

PW-ABC-437
12/6/88

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AGRICULTURAL PRICES AND STABILIZATION POLICY

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August 1988

**Prepared for ANE/TR/ARD Strategy Symposium
"Agriculture in the 1990s"**

ABSTRACT

Agricultural Prices and Stabilization Policy

This paper outlines the analytical underpinnings for the pragmatic approach to agricultural pricing that is so dominant in Asia. In contrast to the free market and structuralist schools of agricultural pricing, this third school of thought is tentatively labeled the "stabilization" school. The main contention of this school is that by following short-run price movements in international markets, an economy incurs significant efficiency losses, but the economy incurs equally significant efficiency losses by *not* following longer-run trends in international opportunity costs (whatever the market processes that determine them). Optimal *efficiency* thus calls for some degree of market intervention to stabilize short-run prices, but there must be sufficient flexibility to allow domestic prices to reflect international price trends. Rent-seeking behavior is constrained, if not eliminated, by using competitive market agents to carry out most marketing activities, but within government-established price bands.

While rejecting the call of free market advocates for no pricing interventions, the stabilization school also rejects the structuralist desires to use agricultural prices primarily as an instrument for redistributing incomes. Further, by encouraging the development of a competitive private marketing sector over time, the role of government price interventions can decline as the role of price stability for the basic foodstuff becomes progressively less important to the economy during the course of economic development. Structuralist- or socialist-inspired stabilization policies that actively seek to displace the private marketing sector have great difficulties when the opportunity (or budgetary need) comes for such a transition.

Neither the underlying analytical foundations nor workable operational procedures have been satisfactorily developed for domestic price-stabilization schemes to be implemented and evaluated with any degree of coherence. The fact that nearly all countries in Asia and the Near East attempt to implement such schemes suggests that the

rewards to progress on both fronts--analytical and operational--will be very substantial. This paper is primarily concerned with operational issues of analyzing, designing, and implementing price-stabilization schemes. However, the paper lays out the basic logic of the analytical approaches in order to focus the discussion of operational issues on pricing strategies that are consistent with the theoretical rationale for their design and implementation.

The important analytical question for the stabilization school is not to demonstrate that the pervasive market failures in developing countries lead to non-Pareto-optimal outcomes, but that they are quantitatively significant relative to the costs governments would incur in order to alleviate them. It is already clear that large costs from price instability will not be found in the static, micro-based models that follow the Newbery-Stiglitz tradition. The paper focuses on the impact on investment behavior and on the macro economy as the obvious places to look for more significant benefits from price stabilization, as well as at consumer preferences for price stability in the presence of adjustment costs. No formal model is offered, but the likely ingredients of a model that would capture these effects include the following: displaced investments in physical capital at the farm level, the marketing sector, and the industrial sector; substitution of consumption and leisure for savings and work; biases in investments in human capital for the farm agent and intergenerationally in children; the transactions costs consumers face in reallocating budgets when prices change; the welfare gains from a psychic sense of food security (and voters in rich countries and poor alike place a substantial economic price on this factor); and the feedback from this sense of security to a stable political economy, which reinforces investors' willingness to undertake long-term (and hence risky) commitments.

The benefits from stabilizing the prices of basic foodstuffs, or other agricultural commodities with significant macroeconomic linkages, are considerably larger than those reflected in the models that have been used so far to analyze relative costs and benefits of price-stabilization programs. While little is known empirically about the size of the

dynamic and macroeconomic benefits of stability, it is difficult to agree that they should be ignored in the evaluation of such programs. The pervasive, indeed universal, tendency of Asian governments to stabilize their domestic rice prices relative to unstable world market prices for rice suggests that the benefits may be very large. The relatively rapid economic growth in many of these Asian countries argues that the impact of efficiency losses and budgetary costs on growth cannot be too large, at least if the price-stabilization program is well designed and implemented. A focus on these operational issues of design and implementation, which are much better understood than the resulting dynamic and macroeconomic benefits, offers some practical guidelines in judging the efficacy of price-stabilization policies. The guidelines are drawn from countries that have been more successful than others in managing the complex tasks of intervening in agricultural price formation without incurring unacceptably large budgetary costs or sacrificing long-run efficient resource allocation.

