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IMPACT ASSESSMENT DISCUSSION PAPER NO. 12

**A REVIEW OF FOOD SUBSIDY
RESEARCH AT IFPRI**

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Discussion Papers contain preliminary material and research results, and are circulated prior to a full peer review in order to stimulate discussion and critical comment. It is expected that most Discussion Papers will eventually be published in some other form, and that their content may also be revised.

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FOREWORD

This paper inaugurates a new subset of impact assessment discussion papers drawn from Curtis Farrar's draft history of IFPRI. At the time of IFPRI's 20th anniversary, I asked Curt to write a history of the Institute. His approach has been to look at IFPRI's output topic by topic, and to relate that output to what was being written and published elsewhere, thus giving a sense of where IFPRI's contribution fits into the broad evolution of food policy research and practice. The history includes a summary of evidence on the impact of specific research, where that is available, thus providing a good sense of IFPRI's overall accomplishments, their weight, and their relevance. It is therefore quite fitting that some parts of the draft appear in this series, making them available well before the totality of the history is published. Distribution in this form will also make it easier for those who have comments on the content or its presentation to make their views known to Curt.

It is appropriate to start with research on subsidies, since IFPRI addressed this field early in its history and remains active in it. IFPRI's substantive contribution to the understanding of how subsidies affect the poor is broadly recognized. Moreover, there is substantial documentation of IFPRI's impact at the country level, as reviewed in other publications in this series.

Future discussion papers excerpted from the IFPRI history will deal with other subjects on which IFPRI has done large amounts of research. Together they should make a significant contribution to our understanding of how IFPRI has enhanced both knowledge and policy action.

Per Pinstrup-Andersen
Director General

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ABSTRACT

Since its earliest years IFPRI has conducted research on food subsidies, concentrating on methods to achieve the social objectives of subsidies without undue distortion of the economy or excessive economic and political costs. Studies have been conducted in eleven countries, several of which have been the site of more than one project. IFPRI research on food subsidies has had, and continues to have, significant impact at the country level. Moreover, the cumulative weight of the research has influenced how the development community regards food subsidy issues.

INTRODUCTION

In the early years of the Institute, the mid- to late-1970s, IFPRI's program of research on food consumption concentrated heavily on the analysis of food subsidies and other government interventions meant to achieve social purposes by manipulating the prices of the staple foods. This was a topic of great importance in developing countries, and a subject of much concern among donors. Food price management played an important part in efforts to pursue a basic needs development strategy, which was central to the thinking of the development community in IFPRI's early years.

IFPRI responded to this priority, however, with some ambivalence, even diffidence, because of conflicting perceptions of the issue. These conflicts were reflected in the wide-ranging, unfocused, and inconclusive discussions of food consumption research strategy in the Board of Trustees in the years 1976 through 1980. Even after a structured program was approved in 1981, a well-defined conceptual approach to price and subsidy issues was still lacking: subsidies were economically distorting and damaging, and in the longer run definitely unwise; but in the real world, they were important because the actions of developing country governments made them so. Those actions needed to be studied and understood, so that subsidies could be made more effective in achieving their social goals and less damaging to long-term economic growth.

Another reason for IFPRI's interest was the common expectation through the early 1980s that rising demand in the developing world, and a limited response from the industrialized countries, would lead to rising world prices for food staples. If passed into domestic price structures, these high prices would harm the welfare of poor people, except for those who were largely self-sufficient in food staples. Measures to protect the poor from the impact of international price increases were necessary from both the political and the humanitarian perspective.

At the national level, policies intended to encourage growth in food production were expected to involve incentives to producers such as high prices for food and improved technology to lower production costs. Such policies would clearly benefit many in the agricultural sector. The landless rural poor and the urban poor, however, would not be able to take direct advantage of the new technologies because they lacked land, and they would be forced to buy food at higher prices. Interventions in the market might well be needed to protect these groups, at least in the short run.

Addressing the Consultative Group on International Agricultural Research in 1981, IFPRI's director, John Mellor, noted that slow growth in food production in developing countries was most often associated with low food prices. He made clear his view that a high price policy alone could not turn the production situation around, and that high food

prices were identified with high rates of privation for the poor and high death rates among children:

The conclusions ... about prices are clear. First, efforts to raise agricultural prices must emphasize increasing the effective demand for food by raising the employment and incomes of the low-income people who spend a high proportion of their income on food. As these efforts place upward pressure on food prices, we need ancillary efforts to protect those who are not participating in the benefits from the effects of higher agricultural prices.

In such a development context, food subsidies will continue to be an important means of dealing with those problems. Our research program is probably doing more work on food subsidies and how to maximize their benefits to the poor and minimize their detriment to production than any research institution in the world (IFPRI 1982, 10–11).

In an article published in 1984, Mellor, continuing his collaboration of more than 20 years with Bruce Johnston of the Food Research Institute at Stanford University, made the case for a broadly based strategy of development as the only approach that could overcome widespread malnutrition in a reasonable time frame. This long-held view of Mellor's is considered elsewhere in the IFPRI history. Here it is cited to illustrate the framework in which IFPRI approached the study of subsidies under Mellor's leadership:

In the context of development strategies that provide slow growth in food supplies and employment there are substantial political and humanitarian pressures for a more direct attack on poverty. Narrowly targeted approaches are generally not successful; hence, the widespread use of broad food subsidies and rural employment schemes. The effectiveness of such programs in improving incomes and nutritional status of large numbers of the poor, as well as the high costs in public revenues is well demonstrated ... [IFPRI research cited]. Where alternative use of these resources is not for growth in agricultural production and employment, food subsidies may play an essential political stabilizing role while an effective growth strategy gets under way (Mellor and Johnston 1984, 548–549).

In a different context, namely IFPRI's book on agricultural price policy, the same range of arguments were made, but with more space and weight given to the negative side of the equation. In the introductory chapter by Mellor and the chapter on subsidies by Pinstrup-Andersen, targeting was still the answer to the moral and practical dilemma,

but the financial and administrative costs of targeting got considerably more emphasis. Subsidies were a symptom of the failure of development policy. Nevertheless, they might be acceptable, even necessary, so long as they did not get in the way of long-term development (Mellor and Ahmed 1988, 9–10, 241–252).

In its first medium-term plan, for the five-year period starting in 1988, IFPRI made all of the arguments cited above in favor of research on subsidies and added another. It argued that subsidies targeted to the poorest part of the population could have beneficial impacts on growth. In the discussion of seasonal food shortages the plan suggested that “Short-term alleviation of absolute poverty through subsidized nutritional interventions enhances labor productivity and human capital formation among the poor, contributing to long term development and self-sustainable poverty alleviation.” (IFPRI 1987, 21)

All of these convincing arguments notwithstanding, whenever economists write about subsidies, the overriding principle of liberal economic management hovers in the background. Timmer summarized it this way: “The standard remedy for curing rural poverty and inadequate food production is for governments to move towards free trade and get out of agricultural pricing” (Timmer 1995, 455). The tendency for economists to become defensive when discussing subsidies was exacerbated in the decade of the 1980s by the prevalence of the structural adjustment philosophy in development assistance. This philosophy gave priority to reducing waste and conserving financial resources in order to get back on the path of stability and then onto the path of growth. Emphasis on the distortions and waste involved in subsidies grew in importance and concern for the immediate plight of the poor declined. It was an age of stabilization rather than basic human needs. The importance of understanding the role of subsidies remained, but the discomfort level in focusing on the issue increased. The case made by IFPRI for moving from general to targeted subsidies fitted well into the structural adjustment approach. Prices could be left to the market, while targeted programs met the needs of specific groups of the poor. Many governments followed this approach. Pinstrip-Andersen recalls that Jamaica was an example of a country where such a policy was implemented by the government following consultation with IFPRI.

As we shall see, research on food subsidies was pervasive and durable at IFPRI. The Institute achieved two different but related kinds of impact in this field. First, IFPRI research on food subsidies has been recognized in the economic and development communities as preeminent in both scope and quality. Second, in several countries, advice based on IFPRI research contributed to the adoption of policies with high levels of economic return. All of this is spelled out in detail at the end of this paper. Before reaching that point, we need to examine the research and the context in which it took place.

FOOD SUBSIDIES IN SOUTH ASIA

Most of the research done on consumption issues in IFPRI's first five years dealt with subsidies, mainly subsidies in South Asia. Several governments of the region had retained, with modifications, food subsidy and distribution systems implemented by the British during World War II, so there was extensive experience to study. IFPRI conducted two studies on Kerala, in southern India, where there was an extensive food subsidy program, generally considered to be quite effective. Despite having a relatively low per capita income, Kerala had succeeded in raising the quality of life of its citizens well above the average for India through a combination of food subsidies and public services in health and education.

The first Kerala study published by IFPRI was based on observations over a six-month period of 43 households drawn from a random stratified sample of 120 households, and selected for below-average income and the presence of children of weaning age. The author, Shubh Kumar, who joined IFPRI in 1978 and held a Cornell University PhD in nutrition, found that families receiving the subsidy increased their net caloric intake by between 17 and 34 percent. Kumar also found a positive relationship between food subsidies and the measured physical status of children of weaning age (Kumar 1979). IFPRI food subsidies research of that time generally did not use direct indicators of nutritional status or look within the household unit. In this respect, Kumar's work prefigured later IFPRI research on food consumption, which emphasized nutrition.

