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RESHAPING AGRICULTURE'S CONTRIBUTIONS TO SOCIETY

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PROCEEDINGS OF THE TWENTY-FIFTH INTERNATIONAL CONFERENCE OF AGRICULTURAL ECONOMISTS

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Edited by
David Colman, University of Manchester,
England
and
Nick Vink, University of Stellenbosch,
South Africa

Waite Library
Dept. of Applied Economics
University of Minnesota
1994 Buford Ave - 232 ClaOff
St. Paul, MN 55108-6040 USA

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Introduction: The 25th conference and the association

David R. Colman and Nick Vink

Members of the International Association of Agricultural Economists have diverse interests and come from many different types of organization and, of course, many countries. Membership of IAAE is individual rather than organizational, and is motivated by a genuine wish to learn and achieve sustainable development through agricultural and rural progress in all regions. The theme of the 25th conference, *Reshaping Agriculture's Contribution to Society* was chosen to embrace the broadest possible set of contemporary issues covering these concerns, with four specific subthemes (1) strategies for reducing poverty, (2) efficiency in food and farming systems, (3) food safety and security, and (4) environmental management. Interestingly, in the last three of these areas the broad societal agendas in developed and developing countries diverge.

The theme was deliberately chosen to highlight the contrasts between the changing social contract with agriculture in richer nations and the harsher set of problems in developing and transitional countries. With regard to the efficiency of farming systems, deepening rural and farming poverty in developing countries and the failure of technology to alleviate these conditions are high on the agenda: while in developed countries concern is more that the rapid march of technological change is causing large reductions in full-time family farming and its replacement by corporate farming, thus changing the social impact of farms in rural areas. Thus the issues of efficient farming differ in key respects. In developed countries many contemporary issues relate to healthier food (e.g., eating less, rejecting genetically modified foods), whereas in many developing countries food security and obtaining sufficient food is still of primary concern. In the area of environment, degradation of resources and water shortage are at the top of the developing agenda, while in many rich countries the increasing concern is for sustaining (and restoring) the environmental quality of farmed areas rather than with sustaining high levels of production. Thus there

are changing agendas for the agriculture sector, which differ by region.

For a conference held in Africa it was natural that the lead subtheme should be *strategies for reducing poverty*, with the unstated corollary that this was poverty among farming families and in rural areas. Happily this theme was also chosen for the two opening papers at the conference, the Elmhirst lecture and the presidential address. The president chooses the Elmhirst lecturer, and Professor Joachim von Braun duly invited Professor Bruce Gardner to undertake this task, which he did in his paper *Causes of Rural Development*. The paper reviews the literature on causes of agricultural growth and its links to rural income growth, and involves a large-scale econometric exploration (only partially reported in the paper) of a panel of data for 71 countries over the period 1980 to 2001. From the standpoint of agriculture's role in reducing rural poverty in general and that of farmers in particular, Gardner's findings and conclusions are somewhat negative. His analysis points to continuing divergence in growth of agricultural GDP per worker between the poorest countries and the higher growth rate in OECD and East Asian countries. In the OECD, at least, this is partly due to the decline in the number of workers, but no simple explanation emerges as to why the poorest countries have not been able to take advantage of the international spread of knowledge and technology to reduce the performance gap in growth, whether that be in cereal yields or GDP per worker. Gardner also fails to find compelling support for the argument that agriculture is the key dynamo for economic development and reduction in rural poverty in the poorest countries and areas. Of course, strong agricultural growth does certainly have a positive effect in this regard, but Gardner concludes it is growth in non-agricultural sectors that is the most crucial factor in raising farmers incomes and reducing rural poverty. Here he draws on his past work in the United States, where it is growth in off-farm income that has supplemented