The operational significance of two basic principles identified in the paper--grain price stabilization both costs public resources and destabilizes either the government budget or the credit market--is quite profound. Failure to face them directly is the most common reason for failure of stabilization programs. Planning of stabilization activities can be based on expected values under normal circumstances, and budgets can be drawn up under these assumptions. But actual operations must be conducted as reality unfolds, and reality is likely to hold surprises with respect to the size of the harvest, level of consumer demand, expectations of the private sector and its participation in storage and transportation, world market prices (in dollars), and the country's exchange rate. For a food logistics agency to cope with these surprises, it must be able to arrange for substantial credit lines on very short notice, often no more than a week or two. Many government agencies have difficulty allocating resources so quickly unless they understand in advance the need and can trust the logistics agency to spend the money, with adequate financial controls, for the intended purposes. It is no wonder that so few countries have been able to carry out this task successfully over a long period of time.

CONTENTS

The Analytical Case for Price Stabilization	4
Potential versus Actual Benefits of Government Intervention	5
The Quantitative Significance of Price Stabilization	9
Investment	
The industrial sector	
The macro economy	
Consumers	
Operational Issues in Analyzing Price-Stabilization Policies	13
Stability of Expectations in Marketing Systems	16
Incentives to Farmers and Diversification	17
Budgetary Costs	19
From Analysis to Implementation of Market Interventions	23
Analysis	24
Communication	24
Implementation	26
Evaluation	29
References	31

d

AGRICULTURAL PRICES AND STABILIZATION POLICY

A three-way debate is under way on the appropriate role of price policy in agricultural development strategies. The free-market school argues that all agricultural prices should reflect their opportunity costs at the border, no matter what the international market processes are that determine the prices, and no matter what the price levels happen to be. The result of such a pricing strategy is supposed to be optimal efficiency of resource allocation, as well as minimal rent-seeking activity with its associated losses in X-efficiency.¹

The structuralist school argues that the entire border price paradigm for domestic price determination is misdirected, at least for a select list of commodities, such as basic foodstuffs, that have important roles in the macro economy and welfare of consumers. Supply and demand elasticities are quite small for these commodities, so the triangles of allocative losses from not equating domestic prices with border prices are trivial. The border prices themselves are mostly the result of gross distortions in agricultural policies in the developed world, are highly unstable, and thus carry minimal information on how resources should be allocated in the long run. Accordingly, prices should be set to favor income distribution objectives in conjunction with macroeconomic stability.²

The agricultural pricing debate is just one of several that have been conducted between these two schools of thought in development economics since the 1950s.³ The free-market approach has clearly won the ear of most large donor agencies in the 1980s, although the structuralist paradigm remains dominant in Latin America and is a significant intellectual force in the Inter-American Development Bank. Other developing

1. This school of price policy is usually associated most closely with T. W. Schultz and his colleagues and students from the University of Chicago. See Schultz (1978) for a review of this philosophy and Chapter 2 of Timmer (1986b) for an introduction to the border price paradigm that serves as its intellectual foundation.

2. See the work of Taylor (1980), Streeten (1987), de Janvry (1978), Lipton (1977), and Rao (forthcoming).

3. An excellent review of this debate from a neoclassical perspective is in Little (1982); the structuralist perspective is best presented in Taylor and Arida (1988).

