THE SOCIOECONOMICS OF AGRICULTURE

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Summary

The socioeconomic aspects of agriculture cover a wide range of situations. The main differentiation, however, is between the developed and underdeveloped worlds, through a continuum of intermediate situations.

The extremes of developed and underdeveloped agriculture present different scenarios of:

1. Geopolitical relations (globalized agriculture to subsistence);

2. Agricultural policy (founded on environmental aspects and subsidies for cultivation to measures for increasing production, agricultural colonization and rural reform);
3. Social and labour significance of agriculture (ranging from more than 70% to only 2% of the active population);
4. Poverty and quality of life (from alleviation of poverty to equalizing the quality of life between rural and urban populations); and finally
5. The mission of agriculture: production of food or gardening the countryside.

All these aspects and many more are present in each agricultural system. The operative units of organization have different scales of grouping, mainly, from the farm to the national level.

1. Introduction

Agriculture is an 'umbrella' term that refers to the result of different associations between people, plants and animals. More strictly, it can be considered as an activity that has a series of final objectives mainly related to the production of different products: traditionally food produce, fibres or raw materials for industry that are generated by controlled animal rearing or cultivation of crops.

Historically, agriculture developed to cater for human needs and mainly to the food requirements of people. Since the 1960s, however, it has had other objectives such as: conservation of the landscape, land preservation and other activities that respect the environment and its natural resources.

Since the earliest stages of agricultural production, agriculture has been an economic activity. However, as this is the most extensive form of human land use, it also has important implications for other uses of land and the conservation of natural resources. The main distinctive features of agriculture are as follows:

- The existence of numerous production units. Land dedicated to agricultural production can be subdivided into a large number of units of different surface area.
- It involves a large number of individual businessmen each with relatively independent decision-making processes.
- Agriculture produces a wide range of products.
- The biological nature of the produce is conditioned each year by variations in the climate. This makes agriculture a high-risk activity.

Agriculture employs a large proportion of the economically active world population (between 35 and 40%), but these data vary greatly from one country to the next. In developed countries, less than 10% of the active population work in agriculture.

2. Socioeconomic agricultural system

A socioeconomic agricultural system can be defined as the operative economic, social (or family) and management unit of agriculture. These units can vary greatly in size and

complexity from small businesses to regional or even national agricultural systems. The term agricultural system, therefore, does not imply any specific size or level of organization. The farmer, in accordance with certain natural, economic, cultural and social factors organizes his work and production in the context of a business. A farm is often the combination of several businesses. Different agricultural types have been identified that correspond to the dominant and secondary kinds of agricultural business developed on an area of land. The combination of several socioeconomic agricultural types in a wide area or region can form a more complex agricultural system. These socioeconomic agricultural systems are not mutually exclusive but are dynamic in a constant process of change.

The area of an agricultural system may not coincide with the geographical or political regions. Identification of the boundaries of an agricultural system has been one of the main concerns of several groups of experts. A large series of variables have been described to classify an agricultural system: type of tenancy and size of farm (e.g. percentage of common land, percentage of land on private property, size of the farm in relation to number of employees, output value or area under agricultural activity); employment of workers or capital (e.g. number of workers employed per hectare, number of tractors per hectare etc.); efficacy in the employment of inputs (e.g. productivity per hectare, productivity of work); degree of commercialization (e.g. percentage of commercial production), and types of crops and animals (see Table 1).

	Rural population (%)	**Labour force in agriculture (%)**	**Fertilizer use on arable land (kg nutrients /ha)**	**Agricultural production (Int. dollars) per agricultural worker**	**Per capita food availability**
Developed countries 1980	30	13	120	5,787	3,220
Developed countries 2001	27	11	83	10,334	3,260
Developing countries 1980	71	67	56	4,06	2,310
Developing countries 2001	59	43	110	672	2,680

Source: FAO. Summary of Food and Agricultural Statistics 2003. Own elaboration.

Table 1. Selected indicators of socioeconomic agricultural systems by developed/developing countries.

