

25 YEARS

*of food
policy
research*

REFLECTIONS *by*

Per Pinstrup-Andersen

INTERNATIONAL FOOD POLICY RESEARCH INSTITUTE

25 YEARS *of*
food policy research

Reflections *by* Per Pinstrup-Andersen

INTERNATIONAL FOOD POLICY RESEARCH INSTITUTE
WASHINGTON, D.C.

Copyright © 2000 International Food Policy Research Institute

All rights reserved. Sections of this booklet may be reproduced without the express permission of, but with acknowledgment to, the International Food Policy Research Institute.

Acknowledgments

It is not possible for me to express the debt owed to past and present researchers at IFPRI who contributed to the work summarized in this paper. The list would start with my three predecessors as director general but then becomes too vast to include even a part of it here.

I would, however, like to mention several people who responded in recent weeks to urgent demands for help in providing inputs, identifying the most relevant sources, and reviewing a draft. I am grateful in particular to Raisuddin Ahmed, Suresh Babu, Romeo Bautista, Howdy Bouis, Chris Delgado, Curtis Farrar, Peter Hazell, Mylene Kherallah, Rajul Pandya-Lorch, Stacy Roberts, and Sherman Robinson. Don Lippincott oversaw the publication, while Uday Mohan edited the text deftly at inconvenient hours to meet the deadline.

25 Years of Food Policy Research

As we celebrate IFPRI's 25th anniversary, it is almost obligatory to think about what has been accomplished so far. That is the task I approach here, with the recognition that only a small part of the Institute's work during this period can be mentioned, much less appraised, within the bounds of a short paper.

In recent years IFPRI, in keeping with the overall tendency of the Consultative Group on International Agricultural Research (CGIAR), has devoted a lot of attention to measuring the impact of its research. We have looked at cases where studies, carried out in close collaboration with individual governments, have contributed to major policy decisions. Such cases of impact, for example in Bangladesh, Pakistan, and Viet Nam, have offered us the opportunity to ascribe specific results to the adoption of policies associated with IFPRI's research and calculate the amount of money countries have saved or gained as a result. There is a satisfying concreteness to the statement that IFPRI's research has contributed to saving so many millions of dollars while costing in the hundreds of thousands. CGIAR stakeholders seem to like these kinds of impact results, particularly donors who provided funds for the studies involved. Since these studies are fully documented elsewhere, I will not discuss them here. Those who wish a short summary of this material can find it in IFPRI 1999.

I will turn instead to the broader question of the influence IFPRI has had on the development community's views on policy issues and the nature of development in general. This approach does not lead to a dollars and cents evaluation of impact tied to particular pieces of research. But I venture to think that in the long run, such influence is of considerably

greater importance in shaping events in the developing world, and has greater value, even if we cannot place a definite figure on that value.

You will note that I have not confined the discussion narrowly to food policy, which makes up part of IFPRI's name and is the focus of our work. Such a narrow approach would miss much of the point. Virtually everything we do has to take account of the development policy context if it is to be relevant. And virtually everything we do has implications for broader development policy. IFPRI's studies on the bias against agriculture and on agricultural linkages, to both of which I will devote some attention, illustrate the Institute's reach beyond food issues as such. We start with food, and we always come back to food, but in between we engage with a large number of development issues. This is so much the case that it sometimes makes us uncomfortable. We have faced the temptation to acknowledge being a development, rather than a food policy, research institution. So far we have successfully resisted that temptation: food policy provides the focus for a coherent research program and one that rests more or less comfortably within the framework of the CGIAR.

When we think of the influence exercised by IFPRI, we must recognize that the audience addressed is not homogeneous but divides into three main parts. First there are the decisionmakers, including officials of both developing countries and aid agencies, including non-governmental organizations (NGOs); second are the researchers and policy analysts; and third the informed members of the general public. These groups influence each other and thus are interconnected. IFPRI research speaks directly to members of the middle group, who read the research outputs and use the methodologies. These researchers expect sophistication, caveats, equations, and details. They look for groundbreaking insights and fresh ideas, and for concepts that can be adapted and applied. The other two groups contain only a few individuals who are likely to look closely at the research methodology proper. Most decisionmakers and members of the public have to be reached with products that offer forceful empirical conclusions about the issues they deem important. The research does, however, lend credibility to these products, as does the overall reputation of IFPRI. In recent years, we

have increasingly emphasized audiences other than researchers through strengthened outreach and the 2020 Vision initiative. This trend will continue as we strengthen our communications program.

Quite apart from any position taken by IFPRI, or any study it has put forward, much of the influence IFPRI enjoys stems from its overall reputation, which has grown over the years because of a consistently high level of research quality and relevance.

But the beginning was not really propitious. When the Technical Advisory Committee of the CGIAR (TAC) first proposed the formation of IFPRI, the CGIAR rejected the idea. Many influential participants in the CGIAR mistrusted social as opposed to biological science, and European donors thought that such an institute would be too strongly influenced by the attitudes on trade of major food-exporting countries. Three strong-headed organizations, the Ford and Rockefeller Foundations and the International Development Research Centre, went ahead anyway and established IFPRI. It was not long before the Institute began to establish its reputation and to take leadership in generating relevant and timely knowledge in areas related to its mandate. We must be grateful to the early leadership: Sir John Crawford as chairman of the Board of Trustees, Dale Hathaway as the first director of the Institute, and particularly John Mellor, the second director, for his role in putting IFPRI on the map. Curtis Farrar has provided additional information about IFPRI's beginnings in his paper on the first 10 years (Farrar 2000b).

IFPRI has been very productive in its 25-year life, and even to identify all of the subjects addressed during those years would take a great deal of space. I have tried, therefore, to select a few subjects where the Institute has made an important and recognized contribution to food policy research, either by itself or, more frequently, with others. In each case the topic has broad application and the research includes innovative conclusions or methodology. This has necessarily meant looking more to the past than the present, although in many cases the work is continuing and promises a good deal more, in addition to what has already been achieved.

Global Food Trends

An important reason for IFPRI's creation in 1975, not long after the World Food Conference of 1974, was widespread mistrust of official data on world food supplies and projections of future production and consumption. Making such projections was the first task undertaken by the new Institute, and its first research report, entitled *Meeting Food Needs in the Developing World: The Location and Magnitude of the Task in the Next Decade*, was given considerable public attention (IFPRI 1976). It carried the message that developing countries, not including China and other centrally planned economies of Asia, would require cereal imports of 100 million metric tons 10 years in the future. The second research report identified people in developing market economies who were not getting an adequate diet and found that an additional 45 to 70 million tons of food would be required to provide such a diet (Gavan, Strauss, and Skellie 1977).

IFPRI continued this work in much the same vein, extending the period, the commodities, the geographic area, and the sophistication and detail of the analysis until 10 years ago. In 1990, based on the perception of an external review panel that others were doing much the same thing and mistrust of official sources had died down, the Trends program was phased out. With hardly any pause, however, the Institute was back on the trends track. In 1990, the Food Consumption program formed an alliance with the UN Subcommittee on Nutrition to investigate trends in human nutrition from the 1970s onward, collaborating in the publication of a report on the world nutritional situation. This collaboration continued through 1994 and was renewed after a short break. Meanwhile, a joint effort by IFPRI and the International Rice

Research Institute (IRRI) to understand the prospects for rice production and consumption in Asia got under way. This examination of trends continued with modifications for a number of years, and IFPRI expanded it to include other crops and regions as background for the World Population Conference of 1994. Over the years, in the context of the Institute's 2020 Vision activity, this more recent model, known as IMPACT (International Model for Policy Analysis of Agricultural Commodities and Trade), has been extended further to incorporate commodities such as livestock. It will soon include fish and water availability. The increasingly sophisticated model has been used to answer more and more complex questions using scenario modeling. IFPRI has addressed the possible agricultural futures of the two largest players, China and India. The original task of providing a widely available estimate of likely patterns of food production and consumption has been supplemented and perhaps overtaken by multiple needs related to IFPRI's own efforts to understand food trends and alternative futures.

How did IFPRI do in the prognostication business? So far no one has taken the trouble to run a detailed summary of what was projected against what actually happened, so we do not know in detail. There was a brief period at the start when, failing to anticipate the enormous production response of the developed countries and the full scale of the Green Revolution, IFPRI, in common with almost everyone else, anticipated a secular rise in cereal prices. Once past this blip, however, the projections seem to have been broadly on track, although sometimes off base at the country level. The projections have been used to help in setting both IFPRI and CGIAR priorities.