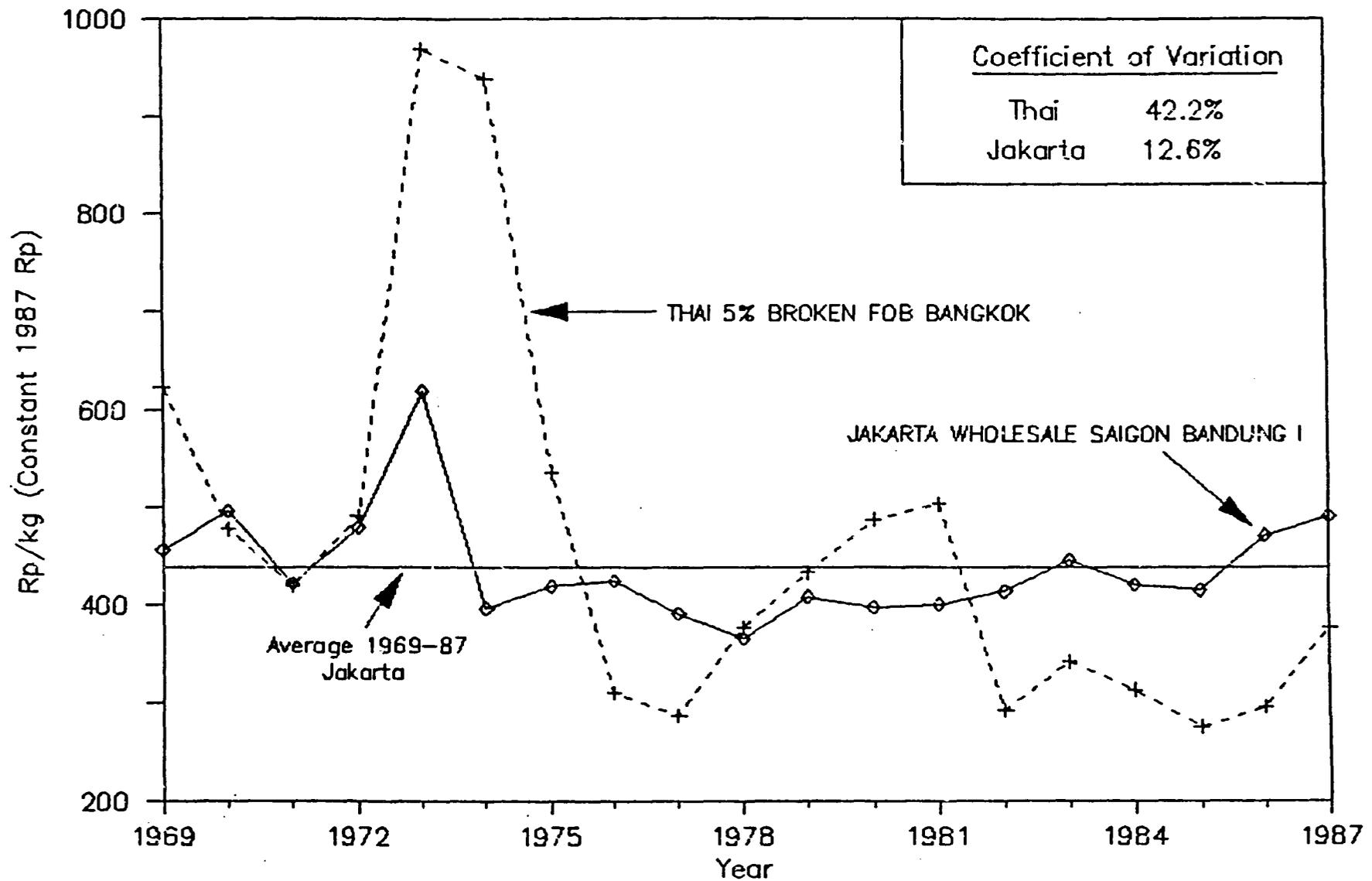
countries, even the most successful ones in East and Southeast Asia, have openly rejected the free market approach for primary foodstuffs, especially rice and wheat, in favor of interventions to stabilize and support agricultural prices. At the same time, the structuralist approach has also been rejected because the allocative and budgetary costs of wide deviations from border prices (including those deviations due to overvalued domestic currencies) have turned out to be substantial. The result has been a melange of ad hoc pricing interventions intended to satisfy the needs of farmers for price incentives, the needs of consumers for low-cost foods, the constraints imposed by budget-minded finance ministers, and the powerful socio-political desire for price stability as the proximate indicator of a society's degree of food security. Figure 1 shows one example of the outcome of such a pricing strategy. Indonesia has sharply reduced the instability of domestic rice prices relative to that in the world market but has not deviated from the long-run trend in world prices.