farming income and closed the gap with nonfarm incomes. In East Asia similar opportunities have been created by nonagricultural growth, and, in terms of rural (as opposed to agricultural) poverty, new employment opportunities outside agriculture are probably the key factor. This leads Gardner to produce a very challenging conclusion, namely "But what I am coming to believe is that rural income growth and poverty alleviation are not sub-fields of agricultural economics." This is not a position that sits easily with the conventional view that in poor countries, with a still large proportion of the employed engaged in agriculture, agriculture growth is a crucial motor for general development, or that increasingly its agenda (or that of the agricultural economics profession) should be seen as one for poverty reduction. The panel data approach adopted, in which the statistical weight attached to OECD and East Asia data is high, may not be best suited to testing the basic hypothesis, and Gardner himself declares unease with his conclusions and commits himself to further research.

The president, Joachim von Braun, himself followed this by addressing *Agricultural Economics and Distributional Effects*. One of the key aspects of this paper was to emphasise what he terms "bifurcations," or the contrasting duality of so many tendencies in agricultural, rural, and general economic development. The central divergence highlighted concerned income distribution, with widening inequality between the rich and poor in the last two decades, and the unsatisfactory implications this has in causing poverty (particularly rural) to persist on a large scale in many countries. He observes a bipolar political situation where, in countries with rich consumers, there is an ever smaller number of large farms using advanced and increasingly sustainable science in a competitive environment of integrated markets, while, at the other extreme in poor countries, numerous small farms with little connection to science use unsustainable technologies in fragmented, noncompetitive markets. These inequalities and contrasting trajectories are extensively explored, to be subsequently picked up in varying measure in the ensuing plenary sessions, and in the many other paper sessions at the conference.¹ Thus, one key

question for the conference was—can the traditional objectives of agricultural policy, to promote food security and efficient production, be reshaped to focus more on general poverty reduction.

Strategies for reducing poverty

As befits a conference taking place in Africa, the first plenary session was concerned with rural poverty and agriculture's role in alleviating it. The three papers in the session addressed quite different, but highly relevant questions. The paper by Christopher Barrett, is titled "Rural Poverty Dynamics: Development Policy Implications." In it Barrett picked up the "bifurcation and duality" themes of the president's address. The paper explores the trajectories of poverty, and argues that there are thresholds. Below certain thresholds, individuals or families are trapped in poverty and may be on a downward path. Others may be in poverty but in a "recovery zone," where they have a high likelihood of escaping upward without policy intervention, or with minimal intervention. The more fortunate lie above thresholds of well-being and asset ownership, where they need not be defined as poor or in need of policy assistance on account of poverty; of course, this does not rule out policies that will accelerate their upward dynamic where that conduces to the general good. The policy implications arise from budgetary pressures that require targeting policies to only those that need help to escape their predicament, and to policies that are effective. Thus, in summary, Barrett argues for "cargo net" policies to assist the chronically poor escape the poverty trap, and "safety net" policies to prevent those transitorily poor (because of diverse shocks) from falling into chronic poverty.

The paper by Alain de Janvry and Elisabeth Sadoulet addresses what is required for "Achieving Success in Rural Development: Towards Implementation of an Integral Strategy." This is done very much from a Latin American perspective. They argue that 80% of the success there has been in reducing the share of rural in total poverty has been due to migration from rural areas, rather from increasing rural incomes, thus re-stating the notion that nonfarm income growth has been the most important force. It is argued that the impact of general economic growth (largely centred on urban areas) has had little direct impact on rural incomes, but has

¹ A selection of contributed papers was published in Volume 31, issue 2/3 of *Agricultural Economics*, while virtually the full set is available as working papers on the IAAE website.

stimulated migration and the shift of much poverty to urban areas. To address the task of increasing rural incomes requires what they call in "integral approach," which shares features of the earlier "integrated rural development" programs of the 1970s and 1980s, but which is driven and motivated more by the poor themselves than by central government or international decision makers. Key to this is devolving governance to local-civil society, investing in the social capital of rural people, and, echoing Barrett's paper, putting in place safety nets to prevent descent into poverty traps. Whether pursuing the integral approach will reverse the neglect of rural development lamented by a succession of IAAE conferences and speakers remains to be seen.

