economy grew, the faster its economy grew, the more it could invest in higher education.

This mood has now changed and in some countries in the developed world it has vanished altogether. Universities are on a defensive everywhere, under pressure from governments and worried about losing grants and influence. Academics are becoming less central to intellectual life. Many years ago universities had almost a monopoly over the life of the mind, providing policies for governments and breakthroughs for industries. Governments nowadays increasingly look to think-tanks for advice. Banks employ economists to advise them on how to make more money. Firms producing consumer products employ sociologists to analyse changes in consumers' tastes and preferences. Private entrepreneurs are seen to be much better and quicker in terms of their response to changes occurring in society and at market place. Most universities are still mired in the public sector in spirit if not in fact. Terms of employment and cumbersome decision making process mean the universities are seen to be much better at conserving old courses and programmes than they are at inventing new ones.

The result of this is that governments everywhere are bent on university reforms. They are considering everything from funding mechanisms, teaching methods, research priorities and even promotion criteria. Universities are subject to quasimarket approach linking funding to performance. To cut costs new types of higher education have been experimented. Part time programmes which allow students to combine work with study are increasing and are very cost effective. So is distance learning or off campus



programmes which enable people to work for degrees without ever setting foot on campus. Twinning programmes too are getting very popular.

To increase revenue universities have diversified their sources of funding by marketing their research results, improving their relations with local industries and charging higher fees.

Universities are introducing tighter management, treating academics like employees rather than gentlemen scholars, paying star salary to star performers.

What relevance are these to agricultural economics? If universities as social institutions have to adapt and respond to changing circumstances so too the disciplines within it and those who profess in the disciplines. Agricultural economics and agricultural economists are no exceptions.

To discuss the changing roles of agricultural economics and agricultural economists, I have organised my lecture into three parts. In the first part I will discuss changes that are taking place in the agricultural sector around the world including our own and their relevance to the discipline of agricultural economics. Secondly I would try to elaborate what agricultural economists as professionals and agricultural economics as a discipline can and must do in response to these changes with respect to their professional responsibilities, research, teaching including public service. In the final part I will try to say briefly what the future will hold for us as agricultural economists.

## **Changes in Agricultural Sector**

*Perestroika* is not dead after the collapse of the Soviet empire. It is certainly alive in agriculture. Structural changes in agriculture however is nothing new, it happens here in our own agriculture as it does in agriculture around the globe.

But what is different about recent changes in the agricultural sector is that one is hard pressed to identify another time in the history of agriculture when there are so much changes occurring so rapidly both outside and within the sector that have affected the very survival and livelihood of the sector and those whose livelihood depends on it.

Our own agricultural sector for example faces chronic problems that seem to defy almost all solutions, attempted so far. Acute shortage of labour, idle land, aging labour force, slow transfer and adoption of technology, uneconomic farm size and stagnant



land and labour productivity, are among the major ones. The mood is one of sombre and perhaps hopelessness. Politicians don't talk about it anymore and even UPM intends to shed its agricultural image by trying to change its name.

But as the saying goes, where there is change there is always opportunity. Let's look at what are the changes that are in store for us and how we should adjust to seize on the opportunities created.

If we look at traditional agricultural policies around the world including our own national agricultural policies and other policies that preceded them we will find that the focus has always been on price and income policies. There are strong indications to show that in the future as we enter into the 21st century other factors other than price and income, notably changing public attitudes, consumers' tastes and preferences, international environments and technological developments are going to be the more important factors shaping national agricultural policies around the globe.

## **Personal and Health Concern**

For health reasons, people are increasingly interested in, and concerned about what is in the products that they eat, use and wear; and the practices employed in the production of those products. People are also taking a wider concept of food to include medicinal uses. They are also concerned about agricultural production, and processing and management practices such as the use of chemical inputs, animal confinement system, processing technologies that prolong the shelf life of perishable foods and management practices that are inconsistent with sustainable management.

