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special edition on

Agriculture's Contributions to Economic and Social Development

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Introduction

This inaugural edition of *e-JADE* presents a set of seven articles that shed new light on one of the oldest issues addressed by agricultural economists: How does agriculture contribute to economic and social development? These e-JADE articles argue that investments in agriculture contribute to more than increases in production. With the proper policies and incentives, agricultural sector investments improve food security, lower rural and urban poverty, reduce inequality and enhance environmental outcomes.

Development economists in general and agricultural economists in particular have long focused on how agriculture can best contribute to overall growth and modernisation. Many early analysts (Rosenstein-Rodan 1943; Lewis 1954; Scitovsky 1954; Hirschman 1958; Jorgenson 1961; Fei and Ranis 1961) highlighted agriculture because of its abundance of resources and its ability to transfer surpluses to the more important industrial sector. Agriculture's primary role in the transformation of a developing economy was seen as subordinate to the central strategy of accelerating the pace of industrialisation.

This conventional approach to the roles of agriculture in development concentrated on agriculture's important market-mediated linkages: (i) providing labour for an urbanised industrial workforce; (ii) producing food for expanding populations with higher incomes; (iii) supplying savings for investment in industry; (iv) enlarging markets for industrial output; (v) providing export earnings to pay for

imported capital goods; and (vi) producing primary materials for agro-processing industries (Johnston and Mellor 1961; Ranis *et al.* 1990; Delgado *et al.,* 1994; Timmer 2002).

There are good reasons for why these early approaches focussed on agriculture's economic roles as a one-way path involving the flow of resources towards the industrial sector and urban centres. In agrarian societies with few trading opportunities, most resources are devoted to the provision of food. As national incomes rise, the demand for food increases much more slowly than other goods and services. New technologies for agriculture lead to expanding food supplies per hectare and per worker and the increasingly modernising economies use more intermediate inputs purchased from other sectors.

This decline in agriculture's GDP share is partly the result of post-farm gate activities, such as taking produce to market, that become commercialised and are taken over by specialists in the service sector, and partly because producers substitute chemicals and machines for labour. Producers receive a lower price and, in return, their households spend less time marketing. As a result, value added from the farm household's own labour, land and capital, as a share of the gross value of agricultural output, falls over time as purchased intermediate inputs become more important. Farmers' increasing use of purchased intermediate inputs and off-farm services adds to the relative decline of the producing agriculture sector, *per se,* in terms of overall GDP and employment (Timmer 1988, 1997; Pingali 1997).

A number of development economists attempted to point out that, while agriculture's share fell relative to industry and services, it nevertheless grew in absolute terms, evolving increasingly complex linkages to non-agriculture sectors. This group of economists (including Kuznets 1968; Kalecki 1971; Mellor 1976; Singer 1979; Adelman 1984; de Janvry 1984; Ranis 1984; and Vogel 1994) highlighted the interdependence between agricultural and industrial development and the potential for agriculture to stimulate industrialisation. They argued that agriculture's productive and institutional links with the rest of the economy produce demand incentives (rural household consumer demand) and supply incentives (agricultural goods without rising prices) that promote modernisation.

This broader approach to the economic roles of agriculture suggested that the one-way path leading resources out of the rural communities ignored the full growth potential of the agriculture sectors. Resources may need to move towards industry and urban centres, but attention had to be focused on the capital, technological, human resource and income needs of agriculture. This required policy-makers to change strategies.

The growth of industries and cities were dependent in many ways on agriculture and primary production. Primary production grows and evolves to reflect the demands of industry and the cities, and industries grow and evolve to reflect the potential of the rural sectors. They are inextricably connected. Ignoring the large economic and social contributions of primary agriculture to these much faster-growing industrial activities presents an incomplete picture of their shared world. Ignoring the whole range of economic and social contributions of agriculture underestimates the returns to investment in the sector.

At present, the development consensus is that a strong performing agricultural sector is fundamental for overall economic growth. Improving agricultural performance generates income in both rural and urban areas. As incomes increase, households save more and spend more, stimulating growth and investment in other sectors. Agriculture provides tax revenues and supplies a wide range of raw materials to agriculturally-based local manufacturers.

Such positive direct and indirect cross-sectoral linkages are mediated in particular through lower food prices (Johnson 1997), labor migration and capital flows from agriculture, but there are also other "channels" through which the sector's growth impacts positively on economic development. Especially in those countries where the share of agriculture in GDP is still significant, Timmer (2002) argues that agricultural productivity may impact overall economic growth through various positive "indirect and round about linkages" which he classifies in four categories: a) technology linkages – the shift in technology being positively associated with agricultural growth, which may entail increasing foreign exchange generation; b) physical capital linkages – the rate of physical capital deepening being

positively correlated with higher savings, which in turn translate into faster capital deepening; if agriculture is easily taxed in the early stages of development, the agricultural sector may well provide revenue for an important public sector investment, which may be necessary to kick-start growth; c) human capital linkages – deepening human capital may support directly the rise of farm productivity, ease the migration processes by reducing their costs, and improve nutritional intake which affects positively productivity itself; and d) linkages through positive impacts on a number of "conditioning variables" or "efficiency shifters" that determine the degree to which a "frontier" per capita income is reached – property rights, for example.

Thus, the widely practiced macroeconomic policies that had inhibited growth of the rural sector through direct and indirect taxation of food producers, traders and exporters needed to give way to a more non-discriminatory policy environment for agriculture (Krueger, Schiff and Valdés 1991; Bautista and Valdés 1993), investment in producing technological innovations (Hayami and Ruttan 1971; Pinstrup-Andersen 1994; Oram 1995) and public investment in rural incomes to generate social and physical infrastructure (Adelman 1984; Vogel 1994).