Simon Maxwell's paper rather controversially casts doubts on whether that neglect will be reversed in his paper "Six Characters (and a few more) in Search of an author: how to rescue rural development before it is too late." He argues that there is probably insufficient consistency in the rural development strategies of major policy institutions, or "characters" (The World Bank, EU, FAO, and IFAD), the characters, to convince the major donors and international community to commit a larger proportion of a diminished share of their reluctantly granted aid funding to rural development, even though there can be agreement about the central properties of such a strategy. Maxwell identifies these as growth, empowerment (as with de Janvry and Sadoulet), and security—so all three papers in this session emphasise safety nets. Anticipating the second plenary session Maxwell argues that the evidence is not consistent with support for agriculture, especially for small-farm agriculture as a priority strategy for reducing rural poverty. More widely, the conference noted the need for agriculture to connect to high-valued and rapidly growing markets, something that small subsistence farming by definition has no competitive advantage in.

Efficiency in food and farming systems

Despite its broad title, this plenary session of four papers was primarily concerned with the prospects for small farms. Given the preoccupation in the past of agricultural economists, and indeed of agricultural policy, with the survival of the family farm, this is an issue

that remains a key one, but with much less sentiment than before. It is also an issue that relates to both developed and developing countries, but whereas in the former the future of small farms is more connected to cultural, lifestyle, and environmental issues rather than with supply concerns, in developing countries it is very much linked to the rural poverty issue and the millennium goals for reducing it; in developing countries many of the rural poor have some engagement in small-scale agriculture.

This is very much highlighted in the paper by Shenggen Fan and Connie Chan-Kang, "Is Small Beautiful: Farm Size, Productivity and Poverty in Asian Agriculture." In the two most populous of the five countries studied, India and China, average farm sizes are steadily declining as farms are subdivided in circumstances of growing rural populations. The paper reveals productivity improvements, which at least partially offset the reduction in farmed area, which now averages less than 1.4 hectares in India and less than 0.4 hectares in China. The productivity gains are in part produced by a shift from crop production to livestock, vegetables, and higher-valued products, as well as by technological and efficiency improvements. But a vast number of the farms are now too small to meet family needs, and increasingly families have to rely on off-farm work. Since the near landless are very likely to be poor, this explains why the problem of rural poverty can no longer be tackled primarily by strategies for agricultural growth.

This point is reinforced by Peter Hazell's paper "Is There a Future for Small Farms?" Hazell sets out the reasons why we must still care about small farms. Too many people in developing countries are still dependent (even if only partially) on their farming output and income, for them to be ignored, and will be for many years to come. Nevertheless, as Hazell recounts, there are many factors working to their disadvantage as competitive production units. Thus, at the end of his paper he restates the question—Is There a Future for Small Farms? the unstated implication being that they will remain marginalized and under pressure in a majority of poor countries.

Ulrich Koester's paper "A Revival of Large Farms in Eastern Europe?—How Important are Institutions?" considers an entirely different issue about small farms, by examining the persistence and growth of very large enterprises in Russia and East Germany. In Russia

the number of farm enterprises of more than 5,000 hectares. grew slightly between 1995 and 2000, while the number of private farms fell, although they increased in average size to 7.5 hectares. This is counter to the expectation that, with liberalization of markets and the economy, private farming grows at the expense of former state farms and cooperatives. What Koester traces out is the institutional and attitudinal factors working in favor of larger-scale new capitalists and to the disadvantage of smaller private farmers.