At no time during this period has IFPRI been the sole or even the dominant source of trends information. Nor have its projections been so different from those of other sources as to provide a unique contribution. We are, however, recognized as an important source of this sort of intelligence and are uniformly cited along with the Food and Agriculture Organization of the United Nations (FAO) and the U.S. Department of Agriculture (USDA), whenever journals of news or opinion address the prospects for food on a broad scale. The IMPACT

model has also provided an indispensable framework for the 2020 Vision initiative and is integrated in many ways with other IFPRI research. We have some reason to be satisfied with our accomplishments in this broad field.

Food Subsidies

In its early years, the Food Consumption program of IFPRI concentrated heavily on food subsidies. Researchers recognized that subsidies distorted the economy but meshed with the basic human needs approach to development that had strong international support. As long as there were expectations of rising cereal prices, there was a rationale for subsidy systems to protect the poor. Another price concern was of longer duration: increased production would require incentives for farmers, but these incentives might harm the landless, or nearly landless, who could not produce enough food for their own consumption. Subsidies could be used to help sustain these poor people until the rising tide of growth would make such support unnecessary. The goal of IFPRI research was to find subsidy policies that would assure large benefits to the poor but minimize economic distortion.

IFPRI carried out its first studies of food subsidies in South Asia, but the range of countries soon expanded to the whole developing world. Altogether five countries in Asia were examined, three in Africa, and several in Latin America. The studies differed from each other, as did the subsidy policies and programs addressed. Some countries were covered by more than one project. Most of the work used existing data, and most did not include direct measurement of the nutritional status of individuals. (For more information on these subsidy research projects, see Farrar 2000a.)

An exception to the use of available data was a major and quite well-known project in Egypt in the early 1980s that relied on data collected for the project in a nationwide household survey. The project

typified a shift in IFPRI's focus from the analysis of existing data to the purposeful collection of new micro data. The data were subsequently analyzed through economic models, making it possible to project the likely effects of policy changes on macroeconomic indicators, income distribution, and food consumption. (For a discussion of IFPRI's approach to field surveys, see von Braun and Puetz 1993.) The project, funded by the U.S. Agency for International Development (USAID), was large enough to finance a resident staff of two IFPRI research fellows and four eventual research reports. The cost of the Egyptian food subsidy system amounted to about 14 percent of the government budget, large enough to be of great concern to the Egyptian government and its donors. But the government's sense of obligation to its people was strong and prohibited dramatic reductions. These factors, combined with the high quality of the research, ensured that the work received substantial attention in Cairo and elsewhere.

It was evident when IFPRI returned to Egypt in recent years to do further work on subsidies and related questions that the Egyptian authorities expected the same level of competence from IFPRI as had been shown in the first round. The second round of study was part of a broader project, also financed by USAID, that included employment policies to generate income for food security and the stabilization and liberalization of foodgrain markets. Once again the project provided for resident IFPRI research staff and the conduct of a nationwide household survey. The second Egypt project illustrates the broadening of IFPRI's approach to subsidy issues, in that it includes use of a computerized general equilibrium model to investigate the impact of subsidy policies on the agriculture sector and the economy as a whole, not merely on the welfare of the poor and government expenditures. It also includes an explicit study of the political economy of the subsidy program and recommendations geared to what was considered politically feasible. IFPRI has developed an easily applied proxy means test that the Egyptian authorities have decided to use to target the rationing of some commodities more effectively. IFPRI and its Egyptian collaborators judged more ambitious reform to be economically desirable but politically impractical at present.

A food subsidy research project in the Philippines was also based on specially collected household data. In this case the data included measurement of the nutritional status of children. This was a pilot project implemented jointly by IFPRI and the Government of the Philippines that explored the circumstances under which food distribution targeted to households with malnourished children could be effective. The project was successful, but a change in government meant the departure of officials who had taken an interest in the study. A number of years elapsed before the results entered into Philippine planning. The project also became the basis for World Bank program planning in Mexico.

IFPRI's fifth book in The Johns Hopkins University Press series, published in 1988, dealt with food subsidies. I was its editor, and I will not say much about it, except to note that it was based mainly, though not exclusively, on IFPRI's own field research and that it deliberately eschewed technical economics. There was not a single equation in it. The intended audience certainly included economists, but practitioners were the primary target. The principal message was that careful targeting could reduce the distorting impact of subsidies and deliver significant benefits to poor households.

Curt Farrar has pointed out, in the impact discussion paper cited above, that the book was greeted by reviewers as the definitive volume on its subject. I venture to think that it remains so to this day. There were criticisms, the principal one among them being that the book paid insufficient attention to conceptual matters and methodology. I have heard practitioners complain that it requires them to embark on studies of their own in order to understand how the general principles would apply to their particular country or region. The complaint shows that they have understood correctly what we were trying to do.

IFPRI took very much to heart the concern of economists about the lack of conceptual analysis in the subsidies book. The subsequent volume on commercialization, for example, focused a lot of attention on that side, as did the research on which it was based. The conceptual approach has undoubtedly contributed significantly to the quality of

IFPRI research, so this criticism was beneficial. But I am not so sure about the intrusion of large numbers of equations into our publications intended for larger audiences. These have reduced criticism from academics, but perhaps also reduced the user-friendly quality for other target audiences.

After the publication of the book on food subsidies, IFPRI decided to back away from further research on the subject. I am not sure what it says about the role of momentum in the management of our research program, but we have completed three major research projects on subsidies since then, each financed by USAID. To be fair, one project, in Pakistan, was already nearing completion at the time of the decision to move on. The other two were in Bangladesh and, most recently, in Egypt. Ironically, two of these projects represent the most substantial cases of IFPRI's impact on the real world that we have been able to identify. These projects confirm the existence of a demand for IFPRI expertise in the subsidies field. Do they also suggest an unmet need for a methodology for appraising food subsidies that can be applied effectively by developing-country institutions without our participation?

Markets under Structural Adjustment

Another criticism made of IFPRI has been in the form of a question: Why did we not make more use of our extensive knowledge of subsidy issues and related matters to appraise the impact of structural adjustment on the poor? It is true that we did not focus extensively on this issue. Perhaps we can take some credit that David Sahn, who spent some years at IFPRI, and I did so at Cornell University. More recently, IFPRI has tackled another aspect of structural adjustment, namely the assumption that market liberalization would stimulate increased productivity on the farms of developing countries. It is amusing to recall that we were lectured rather severely by members of the so-called Washington consensus for wasting resources on such “concerns of the past.” This research, which covered both input and output markets, was done in Africa and Asia. The Africa projects, and the work done there by others on comparable topics, is the subject of a synthesis study under way at present. I will mention these results because I think they are important and because they may be less familiar to the reader than most of the material in this paper.

It should not be surprising that market reform has had much less impact in Sub-Saharan Africa than people had hoped it would. Five constraints have been identified. One is the general state of affairs in Africa and the shocks stemming from natural disasters, disease, and civil disturbance up to and including full-scale conflict. A second is the failure to invest sufficiently in the supporting structure, such as transport and communications infrastructure, research, extension, and marketing. Third is the lack of good governance generally, and the specific absence of rules and regulations governing such matters as property rights,

contract enforcement, and a system of grades and standards for products. Fourth is the issue of political will and administrative capacity. Reforms were often implemented partially or abandoned part way through. Finally, the expectation existed that reforms could be implemented quickly and produce early results, whereas they require persistence and learning over long periods. A particularly interesting outcome of the research is that phasing is critically important when introducing market reforms. The sequence of actions taken has an important bearing on the level and speed of progress.

IFPRI has made important contributions to understanding the reform process, with more findings to come. The Institute is in active collaboration with other organizations with overlapping interests.

Agricultural Linkages

Like global food production and consumption trends and the issue of subsidies, the role of the agricultural sector in promoting equitable growth has been a subject on IFPRI's agenda for virtually all of its 25 years. The ideas are familiar ones by now: a sluggish agricultural sector in a poor country cannot provide the resources needed for industrial expansion, so rapid agricultural growth is a prerequisite for industrial growth; increased incomes for the rural poor raise demand for nontradable goods, and if this demand could be met without price inflation there would be a strong multiplier effect on the economy; and agricultural growth based on labor-intensive technologies would ensure broad and equitable development.

With the arrival of John Mellor as director in early 1977, IFPRI became identified with the concept of agricultural linkages, and it has remained so identified.

There are three aspects of the growth linkages work to discuss: the research performed at IFPRI on linkages as such; the influence of the linkage concept on IFPRI's research program as a whole; and IFPRI as a platform for the advocacy of growth led by the agricultural sector.