P. S. George, from the Indian Institute of Management in Ahmedabad, undertook the second Kerala study. He spent the year 1977 at IFPRI and wrote a detailed empirical analysis of the operation of the public foodgrain distribution system in the state (George 1979). The system included forced procurement of a portion of the local paddy crop, restrictions on movement of grain into and out of the state, importation of grain by the state government, and distribution of fixed quantities of grain at specified prices. Unlike many food subsidy systems, Kerala's aimed both at the rural population and at urban dwellers.

George estimated that rationing had increased the amount of rice all Keralans consumed, with the rise in consumption being the greatest for those with the lowest incomes. He found that the rice procurement arrangements tended to reduce income disparities among farmers. In the short run, the ration program increased consumption among the poor more effectively than would have been the case with a direct transfer of income. The gains to producers and consumers exceeded the direct cost of the government subsidy.

The goal of the study was to understand and appraise an actual subsidy program, not identify policy alternatives. George was cautious in drawing conclusions for application elsewhere. He pointed out that his method did not take account of any efficiency losses that might have to be set off against distributional gains. To determine

whether the Kerala program would work elsewhere, economic and social conditions in the other location would have to be analyzed.

A contemporary study of a neighboring country took quite a different approach. Bangladesh, known for its desperate poverty and food deficits, could not rival Kerala in the efficacy of its public services. IFPRI was asked by the World Bank to undertake a mission on price and distribution policies in Bangladesh. In a pattern often to be repeated by the Institute, IFPRI was able to satisfy the donor and the host country and produce substantial research of more general interest (Ahmed 1979).

As George did with Kerala, Ahmed thoroughly analyzed the food production and distribution systems in Bangladesh, the social and economic context both current and historical, and the administrative mechanisms involved. Where George sought mainly to convey an understanding of a system in operation, Ahmed mainly engaged in the identification of problems and exploration of possibilities for constructive policy change. He found a food distribution system that worked effectively in raising consumption levels among the urban poor, but did not reach the bulk of the poor in Bangladesh. About two-thirds of the food distributed through the subsidized system was going to urban consumers, even though only 9 percent of the population was urban. The number of rural residents identified as “extremely poor” was two and a half times the total urban population. The obvious solution of diverting rationed food to rural areas was politically infeasible, and providing equitable coverage in rural areas would be enormously expensive. As an alternative, Ahmed suggested exploring the possibility of open market sales of foodgrains during periods of seasonally high prices, while maintaining the average annual price at about the existing level. This could be one way of improving the system without major reform. Ahmed’s research also led him to conclude that subsidizing fertilizer prices was a preferable incentive for increasing production, as compared to raising agricultural prices. He pointed out further that releasing more wheat and less rice through the ration system would lower the cost of the program because wheat was cheaper than rice and would make it possible to reach consumption goals without a large negative impact on the price of rice. This approach would improve incentives to produce rice. The likely fall in the price of wheat might, however, force the government to reconsider its policy of encouraging wheat production. The World Bank mission and Ahmed’s study marked the beginning of a long interaction between IFPRI and Bangladesh on food subsidies and related subjects. Ahmed, a former senior economist of the Bangladesh Planning Commission, played a central role in this interaction.

The last of IFPRI’s early studies of subsidies in South Asia also appeared in 1979. It was set in Sri Lanka, considered to be a role model for meeting basic human needs. In spite of great poverty, Sri Lanka had a high rate of literacy, long life expectancy, and low infant mortality. It lacked the wide income disparities typical of many poor countries in Asia. The comprehensive food distribution system, in effect for rice since World War II,

was one of a series of social programs given at least partial credit for this admirable result.

The study (Gavan and Chandrasekera 1979) was the product of a collaboration between James Gavan, the director of the Distribution Program—as it was then called—at IFPRI, and Indrani Sri Chandrasekera, a Sri Lankan government economist who spent a year as a research associate at the Institute. The report traced the evolution of the Sri Lanka program from periods when it could be largely self-financed by profits resulting from the difference between low wheat and sugar import prices and higher domestic prices, to periods when high international rice prices, combined with growing levels of domestic procurement, made it a crippling burden on the Sri Lankan budget. At many turns, the authors found themselves blocked from drawing hard conclusions by lack of good data and by the absence of usable analytical methodology. They did find that the ration system provided an important source of income for impoverished groups in Sri Lanka. They noted Sri Lanka's considerable success in moving toward rice self-sufficiency and suggested that the price management policy had contributed to this success. The authors also made a reasonable case that growth had suffered from the economic distortions caused by Sri Lanka's overall policies, which included an overvalued exchange rate that was an embedded part of the food rationing approach. Without hard figures, Gavan and Chandrasekera questioned the cost of the undoubted gains made and implied that the system was becoming unsustainable as that cost rose.

As this study neared completion, the government of Sri Lanka reached the same conclusion and “made a sharp turn from welfare through sharing of poverty to welfare through growth” (N. Edirisinghe in Pinstrup-Andersen 1988, 253). The government abolished its food ration scheme in September 1979 with the support of the International Monetary Fund (IMF), and replaced it with a food stamp program. By the time Gavan and Chandrasekera's research report appeared, it was mainly of historical interest. Rather than offering policy advice the authors were cheering on the sideline:

The attempt since 1978 to lower overall costs by restricting ration coverage to the lower half of the population was an important step toward improving the efficiency of the system. The fact that it was apparently possible to accomplish this is an exciting development that few would have considered possible a short time ago. It is also a commentary on Sri Lanka's administrative sophistication, itself in no small measure a reflection of the successful levels of social development achieved (13).

FOOD SUBSIDIES IN EGYPT

From 1980 onward, IFPRI's research on food consumption shifted focus and scope. Its intention of producing a synthesis of experience with food subsidies in South Asia gave way to wider geographical coverage. The expansion was led by research in

Egypt on a larger scale than anything IFPRI had done before at the country level. Generous funding from the Office of Nutrition at the U.S. Agency for International Development (USAID) made this fresh approach possible.

At the time, Egypt and the agencies aiding Egypt, particularly USAID, the World Bank, and the IMF, were anxious about the state of the food subsidy system. Fortified by strong political support, that system was consuming 10 percent or more of current government expenditures and providing cheap rations to 90 percent of the populace. Suspicions of waste were rife, fueled by the fact that bread was so cheap it was sometimes being used to feed livestock. Despite the stated national goal of food self-sufficiency, Egypt produced only a quarter of the wheat and edible oil it consumed (Alderman, von Braun, and Sakr 1982).

With a total budget of \$500,000 for the years 1981–83, IFPRI was asked to cover the following issues:

- household decisionmaking and how it was influenced by perceived costs of subsidized foods;
- the extent to which both consumers and nonconsumers obtained benefits from the subsidy program, legitimately or otherwise;
- direct effects of subsidy policies on the real income, consumption, and nutrition of various population groups, with emphasis on the urban and rural poor;
- the implications of procurement and pricing policies for domestic food production and the income of farmers and others in rural areas;
- government expenditures on subsidies, sources of financing these costs, the distribution of the cost burden, and the implications for investment and intersectoral terms of trade; and
- the impact of food subsidies on trade and foreign exchange (Alderman and von Braun 1986a, 1–2).

This project was different in several important ways both from earlier work on subsidies and from IFPRI's research in general up to that point. Instead of relying on information already available from government sources or limited data collected by researchers themselves, the project was based on a large household survey (Pinstrup-Andersen in von Braun and Puetz 1993, 13). IFPRI could not use the extensive rural surveys conducted by the Egyptian Government, which were more than five years old and did not contain the details needed to analyze the distribution of subsidy benefits. Moreover, it was doubtful that IFPRI could obtain access to the raw data collected by the

government. Accordingly, three survey rounds with broad geographic coverage, two rural and one urban, were conducted between December 1981 and June 1982. Three thousand households were surveyed. The second rural round resurveyed a portion of the households to obtain information on seasonal factors. The survey work was carried out through a contract with the Institute of National Planning, a governmental body. With logistical help from the Ford Foundation, two IFPRI staff members lived in Cairo from February 1981 through August 1982 in order to oversee the data collection (Alderman and von Braun 1984, 13–14; Anderson, Herdt, and Scobie 1988, 72).

Another significant difference from earlier work involved the nationality of the principal researchers. Previous subsidy studies had been done primarily by nationals of the country under study, either by academics who spent time as visiting researchers at IFPRI or by IFPRI staff members from the country concerned. The work on Egypt, however, was done preponderantly by IFPRI staff members from industrialized countries. Per Pinstруп-Andersen, who served as project coordinator, was a Dane. An American and a German supervised the data collection and wrote much of the analysis. A New Zealander conducted the research on the impact of food subsidies on trade and the budget. Only one Egyptian appeared on the list of senior researchers. He coauthored an initial descriptive study of the Egyptian food subsidy system.