The fourth paper in this session by D. S. Prasada Rao and Tim Coelli, "Catch-up and Convergence in Global Agricultural Productivity," reports a large-scale econometric exercise to examine trends in productivity and efficiency growth in 97 countries from 1980 to 1995. Its results appear to confound some of the pessimism about the performance of agriculture. For example, although South American countries performed on average worst over this period, there was a little annual growth in total factor productivity and efficiency. Perhaps surprisingly, African countries performed slightly better on both these indicators than Latin America and also had positive technical change. Globally, the overall annual average growth in total factor productivity in agriculture is recorded at 2.7%, with Asia leading the way. One significant conclusion of the research is that there was no slowdown in productivity, efficiency, and technical improvement over the decade and a half, although there were poor years. That is, the argument that progress slowed after the Green revolution is not supported, although an extension of the analysis beyond 1995 will be welcome when the data can be assembled. The authors also conclude that those countries starting from the lowest productivity base did exhibit some catch-up, although this is not readily apparent from the results presented in the paper.

Food safety and security

The four papers in this session addressed widely divergent aspects of food safety, a relatively new area of research interest for agricultural economists.

In the first paper, Jean Kinsey asks: "Will Food Safety Jeopardize Food Security?" In answering this question, she started with definitional issues, as befits a new focus area for research. In her view, food safety is not only about safe food, but also about the safe

consumption of food. Using this definition allows the analyst to add the modern problems of overeating to the more traditional focus on undernutrition and unsafe food (as a result of the presence of microbes, pesticide residues, or foods that have unknown but suspected health consequences such as irradiation or genetically modified foods), i.e., to add chronic problems to the more familiar list of acute problems associated with food safety.

While the cause-and-effect relations for some manifestations of unsafe food (principally food-borne illnesses due to microbes) are well known, others, such as the relationship between food, diet, and chronic diseases and delayed illnesses is less well established, often because of difficulties in measurement. Nevertheless, Kinsey argues that some of these relationships have been established, such as that between obesity and type 2 diabetes, and between obesity and 20–40% of cancers found among U.S. adults. Obesity is, therefore, becoming a major health care issue. In this regard, Kinsey provides truly startling data on the prevalence of obesity in the U.S. population, and estimates that the cost to society of obesity is between 6.2 and 13.5 times higher than the cost of microbial contamination.

In returning to the question posed in the title of the paper, Kinsey argues that the evidence shows that: "... poverty, hunger and being overweight exist simultaneously, and that being overweight jeopardizes health, which jeopardizes the ability to work and be productive, which in turn jeopardizes the ability to earn income to buy healthy food. Therefore, safe consumption of food is compatible and consistent with food security in all parts of the world. . . . If the food available is not safe or its consumption does not improve health, it does not contribute to food security."

The second paper in this session by Michael LeBlanc, Betsey Kuhn, and James Blaylock, entitled "Poverty Amidst Plenty: Food Insecurity in the United States," addresses a similar issue in a very different manner. They start their argument by providing different measures of the prevalence of poverty in the United States, showing that (a) it differs by race, sex, and household head, and (b) that only a small proportion of poverty is chronic ("... the designation persistently poor falls disproportionately on blacks, on the elderly, and on those living in rural areas and in the South"). By extension, most poverty is transitory, with the

evidence showing that poverty spells begin because of factors such as a decline in the earnings of the household head or of other family members, and changes in family structure resulting from the breaking up of a marriage or the birth of a new child. In contrast, poverty spells end when the earnings of the household head or of other family members increase, or when changes in the structure of the family bring in new earners or lead to a smaller household.

In this regard, food assistance programs provide a critical source of relief for food-insecure households. The authors survey these programs for the United States, showing their effect on poverty. For example, the Food Stamp program reduces poverty as measured by the poverty gap index, by about 16%. Nevertheless, they conclude that these programs cannot lead to the elimination of poverty; they also conclude that economic growth alone will not result in the elimination of poverty. In the long run, they argue, only improved returns to labor will have this result.