IFPRI's Linkages Research

As IFPRI turned to linkages research, much of the conceptual work on growth linkages had been done. John Mellor continued to advance discussion of the general issue, for example in Mellor and

Johnston 1984, but the principal task before the Institute lay in applying the concept to specific cases, that is, undertaking empirical research. The obvious place to start was on the impact of the Green Revolution in India, and a project was mounted in North Arcot, in the state of Tamil Nadu, under Peter Hazell's leadership, where research by a British team some 10 years earlier had produced results showing not very favorable results. Fortunately the members of that team were available to participate in IFPRI's project. They contributed comparative data, a 10-year perspective, and credibility when the passage of time and consideration of indirect effects (the multiplier) revealed a strong positive impact of agricultural growth. This project is yet another early example of the collection and analysis of substantial amounts of data in villages leading to broad policy conclusions.

The results of this study are familiar:

- small farms got caught up with the initial advantage of large farms and achieved comparable yields of rice;
- employment and incomes of agricultural workers increased, as did nonfarm sources of income;
- average farm size declined;
- absolute poverty declined and the distribution of income improved;
- the region's nonfarm economy benefited by the addition of Rs. 0.87 for each rupee added to the value of agricultural production (Hazell and Ramasamy 1991).

An additional lesson was that multiple conditions influenced the degree to which the poor of a region could benefit from the introduction of new technology. These included, for example, a predominance of small farms, sufficient but not excessive available agricultural labor, and local and state governments committed to equitable agricultural development.

We have learned from our continuing contacts with the research community in India that the North Arcot studies have significantly

influenced the practice of agricultural economics research in that country following the presentation of research results at a conference in 1986 and the publication of a book in 1991. Graduate students use the linkages model and the social accounting matrix approach to study backward and forward linkages in the economy, and cite Hazell and Ramasamy. Moreover, researchers have been inspired to study the poverty issues that remain to be addressed in areas where the Green Revolution had an impact and in other areas as well, and particularly to consider the environmental impact of technological change. So we can say with confidence that this work is having an influence in the country where the research was done.

An additional important piece of IFPRI research, published earlier, analyzed the relative impact of expenditures by households with larger and smaller farms on rural demand. The authors found that households with larger farms had the more desirable expenditure patterns from the point of view of promoting economic growth. This led to the policy conclusion that governments concerned with growth and equity should target agricultural technology and public investment to households with different farm sizes (Hazell and Röell 1983).

Of course, IFPRI is by no means alone in documenting the impact of the Green Revolution. Lipton and Longhurst's 1989 book is another well-known example, among others. Those involved in agricultural research share a consensus on the enormous value of this CGIAR contribution to human welfare and implicitly endorse the concept of agricultural linkages. It is surprising, however, that in some influential intellectual circles, the results of the initial, somewhat negative, debate that followed the introduction of the high-yielding varieties of rice and wheat still dominate the argument and have become a sort of ideology impervious to countervailing fact. The ideas that the Green Revolution harmed the environment, enriched the rich, and further impoverished the poor have an extraordinary momentum. This state of affairs not only denies credit where it is richly deserved, but much more importantly, clouds perceptions in important places about future courses of action and leads to bad decisions on the use of resources.

IFPRI and others have not given up the task of persuasion. I can cite two examples: John Mellor's book on agriculture's contribution to industrialization in a number of developing countries (Mellor 1995) and a synthesis project on rural Asia beyond the Green Revolution that is close to completion. Led by Peter Hazell and Mark Rosegrant, the latter work for the Asian Development Bank draws on the North Arcot study just mentioned and a wide range of other research by IFPRI and others to make the case that complacency about agriculture in Asia is misplaced and that the rural revolution must be completed if the full benefits of the Asian miracle are to be realized (Rosegrant and Hazell forthcoming). Furthermore, the lessons of the Green Revolution are important for understanding how to move ahead.

As the economic transformation takes place, the share of agriculture in the economy shrinks and the nonagricultural sectors become less dependent on agriculture. In order to prevent labor productivity in agriculture from falling behind that of the economy as a whole, there must be faster migration of workers to other sectors. Agricultural production needs to grow to provide for larger and more diverse demands and to support growth and employment in the rural nonfarm sector. This stage has been reached in much of Asia, but the situation in Africa is quite different.

The balance of IFPRI research on agricultural linkages—and there has been relatively little compared with other priority topics—has concerned Africa. For many years, IFPRI and others have combed the Asian experience for lessons that could be applied in Africa, with little success. It appeared that even if some sort of production increase comparable to the Asian Green Revolution could be achieved, the linkages would not be sufficiently strong to prompt a similar overall growth response.

More recent analysis of detailed panel data sets collected by IFPRI in five African countries tells a different story. A key conclusion is that sorghum and millet, widely grown and consumed in Africa, should be considered nontradables, thereby reflecting the relative isolation of many rural African areas and the lack of access to international

markets. This differs significantly from the tradable role of rice and wheat in Asia. A second important conclusion is that labor bottlenecks, perceived as an important constraint, exist in much of rural Africa for only relatively short periods, so additional labor resources can be mobilized. A source of increased, recurring income is needed in rural areas to start and maintain the process of agricultural growth linkages. The suggestion, by Chris Delgado and colleagues, is that growth in agricultural exports could provide this income source (Delgado, Hopkins, and Kelly 1998). To achieve substantial leverage, the income must go broadly to poorer households, who will spend a large share of it on locally produced nontradable goods and services.

The results of this research do not in themselves constitute an implementable strategy for rural development in Africa. Many supporting policies and interventions that are tuned to local conditions need to be found. Moreover, a reliable, widespread, and continuing source of income must be identified. The results of linkages research do suggest, however, the possibility of building an engine of growth for at least some parts of rural Sub-Saharan Africa.

Influence on IFPRI Research

While the actual volume of linkages research done at IFPRI has been relatively small, the linkages viewpoint, if one can use such an expression, has had a substantial influence on IFPRI research. Studies on food subsidies, commercialization, rural infrastructure, rural public works, food aid, fertilizer, and other topics, when inspected closely, show that linkages concepts have played a role in both defining approaches and focusing results.

A good example may be IFPRI's research on agricultural price policy, which led to a conference in 1984 attended by a number of senior developing-country decisionmakers and a book published four years later (Mellor and Ahmed 1988). What the editors called the "self-evident" truth that equitable growth requires a rapid increase in

the supply of food and the demand for labor is cited as an important element to be taken into account by developing-country governments making determinations about price policy. This element plays an important role in determining that agricultural prices are important policy instruments and that governments have a responsibility to deal with them. But many other elements of policy, dealing for example with labor markets, commodity priorities, technological choice, input markets, and credit, are also important in determining the pace and direction of agricultural and economic growth.

IFPRI as a Platform

IFPRI has been an advocate, through its directors general and otherwise, for agriculture-led growth. Advocacy has included a straightforward presentation of the case for giving priority to agriculture as a means of achieving more rapid yet equitable growth, repeated statements about the priority of agricultural research in development programs, and arguments suited to the concerns of the times. At the time when surplus stocks of cereals burdened the U.S. economy, IFPRI argued for providing increased food aid to countries willing to jumpstart rural development. The food aid imports could both generate local currency for investment and provide wage goods, making it possible to employ large numbers of the poor and malnourished without creating inflationary demand for food.

Curiously, the consensus in the development community on the critical importance of the agriculture sector has declined over the life of the Institute. The 1970s were a time when the students and practitioners of development concentrated attention on agriculture. This was the period of extreme scarcity of food reserves, a fear of starvation, and a basic human needs approach to poverty and employment. There was also a reaction against import-substitution as a path to industrialization and growing awareness of the technology-based increases in cereal productivity called the Green Revolution. All of these factors made for receptivity to the linkages message.

As the 1980s progressed, there came to be less interest in agricultural linkages and gradually less interest in agriculture itself. Development preoccupations moved elsewhere as complacency about food production grew and concern for the malnourished got absorbed into a priority for overcoming poverty but with little attention to the potential contribution of agriculture. Structural adjustment came along, with its focus on macro policies and the assumption that a liberalized market would stimulate growth in agriculture and other sectors.

The reader may be familiar with the publication by Joachim von Braun and colleagues detailing the decline in the allocation of aid funds to agriculture (von Braun et al. 1993), and perhaps also with the strategic statements issued by USAID in 1994 that made development only one of four goals, and agriculture a tiny part of that.