Agricultural systems are very much a human construction, and essentially the product of the West. Their practical relevance to measuring throughput and to the calculation of profit margins is of critical importance where the business side of agriculture predominates. However, approaches to agriculture are frequently very different in developing countries and especially on the dominant smallholder farms of Asia, Africa and Latin America where analysing agriculture in terms of agricultural systems has produced erroneous results. The following paragraphs give reasons why an agricultural systems approach may be of limited value in the analysis of agriculture in the developing world.

First, in the world's poorer countries of Africa, Asia and Latin America, frequently

dominated by smallholder farming, the keeping of detailed records is rarely given high priority by farmers.

Second, when agricultural systems form the basis of comparison between the West and the world's poorer countries, the results can be misleading. Yields of crops and animals from capital-intensive agricultural systems of the West are far higher than in developing countries. For example, average yields of maize (a crop grown across the world) are comparatively low in Africa where mean yields are around 2t/ha, while in the USA, they are closer to 6t/ha (FAO statistics, 2003). There is undoubtedly a direct link between outputs and inputs in the form of good quality seed, fertiliser, insecticide and pesticide, maintenance of the crop and post-harvest technology, and the West clearly appears to be 'ahead' on the basis of statistics. However, attempts to relate inputs to outputs in the system have revealed much that is interesting and far from straight-forward about agriculture in the developing world. In the first place, several crops may be grown within the same plot and so while the yield from each may not be particularly high, the overall yield from the plot in terms of crops produced can be higher than from a monocrop. The work of D.W. Norman (1972, 1974) in Northern Nigeria has been important in demonstrating this effect. Multicropping also makes the evaluation of inputs difficult. For example, assessing with accuracy the uptake of fertiliser by groundnuts in a field sown simultaneously with millet and cowpea is far from easy. Or, when evaluating agricultural output for a particular season, problems emerge with crops such as cassava or sugarcane, both of which may not be harvested in the season in which they were planted. Nor is evaluating the contribution of fallow to a system easily determined. Theoretically, there is no yield from fallow land, but it does represent an input into the agricultural system. It may not be harvested at all, or it might provide a small harvest in the way of hunted animals, honey or sticks of different dimensions for the support of plants. Such elements of farming are frequently ignored in data collection exercises which make the analysis of agricultural systems in the developing world questionable. Statistics may reveal that agricultural productivity is significantly lower in the world's poorer countries, and this may be so, but the data are not necessarily comparing like with like and readers should be aware of this (see Table 2).

Developing countries within the 10 countries with highest cereal yield, 2003.Cereal yield in kg/ha of arable land.	**Developing countries within the 10 countries with the lowest cereal yield.Cereal yield in kg/ha of arable land.**
Position 2. Mauritius 7,577 Position 4. Egypt, Arab. Rep. 7,244	Position 1. Botswana, 156 Position 2. Eritrea, 351 Position 3. Namibia, 400 Position 4. United Arab. Emirates, 414 Position 5. Niger, 417 Position 6. Somalia, 547 Position 7. Sudan, 600 Position 8. Angola, 606 Position 9. Libya, 631 Position 10, Chad, 697

Source:Adapted from World Bank. 2004.

Table 2. The position of developing countries within the countries with the highest and lowest cereal yields, 2003

Third, some of the crops may be multipurpose, so evaluating inputs and outputs over a period of time can be extremely difficult. Take the cashew nut, for example. Introduced into parts of West Africa this tree produces cashew nuts, astringent 'apples' which grow beneath the nuts and which are harvested to make wine, and prunings, the leaves of which can be used for mulch, and the sticks for firewood, although the wood does not have a high calorific value. Alternatively, cashew can be planted as a form of live fencing where, if left unpruned they grow dense and large, bearing some fruit, abundant prunings and have immeasurable value in keeping ruminants away from higher value crops such as vegetables. The very different uses for the same plant makes an assessment of average yields nonsense. Equally, the land may be multipurpose, and in the savannas where seasonality of climate is marked, land may produce crops in the rainy season and with regard to crop production may lie unused in the dry season. However, unherded animals may graze on crop stubbles at this time, providing benefit to the herders and to the land owners whose land will benefit from the dung. Again, such benefits are not quantifiable with accuracy.