The analytical underpinnings for this pragmatic approach to agricultural pricing so dominant in Asia are just beginning to coalesce into a third school of thought, tentatively labeled here the "stabilization" school. The main contention of this school is that by following short-run price movements in international markets, an economy incurs significant efficiency losses, but the economy incurs equally significant efficiency losses by *not* following longer-run trends in international opportunity costs (whatever the market processes that determine them). Optimal *efficiency* thus calls for some degree of market intervention to stabilize short-run prices, but there must be sufficient flexibility to allow domestic prices to reflect international price trends. Rent-seeking behavior is constrained, if not eliminated, by using competitive market agents to carry out most marketing activities, but within government-established price bands.

While rejecting the call of free market advocates for no pricing interventions, the stabilization school also rejects the structuralist desires to use agricultural prices primarily as an instrument for redistributing incomes. Further, by encouraging the development of a competitive private marketing sector over time, the role of government price

Figure 1

Indonesia; Comparison of Domestic and International Rice Prices 1969-87
1987 Constant Prices



Source: Frank Ellis, Integrated Planning Unit, Food Logistics Agency (BULOG), Jakarta, Indonesia, 1988.

interventions can decline as the role of price stability for the basic foodstuff becomes progressively less important to the economy during the course of economic development. Structuralist- or socialist-inspired stabilization policies that actively seek to displace the private marketing sector have great difficulties when the opportunity (or budgetary need) comes for such a transition.

Neither the underlying analytical foundations nor workable operational procedures have been satisfactorily developed for domestic price-stabilization schemes to be implemented and evaluated with any degree of coherence.⁴ The fact that nearly all countries in Asia and the Near East attempt to implement such schemes suggests that the rewards to progress on both fronts--analytical and operational--will be very substantial. This paper is primarily concerned with operational issues of analyzing, designing, and implementing price-stabilization schemes; the underlying theoretical rationale is being dealt with by a variety of authors.⁵ It is important, however, to lay out the basic logic of the analytical approaches in order to focus the discussion of operational issues on pricing strategies that are consistent with the theoretical rationale for their design and implementation.

The Analytical Case for Price Stabilization

With the early contributions of Smith, Marshall, and Pigou to the economics literature, economists have understood for nearly a century the basic analytical rationale for government interventions into market price formation. Economies of scale and monopolies, externalities in production and consumption, public goods, and imperfect information in the absence of complete contingency markets have long offered theoretical justification for interventions designed to correct such market failures. The resurgence of

4. As a simple example of the problems faced, there is no reliable technique for estimating trends in prices. See Schwartz (1987).

5. See especially work by Newbery and Stiglitz (1981), Runge and Myers (1985), Stiglitz (1987), Just (1988), Pradhan (1988), Myers (1988), and Timmer (forthcoming(b)).

the free-market paradigm builds on a crucial lesson from postwar development experience; policies that attempted to strengthen the competitiveness of markets as a way to improve their efficiency outperformed policies that attempted to correct for market failures by suppressing market activities. This success for market-oriented policies came about primarily because government failures in market interventions were often far more serious in terms of wasted economic resources and forgone growth than were the market failures they were designed to correct.

An additional factor grew out of the theory of the second best. Many imperfections in markets, especially in rural factor and product markets, could be explained as second-best adaptations to inherent constraints on first-best arrangements because of imperfect and asymmetric information, moral hazards and high transactions costs, and a significant degree of risk aversion by the very poor in the context of incomplete credit and contingency markets. In such circumstances, government interventions into one market run a substantial risk of lowering the welfare of the poor because of its connections with other markets that provide some degree of welfare insurance. Under the twin banners of "government failures" and models of interlinked markets in a second-best world, neo-neoclassical and social-choice theorists provided a new intellectual foundation to the free-market paradigm.⁶