Five years ago, when we celebrated IFPRI's 20th anniversary, Walter Falcon delivered a lecture in which he listed 10 important events of the previous 10 years. "The greatest tragedy," he said, "is that food and agriculture have dropped off the high-level international agendas." Unfortunately that has not changed much in the last five years, in spite of the efforts of IFPRI, FAO, and many others. I had occasion the other day to look at the World Bank's annual *World Development Report* for the years 1999 to 2000, with its impressive title of "Entering the 21st Century." The report focuses on globalization and localization, devotes just two paragraphs to food problems of the future, and pays little attention to rural development.

I think that IFPRI is making some progress through the 2020 Vision activities in bringing the issues of agriculture into some balance with the currently fashionable ones of population and the environment, but the competition for attention is fierce. Our research results that illustrate the critical role of the agriculture sector are getting through to decisionmakers but are not generating the degree of attention, energy, and action that they should.

The Bias Against Agriculture

It was widely understood in the 1970s that agriculture as a sector was at a disadvantage in developing countries because of the emphasis on industrialization as the pathway to growth. Beginning in 1979, with a study in Chile, IFPRI set out to try to measure this disadvantage, taking account of indirect as well as direct elements. This research enterprise resulted with the publication of the IFPRI book *The Bias Against Agriculture*, edited by Bautista and Valdés in 1993. Two years earlier the World Bank had published its study, the five-volume book, *The Political Economy of Agricultural Pricing Policy*, edited by Krueger, Schiff, and Valdés. In the interval there were eight IFPRI country studies on the subject, with somewhat varying format and approach, and 18 relatively uniform World Bank country studies.

The conclusions of the two books were quite similar and have become a part of the common wisdom. In a sentence, the policies intended to protect industries in developing countries piled a further taxation of agriculture on top of obvious direct discrimination against agriculture, with serious negative consequences for the sector and for overall growth in the economy. A major element of the problem was artificially high exchange rates, a point that had been identified earlier but was now demonstrated convincingly in multiple cases with real data.

There were important differences between the two approaches, in spite of the fact that several people, Alberto Valdés in particular, were deeply involved in both. The World Bank product, resulting as it did from a set of studies carried out in a short period with a standard methodology, was more coherent. It also addressed the political economy of agricultural prices, as IFPRI did not. There was also a somewhat more subtle

difference: the Bank was determinedly neoclassical, eschewing any recommendations for transitional policies to avoid disruption of the economy following abrupt adoption of a set of pro-agriculture and pro-growth policies. IFPRI, in keeping with its interests in protecting the poor through such methods as subsidies, stressed the potential role policy interventions could play in smoothing the transition to new policies. IFPRI's work also included a series of three studies of Argentina, all involving Yair Mundlak. These studies were able to take account in dynamic terms of the movement of agricultural wage rates and the flow of investment. Among all of the other IFPRI and World Bank studies cited, only the IFPRI study of Chile, in which Mundlak was involved, also used this dynamic approach. One of the Argentina studies, recognized as groundbreaking, received an American Agricultural Economic Association award in 1982.

There is general agreement that this work by IFPRI and the World Bank had a significant and lasting influence throughout the development community. No one could henceforth contemplate the impact of macroeconomic policy on the agricultural sector without considering indirect effects. Yet it is particularly difficult to identify, much less to calculate the value of, a direct effect on economic growth arising from this new truth.

While the process of discovery and analysis was under way, structural adjustment, based on overall macroeconomic and practical considerations and without any specific concern for the agricultural sector, was taking hold and sweeping out the very policies that had constituted the bias against agriculture. This arrival of a new regime worked at two levels. On the one hand, the restrictive policies themselves were replaced with open policies; on the other, governments no longer had the resources to sustain many of the policies that bore against agriculture.

Another inhibition to gauging the practical impact of the research on bias is the absence of a great wave of agricultural development closely following the dismantling of biased policies. This would seem

to be yet another instance of the theme found in almost all IFPRI research that there are no silver bullets—technological, macroeconomic, or political. In other words, the constraints stemming from inappropriate macroeconomic policies were only part of the story. To produce a substantial response to new policies, many other things needed to be done as well. Continuing IFPRI research in Southern Africa is looking at the present effect of macroeconomic policies on agricultural development, among other things. In at least some cases the biased policies do seem to be truly gone. However, another finding, using general equilibrium models, shows that the extent of the bias may have been overestimated because of certain indirect effects not captured in the original analysis. Stay tuned.

As an illustration of how IFPRI research at the regional level is evolving, it is worth noting that besides addressing the effects of macro policies on agriculture, it also considers the repercussions on growth and equity, taking account of intersectoral linkages. While trade policy reform invariably leads to higher agricultural income, it does not necessarily improve national income and its distribution. The failure to undertake complementary policies, such as land reform and restructuring of government expenditure, helps explain why trade liberalization did not contribute to equitable growth in many African countries.

I will make a final comment on the research on bias against agriculture, which represented an effective, though not always smooth, collaboration between IFPRI and the World Bank. IFPRI's approach to this problem staggered through many years without the priority to draw on increasingly scarce unrestricted funds, and therefore was forced to depend on project finance, which proved very hard to extract from donors. When the World Bank decided to become a player, it simply budgeted the necessary resources, established an intellectual partnership with IFPRI, and conducted the whole operation in a much shorter period of time. There were personal factors in the picture, which I will not dwell on but which did influence the timing of the research. But perhaps at this distance, one can be permitted to dream about what might have been, if the World Bank had joined the IFPRI initiative with substantial resources much earlier.

Household Food Security

The work on food subsidies, discussed above, was the first instance of a long succession of subjects studied by IFPRI that can be grouped around the concept of food security at the household level. All have employed and developed the techniques of what was called new household economics back at the end of the 1970s. I think it is probably fair to say that IFPRI has become as well known for its work on household food security as it has for its work on agricultural linkages, but it will be possible here to address only a small part of it.

I would like to start with research on commercialization, which began, not unlike some other IFPRI strategies, with an overwhelming desire to debunk an unfortunate piece of common wisdom. This was the perception that the introduction of cash cropping worsened the nutritional status of poor people, who could not eat cotton and were therefore more secure growing a subsistence crop. At the national level, this argument translated into making food self-sufficiency an absolute priority without consideration of comparative advantage. The problem with these approaches was that they let poor people and poor countries remain in poverty while taking away an important option for escaping.

I raised this problem in a lecture at North Carolina State University in October 1982. Six years later, IFPRI had essentially completed its research on the subject under the leadership of Joachim von Braun, Eileen Kennedy, and colleagues. The work of publication continued for several years, eventually amounting to seven research reports and a number of other publications. A synthesis of IFPRI and other research

on commercialization was published as a book in the Johns Hopkins/IFPRI series (von Braun and Kennedy 1994). The effort to demolish the myth was quite successful. IFPRI researchers concluded that growing cash crops certainly did not harm and could be moderately beneficial to the nutrition of poor households. Unfortunately the replacement paradigm was not quite as simple as the myth itself. The results of a switch to cash cropping could be good or bad for poor people. To ensure a positive result required good management and good project design, as well as a range of supporting policies. One general finding that I like very much is that when poor farmers start growing cash crops, their production of subsistence crops often increases, as does the demand for agricultural labor, thus benefiting the poor who depend on selling their labor for much of their income.

IFPRI is generally credited with having provided conclusive evidence on this subject, if not a one-size-fits-all policy on how to commercialize. We have not, of course, convinced all the social scientists or all the NGOs of the validity of our results.

In ways that reflect much credit on those who did it, the commercialization research was not only conclusive, it was fertile. Out of the commercialization studies grew an interest in rural finance, which led to the creation of a substantial research program; an interest in the role of micronutrients in the nutritional status of the poor; interest in a whole range of questions about the role of women within the household and in the household's interaction with the outside world; and a related interest in the dynamics of behavior within the household, a topic raised but not tamed in the commercialization context and left for important later research.

Turning now to one of these topics, gender, it may surprise some of you to know that up to about 1990, IFPRI did not devote much research attention to gender issues as such. There was deep concern about women in relation to nutrition and about allocations of food within the household, but it was directed primarily to women as mothers, both pregnant and lactating, and to infants. Field research on

commercialization, however, drew attention to equity in the treatment of women, their own nutritional requirements, and their roles in production. As the commercialization research came to a close, the results from the field, combined with the personal interest of a number of IFPRI researchers, both men and women, and, be it admitted, pressure from several donors, propelled IFPRI into a serious consideration of gender questions with two dimensions.