It was through Farming Systems Research (FSR) that the highly complex nature of agriculture in developing countries began to emerge, and with this came increased understanding of the role of women in agriculture. Labour inputs are a key element in agricultural systems and it was not until the 1970s when the work of Ester Boserup, and then others revealed to the West that women were the main farmers in Africa. Assessing labour inputs in low technology systems is extremely difficult and until that time men were perceived throughout the world as being the farmers in Africa and Asia.

Fourth, different forms of tenancy can also greatly influence the value of what is produced in farming systems in developing countries. In parts of West Africa, for example, simply because there are fruit trees on a plot of land, it cannot be assumed that all the produce on that land is owned by the farmer. If, for example, a tenant plants a tree on a plot, then the fruit from this tree belongs to the tenant even when s/he has moved away from the village. Thus evaluating the output of produce from the land can be difficult. These examples are not to suggest that there are not equally significant complications in analysing agricultural systems in the West. They do, however, show that with significant differences in the character, management and objectives of agricultural enterprises in the West and the developing world, the problems of using the concept of agricultural systems is limited when drawing comparisons between agriculture in the developed and the developing world.

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Bibliography

Barnett,V.; Payne, R.; Steing, R. (1995) Agricultural sustainability: economic, environment and statistical consideration. Chichester, John Wiley and Sons.

Buller, H. (1992) Agricultural change and the environment in Western Europe. In Hoggart, K. (ed), Agricultural change, environment and economy. London, Mansell, pp. 68-88.

Carson, R.L. (1962) Silent spring. Houghton Millin. Boston.

Dufumier, M. (1987) Les politiques agraries. Paris, PUF. (In French)

Grigg, D. (1984) An introduction of agricultural geography. London, Unwin Hyman.

Hoggart, K. (1992) Global economic structures and agricultural change. In Hoggart, K. (ed) Agricultural change, environment and economy. London, Mansell, pp. 1-25.

Ilbery, B.W. (1985) Agricultural geography. A social and economic analysis. Oxford, Oxford University Press.

Ilbery, B.W.; Healey, M.; Higginbottom, J. (1997) On and off-farm business diversification by farm households in England. In Ilbery, B.; Chiotti, Q.; Rickard, T. Agricultural restructuring and sustainability. A geographical perspective. Wallingford, CABI, pp. 135-152.

Lebeau, R. (1979) Les grandes types de structures agraires dans le monde. Paris, Masson. (In French)

OECD (1979) Agriculture in the planning and management of peri-urban areas. Volume I. Synthesis. Paris, OECD.

Pesek, J. (1994) Historical perspective. In Hatfield, J.L.; Karlen, D.L. (eds). Sustainable agriculture systems. Boca Raton, Lewis Publishers, pp. 1-19.

Potter, C. (1998) Conserving nature: agri-environmental policy development and change. In Ilbery, B. (ed.) The geography of rural change. Harlow, Longman, pp. 85-105.

Raeburn, J.R. (1984) Agriculture: foundations, principles and development. Chichester, John Wiley and Sons Ltd.

Spedding, C.R.W. (1988) An introduction to agricultural system. London, Elsevier Applied Science, 2nd ed

Symon, L. (1968) Agricultural geography. London, G. Bell and Sons Ltd.

Winter, M. (1996) Rural politics. Policies for agriculture, forestry and the environment. London, Routledge.

Biographical Sketches

Angel Paniagua was born in Santander, Spain, in 1963. He obtained his PhD in Human Geography in 1990 from Universidad Autonoma de Madrid (Spain). He is currently Senior Researcher for the Spanish Council for Scientific Research of Spain (Consejo Superior de Investigacion Cientifica). During his academic career he has worked in several research centres, e.g. in London University (United Kingdom) and Amsterdam University (Holland).

During his scientific career he specialised in two main areas in relation to agriculture and rural space. Firstly, focusing on processes of rural reform and agrarian colonization in Spain, and, secondly, on processes of rural restructuring in southern Europe.