Notwithstanding the absence of Egyptians from the research team as such, extensive cooperation took place between IFPRI and Egyptian officials, scholars, and their institutions, from the planning of the project through to its completion and the presentation of results (Anderson, Herdt, and Scobie 1988, 72). The fact that IFPRI researchers resided in Egypt for long periods, that senior IFPRI staff frequently visited Egypt, and that Egyptian economists spent time at IFPRI as visiting research fellows greatly facilitated this collaboration. Yet one can surmise that the objectivity of this research may owe something to the fact that the authors were not participants in the domestic political scene in Egypt.

The principal difference, however, between the Egypt project and earlier IFPRI projects, not only on food subsidies, but in general, was simply the scale of the output. USAID funding proved sufficient to support four full research reports:

- *Egypt's Food Subsidy and Rationing System: A Description* (Alderman, von Braun, and Sakr 1982) was essentially a background study for the project. It closed with a summary of the major research issues to be addressed.
- *Food Subsidies in Egypt: Their Impact on Foreign Exchange and Trade* (Scobie 1983) reflected collaboration between IFPRI's Consumption and Trade programs. Grant Scobie, who wrote this report as a consultant, spent a year as a visiting researcher in the Trade program, just as the Egypt project was getting under way. At

the time Scobie was working on a study of the management of wheat imports in Egypt, as part of the Trade program's research on international food security. His work served as a useful introduction to the trade aspects of the subsidies research (Scobie 1981). Scobie fulfilled an additional project task with a report on the budget impact of subsidies, published later as an IFPRI working paper (Scobie 1985).

- *The Effects of Food Price and Subsidy Policies on Egyptian Agriculture* was a collaborative effort between an IFPRI researcher and a professor at the University of Göttingen (von Braun and de Haen 1983). It made extensive use of microeconomic quantitative models developed by the Institute of Agricultural Economics at the University of Göttingen and IFPRI's partner in the household survey, the Institute of National Planning, Cairo. Under this collaborative arrangement, IFPRI was able to benefit from a related research project funded by the Volkswagen Foundation and implemented by its German and Egyptian collaborators, and was also able to enhance relationships with the European agricultural research community.
- *The Effects of the Egyptian Food Ration and Subsidy System on Income Distribution and Consumption* was prepared by the two IFPRI research fellows who had been deeply engaged in the project since its beginning. This study showed that the Egyptians in general were well fed in comparison with people in other developing countries, and that the poor did receive considerable benefit from the food subsidy system (Alderman and von Braun 1984).

The order of publication and the interval between the first three reports and the fourth report led to IFPRI's involvement in a public exchange that illustrated two points: first, the publication of research on sensitive topics before it is complete can be risky; second, the donor world at that time eagerly awaited results supporting the goals of structural adjustment. In April 1984, the *Economist* published a set of articles on the need for further economic reforms in Egypt, accurately citing conclusions of the first three IFPRI reports, and then decrying the harm done by food subsidies to the Egyptian economy (*Economist* 1984a). Researchers von Braun and Alderman wrote to the editor, pointing out that the report describing the benefits of the system to the Egyptian poor was still to be published and suggesting that agencies seeking rapid reform often tended to overlook such benefits (*Economist* 1984b). The latter passage caused concern at high levels in USAID but no long-term damage to the relationship with IFPRI.

Field research on and analysis of Egyptian food subsidies in fact had been basically completed by mid-1983. The results were immediately taken to Cairo for detailed

discussion with the users, well before the completion of the full set of formal publications listed above. An all-day presentation in July 1983 for the Egyptian and expatriate research communities in Cairo was followed by a series of smaller sessions in the offices of several ministers, deputy ministers, and under secretaries who had been instrumental in defining the scope of the study. They had also been consulted by resident IFPRI staff and had visited IFPRI while the study was under way. According to one observer, "Egyptian policymakers were particularly eager to use the studies to project the likely effects on wages and income distribution of changes in subsidy policy and to investigate alternative methods for targeting." (Anderson, Herdt, and Scobie 1988, 72)

IFPRI prepared a follow-up proposal to use the results of research in the manner just described. The proposal produced apparently favorable reactions in both USAID and Egyptian circles, but never received the formal Egyptian government approval that USAID required to provide funding. No explanation was given.

IFPRI now found itself without the resources needed to prepare a comprehensive synthesis of this work. When it became clear that a USAID follow-up was unlikely, the Ford Foundation's Cairo Office provided a grant to cover some part of the follow-up work. Alderman and von Braun wrote a report for the Foundation on the "Implications of Alternative Food Subsidy Policies in the 1980s." This unpublished report provided the basis for a final report to USAID (and thus to the Egyptian government) and an article in *Food Policy* (Alderman and von Braun 1986a and 1986b). The following key points from the *Food Policy* article summarize the results of this research.

Alderman and von Braun reviewed six scenarios for the Egyptian food subsidy system in the 1980s and listed 25 "generalized research conclusions." The scenarios started from the picture of the situation in 1981–82 that emerged from the data collected by IFPRI and its Egyptian collaborators. Scenarios assumed varying price changes, ranging from a fifty percent decline in the real level to an increase up to the world price for all food except wheat products, the price for which was increased only halfway up to the world price. Targeting was introduced in one scenario by retaining the basic ration only for the poorest 25 percent of the population, and in a second by adding a pay raise for government employees. The sixth and final scenario incorporated increases in the price and changes in the distribution structure actually adopted by the government in 1982 and 1984. The authors pointed out that they had not tried to predict the policy priorities of the Egyptian authorities. However, their model could be adapted to forecast changes in the food subsidy budget, foreign exchange, inflation, exchange rate, individual level of food consumption and nutrition, and income distribution resulting from any set of proposed policy changes. The forecast was valid for the five years following its base point in 1981–82. It became less relevant further into the future. The analysis was meant to provide policymakers in Egypt with a mechanism for considering the implications of policy objectives and the trade-offs among those objectives.

The conclusions of IFPRI's study of food subsidies in Egypt included the following points:

- The introduction of food subsidies was not an isolated decision made in the early 1970s when budget costs began to be significant. It was rather the outcome of earlier policies to finance industrial growth through implicit transfers of income from producers to consumers. As self-sufficiency in food production declined, a natural transition took place from implicit to explicit subsidies, with the cost transferred from the producers to the government.
- The budget cost of the subsidies could be measured directly, but an additional, concealed, social opportunity cost arose from the use of an exchange rate below the normal rate for commodity transactions and below the free market rate. A further cost arose from the preemptive use of foreign exchange for food imports when foreign exchange was scarce or international food prices high. This action diverted resources that would otherwise have been used for the import of capital goods and raw materials. By this mechanism, instabilities in the international food markets slowed domestic capacity utilization and overall growth.
- The rising cost of subsidies contributed to the budget deficits, but was only one factor and could not be held solely responsible for the financial difficulties of the Egyptian government.
- The price distortions caused by food subsidies could not be blamed exclusively for the slow growth of Egyptian agriculture. The impact of the subsidies was reduced by other policies that succeeded in raising investment in agriculture and reducing the burden on farmers. There were also other factors not related to subsidies that hindered the growth of agriculture such as poor management of the water supply and other inputs, and an inefficient system of agricultural extension.
- The subsidy system provided widespread benefits to consumers, both urban and rural. Analysis of income transfers through the ration component showed a clearly progressive effect on income distribution. Some elements of the system favored particular groups more than others, however, and the subsidy of certain commodities with positive income elasticities provided larger income transfers to those with higher incomes.
- The ration system proper, which provided fixed amounts of flour and/or bread, was reasonably efficient. But the de facto rationing of other subsidized foods through queuing at the cooperatives where they were distributed did have resource costs. These costs should be deducted from the value of the resource transfer.

- In 1982 about six percent of the wheat supply was used as livestock feed, leading to wastage of the subsidized costs of processing and distributing that wheat for humans. The resulting output of livestock products partially offset this wastage.
- The Egyptian economy faced difficult choices between current consumption and investment. Decisions were also needed about food subsidies, energy prices, and other matters. In light of these policy needs, the authors noted the following: “Conclusions from a model built on the basis of the in-depth partial analysis reported [in this article] provide the basis for policy guidance for answers to the following question: *if a decision on food subsidy policies is to be made, what are the effects of alternative options* on macrovariables as well as on the various segments of the population and the poor, in particular? Accounting for fiscal and economic costs of food subsidies only makes sense if those outlays are related to the benefits of food subsidies... Therefore, the policy options should be simultaneously evaluated for their costs and for the distribution and magnitude of their benefits.” (Alderman and von Braun 1986b, 236. Emphasis in the original.)

The article concluded by pointing out that policy changes in areas other than food subsidies—in energy prices, for example—could help the government meet diverse goals, including, indirectly, increased food consumption.

No specific Egyptian government actions taken after the completion of research can be traced directly to the research itself. No strongly formulated recommendations came out of the project. The results could have been used to argue that many aspects of subsidy policy, while costly, were effective in redistributing income and favored the rural as well as the urban poor. The study offered the general conclusion that price reform was not the panacea for increasing food production that it might have appeared to be.