One dimension was the recognition that the different roles of men and women needed to be taken into account in virtually all IFPRI research, that gender-blind research was, in fact, partially blind research. I think we have been pretty successful in applying this principle. Whenever there is any slippage, we are likely to be reminded by a sharp comment in a brown-bag presentation or in the internal program review. The work on property rights is just one area in which the role of women has been emphasized.

The other dimension is, of course, research directed explicitly toward gender questions. This research embraces topics such as global trends in women's nutritional status, the effects of government policies and household income on women's health and nutritional status, the relationship between nutritional status and women's productivity, and by no means least, the implications of belonging to a female-headed household, which is becoming more and more common in many countries.

As I have said, the team working on commercialization had concluded that it was unsatisfactory to continue to consider the household as a unified decisionmaking unit. But it was hard to see any alternative. Attacking this problem became a preoccupation of a team of researchers at IFPRI and outside. Their accomplishment, the reformulation of the household as an economic entity, was what Wally Falcon, in his lecture at IFPRI's 20th anniversary celebration, called "The greatest analytical breakthrough in the past decade (Falcon 1995, 10)." Two years after Falcon's speech, an IFPRI book carried the analysis a long step forward, applying the theory of cooperative and noncooperative

games to the problem and setting out a program of further research that is pushing ahead (Haddad, Hoddinott, and Alderman 1997).

I cannot claim that IFPRI was first off the mark in recognizing the importance of gender issues. That distinction belongs to other researchers and within the CGIAR to other centers. I can claim, however, that we are in a position of leadership on the issue now and intend to stay that way.

An entirely different sort of research related to household food security has been the study of a type of intervention, usually financed with food aid either directly or through cash generated by open market sales. This is food for work, an often controversial program because of its two potentially competitive goals: to move food quickly into the hands of malnourished people, and to construct public infrastructure with developmental value. Becoming preoccupied with one goal often means doing less well on the other, yet the appeal of food for work is precisely its potential for accomplishing both goals at the same time. IFPRI worked on this general topic in three quite discrete phases, in all of which there was some collaboration with the World Food Programme (WFP).

The three phases were (1) an evaluation of the food for work activities of the WFP in Bangladesh, done in collaboration with the Bangladesh Institute for Development Studies during 1981–85, (2) a study of the Maharashtra Employment Guarantee Scheme in India, and (3) a study of the potential of food for work in Africa, a project that grew out of research on famine in Africa during 1990–95. A fourth study was conducted later in South Africa. The first and third phases involved extensive household surveys, but they were otherwise quite different. In Bangladesh food for work had a long history, stretching back to British India, and had been studied repeatedly. In Africa food for work was a relatively recent innovation, with heavy dependence on NGOs and supported with some enthusiasm by a number of donors. In both cases, the output was rather more operational than is normal for IFPRI research. That is, it involved specific suggestions concerning the design and management of programs.

I have raised research on food for work not to summarize the results, which are both detailed and interesting, but to illustrate something of the range of food security work at IFPRI. The Institute was only one player in a much studied field, in which the World Bank, the International Labour Organisation, the WFP itself, the Institute of Development Studies, and a number of donors of food aid were active. It is not clear that any sort of consensus arose from this work. We do know that the WFP considered the Bangladesh evaluation when it decided to renew its support for food for work in that country. In the case of Africa, the WFP strategy for the region clearly incorporated IFPRI's proposals for flexible management of food-for-work projects, so that food for work could serve both developmental and welfare purposes in normal times, and be adjusted to emergency requirements in times of unusual food scarcity. The WFP also adopted other IFPRI proposals for famine prevention. In the course of research on famine in Africa (von Braun, Teklu, and Webb 1998), IFPRI had worked out a famine prevention and response policy for Ethiopia that the government had put in place. IFPRI also helped develop a policy for Sudan that was not acted upon.

One can make a case that IFPRI has constantly pushed at the envelope around the CGIAR, starting with its initial attempts to get through the door into a system devoted largely to research on the production of agricultural commodities. The urban food security program is a further illustration of that tendency. It does give some attention to periurban food production, but agriculture and rural development do not play much of a role in this research. Its main concern is with providing the information needed to make sound policy decisions for reducing hunger and malnutrition in urban areas. As a result, raising funds occasionally has been difficult. Generally speaking, however, urban research has developed well since it began in 1995. The program team is broadly multidisciplinary and includes anthropologists, economists, epidemiologists, nutritionists, and sociologists. Another special characteristic of this work is the collaboration with a large NGO, CARE International, in projects in urban Bangladesh and Mozambique.

Interesting results have started to emerge, but of course it is far too soon to guess how influential the output of IFPRI's urban research will turn out to be.

As a last item under the heading of household food security, something needs to be said about IFPRI's work on the relationship between agricultural research and nutrition, including IFPRI's role in influencing the CGIAR on food consumption and nutrition issues.

The initial goals of the CGIAR, as codified before IFPRI came into existence, included improving the food consumption levels and nutritional status of the poor. Thanks largely to Sir John Crawford's personal interest, there was also a reference to improving the nutritional quality of cereals, principally by increasing protein content. The International Maize and Wheat Improvement Center (CIMMYT) pursued this goal through high-lysine maize. But the CGIAR's perception was that nutritional improvement could be achieved by raising the production of staple foods; a second aim, added fairly early on, sought to increase the income levels of the poor.

In 1974 representatives of the UN Protein Advisory Group, the predecessor of the Sub-Committee on Nutrition (SCN), paid a visit to a TAC meeting and proposed, among other things, a jointly sponsored workshop on nutritional goals for plant breeders. While there was some eventual cooperation on grain legume research, the workshop idea was turned down. Economists at two CGIAR centers, International Center for Tropical Agriculture (CIAT) and International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), attempted to look at nutrition-oriented priorities for agricultural research. Otherwise, not a great deal seemed to be going on, except for research undertaken at IFPRI. Then, in the early 1980s, the SCN, which included a number of multilateral donors with bilateral donors as observers, asked IFPRI to prepare a paper on how international agricultural research could meet nutrition goals. That task fell to me, as head of the Food Consumption program. To make a long story short, we called a meeting of centers at the International Livestock Centre for Africa

(ILCA) early in 1984. Almost all the centers attended. A lot of interesting things were said at the meeting, which had at times the atmosphere of a free-for-all fencing match. The center directors approved a position paper on the subject, their first, drawn largely from some preparatory work I had done, and TAC, although still inclined to say that nutrition-oriented research was someone else's business, declared that it took this input into account in the next round of setting CGIAR research priorities.

Curt Farrar tells me that all of this had very little effect on the level of attention to nutrition within the CGIAR, but something worked. Perhaps it was the continued insistence of some donors, perhaps the drumbeat of nutritional information and insights for which IFPRI was responsible. Certainly we were able to raise funds with relatively little trouble. TAC did find a member or two with nutritional expertise or interests. And nutrition research ultimately found a place in the structure of CGIAR priority activities. IFPRI was asked to represent the CGIAR at the International Conference on Nutrition in 1992, which meant that some useful background papers were prepared. I would like to jump ahead now to last year, to another CGIAR-wide conference with the title "Improving Human Nutrition Through Agriculture: The Role of International Agricultural Research." Besides other centers, this meeting included a number of other collaborators in a CGIAR micronutrients project that is coordinated by IFPRI and is now about five years old. This conference reversed a position taken at the earlier conference, which had governed CGIAR behavior for most of the intervening years, and strongly recommended that the CGIAR be engaged in breeding for better nutrition. It acted on evidence coming out of the nutrition community that people, particularly children and women in their childbearing years, perhaps suffer more from micronutrient deficiencies than they do from calorie deficiencies. This is another story that is too long for this paper, but I commend it to you for its substantive interest.

It has two parts, one of which is traditional IFPRI research, taking the measure of the problem at the country level and trying to come up with policy alternatives for mitigating the impact of malnutrition. This

part is now under way in collaboration with several other organizations in a USAID-financed project called Micronutrient Operational Strategies and Technologies (MOST).

The second part is the CGIAR Micronutrient Project. IFPRI's involvement in this project is unusual because the work consists mostly of plant breeding, using both conventional approaches and biotechnology to develop varieties with higher micronutrient content, and of testing the resulting varieties to determine how well the nutrients are absorbed by the human body. But IFPRI is involved because this second part obviously links closely to the first. The overall goal is to make available food-based interventions that can become part of operational strategies at the country level.

There was some controversy about IFPRI's role in promoting and coordinating the activity, because we lacked both medical and plant breeding expertise. This is another research area in which money has been a bit hard to find. However, the program has survived and its prospects are bright.