The amount of meals and food eaten out of the home environment, in restaurants and other eating places is increasing and is an important factor influencing the types of food consumed.

These concerns together with the changing life styles are critical factors affecting food consumption patterns and their impact on food demand and food policy need to be fully understood.

The public view of the role of the farmer is also changing. Farmers are no longer looked upon as only providers of food and other agricultural products but also as custodian of our important natural resources such as land and water. They may use these resources but they do not have unlimited exploitation rights. Translated into policy, it means that there will be less support for production and productivity related policies. On the other hand there will be more support for policies on sustainable agricultural system.



## **Global Environment**

In the global scenarios two important factors that affect agriculture will come to play. The successful conclusion of Uruguay Rounds of GATT negotiations will eventually lead to lower trade barriers and greater market access in the world agricultural trade. But at the same time, environmental and personal health concerns may lead to trade barriers based on those concerns. In the long run it is however likely that countries would reach a compromise between the two and come up with standardised regulations on environmental, health and safety concerns that everyone has to observe.

Being part of an international economy, as in the past, our commodities will be subject to the vagaries of the international commodity markets. Other countries' supply and demand conditions and their macroeconomic policies will affect the trade conditions between us and the rest of the world. Volatility will continue and may become more intense. With tariff walls coming down competition for our commodities both at home and globally will increase. New markets and potential trading partners need to be continuously identified.

## **Technological Change**

Not long ago there was concern that the paucity of new technologies in agriculture would adversely impact agricultural production. Now most would agree that new technologies in agriculture are no longer in short supply. A wide range of biotechnology and information technologies are now available for use in agriculture and potentially there could be more technological and informational changes in agriculture which could completely revolutionise animal and crop production, marketing and decision making processes. What is different is that much of the research on biotechnology are done in think-tank type of environment with substantial support from the private sector. The emerging biotechnologies and information technologies are very cost effective compared to past technologies which require large investments. They also tend to effect change over a short period. Thus they have the potential of producing large and rapid expansions in agricultural output resulting in substantial social and economic impacts.

The combined impact of changing consumer's attitude, taste and preference, production and information technologies could cause major changes in agricultural production, processing and marketing. Forward contracting and vertical integration in the food



system may be the norm as processors, wholesalers and retailers move to assure themselves of consistent supply of a product with specific characteristics. Bulk marketing of homogeneous products may give way to specialised marketing of identity preserved products. Such developments are bound to have far reaching implications for many current agricultural policies.

## **Agricultural Industrialisation**

One important lesson that we can learn from these developments is the need for flexibility and broader outlook in our view of agriculture vis-a-vis the rest of the economy. What we think of agriculture today may no longer exist in the future. In its place will be agricultural industrialisation where agriculture not only produce food as end products but also products for industrial, chemical, medical and pharmaceutical uses. Industrialisation is a process by which production of goods utilises increasing levels of capital and technology. It is a process where consumers' wants and needs are fed back into a production and distribution system to provide desired quality, availability and price. Industrialisation also means a management system which integrate each step in the economic process to achieve increasing efficiencies in the use of capital, labour and technology. What we will eventually have is a production process of our agricultural commodities especially food commodities becoming part and parcel of an industrialised food system.

Recent developments in western agriculture in the production of identity preserved products are testimonies for the industrialisation process. Identity preserved products are like brand names in marketing jargon where a new product having unique characteristics is given a kind of monopoly right. They are targeted to meet specific requirements and needs of consumers. Examples of these products are BETTER LIFE<sup>TM</sup> certified as having been produced grains without the use of chemicals; brand name fruits having distinctive form and colours; and unique products for meat, eggs and poultry.