The seven articles presented here represent a sample of the work from FAO's Agricultural and Development Economics Division's ongoing research program to extend current thinking about the economic roles of agriculture.[1] This research program includes studies in eleven countries to identify and evaluate contributions of agriculture for which the sector might be under-compensated. For example, if a rapidly growing agricultural sector is crucial for addressing hunger, poverty and inequality, do policymakers recognize the total social value of those contributions? Are governments investing adequate levels of public resources in their agriculture to take advantage of these contributions?

A key motivation for this research program is to provide policy guidance and related information for improved development strategies. The study results suggest a diverse set of indirect social and economic contributions by agriculture. The evidence also suggests that these indirect contributions are not well understood, seldom analyzed in the context of development, and rarely reflected in national and rural development policy formulation. The seven articles presented here demonstrate that these indirect contributions can be identified, analyzed and should be considered by policymakers. The studies include a heterogeneous group of countries Chile, China, Dominican Republic, Ghana, Ethiopia, Mexico and Morocco.

The various policy and market failures faced by agriculture may be related in large part to the lack of information concerning the sector's evolving market and non-market roles. The strong interdependence between agriculture and the other sectors, and the many cross-sectional linkages through which agricultural growth supports overall economic growth is more widely recognized. Reversing past discrimination and policy bias against developing countries agriculture is evolving gradually. Likewise, the role of agriculture in reducing poverty and hunger is increasingly recognized, yet still insufficiently addressed. These articles present a case for exploring further the many additional economic and social benefits of agriculture.

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References

Adelman, I. 1984. 'Beyond export-led growth' *World Development*, 129, 937-49.

Bautista, R. & Valdés. A. 1993, *The bias against agriculture: trade and macroeconomic policies in developing countries.* San Francisco, California, USA, ICS Press.

de Janvry, A. 1984, *Searching for styles of development: lessons from Latin America and implications for India.* Working Paper No. 357. Berkeley, California, USA, University of California, Department of Agricultural and Resource Economics.

Delgado, C. *et al*. 1994. *Agricultural Growth Linkages In Sub-Saharan Africa.* Washington, DC, United States Agency for International Development.

Fei, J.C. & Ranis, G. 1961. 'A theory of economic development' *American Economic Review,* 514: 533-65.

Hayami, Y. & Ruttan, V. 1971. *Agricultural Development: An International Perspective.* Baltimore, Maryland, USA: Johns Hopkins Press.

Hirschman, A.O. 1958. *The Strategy Of Economic Development In Developing Countries.* New Haven, Connecticut, USA, Yale University Press.

Johnson, D.G. 1997. Agriculture and the wealth of nations American Economic Review, 872:1-12.

Johnston, B.F. & Mellor, J.W., 1961, 'The role of agriculture in economic development', *American Economic Review,* 51: 566-93.

Jorgenson, D.G. 1961. 'The development of a dual economy', *Economic Journal*, 71: 309-34.

Kalecki, M. 1971, *Selected Essays on the Dynamics of the Capitalist Economy 1933-1970.* London: Cambridge University Press.

Krueger, A.O., Schiff, M. & Valdés. A. 1991, 'Agricultural incentives in developing countries: measuring the effects of sectoral and economy wide policies', *World Bank Economic Review,* 2, 255-271.

Kuznets, S. 1968. *Toward a Theory of Economic Growth with Reflections on the Economic growth of nations.* New York: Norton.

Lewis, W.A. 1954. 'Economic development with unlimited supplies of labour'. *Manchester School of Economics,* 20: 139-91.

Mellor, J. 1976. *The new economics of growth: a strategy for India and the developing world.* Ithaca, New York, Cornell University Press.

Oram, P. 1995. *The potential of technology to meet world food needs in 2020.* Washington, DC, International Food Policy Research Institute.

Pingali, P. 1997. From Subsistence to Commercial Production Systems: Transformation of Asian Agriculture, *American Journal of Agricultural Economics* 792: 628-34, May.

Pinstrup-Andersen, P. 1994. *World food trends and future food security,* Food Policy Statement No. 18. Washington, DC, International Food Policy Research Institute.

Ranis, G. 1984. Typology in development theory: retrospective and prospects. *In* M. Syrquin, L. Taylor and L. Westphal, eds. *Economic structure and performance: essays in honor of Hollis B. Chenery.* New York, Academic Press.

Ranis, G., Stewart, F. and Angeles-Reyes, E., 1990. *Linkages in Developing Countries: A Philippine Study, ICS Press for International Center for Economic Growth*, San Francisco, CA.

Rosenstein-Rodan, P.N. 1943. 'Problems of industrialization of Eastern and South-Eastern Europe'. *Economic Journal*, 53, 202-11.

Scitovsky, T. 1954. 'Two concepts of external economies', *Journal of Political Economy,* 62: 143-51.

Singer, H. 1979. 'Policy implications of the Lima target', *Industry and Development,* 3, 17-23.

Timmer, C.P. 2002. 'Agriculture and Economic Development', in B. Gardner and G. Rausser eds., *Handbook of Agricultural Economics,* Volume 2: Elsevier Science B.V.

Timmer, C.P. 1988, The Agricultural Transformation, pp. 275-331 *in Handbook of Development Economics, Vol. 1*, edited by H. Chenery and T.N. Srinivasan, Amsterdam: North Holland.

Vogel S. 1994. 'Structural changes in agriculture: production linkages and agricultural demand-led industrialization. *Oxford Economic Papers,* 1, 136-157.