Most of the current research under the CGIAR project is done at CIAT, CIMMYT, and IRRI. The USDA and the University of Adelaide in Australia are also partners in this research. The crops under study include rice, maize, wheat, beans, and cassava. Differing degrees of mineral and vitamin concentrations have been found in these crops, and progress is being made in turning the varying concentrations into productive and attractive varieties with high micronutrient content for release to national research systems and then to farmers. Many readers will have seen the recent publicity concerning the development in a Swiss laboratory of experimental rice varieties rich in beta carotene. This is not directly a part of the project described, but conveys the objective of the project. A high-yielding disease-resistant aromatic rice high in iron has been developed at IRRI under the project. IR 68-144 is currently undergoing agronomic and human availability tests and may be ready soon for release to farmers.

The major impact of this work is some years in the future. For the present it is gratifying to see the CGIAR centers and outside partners collaborating actively and effectively to give agricultural research increased impact on the nutrition of the poor, and also to see IFPRI playing a key role in that process.

The Environment

Toward the end of the 1980s, the CGIAR as a whole, and IFPRI as part of the CGIAR, began to respond to growing concern worldwide about the capacity of the earth to sustain human life. There were earlier strands of IFPRI work in which environmental issues played a role. One example was commercialization research in Rwanda, where the shortage of land in relation to population had to be reckoned with as a major policy choice. But a coherent environmental research program was lacking.

An indication of the way IFPRI approached this set of issues, which were so complex that they posed a major problem of selectivity for the Institute, is found in the strategy statement of 1991. The document listed six different environmental issues, as a framework for determining which ones IFPRI would address. Only forestry was specified as a definite subject of research (IFPRI 1991, 25).

Since then IFPRI has created a research division with environment in its name and made a major investment in research on the topic. Publications have started to pour forth in the past year or two. Over the years our environmental research has sharpened its focus. I will concentrate here on three strong elements of the present program to illustrate its range and momentum.

First, there is a great demand among donor agencies for the insights IFPRI has generated about the role and potential of less-favored lands, be they steep, degraded, or characterized by uncertain rainfall or poor soils. Indeed we set out to work on hillsides but were persuaded by a chorus of demand in the CGIAR and among donors to expand the target to less-favored lands more generally.

Less-favored lands contain a large proportion of the world's poor. Some of these lands, the deserts and drylands for example, are home to serious environmental threats. These two characteristics—poverty and environmental damage—intersect directly with the priorities of many donors. The critical perception that IFPRI brought to the equation is that something can be done about these problems: there are investments that can be made and technologies that can be developed to make an important difference in alleviating poverty and environmental degradation in less-favored areas. Moreover, some IFPRI research suggests that this sort of investment may have a higher marginal return than putting the same resources into more favored areas, which have been the major recipients of investment in the past (Fan and Hazell 1999).

The themes of IFPRI research on less-favored lands include a comparison of the cost-effectiveness of public investments in different types of agricultural lands, strategies for intensifying agriculture in less-favored lands in ways that are sustainable, developing policy-relevant monitoring systems for natural resources, and modeling the linkages between macro, trade, and agriculture sector policy reforms and farmers in less-favored environments. This work is one of many examples of how IFPRI's capacity in different divisions is mobilized in a comprehensive attack on specific research problems.

The second aspect of environmentally oriented research at IFPRI that I will discuss is water, a field in which we have been active for a long time. IFPRI has collaborated with what is now called the International Water Management Institute for many years, concentrating mainly on allocation mechanisms and other institutional arrangements at the level of irrigation systems or communities. This research is continuing with a focus not only on rural livelihoods, but on equity and efficiency of water allocation and effects on the environment. More recently, we began to study the same range of concerns at the river basin level, where broader trade-offs are feasible physically, but institutional issues become much more complex. A first research report on a river basin study will be published shortly.

The remaining element of IFPRI's water research is an extension of the global IMPACT model to include the effects of water availability. This will provide a framework for comprehensive analysis of the interaction between water availability and food production, for experiments with different scenarios, and for the formulation of long-term strategies for meeting food demand, with water availability taken into account.

The last environmental research activity I will discuss is collective action and property rights. I will not focus on IFPRI research proper in this area, however, but on a broad network in which IFPRI plays a key role: The System-wide Program on Collective Action and Property Rights. CAPRI, as it is known, involves all 16 of the CGIAR centers. Individual membership extends to all researchers participating in projects, even if they come from organizations outside the CGIAR. IFPRI initiated the network and serves as its convener. CAPRI presently has more than 50 active projects, up from 13 just two years ago. There is also a grantmaking facility, which IFPRI administers. The best way to convey the scope of CAPRI may be to list the research themes being pursued, as summarized from the CAPRI website:

- Technology adaptation. More secure property tenure seems to encourage investments necessary to use new technology, while collective action among farmers may enable more equitable and sustainable exploitation.
- Accommodating multiple uses and users of a resource. Collective action and property rights can play a role in facilitating the sharing of a resource by groups such as men and women, or farmers and herders.
- Structuring devolution. How do different arrangements for collective action and property rights affect devolution to private sector control, and do they lead to more equitable, sustainable, or productive use of a resource?
- Role of environmental risk. What is the role of risk in motivating collective action, and how may this work?

- Feminization of agriculture. How do property rights and collective action respond to the growing numbers of female-managed households?
- Changing market relationships. How does increasingly commercialized agriculture interact with collective action, property rights, and other local institutions?

The CAPRI activity says a good deal about the present state of IFPRI. It points to excellent and active relationships with the other CGIAR centers, which has not always been the case in the past. It also embodies the greatly increased attention paid to institutions, which is a necessary element in serious work on sustainability issues, as is illustrated by the case of water research. To do a satisfactory job on these issues, IFPRI will need to greatly strengthen its capacity to study the working of institutions, either by adding internal capacity or developing additional collaborative relationships.

Overall, our work on the environment is proceeding in a most satisfying way. Like gender issues, environmental goals are represented not only by a significant amount of direct research, but also are embedded in research with other objectives throughout the Institute.

Agricultural Science and Technology Policy

Responsibility for doing research on agricultural research policy is not clearly assigned within the CGIAR between the International Service for National Agricultural Research (ISNAR) and IFPRI. To some extent the two centers have collaborated, but for most of the period since ISNAR was founded in 1980, one or the other center has taken the lead. ISNAR was first, but since 1994 it has been IFPRI's turn. In this brief period, the program has been extremely productive, and is becoming more so. While the research is aimed solidly at benefiting poor people in developing countries, agricultural science and technology worldwide are studied because of the cross-border benefits from research.

For this topic, as with others, only a very brief summary of what has been accomplished and what is in the pipeline is possible. A major line of work has been on investment and institutional policies: how has agricultural research been financed in times of fundamental changes in the private sector and thus in the role of public financing? These changes have major implications for both developed and developing countries and for international institutions such as the CGIAR. A study on some of the more innovative rich countries has been completed (Alston, Pardey, and Smith 1999) and one on the poorer countries has begun. This work also meshes with IFPRI research on policies for public investment in rural areas.

A second principal focus has been on genetic resource and biotechnology policies. This involves the evolution of intellectual property rights and the privatization of research outputs, both of which have made the

management of public research much more complex than in the past. At present research is being done on the implications of the changing environment for the management of gene banks, an important concern for the CGIAR centers. For example a model has been built to analyze costs and management decisions at the CIMMYT gene bank.

Evidence of the potential benefits of biotechnology, particularly for developing countries, and bitter controversy over the risks of genetic manipulation of plants seem to mount in tandem week by week. IFPRI's views on these issues are being sought frequently, and we have made a concerted effort to respond objectively and accurately and to provide background information. We are somewhat in the same position now with regard to biotechnology that we were on the environment in 1991. An internal brainstorming exercise is under way to discover which aspects best lend themselves to our capacities, whether we will need to expand capacity, and what resources will be required to pursue our research objectives.

Our principal concerns are how the new technologies will affect the interests of the poor producers and consumers in developing countries and what policies can increase the benefits and manage the risks. We will also need to watch the evolution of issues at the level of the CGIAR and the donors and make an appropriate response. We expect to select a number of issues for active research, perhaps including intellectual property rights, international trade, impact on developing-country farmers, impact on nutrition, and the role of markets. We may simply monitor other issues such as environmental impact, biosafety regulations and related institutions, and ethical issues.

The third item on my selective list of work under this heading is methodology for evaluation of research. Improvements in methodology are being made in collaboration with a widespread academic community. An important element is investigation of the spatial elements of research benefits using Geographical Information System technologies. This approach has been used, for example, to assess regional research priorities for Latin America and the Caribbean.