The management of identity preserved products manufacturing requires an industrialised structure. Each step must be integrated into a system. Producers at the front end of the system must meet exacting standards. Uniformity and predictability are keys to efficient operations. And they can only be achieved through the industrialised structure. Compared to the cottage industry or individual autonomous farming units, the industrial structure is a much more efficient utiliser of capital labour and technology. Capital which is risk averse will prefer the manufacturing operations that link production to marketing than the autonomous producers. Industrialised system will adopt technology



at the much more rapid rate than the individual producers. Traditional technology transfer processes between researchers and farmers is no match to an industrialised system.

Family farms of the future will be tied to a more stable system of production as they are part and parcel of the industrialisation of agriculture. They are in much better position to cope with the cyclical nature of commodities, to attract capital and technology.

Industrialisation will have the effect of stabilizing farm income and create employment for rural workers that are commensurate with urban standards. The industrialisation process should ensure rural areas remain populated. It will attract young people back to agriculture.

The impact on agricultural policy will be very significant. Farmers risk sharing which now depend much on government policies and programmes will in future depend on their link to the industrialised system.

In essence total quality management as seen in the Deming Method or the so-called Japanese management must come to agriculture as it has come to so many firms in the past.

The management complexity of this new agriculture (Pertanian Baru) also opens door for the business of education. Undergraduate education must be prepared for the management environment conducive to industrialised agriculture. It must include management of technology, team building in a contractually integrated system and decision making in an information intensive field. More specialised graduate programmes are needed for different specialised parts of the system. Continuing education for managers will be essential to stay competitive and well informed of latest developments.

These developments seem far removed from us, its too far into the future for Malaysian agriculture. May be. But with our country being fully committed to industrialisation, and to achieve fully developed nation status in 2020, I believe we can at least start thinking about it now. Certainly we would not like agriculture to be a spectator in the industrialisation process, we want agriculture to be an active participant.

Agricultural economists have an important role to play. It would be interesting to dwell on what we can and should do to cope with these changes and to position ourselves to take advantage of the opportunities created. I believe the future of agricultural economics as a discipline will be shaped by its response to these changes.



## Changing Roles of Agricultural Economics

Agricultural economics as we know it today have its roots in the German speaking countries in Europe where early in the 19th century the individual farm enterprise was studied. In United Kingdom and France these studies tended to remain as part of the general science of economics. The idea that a farm enterprise forms a unit affected by location and market forces started in the 19th century. In the 20th century it was supplemented by the theory of optimum utilisation of production factors. Further refinements came about through application of modern accounting methods. In the United States research into management problems of the farm was pursued. After the World War II mathematical planning system, originally developed for military purposes, and statistical computation of farm enterprises data helped improve further the understanding of farm managerial problems. Subsequent developments of efforts to understand further the behaviour of the farm and the farm managers and other works done by agricultural economists in general are certainly quite familiar to agricultural economists.

As a professional grouping it is true that up to 1950s agricultural economists are a group of agriculturists who are economically minded. But since then they have evolved into professional economists interested in agricultural and related matters. The list of related matters seems to keep on increasing as the discipline tries to adapt and respond to changing social agendas. Now agricultural economists are concerned with a wide range of issues and subject matter. They include farms, food, agricultural raw materials, rural communities and institutions, economic growth and development, natural resources and the environment, international trade, and public policies of all kinds.

To reflect changes in the kinds of work undertaken by agricultural economists, the name of the Agricultural Economics Association has also evolved. In the United States, where the association has provided leadership role in the development of the profession, in particular after the Second World War, it has changed its name twice, once in 1919 from Farm Management Association to Farm Economics Association and second was in 1968 from Farm Economics to Agricultural Economics Association. It is now grappling with another exercise of trying to change its name but this time it is not as clear as before. A number of names have been suggested but none has been agreed upon. All candidates seem to be imperfect substitutes.

As I have indicated above, agricultural economics as a discipline has been responding to changes occurring within the agricultural sector and in other sectors of the economy. And current development affecting agriculture in particular agricultural



industrialisation will further induce the discipline to change its focus of research, teaching, public service/extension, and decision-making activities. A major challenge however is to be able to provide reasonable stability while adapting to these changes.