Potential versus Actual Benefits of Government Intervention

The basis of this foundation is not theoretical, however, but inherently empirical. Given the reality of widespread market failures in developing countries, modern welfare economics is very clear on the *potential* scope for government interventions to achieve a Pareto-superior position for the economy. Whether a government can improve welfare through an actual intervention in a specific case depends on two factors: whether the market failure itself is "real" within the context of the theory of the second best, and whether the government can actually improve social welfare by intervening. The latter

6. See especially Stiglitz (1987), Srinivasan (1985), Braverman and Gusach (1986), and Bates (1981).

question must be addressed in a dynamic context that explicitly includes the potential for vested interests to capture both the economic gains from the policy intervention and the policy-making process itself, thus leading to further interventions that carry the economy away from the Pareto optimum achieved by the initial, but limited, government intervention.

The stabilization school builds on these analytical foundations to develop the empirical case for price-stabilization policies. In doing so, however, it rejects the emerging consensus that the welfare gains from price stabilization, although theoretically justified, are empirically not very important relative to the costs governments must incur in order to stabilize prices.⁷ Two key innovations in the analysis, one microeconomic and one macroeconomic, lead to such different empirical conclusions. The first is to consider the farmer as an investor rather than the manager of a static stock of assets and a flow of variable inputs. The model of farmer as manager is the basis of nearly all theoretical and empirical assessments of risks from price and yield instability, but it clearly excludes important elements in farmer decision making that are strongly influenced by these risks, especially expectations and patterns of investment in physical and human capital. Transforming the problem into one of dynamic portfolio investment decision making enormously complicates the analysis of risk, even when restricted to farm-level issues.

Tracing the macroeconomic ramifications of price instability is even more complicated because general-equilibrium analysis is needed with dynamic investment

7. This is the key conclusion in Newbery and Stiglitz (1981), in Stiglitz (1987), and in Bigman, Newbery and Zilberman (1988). The latter authors, for example in their discussion of Just's arguments for price-stabilization policies, make the following comment: "Attempts to quantify the net (efficiency) benefits of institutional attempts to reduce risk, like commodity price stabilization or quota policies, suggest that they are usually small and often negative" (p. 461). Working from a different analytical framework, Ravallion (1987) comes to a related conclusion: "... although the results of this study [of the Bangladesh famine in 1974] suggest a case in favor of foodgrain price stabilization, the most appropriate form of policy intervention remains unclear. The case for public storage [the most common mechanism used to stabilize prices in developing countries] rests on the nature of the distortions to markets; buffer stocks will not be able to stabilize a competitive market with rational expectations" (p. 172). Both approaches conclude there is little empirical rationale for governments to attempt to stabilize foodgrain prices, a result so sharply at variance with actual experience that different approaches should be investigated.

functions that are conditioned by stability-sensitive expectations.⁸ But incorporating these dynamic factors into both the micro and macro analyses offers the opportunity to examine the impact of price-stabilization policies on agricultural development and economic growth. The static, micro-based models simply do not address these issues; they are incapable of assessing the consequences for the economy of the price-stabilization policies that are widely implemented--consequences that policy makers actually worry about.

Pradhan (1988), in his analysis of fertilizer-pricing strategies in India, reaches similar conclusions after a careful review of the analytical literature on price stabilization:

The efficiency and policy implications of the perfectly competitive market with a complete set of markets need to be qualified (and qualified strongly in some cases) because their assumptions are not realistic. Perhaps most significant in this context are the assumptions about perfect insurance and capital markets, particularly in the context of economic environments characterized by uncertainty and price fluctuations. Unfortunately, the theoretical and empirical literature reviewed here shows that either the models are too simplified (e.g. the debate following the Oi-Waugh contributions), or they fail to capture some of the essential problems of price instability in uncertain environments. . . . In an attempt to incorporate these, five such adverse welfare consequences (the contingency fund effect, the adjustment cost effect, the forecasting error effect, the psychic cost effect, and the "fear of bankruptcy" syndrome) stemming from continued adjustment and disequilibria in the face of uncertain price fluctuations are hypothesized and introduced. . . some of the important effects can be embodied in a general notion of transactions costs as an increasing function of price instability and uncertainty. Indeed, once these microeconomic and macroeconomic factors are realistically (and even quantitatively) considered, it becomes clear that imperfections in risk and capital markets combined with substantial price fluctuations for a commodity like fertilizers in a country like India have significant adverse externalities and non-Pareto-maintaining welfare consequences (pp. 31-32).