The third paper in this session differs markedly both in its geographic focus (Europe as opposed to the United States) and in its subject matter from the first two. Johan Swinnen, Jill McCluskey, and Nathalie Francken provided a lively presentation of the way in which the media (in their case newspapers in Belgium) shape opinions on food safety issues in their aptly titled paper "Food Safety, the Media, and the Information Market." Their point of departure is to question the underlying assumption prevalent in the literature on the economics of asymmetric information, namely that information provision is neutral. However, they argue that the providers of information "... have an internal incentive to select certain information items and certain forms of information over others in their information distribution activities." On the supply side, this imperative is driven by the need for profits as well as the preferences of the media organization, while market structure and the preferences of consumers affect the decision making of a media company. On the demand side, they argue that readers of newspapers use information "... to reduce the variance of his/her estimate of truth ..." while the amount of time a reader will spend reading will be determined by equality in the net marginal benefit of reading, work, and leisure.

From this model, the authors derive a set of hypotheses about the behavior of readers and media owners.

First, they show that it is rational for consumers to be imperfectly informed, partly because information is costly, partly because the opportunity costs of acquiring information are positive even if the information were free, and partly because the story may have an ideological bias that diverges from that of the reader. Second, they show that "... the generally recognized tendency of the popular media to publish mostly negative aspects of news items is driven by the demand of their audience, rather than by inherent preferences of the media itself." Third, they argue that if consumers are heterogeneous, the media will be heterogeneous if entry barriers to publishing are not too high. Finally, they argue that the timing of publication of a story depends on a rational comparison of the rewards to getting it out before the competition and the penalty of damaging the reputation of the company because it published incorrect information.

In the final paper in this session, Vittorio Santaniello takes on the subject of "Agricultural Biotechnology: Implications for Food Security." After defining biotechnology and highlighting the critical role played by intellectual property rights in its development and dissemination, he provides a survey of the most critical recent and expected breakthroughs in the development of new products focused on the needs of developing country farmers, and of the literature that has arisen from analyses of these experiences in countries as diverse as Brazil, India, Mexico, Colombia, South Africa, and Argentina.

Santaniello argues further that, while there are positive signs that agricultural biotechnology can foster greater food security for the rural poor in developing countries, the benefits will only reach farmers if the innovations meet farmers' needs and if there is an adequate national research system in place and well-functioning markets for seeds, fertilizer, and other inputs.

Environmental management

The four papers in this session are neatly balanced between two conceptual views, on the meaning of the concept of "sustainability" (Bromley) and on the causes of under-investment in public goods (Lopez); and two applied papers, one on Africa (Ehui and Pender) and one on the Philippines (Rola and

Coxhead). The subject matter at hand, the methods employed and the applications are too diverse to draw any general conclusions from these analyses, but nonetheless they provide interesting insights into the state of the art with respect to environmental issues and the way in which they influence agriculture and the rural areas of the world.

In his inimitable style, Dan Bromley shows in his paper entitled "The Poverty of Sustainability: Rescuing Economics from Platitudes" how the use of the concept of sustainability has evolved to become a term that "... conveys nothing of substance." This is largely because sustainability is focused on natural and man-made capital—a construct that is dependent on institutions ("... to whom does the capital belong? Who may control its use? ...")—rather than on the institutional arrangements themselves. In his words: "If we are to understand sustainability we must be concerned with the ways in which humans relate to each other—and why those particular interactions produce particular implications for the natural environment." As a result, "... the ecological dimension of sustainability cannot be considered and understood apart from the social dimension". Of course, this leads to the need to analyze the reasons why specific rules exist in the first place, and what their effect is on people's choices, and a need to understand that sustainability depends on "... *constant change in social and economic institutions, and not in their preservation.*" (Emphasis in the original)—hence the need for an "evolutionary environmental economics", something which is "... impossible in the equilibrium models and metaphors of contemporary economics."