Moreover, this was a situation in which political sensitivities drove decisionmaking to a great extent, and large costs were willingly paid for critical national goals. It seems clear, however, that IFPRI’s research conclusions did provide a methodology for appraising the impact of various possible policy changes, and that this methodology was widely known to the government decisionmakers and policy analysts. As IFPRI went back to Egypt in the mid-1990s, Egyptian colleagues found occasion to refer back to the earlier studies as the standard to which the Institute would be held in the new research.

FOOD SUBSIDIES WORLDWIDE

By 1986 IFPRI's annual report could boast that studies of food subsidies had been completed in 11 countries. This research provided the basis for *Food Subsidies in Developing Countries*, a book in the Johns Hopkins University Press/IFPRI series (Pinstrup-Andersen 1988, referred to hereafter as *Subsidies*). The additional work, like that done earlier, varied considerably in depth, focus, and relevance to generally applicable conclusions. The variations depended to some extent on the project funding available.

Africa

In contrast to later IFPRI research, which has tended to focus increasingly on Sub-Saharan Africa, only one of IFPRI's published subsidy studies had an African subject. Shubh Kumar had conducted a household survey with two local collaborators in Zambia in 1981–83. In part because of lack of sufficient funding, the survey did not lead to separately published research. Instead, it formed part of the background for a chapter in *Subsidies* on the history and status of Zambian policy. The government's food subsidy policy represented a classic approach to food subsidies—ensure low-cost supplies of maize in the cities while encouraging domestic production and reducing imports. Hence an understanding of Zambia's experience was important to the overall argument. It was a complex story, with subsidies reaching a high of 72 percent of the nominal retail price of maize in 1977 (and amounting to 10 percent of agricultural GDP), dropping to zero under pressure from the IMF in 1983, and rising again by 1986 to almost 60 percent of the nominal price under the countervailing pressures of devaluation, inflation, and politics. In spite of a dearth of good data on many issues, Kumar traced the story from the first introduction of subsidies in the 1930s to the early 1980s. She described the impact of the subsidies and the efforts to encourage domestic production and she told of how these effects differed depending on whether the target population lived near the railway line or distant from it. Kumar concluded that the main beneficiaries were urban consumers and large farmers distant from the railway, but that small, food-deficit farmers probably also benefited to some degree (Kumar in *Subsidies*, 289–300).

In the early 1980s, IFPRI did some work on food subsidy issues in the Sudan as a subcontractor to Sigma One Corporation. The project was financed by the USAID's Office of Nutrition, which had concerns about bread prices in the country. Analysis of data collected in urban Khartoum by Sigma One suggested that the bread price was an important determinant of the calories consumed by the poor, and that a 50 percent increase in price would increase calorie deficiencies by about one-third among the poorest population group. This conclusion had direct relevance for policy because of IMF pressure on the Sudanese government to make major reductions in the wheat subsidy (Pinstrup-Andersen et al. 1983). Pinstrup-Andersen recalls that this was one of several instances in which IFPRI conducted research on a specific subsidy and offered policy advice, but did not publish the results (Personal communication). In connection

with research on famine in the Sudan some years later, IFPRI completed a more comprehensive study of wheat subsidies in that country, drawing on the 1983 paper and secondary data (Shugeiry 1990).

Latin America

IFPRI studied three Latin American countries with important food subsidy programs—Mexico, Colombia, and Brazil. As part of a project to appraise the nutritional impact of various forms of intervention, including subsidies, Eileen Kennedy analyzed data collected by the National Nutrition Institute of Mexico in order to evaluate a milk subsidy program. She found that the milk consumption of children increased, as did the overall level of household calorie consumption, but the calorie consumption of the children did not improve (Kennedy 1983). Working as an IFPRI consultant, Nora Lustig, then a professor at El Colegio de México, reviewed the complex subsidy system of Mexico. Lustig concentrated on maize, the most important food crop and major subsidized food commodity. Her study first appeared as a working paper (Lustig 1986) and became a chapter in *Subsidies*. Lustig did not collect new data, but applied regression analysis and a general equilibrium model to data she had obtained in earlier research and to data from public and internal government sources. She pointed out that although substantial, the cost of food subsidies was not so large that cutting it would be the means of dealing with the Mexican government's fiscal problems. Lustig suggested possible ways of reducing subsidy costs through more effective targeting, but acknowledged the political difficulties in such a course of action.

In 1984, Pinstруп-Andersen prepared a report on the nutritional impact of food and nutrition programs in Colombia, using a household survey conducted in the state of Cauca by the Colombian SER Institute. The programs in question consisted of a small food stamp distribution scheme, a program of nutritional monitoring and education, and the construction of drinking water plants and sanitary facilities. Pinstруп-Andersen found that the subsidy program had a positive impact, consistent with its small scale, on household food consumption. The nutrition monitoring and education program had a larger impact. Improved household consumption, however, did not appear to affect the weight and height of survey children, suggesting that food had been redistributed within the household. The data were not sufficient to test this hypothesis. Water and sanitary projects, on the other hand, had a positive and significant impact on the weight and height of children. The report was translated from the original Spanish in 1985, but not formally published (Pinstруп-Andersen 1984). Given the small size of the subsidy and the focus on its nutritional impact, the study lay outside of the main thrust of IFPRI's subsidy research.

IFPRI performed three unrelated studies on food subsidies in Brazil, each of which took a different approach. The first analyzed the impact of the Brazilian government's effort to fix minimum agricultural prices on the Northeast region of the country. IFPRI saw the report, completed in 1979, as linked to the multiple South Asian studies of two-

price systems. Unlike the latter, however, the Brazil report focused on maintaining production and stabilizing producer incomes, rather than on ensuring distribution of adequate food to the poor. It fit closely with IFPRI's research on agricultural price issues. The author, Roger Fox, was a U.S. university professor spending his sabbatical at IFPRI. He was supported in part by IFPRI and in part by the Bank of Northeast Brazil, which also collaborated in the research. The work supplemented IFPRI's program rather than contributing to it centrally (Fox 1979).

The second Brazil study, by C. W. Gray, used the results of a major household expenditure survey conducted by a Brazilian institution in 1974-75 to examine the relationship of food consumption to income and the scope for improving nutrition among the poor through the use of income transfers. It considered the nutritional impact of a shift in subsidy from wheat to rice, cassava, or milk, and the impact of a program to substitute alcohol derived from sugarcane for gasoline (Gray 1982).

The third study, and the only Brazilian one to find a place in *Subsidies*, took a macroeconomic approach to wheat policy, a subject chosen because of wheat's major role in the Brazilian economy and because of government intervention on both the consumption and production sides of the equation. The authors were Geraldo M. Calegar, an economist from Empresa Brasileira de Pesquisa Agropecuária (EMBRAPA), the Brazilian agricultural research system, and G. Edward Schuh, a leading North American student of Brazil's economic development. Like the other two IFPRI studies on Brazilian food subsidies, this one did not involve collection of new data, but used secondary information from a wide range of sources. The analytical tools employed were standard partial equilibrium and comparative static analyses.

Calegar and Schuh concluded that the Brazilian policy of working toward self-sufficiency in wheat production by setting an incentive price had failed. The problem was that, for most years between 1966 and 1982, the producer price was set below the border price at the shadow exchange rate, although above the border price at the overvalued official exchange rate. "Hence, the producer subsidy in most cases only offset the tax resulting from a distorted exchange rate" (Calegar and Schuh 1988, 9). If the free market had been allowed to operate, it would have provided a stronger production incentive. In the case of consumption, the artificially low exchange rate and an explicit subsidy that became important after international prices started to climb in 1972 resulted in prices low enough to elicit significant increases in wheat consumption. In the latter years, wheat demand outstripped growth in production and thus increased the distance to the goal of self-sufficiency. The authors found that low-income consumers, presumably the target of the policy, captured only about 19 percent of the value of the subsidy, and the poorer parts of the country received less than the more affluent regions. Although the share of the subsidy value going to the poorer group was low, that income was important to them, posing a policy dilemma for those who wished to reduce or remove the subsidy. Transferring the subsidy to rice, consumed in greater quantities than wheat in the poorer regions of the north, would have biased the distribution "slightly" in

favor of the poor, but the gains in efficiency would not have been sufficient to make this a recommended course, particularly in the light of the administrative difficulties involved. The study noted that little attention had been paid to the impact of price distortions on producers of other food crops, such as rice, beans, corn, and cassava. These producers, including many smallholders with low incomes, were evident losers.

Overall, the study found that the Brazil wheat producer subsidy was not effective. The subsidy on wheat consumption was a costly and ineffective way of redistributing income and dealing with malnutrition. More research would be required to suggest alternatives, although a targeted approach, such as food stamps, might be worth consideration (Calegar and Schuh 1988; and Calegar and Schuh in *Subsidies*, 267–276).