Agricultural economics has been described as an empirical science based on a balanced emphasis of (1) economic theory, (2) statistical and other quantitative management techniques, and (3) data. It is like a three legged stool that has supported the empirical tradition in agricultural economics. It is this three legged stool that has provided agricultural economics the needed stability when it adapted to changes in the past and certainly we hope it will not fail us when we endeavour to make further adjustments and adaptations in response to changing circumstances.

## Research

In spite of the relative decline in the size of agricultural sector, agricultural economists have increased in number. This is consistent with the broadened views that the discipline had adopted. Every time there is a change, agricultural economists have been able to seize on the opportunities created that are within their professional capabilities. From the stand point of research, agricultural economics has evolved from applied problem solving interests to a more mature disciplinary, subject matter, problem solving paradigm. Agricultural economists are no longer just farm economists of the yester-years, viewing microeconomic analysis and advice for the farm firm as a sole domain for their professional contributions. They have increasingly moved away from just discussing farm issues to issues beyond the farm gate involving consumers, taxpayers and the public and general analyses at appropriate levels - local, state and international.

The progress that the agricultural economics profession has achieved in research and in the development of economic theory and quantitative analysis is certainly very impressive. Our capability and capacity for evaluating consequences of policy options, assessing expectations in markets, and building simulation models for management are greatly enhanced by this progress. At the same time as a consequence of this orientation there has been a dilution in our wisdom and understanding of agricultural institutions. A good example is marketing, agricultural economists know very little about the marketing system beyond the commodity markets. They are most ignorant in the areas of the distribution system where most of consumers spent their money.



What economists call a market is in sharp contrast to the views of the business community. From economic perspective, market connotes an arena where buyers and sellers jointly determine the value of goods, services and ideas through exchange. By the way in 600 B.C. market was defined as a place set apart where men may deceive one another. To economists, markets operate under perfect competition where prices equilibrate given time, place and form utilities. Marketing then is the process by which goods, services, and ideas flow from production to consumption. As such, economics becomes primarily concerned with the performance of a system and the structure and organisation that influence such performance. Using economic efficiency as a criterion, economic perspective of a market gives rise to conceptual framework, designed to evaluate the impact on social welfare of decisions made by participants in the system.

By focussing on system performance and making basic assumptions about firms behaviour, the economic perspective misses altogether the actual behaviour of the firm i.e. the firm's actual decision making process. The approach is useful for public policy but not directly for firm managers and owners. To be of useful service to decision makers in the industry while continuing to analyse market performance agricultural economists must acquire knowledge and understanding of firm's behaviour. The need becomes more urgent in an agriculture which is fully industrialised where market imperfection is the rule rather than the exception and strategic behaviour of firms are important.

Such tools are already quite developed and are readily available in business management sciences. From business perspective as given by Kotler the key concept is market management which is a process of planning and executing the conception, pricing, promotion, and distribution of ideas, goods and services to create exchanges that satisfy individuals and organisational objectives. The task of the firm then is to coordinate these activities such that its goals are achieved. It focuses on producing information for managers rather than for public policy makers.

Agricultural economics invented econometrics and were pioneers in applied economics long before other economists were serious about it. With these, agricultural economics develops and matures, and then comes the inevitable specialisation. Everyone specialises these days but too much specialisation can be counterproductive and may not even useful. The audience for most agricultural economics publications, in particular journal articles, are increasingly not even fellow agricultural economists, let alone policy makers and certainly not farmers, but a handful of fellow specialists.



Specialisation, to some extent, has been defended on erroneous economic argument. Specialisation in itself is not good. As Adam Smith says "Consumption is the sole end and purpose of all production; and the interest of the producer ought to be attended to, in so far as it may be necessary for promoting that of the consumer." There is no point piling stock of agricultural commodities if we are not going to sell it some day so that others can enjoy the fruits of our specialisation. The argument is not against specialisation per se but against failure to trade. As economists we believe in gains from trade and the trade in intellectual life is the ability to read, understand and use other peoples work for your own.