The absence of stock markets and insurance markets for Indian investors in fertilizer factories means that instability in fertilizer prices and uncertainty lead to sub-optimal levels of investment in domestic factories, thus causing a larger-than-optimal

8. The macroeconomic dimensions of price stability are stressed in Ravi Kanbur's review of the Newbery-Stiglitz book. See Kanbur (1984). The extreme difficulty of building dynamic investment factors into general equilibrium models of agricultural pricing can be seen in de Janvry and Sadoulet (1987).

exposure to the world market in which India has a "large-country" effect on prices. The macroeconomic consequences of the adjustments required to cope with this added exposure are quantitatively significant, primarily for two reasons: the foreign exchange requirements are a large fraction of normal imports, and fluctuating prices of fertilizer lead to fluctuating supplies of food, which further destabilize the macro economy.

The logic of extending Pradhan's analysis of fertilizer pricing to food pricing is straightforward.⁹ No farmers anywhere in the world have stock markets in which they can choose a portfolio of farm assets that can match their personal risk preferences. They are mostly stuck with the farms they have. Nor can yield or price risks be hedged in existing markets at reasonable costs. Asymmetric information makes crop insurance a very expensive option, one that is frequently nonexistent. Futures markets have very short time horizons; they are adequate perhaps for the short-run allocation of inputs but not for longer-run investment decisions where price uncertainty is a major impediment.¹⁰ Even in developed countries, few farmers use futures markets to offset their price risks. Stiglitz (1987) speculates that transactions costs may be too high, farmers may feel an informational disadvantage relative to large traders, and they may fear manipulation. Lack of liquidity can also create risks when new market information causes prices to change more than trading limits permit.¹¹ Such lack of liquidity is a significant impediment to those farmers who do want to use futures markets; most do not or cannot.

9. In fact, the logic begins with the analytical case for food-price stability, which Pradhan has extended in an innovative fashion to fertilizer pricing. The issues for industrial investment in the large-scale fertilizer industry have few direct counterparts at the level of farm investments, but investments in the marketing sector have similar economies of scale and inability for investors to diversify their risks through stockmarket portfolio choices.

10. See Crawford (1988) for a model that demonstrates the downward bias to investment in such circumstances.

11. The New York Times reported on June 16, 1988, that many farmers who had sold corn and soybean futures when yield prospects were favorable attempted to buy back their contracts as the summer drought deepened. Large pools of unmet buy orders accumulated for corn and soybeans--85 million bushels for corn and 12 million bushels for soybeans--as prices rose the daily limit each day of trading.

The Quantitative Significance of Price Stabilization

The important analytical question for the stabilization school is not to demonstrate that the pervasive market failures in developing countries lead to non-Pareto-optimal outcomes, but that they are quantitatively significant relative to the costs governments would incur in order to alleviate them. It is already clear that large costs from price instability will not be found in the static, micro-based models that follow the Newbery-Stiglitz tradition. As noted above, impact on investment behavior and on the macro economy are the obvious places to look for more significant benefits from price stabilization, as well as at consumer preferences for price stability in the presence of adjustment costs. No formal model is offered here, but the likely ingredients of a model that would capture these effects include the following: displaced investments in physical capital at the farm level, the marketing sector, and the industrial sector; substitution of consumption and leisure for savings and work; biases in investments in human capital for the farm agent and intergenerationally in children; the transactions costs consumers face in reallocating budgets when prices change; the welfare gains from a psychic sense of food security (and voters in rich countries and poor alike place a substantial economic price on this factor); and the feedback from this sense of security to a stable political economy, which reinforces investors' willingness to undertake long-term (and hence risky) commitments.