Asia

The only additional work done by IFPRI on South Asia in this period was an obligatory update on Sri Lanka. The research report of 1979 had covered the traditional rice subsidy policy of that country, but further research was required to take account of the major innovations introduced while that first study was underway. The changes had been made by a new government with a mandate, among other things, to liberalize trade and increase domestic savings. IFPRI recruited Neville Edirisinghe, a Sri Lankan economist, to investigate the food stamp scheme brought into force in 1979 to ameliorate the impact of the end of the traditional subsidy program. Funding came from USAID's Office of Nutrition, which had supported IFPRI's work in Egypt. As with much of IFPRI's research on subsidies, this study depended mainly on available data. Edirisinghe, working in collaboration with the Food and Nutrition Policy Planning Division (FNPPD) of the Ministry of Plan Implementation, was able to use timely consumer finance surveys conducted for a different purpose by the Central Bank of Ceylon to investigate the condition of households immediately before the reform and two years after. His conclusions from analysis of that data were supplemented, and to some extent validated, by FNPPD data, by information gathered in two coastal districts by Cornell University, where Edirisinghe was affiliated before joining IFPRI, and by a survey conducted in 1984 by FNPPD and IFPRI on how husbands and wives in the Kandy district perceived the food stamp program.

Having reduced food subsidies in 1978, the liberalizing government replaced them the following year with food stamps provided to households with declared incomes below specified levels adjusted for family size. The amounts provided varied according to income, family size, and the age of family members. The scheme succeeded in reducing the cost of food subsidies, which fell from about 15 percent of government expenditures and 6 percent of GDP, to about 3 percent of government expenditures and 1 percent of GDP. This reduction was aided by a decision to keep the nominal value of the stamps fixed and allow their real value to be reduced by inflation.

On the other hand, the scheme was less successful in targeting the poor. The analysis showed that food stamps reached about half of Sri Lanka's households, including most but not all households with per capita expenditures in the lowest quintile. A significant number of households, all the way up to the top quintile of per capita household expenditures, participated. The per capita consumption of three-quarters of Sri Lankan households either grew or remained constant in the period from 1978/79 to 1981/82, reflecting the benefits of economic growth, but the calorie consumption of the poorest quartile declined by 8 percent in this period. This trend suggested that the new program was not fully effective in protecting the poorest households. Some of these households evidently were unable to take advantage of income earning opportunities arising from the government's economic reform program. Although the stamps allotted to young children had a higher value than those for adults, the data collected by IFPRI showed that, in the lowest quartile, the percentage of additional food consumed by young children was less than that of adult household members. This changed if the resources provided were sufficient to give adults 80 percent of their recommended calorie allowance, indicating that it was necessary to provide a relatively large transfer of resources to reach the young in poor households. The study explored a number of possible ways of improving targeting in the food stamp and related programs. It suggested that modifications were desirable, but refrained from making specific recommendations. In the Sri Lanka chapter in *Subsidies*, Edirisinghe argued forcefully that while economic growth in the country seemed healthy, the government still needed to intervene to improve nutrition in households that had yet to participate in that growth (Edirisinghe 1987; Edirisinghe in *Subsidies*, 253–266). Illustrating the absence of a corporate viewpoint at IFPRI on controversial issues, another research fellow in the Consumption program published an article more generally critical of the Sri Lankan regime at the same time that Edirisinghe's report appeared. David Sahn directly faulted the apparently successful liberalization policy of the new regime for missing the opportunity to achieve broadly based economic growth, and for failing to continue the protection of the poor for which Sri Lanka had been heralded in the past (Sahn 1987).

Extending its subsidy work into Southeast Asia, IFPRI conducted research in the Philippines in the early 1980s. This study, done in collaboration with the National Nutrition Council (NNC) and the Ministry of Agriculture of the Philippines, did not deal with an existing national program or policy, but with an experiment in the methodology of targeting food subsidies to poor households with malnourished preschool children. The Food and Nutrition Plan, a government strategy for combating hunger and malnutrition in the Philippines in the 1980s, proposed a food discount plan targeted to poor households. Before implementing such a plan, the government decided to conduct a pilot experiment with the collaboration of the NNC and IFPRI. Fourteen villages with a relatively high percentage of malnourished preschoolers were identified in three impoverished regions of the Philippines. About a third of the households in half of these villages received a subsidized ration of rice and cooking oil, while the same proportion of households in the other villages received no special support but were observed as a

control group. The Philippine government paid for the subsidy through the NNC and the United Nations Development Programme paid the research costs.

The pilot project was implemented for one year starting in mid-1983. During that year, the price of rice rose, forcing down the consumption levels of the control group. The consumption level of the assisted group remained flat. Nutrition education was also offered to households in the villages, both those receiving the subsidy and the control villages. Data collection for this study included direct and recall observations of food consumed. In this study, unlike most of the other subsidy studies, children were weighed and measured to get indicators of nutritional status.

The pilot program could not claim any overall improvement in nutritional status, but it did succeed in protecting the target families from losing nutritional ground at a time of higher prices. The research produced a number of useful insights. Nutrition education, for example, did have some impact on relative access to food of preschool children and pregnant women, but only when provided in conjunction with increased access to food for the household as a whole. The study's principal interest, however, lay in assessing relative costs. The analysis showed that, judged in terms of poor households reached, or the stricter criterion of poor households containing malnourished preschool children reached, the cost of transferring \$1 to a household compared favorably with other programs for which costs were known, excepting only food stamps in Sri Lanka. Aside from the effective form of targeting employed, the advantages offered by the pilot project appeared to relate to the use of existing private outlets to distribute the food and to the employment of existing governmental staff and structures to monitor performance. Had the targeting been narrowed by confining distribution to households with malnourished preschool children, the costs of reaching that group could have been reduced further. This research led both to a chapter in *Subsidies* that concentrated on evaluating the administrative experience and a research report presenting complete results (Garcia in *Subsidies*, 206–218; Garcia and Pinstrip-Andersen 1987). The project returned to the pattern of employing citizens of the country studied: Marito Garcia, previously chief economist of the Planning and Project Development Office of the Philippine government, and an IFPRI research fellow since 1982, was the principal author.

The timing of the study was unfortunate from the point of view of potential follow-up. A change in the government of the Philippines removed those in authority who had participated in the planning and execution of the study. The concept of the pilot program later became part of a plan for improving early childhood development in the Philippines put forward jointly by the World Bank and the Asian Development Bank (Heaver and Hunt 1995, 91–92). IFPRI research fellows Akhter Ahmed and Tesfaye Teklu participated as consultants with the World Bank in planning programs for the Philippines at this time. They drew not only on IFPRI's research on food subsidies, but also IFPRI studies of food-for-work and rural finance (Subbarao, Ahmed, and Teklu 1996). Moreover, the World Bank used the pilot project methodology in Mexico in the early

1990s in designing the program for a structural adjustment loan. As in the Philippines, the government first implemented a pilot project using a subsidy targeted to poor families—in this case tortillas were subsidized. The success of the pilot project led to an extension of the subsidy program to more than 200 cities and 2 million beneficiary families (Marito Garcia, personal communication). Data from this research were used in three other IFPRI studies: the use of food consumption data as a means of targeting nutrition interventions; the determinants of household-level food consumption; and the determinants of the nutrition and health status of preschool children (Pinstrup-Andersen and Garcia 1990; Senauer and Garcia 1991; and Senauer, Garcia, and Jacinto 1988).

Not all policies that keep consumer food prices low have explicit budget costs. A classic example with a small positive impact on government revenues is Thailand's rice export tax, which is a part of the range of policies the Thai government uses to manage national participation in the thin world rice market. While various aspects of this policy had been studied extensively, IFPRI found that the potential impact of changes in the policy on the poor of Thailand had not received attention. Prasam Trairatvorakul, who later became governor of the Bank of Thailand, spent two years at IFPRI in the period 1981–83 to work on this question. Using extensive data collected by the National Statistical Office of Thailand, Trairatvorakul found that in the short run an increase in the domestic price of rice in Thailand would bring little, if any, benefit to the rural poor and would cause substantial harm to the urban poor. He did not analyze the possibility that an adjustment in the use of resources in Thailand following a price increase could benefit the poor in the longer run, but he noted that if such a policy were adopted it would be wise to prepare concurrent measures to offset the immediate impact on some groups of the poor (Trairatvorakul 1984).

Nutritional Effectiveness

In parallel to its extensive work on subsidies as instruments of economic policy, IFPRI undertook a broader study of the comparative nutritional effectiveness of food subsidies and other food-related interventions. IFPRI conducted this research on behalf of the Joint World Health Organization/United Nations Children's Fund Nutrition Support Program, funded by the government of Italy. Eileen Kennedy and Harold Alderman (1987) evaluated the cost effectiveness of different strategies for attaining similar nutritional objectives. They relied on data collected in a wide range of studies done by IFPRI and other organizations. The two IFPRI research reports on subsidies that collected nutrition indicators, Kumar (1979) on Kerala and Garcia and Pinstrup-Andersen's pilot study of the Philippines (1987), figured prominently in the analysis. Kennedy and Alderman also made reference to IFPRI's research on food-for-work in Bangladesh and commercialization of agriculture, for both of which extensive nutritional data had been collected. Kennedy and Alderman pointed out that it was important to define carefully the goals of a nutrition intervention in order to arrive at an appropriate design. If the goal was to reduce mortality and improve growth, the targets should be the last trimester of pregnancy and the first 36 months of life. The authors noted that

building an infrastructure to focus on such targets was expensive per individual, but not as costly in total as less focused methods. Geographical targeting would work in areas where the incidence of malnutrition was high, but not elsewhere. Intensive monitoring and surveillance of consumption were important wherever food was used as medicine. It was unrealistic to expect that food given to a child would be 100 percent additional, but with appropriate support a family-oriented program could be effective. Broader subsidy programs had as their rationale changing income distribution as well as improving nutrition. As nutrition interventions they were expensive in relation to results achieved. Improved growth was unlikely in children who were only mildly malnourished, regardless of the intervention used. For these children changes in weight or patterns of activity might be better indicators of effectiveness (54–56).