Perhaps not the most important area of this work, but one dear to IFPRI's heart, is a continuing effort to estimate the benefits from policy-oriented social science research. Possibly of broader interest is a wide-ranging review of the benefits of agricultural research and development as calculated by various researchers over the years. The calculations are frequently quoted but need to be critically compared and appraised. We should expect to see these results before long. We are also waiting with interest for an assessment of the benefits to the developed world of adopting Green Revolution varieties of wheat and rice. This will be an extension of the "hidden harvest" study of 1996 that showed substantial benefits to the United States from the work of IRRI and CIMMYT and may have served to encourage at least one of the CGIAR's (and IFPRI's) most important donors (Pardey et al. 1996).

I take it as a major compliment to IFPRI's research on impact methodology that the Impact Assessment and Evaluation Group of the CGIAR has asked us to lead a systemwide project to strengthen capacities for making assessments of the impact of CGIAR research on poverty. The methodological phase of the project has been completed and a number of empirical studies are about to begin.

Building Food Policy Research Capacity

I turn now to one area where the impact of the CGIAR as a whole, and of IFPRI, is quite problematic. The extent of the resources to dedicate to building up national research systems and the strategy for doing so have been difficult issues for the CGIAR throughout its existence. On the one hand, success in getting the products of research into actual production in developing countries obviously depends on having national and subnational institutions capable of adapting results to local conditions and interacting continuously with extension services to meet the needs of individual farmers. On the other hand, CGIAR centers did not possess all the technical or managerial skills to conduct institutional strengthening programs, nor the resources to do so on the scale and for the duration required. ISNAR added useful but still quite limited capacity to assist national agricultural research systems.

For IFPRI, the problem has been compounded by the fact that food policy research is done, to a considerable extent, by institutions that are not part of the national agricultural research systems that are the focus of attention in the CGIAR, but rather by entities with a broader economic or planning focus. Thus the extensive information collected first by ISNAR, and more recently by IFPRI itself, about agricultural research institutions in developing countries does not cover many food policy research institutions.

IFPRI has never undertaken a systematic review of its potential collaborators in developing countries, although it knows many of them through actual collaboration. For most of its life, IFPRI eschewed separate capacity-building activities, preferring to pursue this goal

through collaboration in research programs. Recently some modest efforts have been undertaken in three countries, and several training programs have been initiated. An indirect approach to capacity strengthening has been the creation of a network of IFPRI associates that builds on individual rather than institutional relationships. And a start has been made in Africa to stimulate the creation of institutional counterparts in the framework of the 2020 Vision initiative.

IFPRI's impact in this field has not been well documented. Relevant information has not been collected in any systematic way. But the problem may be deeper. Significant positive results in Malawi at Bunda College are showing a tendency to erode following the end of IFPRI's presence in the country (Ryan 1999). There are almost no institutional gains to be observed in Bangladesh after long years of IFPRI involvement. A somewhat pessimistic conclusion from our experience might be that, with some major exceptions, developing-country governments are not much interested in putting significant resources into building substantial domestic capacity to conduct food policy research. They prefer instead to rely on donor-funded outside support. If so, a big job of selling remains to be done. We intend to keep at it, for example by expanding our output of training materials.

Trade and Globalization

When IFPRI opened its doors in 1975, it faced lots of criticism for taking an interest in international food trade. The critics said that other organizations covered this field adequately, but what at least some of them meant was that a research institute based in Washington, D.C., might use the interests of developing countries to criticize the agricultural policies of the European Common Market. This criticism persuaded the CGIAR to discourage trade research at IFPRI for a number of years. IFPRI continued, nonetheless, to study trade, bobbing and weaving as necessary for self-preservation. Finally in 1985, in the first CGIAR external review of IFPRI, the trade research activity was duly blessed (Farrar 2000b).

After that, IFPRI began to be criticized, though by different people, for not doing enough trade research. We were supposedly preoccupied with closed market economics and microlevel studies, while developing countries badly needed insights into their policy choices in international markets and perhaps even technical assistance in negotiations in the Uruguay Round. This kind of criticism has continued until very recently, including some strong messages from the Board of Trustees. I rather hope that the recent significant expansion of the activities of the Trade division, which included sending a research fellow to add a few sensible words to the clamor in Seattle, will still those criticisms.

I will not say much about past work on trade issues, which will be covered fully by Curtis Farrar in his history of IFPRI's research (Farrar forthcoming), as will all the other important work done by IFPRI that I

have been prevented from discussing because of space constraints. In very quick summary, trade research at IFPRI has responded to changes in the global market and the policies of both developed and developing countries. In the mid 1970s, the issue was how the international system could ensure the food security of developing countries in the face of scarcity. As international stocks recovered and world prices resumed their decline, interest turned to how the policies of the developed countries affected the interests of the South. When the Uruguay Round started in 1986, with agriculture newly on the table, trade liberalization came to the fore. Later IFPRI addressed regional trade arrangements, exports of nontraditional agricultural products, prospects for agricultural trade among developing countries themselves, and the potential impact of changes in important market areas such as Russia and Eastern Europe.

I do want, however, to say a bit more about what we are presently doing in the area of trade. With the prospect of international negotiations on trade in agriculture taking place in the near future, whatever happens to the Millennium Round, and given the substantial increase in developing-country participation in the World Trade Organization (WTO), IFPRI has a natural role to play in examining the international trade system, in spite of the fact that many others are also actively involved in studying this area. The main objective of our research is to evaluate the impact on agriculture, the rural economy, and poverty alleviation in three areas where rapid change is taking place:

1. Regional trade arrangements, intended to promote economic integration. Under this heading we are presently working on Southern Africa, the relations between the North American Free Trade Agreement (NAFTA) bloc and regional groupings in Latin America, and integration between North and South Korea.
2. Global trade reform under the WTO. We have started with a set of policy briefs under the 2020 Vision initiative that dealt with, among other issues, the complex relationships between regional and global trade negotiations in Latin America and

the Caribbean. A project on China in the WTO is just getting under way, and other work is in the pipeline or awaiting funding. There are close connections between the WTO negotiations and other areas of our research, such as biotechnology.

3. The Asian financial crisis and the changes in world capital flows that have resulted, or may result, from the crisis. This research links closely with our studies of the effects of macroeconomic policy on agriculture.

As we look across the range of IFPRI research in these exciting days, it is plain that many of the things we are concerned with can be thought of as small pieces of the pattern of globalization. It seems important, therefore, to try to look at the big picture, in order to explain how the policy relationships that result from our research fit with each other and with other trends and events that are shaping the present and the future. For this reason, we have decided to devote some resources to the question of globalization and its implications for our research and for the poor in developing countries. It is too early to say just how we will approach this large set of questions, but we are firmly convinced that we must do so in the coming few years.

The 2020 Vision Initiative

The early 1990s were marked by complacency within international policy circles that the prevalence of global food surpluses was a sufficient guarantee of global food security. At the same time, considerable disagreement existed within the research community on the magnitude and nature of the world's food and environmental problems. We at IFPRI became increasingly concerned by the lack of a long-term vision and consensus about what actions were needed to assure a food-secure world, and responded by conceiving and launching the 2020 Vision for Food, Agriculture, and the Environment initiative. Beginning late in 1993, IFPRI sought to refocus attention on current and future challenges in areas such as food security, agricultural development, rural poverty, and environmental protection; to catalyze a new consensus on these issues within the international policy community; and to encourage policy leaders—both in the donor community and in the developing world—to commit more energy and resources to resolving food security concerns. While building on IFPRI's research, 2020 was a significant departure from the traditional IFPRI project; research activities focused on contentious or emerging issues and a very heavy emphasis was placed on communications to decisionmakers. We spearheaded the construction of an innovative new global food model capable of projecting long-term food balances under different scenarios, the hosting of an extensive series of high-profile meetings and workshops, and the publication of numerous papers and briefs designed for busy policymakers and popular audiences, among other things. The signature event was an international conference held in Washington, D.C., in June 1995, attended by around 500 people from about 50 countries.

2020's impact has well exceeded our initial expectations. The 2020 Vision initiative has contributed significantly to raising public awareness of global food security issues, enhancing dialogue and debate, and influencing policies and programs of international development agencies and national governments. We have successfully reached our key audiences (researchers and educators, international policy leaders, and developing-country policy leaders) with our materials and messages, we have had a significant effect on the policy thinking of this audience, and in some cases we have catalyzed new policy actions. The 2020 Vision initiative has also placed IFPRI center-stage in the food security debate. Many people around the world look to IFPRI for solid research-based information on emerging issues and long-term perspectives on global food issues. IFPRI is one of the handful of institutions whose opinions are regularly sought and quoted in the media on topics related to global food security.