His main publications are:

- Socio-demographic repercussions of agrarian colonization in Spain (Ministry of Agriculture, Spain, 1992).
- Nature, agriculture and agro-environmental politics in Spain (Spanish Council for Scientific Research, 2000).
- The ageing of farmers in Spain, Revista Española de Estudios Agrosociales (Ministry of Agriculture,

Spain, 1989).

- Rural areas: fact, discourses or representations? A geographical perspective. Información Comercial Española (Ministry of Treasury, Spain, 2002) (in collaboration with the prof. K. Hoggart).
- Analysis of the evolution of farmers' early retirement policy in Spain. Land Use Policy (2000) (
- 'What rural restructuring?' and Rural restructuring in Spain? Journal of Rural Studies (2001) (in collaboration with prof. K. Hoggart).
- Agri-environmental policy in Spain. The agenda for socio-political developments at national, regional and local levels, Journal of Rural Studies (2001).
- Counter-urbanization and new social class in rural Spain: environmental and rural dimensions revisited. Scottish Geographical Journal (2002).
- Urban-rural migration, tourism entrepreneurs and rural restructuring in Spain. Tourism Geographies (2002); and
- A conceptualization of the farmer and the environmental dimension in Southern Europe. Mediterranean Journal of Economics, Agriculture and Environment (2004).

Angel Paniagua specializes mainly in the social and environmental aspects of rural change and agriculture, mainly in developed countries. Since 2000 he has been carrying out research on the adaptation of the rural restructuring thesis in southern Europe.

Kathleen Baker was born and brought up in India (1950-1960), but she emigrated to England for secondary education.

1971: Graduated from King's College London BSc, Hons in Geography, class IIi.

1975: Successful defence of PhD at the School of Oriental and African Studies (SOAS), University of London. Subject of thesis concerned the impact of Green Revolution technology on six villages of Bulandshahr District, Uttar Pradesh, North India.

1979- 2001: Lecturer / Senior Lecturer in Geography, SOAS, University of London.

2001 – present: Senior Lecturer in Department of Geography at King's College London.

Her specialist areas of study are agricultural change and development in the tropics, agro-ecology, and political ecology. She has worked extensively on West Africa, especially Gambia, Senegal and Mali, and on India, and has conducted extensive primary fieldwork in these areas. She is especially interested in smallholder farming and in the ways in which smallholder farmers adapt to changing circumstances, both natural and human-induced. She is currently re-visiting villages she studied in India for her PhD to investigate the impact of 30+ years of Green Revolution technology.

Recent publications:

Baker, Kathleen M and; Edmonds, Richard Louis (2004) Transfer of Taiwanese ideas and technology to The Gambia, West Africa: a viable approach to rural development? *The Geographical Journal*, 170 (3), 189-211. She is married with two children.

Jewitt, Sarah and Baker, Kathleen (forthcoming) (2005) Spatial agendas for decision-making in Jharkhand and Uttar Pradesh: the influence of place, class and caste on women's role in environmental management, in S. Raju (ed.) *Gendered Geographies: Interrogating Place and Space in South Asia*. Delhi: OUP.

Baker, K. (2002) *Rural development*, Study Guide for the BA and Diploma in Geography, University of London, External Programme. London: University of London Press.

Baker, K. (2000) *Indigenous land management in West Africa: an environmental balncing act.* Oxford: OUP.

Baker, K. (2000) Ecological possibilities and political constraints: adjustments of farming to protracted drought by women and men in the Western Division of The Gambia. Chapter 7 in P. Stott and S. Sullivan (eds.) *Political ecology: Science, myth and power*. London: Arnold.

Articles submitted for publication:

Baker, K. and Jewitt, S. (2004). Evaluating thirty-five years of Green Revolution technology in villages of Bulandshahr District, western UP, North India. Submitted to *Journal of Development Studies.* (Accepted subject to minor changes).

Jewitt, S. and Baker, K.M. (2004). The Green Revolution re-assessed: Insider perspectives on agrarian change in Bulandshahr District, Western Uttar Pradesh, India. Submitted to *Geoforum*

Baker, K.M. and Coulter, A.S. (2005). Terror and tourism: and the problems of sustaining beach vendors' livelihoods in Bali's uncertain environment. Submitted to *Journal of Sustainable Tourism Development.*