A SYNTHESIS OF RESEARCH ON SUBSIDIES

IFPRI brought together its work on consumer food subsidies in the book, *Food Subsidies in Developing Countries: Costs, Benefits, and Policy Options*, edited by Per Pinstrup-Andersen and published in 1988. *Subsidies* was a carefully planned and crafted work, not written primarily for social scientists: there are no equations or extended discussions of methodology. It was intended, rather, for the general reader, and particularly for the decisionmaker in a developing country or aid agency faced with real world issues. For many such readers, however, the book was probably somewhat frustrating, because it stressed the complexity of the subject and the need for a detailed case study to provide a basis for choosing a specific policy. The editor insisted in the preface that “policy design and modifications based on simplistic reasons may lead to disappointing results” (xv), and this theme was repeated throughout the work. *Subsidies* was also determinedly empirical, rather than conceptual in its approach. For example, in discussing the domestic agricultural implications of food subsidies, Joachim von Braun wrote:

General theoretical reasoning does not lead to obvious conclusions about the implications of food subsidies for domestic agriculture. Too much depends on the actual policy design and responses of economic-political systems to changes in external and internal economic environments. Therefore, the following synthesis of country experiences is based on the empirical evidence of relations between food subsidies and agriculture.
(92)

Subsidies cited specific research on thirteen developing countries and referred to experience in many more. While IFPRI authors dominated the book, six of the 20 contributing authors had no direct IFPRI connection, and two of the country studies (the chapter on Pakistan and one of two on India) represented non-IFPRI research. More than half of the book was devoted to a synthesis of results covering a wide range of issues, as shown by the following chapter headings (with repetitious words omitted):

- Effectiveness in Reaching Rationing and Income Transfer Goals.
- Food Consumption and Nutritional Effects.
- Macroeconomic and Trade Implications.
- Explicit versus Implicit Food Subsidies: Distribution of Costs.
- Implications for Domestic Agriculture.
- Political Calculations in Subsidizing Food.
- Design and Implementation Considerations.
- Alternatives for Achieving Nutritional Objectives.
- Income-Augmenting Interventions and Food Self-Sufficiency for Enhancing Food Consumption among the Poor.

Twelve chapters followed on experience in nine countries, including three chapters on Egypt and two on India. Two final chapters summarized the macro and microeconomic policy implications. In the introduction the editor commented on the social and economic effects of consumer food subsidies along the following lines:

- Subsidies may be implicit, that is, paid indirectly, usually by producers who receive prices lower than a free market would provide; or they may be explicit, that is, paid from the budget; or they may be a combination of the two. Explicit subsidies are of two major types: distribution of foods at prices below the price that would be fixed by the market, or distribution of food stamps that are a form of redistribution of income without direct price effect. Price reductions may be for the total quantity of one or more commodities, or for specified amounts, usually called rations.
- Price reductions caused by subsidies may be large, but may vary depending on world prices and other factors. Provided that they have access to the subsidized price, reductions in the price of food are relatively more important to the poor, because of the weight of food in their expenditure pattern.
- The effect on household incomes is positive for those with access to the subsidies, and larger in absolute levels for better-off households. The real effect on incomes is reduced by the natural adjustment of wage levels to compensate for food costs. Incomes foregone because of the financing of the subsidy also need to be considered, but there is no means of making accurate estimates of what these might be. It is usually impossible to identify a specific source of funding for food subsidies within overall government revenue, much less to speculate about the use of and return to marginal resource savings.

- Food subsidy programs are commonly intended to improve household food security. They may provide fixed amounts of food, with fluctuating and uncontrolled budget costs, or fixed sums to be used for purchase of food. The latter approach places the burden of price variations on the household, and this remains true for short-term variations even if there is periodic adjustment to take account of inflation. It is very difficult to achieve universal household food security and targeted income transfers in the same program.
- Income transfers linked to food should increase food consumption among the target population and the research bears this out. The increases in overall consumption are usually not as great as the increases in consumption of the product subsidized, because substitution effects among the poor are larger than expected. Malnourished individuals should also consume more food, but little is known about what actually happens within households, and there is some evidence that adult household members get preference over malnourished children.
- Targeting is important, because it is a means of reducing costs while concentrating benefits. Few existing programs are effectively targeted on the poor, and many are biased toward urban areas. On the other hand, trying to fine tune targeting beyond a certain point usually produces inefficiency and excessive administrative costs.
- The degree to which nutrition improves will depend on the extent to which lack of food, rather than sanitation, health, or other factors cause poor nutrition.
- Reduced food prices can contribute to the formation of human capital by making resources available for health, education, and other services. Studies from non-IFPRI sources suggest that improved nutrition has positive effects on labor productivity. If programs can be designed to achieve such effects, food subsidies may contribute to economic growth rather than detract from it.
- Fiscal costs of food subsidies rose sharply in the early 1970s, as governments attempted to protect households from the impact of soaring world food prices. Expenditures decreased thereafter because of lower international food prices and government policy decisions. Even so, untargeted, explicit food subsidies for consumers remain expensive. Efforts to save on the cost of subsidies have often harmed the welfare of the poor. Food aid can significantly reduce the cost of food subsidies to the national government.

- The effect of subsidies on the agricultural sector shows no consistent pattern. Explicit consumer subsidies can lead to increased demand for food and, hence, a gain for producers. Implicit consumer subsidies, on the other hand, usually involve low producer prices. It is unclear from existing evidence whether the fiscal cost of subsidies generally leads to reduced investment in the productive side of the agricultural sector.
- While it is often argued that subsidies help control inflation by keeping food prices low, deficit financing of explicit subsidies will contribute to continuing inflationary pressures on the general price level which may well overtake the one-time reduction in prices of subsidized commodities.
- The impact of food subsidies on trade and foreign exchange depends on the nature of the subsidy program and other existing economic policies. Inflation may contribute to increased demand for foreign goods and subsidy programs themselves can lead to large imports, as in the case of Egypt. Implicit subsidies, by reducing incentives to produce, may depress exports through lower availability of goods to export.
- Food subsidies can influence employment and economic growth in a number of ways: “through price distortions and reduced investment in agricultural and other sectors, through improved human capital, through the effect on wages and inflation, or through the availability of foreign exchange for import of capital goods and raw materials. The net effect on output may be positive or negative ... there is no evidence that expenditure on food subsidies impedes or fosters output and growth. The answer hinges on other distortions and accompanying policies.” (3–18)

Subsidies concluded with two short chapters on policy implications. The first, by Ammar Siamwalla of IFPRI’s Trade program, dealt with macro policies. It considered explicit and implicit subsidies, temporary and permanent ones, and the various factors that need to be taken into account in appraising likely impact. The chapter consisted mainly of questions that need to be answered about the nature of the economy and the means chosen to finance the subsidy before an appraisal could begin.

The final chapter, by Pinstруп-Andersen, offered advice on how to make policy decisions about food subsidies at the microeconomic level. How, he asked, could one determine that subsidies are an appropriate policy choice and how could subsidies be made more cost-effective. In dealing with the first issue, Pinstруп-Andersen reflected the ambivalence identified at the beginning of this discussion. Subsidies, he pointed out, were rarely if ever the solution to long-term problems; on the contrary, they usually made such problems worse. “Their proper role,” he said, “is to compensate for the effects of inappropriate development strategies, institutional changes, and policy measures” (333). The need for subsidies could be reduced by adopting appropriate strategies, institutional

changes, and policies. Note the similarity to Mellor and Johnston's statement quoted in the introduction to this paper.

Pinstrup-Andersen summed up as follows:

...the most important lesson learned from the research and policy experience presented in this book is that consumer food subsidies can be a powerful and cost-effective policy tool to reach certain social, economic and political goals, or they can be harmful to growth and equity. As with so many other policy tools, the question is not whether consumer food subsidies are good or bad but when and how they are applied (340).

WHAT NEXT ON SUBSIDIES?