A Final Note

The global food situation has improved greatly during the last four decades. Global food production has increased faster than population growth, and many millions of people have moved out of poverty and malnutrition. However, problems of poverty, food insecurity, and malnutrition remain at critical proportions as do problems of degradation of natural resources. The human suffering resulting from a failure to solve these problems is almost unimaginable and a huge waste of both human and physical resources. Appropriate policies will be essential for the eradication of absolute poverty, food insecurity, and malnutrition. In addition to real political will, decisionmakers in government and elsewhere will need sound conceptual and empirical knowledge to design and implement the right policies. Policymakers are also more likely to pursue appropriate policies if they are influenced by a knowledgeable public with a social conscience. While much is now known about the effects of various policy measures, the current debate related to globalization, trade liberalization, and biotechnology illustrates the urgent need for sound conceptual and empirical knowledge to help guide deliberations and decisionmaking. The existence of such needs is also evident from the strong demands both national governments and international institutions are making for additional information not only about the above issues, but about finding better approaches to reducing poverty, food insecurity, and malnutrition; increasing sustainable productivity in agriculture; and implementing market reforms. The recent round of consultations IFPRI conducted with our main stakeholder groups about the rapidly changing environment for food policy research and the emerging policy issues arising from these changes has confirmed these directions for priority attention in the coming years.

IFPRI can play an important role in meeting these needs through research and information exchange. Solid policy research that produces relevant and timely knowledge, combined with the 2020 Vision initiative and an enhanced communication program, is, in my opinion, a powerful prescription for future success. As our research output has accumulated over the years under the outstanding leadership of Hathaway, Mellor, and Faaland, IFPRI has gained an increasingly secure basis for placing the implications of its research more forcefully before the informed public as issues claim the limelight and decisions are made. We are now playing such a role and will do so even more effectively in the future. IFPRI's highly qualified staff, its accumulated knowledge, its access to decisionmakers and collaborators, and its well-deserved reputation make it better equipped than ever to contribute to our vision of a world where everybody has access to enough food, where malnutrition is absent, and where natural resources are managed sustainably.

References

Two major sources for this paper should be recognized. The first is my own memory. I have been associated with IFPRI for two-thirds of its life, in two stages, the first from 1980 to 1987 as director of the Food Consumption and Nutrition Policies Program, and since 1992 as director general. At other times, I was in a position to observe IFPRI from afar. I can thus claim knowledge, if not objectivity, on the subject. A second source is the draft of the history of IFPRI being written by Curtis Farrar, who has contributed to the preparation of this paper. In order to avoid cluttering the paper with citations, these two sources are not referenced in detail in the text.

Alston, J. M., P. G. Pardey, and V. H. Smith, eds. 1999. *Paying for agricultural productivity*. Baltimore: Johns Hopkins University Press for IFPRI.

Bautista, R. M., and A. Valdés, eds. 1993. *The bias against agriculture: Trade and macroeconomic policies in developing countries*. San Francisco: ICS Press for the International Center for Economic Growth and IFPRI.

Braun, J. von, and D. Puetz, eds. 1993. *Data needs for food policy in developing countries: New directions for household surveys*. Occasional Paper. Washington, D.C.: IFPRI.

Braun, J. von, and E. Kennedy, eds. 1994. *Agricultural commercialization, economic development, and nutrition*. Baltimore: Johns Hopkins University Press for IFPRI.

Braun, J. von, T. Teklu, and P. Webb. 1998. *Famine in Africa: Causes, responses, and prevention*. Washington, D.C.: Johns Hopkins University Press for IFPRI.

- Braun, J. von, R. F. Hopkins, D. Puetz, and R. Pandya-Lorch. 1993. *Aid to agriculture: Reversing the decline*. Food Policy Report. Washington D.C.: IFPRI.
- Delgado, C. L., J. Hopkins, and V. A. Kelly. 1998. *Agricultural linkages in Sub-Saharan Africa*. Research Report No. 107. Washington, D.C.: IFPRI.
- Falcon, W. P. 1995. *Food policy analysis, 1975–95: Reflections by a practitioner*. IFPRI Lecture Series No. 3. Washington, D.C.: IFPRI.
- Fan, S., and P. Hazell. 1999. Are returns to public investment lower in less-favored rural areas? An empirical analysis of India. Environment and Production Technology Division Discussion Paper No. 43. IFPRI, Washington, D.C.
- Farrar, C. 2000a. A review of food subsidy research at IFPRI. Impact Assessment Discussion Paper No. 12. IFPRI, Washington, D.C.
- . 2000b. *IFPRI's first 10 years*. Washington, D.C.: IFPRI.
- . Forthcoming. *Ideas on food policy: A history of research at the International Food Policy Research Institute*.
- Gavan, J. D., J. Strauss, and D. Skellie. 1977. *Recent and prospective developments in food consumption: Some policy issues*. Research Report 2. Washington, D.C.: IFPRI.
- Haddad, L., J. Hoddinott, and H. Alderman, eds. 1997. *Intrahousehold resource allocation in developing countries: Models, methods, and policy*. Baltimore: Johns Hopkins University Press for IFPRI.
- Hazell, P. B. R., and C. Ramasamy. 1991. *The Green Revolution reconsidered: The impact of high-yielding rice varieties in South India*. Baltimore: Johns Hopkins University Press for IFPRI.
- Hazell, P. B. R., and A. Röell. 1983. *Rural growth linkages: Household expenditure patterns in Malaysia and Nigeria*. Research Report 41. Washington, D.C.: IFPRI.
- IFPRI. 1976. *Meeting food needs in the developing world: The location and magnitude of the task in the next decade*. Research Report 1. Washington, D.C.
- . 1991. *IFPRI's strategy for the 1990s*. Washington, D.C.

- . 1999. *Research that matters: The impact of IFPRI's policy research*. Washington, D.C.
- Krueger, A. O., M. Schiff, and A. Valdés, eds. 1991 and 1992. *The political economy of agricultural pricing policy*: Vol. 1, *Latin America*; Vol. 2, *Asia*; Vol. 3, *Africa and the Mediterranean*; Vol. 4, *A synthesis of the economics in developing countries*; Vol. 5, *A synthesis of the political economy in developing countries*. A World Bank Comparative Study. Baltimore: Johns Hopkins University Press for the World Bank.
- Lipton, M., and R. Longhurst. 1989. *New seeds and poor people*. London: Unwin, Hyman.
- Mellor, J. 1995. *Agriculture on the road to industrialization*. Baltimore: Johns Hopkins University Press for IFPRI.
- Mellor, J. W., and R. Ahmed, eds. 1988. *Agricultural price policy for developing countries*. Baltimore: Johns Hopkins University Press for IFPRI.
- Mellor, J. W., and B. F. Johnston. 1984. The world food equation: Interrelations among development, employment, and food consumption. *Journal of Economic Literature* 22 (June): 531–574.
- Pardey, P. G., S. Fan, J. M. Alston, and J. E. Christian. 1996. *Hidden harvest: U.S. benefits from international research aid*. Food Policy Report. Washington, D.C.: IFPRI.
- Pinstrup-Andersen, P., ed. 1988. *Food subsidies in developing countries: Costs, benefits, and policy options*. Baltimore: Johns Hopkins University Press for IFPRI.
- Pinstrup-Andersen, P. 1999. *Food policy research for developing countries: Emerging issues and unfinished business*. Washington D.C.: IFPRI.
- Rosegrant, M., and P. Hazell, eds. Forthcoming. *Transforming the rural Asian economy: The unfinished revolution*. Oxford, UK: Oxford University Press.
- Ryan, J. G. 1999. Assessing the impact of policy research and capacity building by IFPRI in Malawi. Impact Assessment Discussion Paper No. 11. IFPRI, Washington, D.C.

About the Author

Per Pinstrup-Andersen, a native of Denmark, joined IFPRI as its director general in 1992. Before assuming this post, he was director of the Cornell Food and Nutrition Policy Program, professor of food economics at Cornell University, and a member of the Technical Advisory Committee of the CGIAR. Previously, Pinstrup-Andersen served as a research fellow and director of the Food Consumption and Nutrition Policy Program at IFPRI, an agricultural economist at the International Center for Tropical Agriculture (CIAT) in Colombia, director of the Agro-Economic Division at the International Fertilizer Development Center (IFDC) in the United States, and an associate professor of the Royal Veterinary and Agricultural University in Copenhagen.