There is increasing evidence that new ideas in economics are not so much the result of specialisation but more through constant trading with the rest of the intellectual world. We cannot just depend on Census of Agriculture, Department of Statistics, and Ministry of Agriculture and ignore what we know from agronomy, rural sociology, life in the farm, law, business and society. As agricultural economists are well aware of production economics owes its origin from interaction with the science of agronomy. As society develops more complexity and sophistication, the need to be relevant and useful and to grow in strength over time, there is no choice but to trade with other disciplines and to learn from each other.

Trading with other disciplines will inevitably broaden our methodological thinking which now mainly still revolves around a philosophy of science of 1930s in Europe - the scientific method. Almost all agricultural economic journal articles have the standard model, followed by empirical testing almost invariably using regression analysis. The focus on regression analysis has let to many agricultural economists and students of agricultural economics to believe that the word empirical to mean regression analysis and nothing else.

The concern for publication is understandable and this most probably is the main reason for such development as academic journals now increasingly is looked upon as agents to establish professional credentials for promotion rather than trying to solve society's problems. It is much easier to apply standard solution frameworks to available data set than to identify important problems in society that require the development of new frameworks. However, if we are not careful we might end up with becoming methodological mechanist not knowing what is going on in the agricultural sector or the real world in general.

There should be more balance in our research undertaking between disciplinary, subject matter and problem solving research. This may be another three legged stool that we may need to preserve and sustain. I am a great believer in research that is useful



to society. Even theoretical research can have social utility if its objectives are clear and relevant.

## Teaching

The need to infuse agricultural economic profession with new ideas that relate to the major value added parts of the agricultural system is as great if not more so in teaching than in research. This is where our future professionals are trained. The growing market segments must be identified. Agribusiness or agroindustrial economics is a major growth area now and more so in an industrialised agriculture.

In this respect, in Malaysia and in UPM in particular we have done pretty well. We had agribusiness programme back in 1974 long before the recent euphoria about agribusiness programmes in the Western world in particular in the United States. In fact we were the first among local universities to have a business programme. Although some may not agree with the business management bias of the curriculum, it serves its purpose and also flexibility in meeting the requirements of the employment market. The only weakness perhaps is that the academic programme is not backed up by strong research. Although its unfortunate but no one is to be blamed. Nobody was serious about research in those days anyway. Of course things have now changed. Research fervour is evident everywhere intensified to some extent by SSB. Only a handful are serious about teaching.

Are we in danger of moving toward the other end of the pendulum? We owe heavy responsibility to taxpayers to train their kids well. A renewed emphasis in teaching for academics continues to develop in universities around the world. Recent evidence has shown that increasing teaching emphasis does not appear to be coming at the expense of research or public service. Instead academic staff are able to maintain their other scholarly outputs and do a better job of teaching in the process.

Of course the verdict is not out yet as to whether or not the rewards and incentive structures of universities will be substantially changed to place relatively greater emphasis on teaching productivity.

Back to agribusiness, the move by the Faculty of Economics and Management UPM to house agribusiness in agricultural economics department is I believe a good move. At the very minimum it will strengthen research in agribusiness. Of course it will require retraining of staff but it is no big deal. Additional basic business courses however, I feel should be added to the existing



programme. These may include strategic market planning, labour and human resource management, and international food distribution system.

It is also important that we design our undergraduate programme to prepare students for leadership positions and to achieve this there must be a substantial shift toward management/marketing orientation. Currently agricultural economic programmes train students not to be managers nor marketers. They are meant more for graduates to be analysts and explainers. A leader must know how to make things happen, not how to explain what would happen. Of course there are always a group of students to be trained to focus on the scientific aspect of the discipline concentrating on theory and quantitative analysis. A survey of agribusiness firms designed to elicit required competencies of agribusiness graduates revealed that overwhelming weight was given to interpersonal characteristics and communication skill. This should also be noted in designing curriculum for agricultural economics and agribusiness programmes as they are important ingredients for good leadership.