In the Internal Program Review (IPR) that took place in the year following publication of *Subsidies*, and in the External Program Review (EPR) that followed in 1990, IFPRI received both an endorsement of further work on food subsidies and a lot of advice about how it should proceed. Payne and Subbarao, the outside reviewers of the Consumption program for the IPR, commented that an appropriate and useful measure of nutritional status should be found and applied to all consumption research. Their other suggestions on the subject of subsidies were to establish a better understanding of the relationships between factor markets, particularly the labor market, and product pricing; to determine the long-run relationship between food subsidies and farm outputs; and to study the relationship between price policy interventions and sustainability. Given the pressure generated by structural adjustment programs, costs and targeting of welfare interventions had become particularly important. IFPRI should therefore work on both the real and fiscal costs of subsidies and the trade-offs involved, according to the two reviewers. Because targeting was highly political, the political economy of choosing between broader, more widely supported programs and narrower, presumably more efficient ones, should be studied. Moreover, in some countries targeted programs might overstretch administrative capacity and thus fail to reach their objectives, or might entail higher costs than untargeted programs in terms of the goals sought. IFPRI should undertake research that would help decisionmakers choose among various targeting alternatives (Payne and Subbarao 1989, 13–17).

The External Program Review panel was positive about subsidies as such, noting that IFPRI's book on the subject showed that subsidy programs had strong positive effects on the nutritional status of the poor. The panel suggested three directions in lieu of further geographic spread of the work:

- More attention to the effects subsidies have on price structures;
- Greater attention to the opportunity cost of subsidy programs; and

- Analysis of the social and administrative processes through which subsidies were reduced in adjustment programs, and the optimum level of targeting from both the cost/benefit and political feasibility viewpoints.

The EPR panel cited a “common observation ... that the [food subsidies] project would have benefitted from use of a tighter conceptual framework.” This echoed a general theme of the review, which perceived a need to improve the overall quality of IFPRI’s scientific work (TAC 1991, 23–24). The Egypt research was viewed as something of an exception to these comments. The comments were nevertheless taken into account when IFPRI engaged in further study of Egyptian food subsidies in the 1990s.

Many years before, in 1982, the Consumption program had already taken to heart the point about stronger conceptualization of its research. The work on commercialization benefitted from a carefully thought out conceptual approach.

The struggles of IFPRI to mount an effective program of research on political economy are considered in other parts of the IFPRI history. Richard Adams (mainly with reference to Egypt) and Per Pinstrup-Andersen (more generally) were already at work on this subject at the time the panels made their comments. Most of IFPRI’s studies of the political and bureaucratic processes of implementing food policies did, in fact, focus on food subsidies.

Turning now to advice contained in journal reviews of *Subsidies*, two reviewers who were enthusiastic about the book and the earlier work on which it was based, offered suggestions for improving not the technical soundness of the research, but rather its usefulness to policymakers. Simon Maxwell, then of the Institute of Development Studies, found that the limits of confidence about the applicability of the conclusions were missing (Maxwell 1989). Policymakers reading the book needed to be skeptical in using the results. A chapter on methodology would have been useful in guiding policymakers seeking to apply the results to their problems. Maxwell challenged IFPRI (or Pinstrup-Andersen from his new post at Cornell University) to do additional work in order to provide the needed caveats as well as guidance on how to answer the questions posed in the book. John Shaw (1990), serving in a donor agency as chief of the Policy Affairs Service at the World Food Program, found the book too expensive and too long to serve as policy guidance for busy people. He recommended “a kind of manual ... drawing from the results of the considerable research, which would be specifically designed as a guide for hard-pressed decision-makers and practitioners.” Earlier Shaw had communicated this thought to John Mellor. He sees IFPRI’s Food Policy Brief series, which started in 1988, as a partial response (personal communication from Shaw). IFPRI has made no attempt, however, to provide a cookbook for studying policy options for food subsidies, or anything else for that matter.

In its program strategy completed in 1991, IFPRI responded to the enthusiasm of outsiders for subsidy research by planning a move in other directions: “Whereas much past research at IFPRI has been done on food consumption subsidies, priority will now shift to the income earnings side of the household food equation and related policies” (IFPRI 1991, 21). In the Medium-Term Plan for 1994–98, food subsidies, along with stabilization of national food availability, seasonal malnutrition, and agricultural commercialization, were given low research priority, although they remained important as areas for input into policy action. It was time, in other words to stop doing research on subsidies and put what was known into effect (IFPRI 1993). This did not mean, however, that research on subsidies would grind to a halt. There was too much demand, from one donor in particular, for that to happen.

SUBSIDIES RESEARCH AFTER 1988

IFPRI completed three studies of food subsidies in specific countries between the appearance of *Subsidies* and this writing, all as parts of major country projects supported by USAID. The first study, of Pakistan, came to a head in 1988 as *Subsidies* went to press. Pakistan’s abolition of wheat flour ration shops is considered an important instance of IFPRI’s research having substantial real world impact. IFPRI’s role was analyzed by Islam and Garrett (1997) in the first publication in the impact assessment series, of which this paper is a part. A study of the rural rationing system in Bangladesh in 1992 contributed to the abolition of that program. Research on subsidies formed an important part of IFPRI’s work in Bangladesh through 1994. The research in Bangladesh and its impact is described in this series in Babu (forthcoming). The third study, undertaken in 1994 with USAID support, revisited the possibility of reforming the Egyptian food subsidy scheme. It was completed as this discussion paper was being readied for publication. The project is summarized below and compared with the earlier Egypt project.

Egypt Again

The design of cost-effective alternatives for the food subsidy and social safety net system in Egypt was one of three goals for this country project. The other two goals, distinct but closely related, were to study policies to stimulate employment and income generation for food security and to study the stabilization and liberalization of foodgrain markets. The description of this research relies on still incomplete outputs, principally a draft research report (Ahmed et al. forthcoming).

The Egyptian food subsidy research in this round was influenced not only by the extensive work done in Egypt by IFPRI in the 1980s, but also by the Bangladesh program of the 1990s. Akhter Ahmed, the IFPRI research fellow who resided in his native Bangladesh through much of the study there, was IFPRI’s resident researcher in Cairo. He brought IFPRI’s experience directly from Bangladesh to Egypt. The research goals of

the two projects were comparable, although the economic and physical circumstances and the policy interests of the governments were different.

Circumstances in Egypt in 1994 were also different from those of ten years earlier. The cost of food subsidies had been reduced from about 14 percent of government expenditures to around 5.5 percent. Instead of covering a broad range of commodities, the program was limited to untargeted subsidies for *baladi* bread and flour, which accounted for the bulk of the expenditure, and a targeted rationing scheme for oil and sugar. Rather than being strongly concerned with achieving food self-sufficiency, the Egyptian government concentrated on protecting a set of economic adjustment policies adopted in 1991. It wished to avoid both wasteful expenditure and political disruption and at the same time to help the poor cope with the impact of liberalization. Unlike the early 1980s, there was relatively little external pressure on the government to reduce or abolish subsidies.

IFPRI's research in Egypt in the 1980s was financed by the central technical bureau of USAID. The sponsors were interested as much in drawing conclusions of broad application as in local impact. The IFPRI research team worked hard both to reach generalizable conclusions and to produce results that could be used in Egypt and inform Egyptian decisionmakers of how those results could be applied in practice. As noted above, funding that would have permitted IFPRI to work on the application of the research results was not approved.

In the 1990s, USAID's mission in Cairo financed the project from funds specifically allocated to Egypt. The project was more heavily oriented toward producing an impact in that country. Negotiations between USAID and the Egyptian government continued for several years before IFPRI was granted approval to start work. One important element of the negotiations involved the determination of both IFPRI and USAID to build into the project a track leading toward influence over government policy. The fact that IFPRI had the task of designing and testing pilot-scale alternatives to the existing food subsidy program showed the degree to which the project was oriented toward impact. A further difference between the first and the second projects was the inclusion in the second of two additional topics—employment and income generation and stabilization and liberalization of the grain markets—which, among other things, provided a broader context for the subsidies research.

Like the first Egypt project, the second was based on a broad yet detailed household survey, carried out by IFPRI in collaboration with the Egyptian Ministries of Agriculture and Land Reclamation, and Trade and Supply. Unlike the first, this survey was nationally representative. Community-level surveys were used to show how local services and infrastructure influenced the use of the food subsidy system. This time around households were not surveyed twice, making it difficult to consider seasonal factors. IFPRI conducted a round of structured one-on-one interviews with policymakers

and stakeholders, and held a workshop with stakeholders, in order to understand political factors involved in the process of food subsidy reform.

IFPRI researchers expected to find that the untargeted subsidy of relatively low quality *baladi* bread and flour would automatically target the poor because of the relatively low quality of the subsidized commodities. This turned out not to be the case. Broadly speaking, each income quintile of the population received the same absolute amount of subsidy. It proved difficult to identify the poor in Egypt, even after consulting extensive work by others and completing IFPRI's own profile of Egyptian poverty. IFPRI researchers therefore decided to specify the needy population as the lower two income quintiles. On this basis, and without taking significant leakages into account, the even distribution of benefits implied that 60 percent of the total cost of the wheat and bread subsidies did not reach the needy. Although it was supposed to be targeted, the rationing system for sugar and oil turned out to be even less efficient in transferring income to the poor than the untargeted subsidies. Leakages and inappropriate distribution of ration cards were the principal causes of this failure. The overall subsidy program did have a large impact on the welfare of poor people, as it did in the 1980s, but at a high relative cost. Ample room was found to exist for improving efficiency.