Bromley summarizes his argument as follows:

Sustainability can be rescued from platitudes and incoherence by rediscovering the evolutionary predecessors of the ordinalist revolution in economics ... I used to believe that conversations about sustainability were conversations about what is worth saving for the future ... I now insist that sustainability is best thought of as *looking for those aspects of our natural and constructed settings and circumstances for which we can, at the moment, mobilize the best reasons to make sure that they are passed on to future persons.* This is not a process in which we seek to maximize time paths of consumption or welfare into the infinite future. It is, instead, a process

in which we search for the best reasons to bequeath a particular endowment bundle to those who will follow. And that task is precisely the subject matter of a properly constituted evolutionary economics ...

Ramon Lopez poses three key questions as an introduction to his "Under-Investing in Public Goods: Evidence, Causes, and Consequences for Agricultural Development, Equity and the Environment." The first is "... why have the environmental effects of agriculture been so negative in most developing countries?" He argues that this question cannot be approached using the conventional externality toolbox, and that the performance of the sector and underlying political economy factors need to be taken into account.

The second question rests on the empirical observation that, even in middle-income countries, agricultural growth has benefited those working directly in the modern agricultural sector as well as urban dwellers via the market for unskilled labor, but not the rural poor, who often constitute the majority of the rural population. As Lopez argues: "It is thus paradoxical that rapid agricultural growth, whenever and wherever has occurred, has been good to reduce poverty in non-rural areas but it has been less powerful in promoting higher incomes among the poorest segments of the rural population. The second question is now natural: Why has agricultural growth not benefited these groups?"—this despite the removal of macroeconomic distortions in many parts of the world. This leads to his third question: "Why has such slow growth continued even in countries that have removed anti-agriculture macroeconomic biases?"

Lopez then argues that the reasons for the weak rural poverty-reducing impact of agriculture, and the resultant negative impact on the environment, "... are associated with a more fundamental distortion in the allocation of public expenditures that leads to a chronic under-supply of public goods. Investments in public goods get crowded out from government budgets by massive expenditures in subsidies to the wealthy and other expenditures in private goods that play no role in ameliorating market imperfections. In turn, the under-supply of public goods is at least in part related to political economy forces." In his view, these political economy forces consist of the ability of rural elites to capture the benefits of most public expenditure in a

manner that provides them with government-funded private goods. Poor farmers therefore face a "double crowding out" as the limited government budget provides insufficient public goods to the rural poor, while the government crowds out private provision of private goods for the poor with its subsidies to the elites.

In their paper entitled "Resource Degradation, Low Agricultural Productivity and Poverty in Sub-Saharan Africa: Pathways out of the Spiral," Simeon Ehui and John Pender report on detailed research in East Africa aimed at finding ways out of the spiral of rural poverty that afflicts the subcontinent. Their research shows that strategies need to be tailored to the circumstances and needs of the different parts of the subcontinent, although there are common elements that include: "... assurance of peace and security, a stable macroeconomic environment, provision of incentives through markets where markets function, development of market institutions where they do not, and public and private investment in an appropriate mix of physical, human, natural and social capital."

Finally, Agnes Rola and Ian Coxhead, in their paper "Economic Development and Environmental Management in the Uplands of Southeast Asia: Challenges for Policy and Institutional Development" use a case study from the uplands of the Philippines to explain the factors responsible for recent changes in economic behavior and institutional arrangements in these areas. These changes include a shift from more traditional farming practices (long-phase forest fallow rotations regulated by customary law) to more intensive commercial operations. The latter are the result of in-migration, leading to the displacement of traditional institutions that governed land and resource use by both *de facto* and *de jure* means. One adverse result has been that there are now fewer constraints on natural resource use, and hence more environmental degradation. Proposed solutions for a win-win scenario rest on (i) better accountability requires genuine decentralization, (ii) addressing the externality problem requires watershed-based institutions and policies, and (iii) market-based mechanisms that can support sustainable upland management, but only if the appropriate institutions are in place.