Much of traditional agricultural economics is production economics and price analysis. They provide the conceptual framework for farm management, commodity marketing and policy analysis. But production economics and price analysis do not give us the basis for consumer behaviour and product marketing. The development and entrepreneurial aspects of product marketing and management are based on different conceptual framework. Despite the usefulness of production economics and price analysis in analysing public policy and decisions, it cannot be used to effectively analyse firm level and product level management and marketing decision. The latter must relate to different sets of principles and concepts.

## **The Future**

The future for agricultural economics is bright as the demand for applied economics is rising. This is clearly indicated by recent US survey of graduate education in Economics. Correspondingly dissatisfaction with general economics was also made clear in the report due to its lack of pragmatic and applied experiences.

The push for multidisciplinary and cross-disciplinary research also means that applied work will be more attractive from funding agencies point of view.



Many of the issues that are familiar to agricultural economists such as resource and environmental issues, concerns for food safety and personal health, sustainable development, trade policy and international agreements and poverty are also emerging as crucial either domestically or to the global economy.

The general ability of agricultural economics to adapt and to respond to changing social agendas as already proven many times in the past means that it could seize on the many opportunities created by an industrialised agriculture.

Bright prospects and commendable achievements in the past can however lead to complacency and with complacency many things can go wrong.

While trying to maintain practicality and relevance agricultural economists must not neglect the theoretical core of micro and macroeconomics. It is important that they maintain an operational knowledge of today's economic theory, seeing it as economics and not as matrix algebra or set theory.

In eagerness to publish in refereed journals the tendency to develop into methodological technicians are great. They should be a balance between disciplinary, subject matter and problem solving research. Every profession needs inventive and adventurous thinkers and they should be encouraged and not stifled. Repetitive and unconnected application of new estimation techniques may have the trapping of scientific rigour and getting published as journal articles but are less useful in solving social problems.

The discussion and analysis so far points to the fact that the traditional applied orientation of agricultural economics continue to be relevant and useful in the future and in industrialised agriculture. As it does so the profession will become more diverse. Can it still be called agricultural economics? Probably not. The name does not matter. As long as we can keep the three legged stool sturdy and firm, ready for rough scientific adventures and no quarrelling among the legs our future is pretty safe.



## References

- Christy, R.D. "Economic Correctness and Agricultural Economics." *J. Agr and Applied Econ.* 25 (July 1993): 1-13.
- Havlicek, Jr., J. "Megatrends Affecting Agriculture: Implications for Agricultural Economics." *Amer. J. Agr. Econ.* Dec, 1986: 1053-63.
- Houck, J.P. "The Comparative Advantage of Agricultural Economists." *Amer. J. Agr. Econ.* Dec. 1992: 1059-65.
- Johnston, W.E. "Structural Change and the Recognition of Diversity." *Amer. J. Agr. Econ.* Dec. 1990: 1109-21.
- Manderscheid, L.V. "Undergraduate Educational Opportunities in the Face of Declining Enrollments." *Amer. J. Agr. Econ.* Dec. 1988: 985-93.
- McCloskey, D.N. "Agon and Ag Ec: Styles of Persuasion in Agricultural Economics." *Amer. J. Agr. Econ.* Dec. 1990: 1124-29.
- Padberg, D.I. "Agricultural Economics: Finding Our Future." *Amer. J. Agr. Econ.* Dec. 1987: 883-9.
- Smith, Adam "An Inquiry into the Nature and Causes of the Wealth of Nations." Edwin Cannan (ed.) Chicago: University of Chicago Press, 1976.