The IFPRI researchers presented 12 possible options for the consideration of Egyptian decisionmakers. They analyzed each option in terms of political and administrative feasibility as well as economic costs and benefits. The first five options were judged to be feasible on all counts. They called for improving the targeting of the ration system, reducing the cost of subsidized wheat flour either by adding maize or by increasing the extraction rate, and increasing the number of *baladi* bread bakeries and outlets in poor urban areas. The second group of options called for eliminating the subsidies on oil and sugar and allocating subsidized commodities geographically by poverty level. These options were judged to be less feasible politically. The remaining ones involved large increases in the prices of subsidized bread and flour or targeting bread and flour subsidies to the poor. They were judged to be politically infeasible for the present.

In the Internal Program Review of 1989, cited above, outside reviewers challenged IFPRI to work on both the real and fiscal costs of subsidies, and to consider their impact on the economy as a whole, not merely on the welfare of the poor or on government expenditures. Some steps in that direction were taken in the most recent Egypt research. Two economists from the Trade division were asked to contribute a chapter (Löfgren and El-Said forthcoming) to the overall research report, which is written but not yet published. Drawing on extensive work they and others have done to model the Egyptian economy, Löfgren and El-Said designed a Computable General Equilibrium (CGE) model of the Egyptian food economy, and used it to explore the short-run equilibrium effects of a set of options for operating the food subsidy system. The nine options considered cover essentially the same ground as those considered in the more traditional format described above. In seven of the options the model is balanced by putting savings

from adjustments in the subsidy programs into a tax cut distributed evenly across existing tax rates. A hypothetical cut of 1 percent, for example, would reduce rates of 5 percent to 4 percent and rates of 2 percent to 1 percent. In the other two options the savings are used for income transfers to the poor. The model illustrates not only income effects on households but also effects on the distribution of factor incomes between agriculture and nonagriculture, on foreign trade, on the exchange rate, and on real production.

The simulations show that targeting or eliminating the smaller subsidies on sugar and oil has limited fiscal impact. Doing the same for bread and flour, not feasible politically in the short run, has more substantial impact: a cut of between 16 and 25 percent in income tax collections. There is also a reduction of about 7 percent in wheat imports, offset almost entirely by imports of other kinds of food and a reduction of food exports. Targeting all subsidies benefits the needy. Eliminating all subsidies, on the other hand, is regressive. Because they lose roughly the same absolute amount as the rich, the needy are relatively worse off. The poor also gain less from the tax cut, which rises with income, and they lose through indirect effects on agricultural prices and factor compensation. If all subsidies are eliminated and the savings are transferred to the poor rather than to an across-the-board tax cut, the regressive effect is strongly reversed. If maize is substituted for 20 percent of wheat in subsidized flour and/or bread, the government enjoys a small saving, which increases as leakages shrink. This policy raises demand for maize, which could lead to the use of improved technology in maize production. Substituting maize for wheat would therefore have both indirect and direct benefits in rural areas.

A particularly interesting result is that even complete targeting or elimination of the subsidies will produce very small gains in efficiency for the economy as a whole.

The overall conclusions from the research direct attention to improving the targeting of sugar and oil subsidies and substituting maize for part of the wheat consumed in subsidized products. Both are worthwhile steps that do not seem to have major political drawbacks. At the request of the Egyptian authorities, IFPRI, applying an approach developed by the Living Standards Measurement Study program at the World Bank, developed an easily implemented "proxy means test." The test can improve targeting on the basis of easily collected indicators that correlate closely with household income. Following IFPRI experience from Bangladesh, the test was developed under the guidance of a task force comprised of senior Egyptian civil servants, USAID specialists, and the IFPRI research team. Nine indicators covering household size, educational levels, electricity and telephone bills, presence or absence of a private toilet in the home, and ownership of specified assets were selected. In August 1999, Ahmed Goueli, Minister of Trade and Supply, approved the use of this method for targeting the rationed food subsidies for sugar and oil. Existing ration cards, which IFPRI research has shown to be frequently in the wrong hands, will be replaced following administration of a questionnaire to all ration-card holder families. IFPRI trained the ministry staff to implement the system, and field-tested its effectiveness. This approach, which combines

cost reduction and improved effectiveness, is potentially applicable to targeting bread and flour subsidies, should the political decision to do so become feasible in the future. It could also be applied to other forms of social intervention where it is important to identify poor households. The actions of the Egyptian government demonstrate significant impact of IFPRI's research (Ahmed et al. 1999).

IFPRI's past research on subsidies in many countries has been conducted with considerable political sensitivity but politics usually has not been discussed openly. The analysis of political sensitivities has been much more overt in the recent work in Egypt. It is too early to say whether this openness will lead to greater influence on actual policy change, and whether general conclusions in the field of political economy will result.

Ongoing Food Subsidies Research

After leaving subsidies out of its set of research priorities for several years, the Consumption division initiated a new multicountry research program (MP) in 1994 on the subject of safety nets. Defined as arrangements to be accessed temporarily by individuals affected by economic or climatic shocks, safety nets were needed, in particular to protect people affected by the implementation of structural adjustment programs. The Egypt subsidy research was brought under this umbrella, in spite of its tendency to be enduring rather than temporary for both individuals and the national government. The problem of defining temporary was removed in 1997, when the MP was broadened and relaunched under the title, "Targeted Interventions to Reduce and Prevent Poverty," including but not limited to social safety nets. In addition to food subsidy research, this MP draws on past IFPRI work on labor markets, nutrition monitoring, and famine prevention. The only significant engagement with subsidy research under the MP, as of this writing, has been the work on Egypt.

THE IMPACT OF IFPRI RESEARCH ON FOOD SUBSIDIES

The considerable impact IFPRI's research has had on food subsidies in Pakistan and Bangladesh has been covered in this discussion paper series in the publications cited above and in other parts of the draft history of IFPRI. The outgrowth of the pilot study in the Philippines has been described above as has the extended and evolving story of impact in Egypt. The continued demand for IFPRI to undertake studies of national subsidy programs tends to confirm that the Institute has great credibility in this field, but has not developed a methodology readily applied by national policy researchers without outside help, even in developing countries reasonably well endowed with analytical talent. The paragraphs that follow attempt to complete the picture by discussing briefly IFPRI's impact on the realm of ideas and concepts as perceived in the development community and among researchers.

The standing of IFPRI's work on subsidies can be discerned from a review article on health and nutrition by Behrman and Deolalikar in the *Handbook of Development Economics*, volume 1. This volume was published in 1988; it makes no reference to *Subsidies*, which was published in the same year. Five of the six studies of the nutritional impact of subsidies that Behrman and Deolalikar mention are from IFPRI. These are works on Egypt, Brazil, Thailand, and Sri Lanka, and a review article on targeting and cost-effectiveness by Pinstrip-Andersen. The single non-IFPRI study is a World Bank working paper on the same subject. At the end of their summary, the authors note briefly that the studies cited are all based on partial equilibrium models and do not address the macroeconomic impacts of food subsidies. They suggest that given the recent tendency to cut food subsidies and other health related programs as part of macroeconomic stabilization programs, further macro work would be justified beyond the little they had found (Behrman and Deolalikar 1988, 692–696).

Both the Internal Program Review of 1989 and the External Program Review of the following year acknowledged IFPRI's leading role in research on food subsidies, as did reviewers of *Subsidies*. The most explicit acknowledgment from the book reviewers came from Simon Maxwell, whose 1989 review is worth quoting:

“... a consistent set of messages has emerged [from the extensive IFPRI research on food subsidies]: in favor of consumer subsidies to provide income support to the poorest groups; against generalised price subsidies which discriminate against producers and may entail large fiscal costs; and in favor of targeted programmes, especially those which avoid large administrative costs through self-targeting or geographical limitations. Taken together these messages make up the conventional wisdom on subsidies; their influence can be seen in, for example, the 1986 World Bank policy study, *Poverty and Hunger*.” (408)

The *Food and Nutrition Bulletin*, then edited by Nevin Scrimshaw, said of *Subsidies* in an unsigned 1989 review: “This book is by far the most comprehensive and authoritative treatment of food subsidies available.”

IFPRI research on food subsidies is impressive in scope and quality, and has been recognized as such. There have been complaints about some lack of explicit conceptual rigor, and wishes for a broader macroeconomic canvas, as well as calls for more detailed methodologies to be applied by policy analysts in developing countries. Another negative comment comes from those who say that with the prevalence of structural adjustment and the spread of liberalization policies in the developing countries, subsidies are no longer a current issue, and that the research has been overtaken by events. The latter comments would seem to run the risk of confusing rhetoric with reality. As long as there are large numbers of poor people untouched by the benefits of development—and who is brave enough to predict when such groups will disappear in the industrialized countries, let alone the low-income developing countries—food subsidies will remain politically and morally relevant to policy choice, notwithstanding the ambivalence most economists feel in dealing with them.

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