Investment-- It has long been recognized that the absence of long-term contracts, future-contingency contracts, and perfect credit markets induces a downward bias in investment in both physical and human capital.¹² Unforeseen instability in food prices is likely to cause reduced investment in both kinds of capital at three levels of the economy. At the farm level, price instability leads to lower investments than are optimal in production for the market relative to production of subsistence crops, in productivity-enhancing soil amendments, irrigation and drainage facilities, land leveling, and new

12. See Crawford (1988) and Becker (1962).

technology, as well as in commodity-specific knowledge and skills. Farmers also invest in processing and marketing equipment--small mills, motorcycles, and trucks--that allow them to increase the value added of their sales through better quality or timeliness of delivery. Sharp instability in prices make such investments riskier than is optimal for the society as a whole. The displaced investments are likely to be reflected in lower savings rates from farm incomes because rural credit markets usually do not offer efficient financial intermediation. There is also likely to be some displacement of work, and hence earned income, in favor of greater leisure. Both the added consumption from displaced savings and increased leisure contribute to welfare of the farm family, of course, but the shift in allocation of time and resources because of price instability is not optimal for economic growth.

Investments by the private sector in marketing infrastructure are also dampened in the face of price instability (except, perhaps, for short-run speculative investments), and this lack of investment has a particularly negative impact on growth because of the increasing returns and public-goods aspects of development of an efficient marketing system. Such a system must connect farmers with local buying agents, thus transmitting market information and permitting exchange to take place, which generates gains in efficiency from trade. It must transform agricultural commodities at the farm gate into foods at the time, place, and form desired by consumers. An efficient marketing system has to solve the problem of price discovery, at least at the local level and seasonally, even if government price policy sets a band in which such price discovery must take place.¹³ Many marketing investments are commodity-specific--rice mills and driers, for example--but decisions about trucks, warehouses, telephones, and so on may also be based primarily on the production and trading prospects for a single important commodity such as rice or wheat, and these prospects depend to a significant extent on the degree of price stability.

¹³ See Chapter 4 of Timmer, Falcon, and Pearson (1983) for further analysis of the importance of an efficient marketing system and the role of price policy in developing one.

The Industrial Sector.-- The industrial sector has a stake in food price stability because of the importance of wages in expected costs. Stability of money wages through stable food prices is likely to induce investments in labor-using machinery, thus improving the efficiency of technology choice in labor surplus economies. If stable food prices also contribute significantly to a stable political environment in which investors can form secure long-run expectations, the overall level of investment in productive resources is also likely to be stimulated. Structuralist models that show the importance of stable food prices to the level of macroeconomic activity are also relevant in this setting, but as much for the impact of stability on investment decisions as for the stable level of employment and short-run economic activity itself.¹⁴ Contingency funds set aside to cope with unexpected price rises can instead be devoted to productive investments.

The Macro Economy.-- Not all macroeconomic consequences of stabilizing food prices are positive. The resource requirements of the price-stabilization program itself can destabilize foreign-exchange requirements, the credit system and money supply, and budget allocations, a topic discussed in more detail below. An important operational issue is to balance the positive macroeconomic effects against these negative ones, as well as against the operational costs of the stabilization program itself.¹⁵

Consumers.-- The last factor to be incorporated into the analytical model that underlies the stabilization approach to agricultural pricing is the impact on consumers. The models used in the stabilization debate so far have looked rather narrowly at gains and losses in consumer surplus or, more elegantly, in compensating variations or equivalent variations.¹⁶ The stabilization approach argues that important sources of welfare loss to consumers due to price instability are omitted by such neoclassical approaches. Two sources seem especially large and may be measurable. The first is the value consumers place on avoiding the transaction costs incurred because of the need to -----

14. See Taylor (1980) for a model of these short-run effects.

15. These issues have received considerable analytical attention in the case of Kenya's grain price stabilization program. See Pinckney, forthcoming.

16. See Hallam (1988) and Helms (1985).

reallocate their budget resources each time relative prices change. Compared with rich consumers, poor consumers are likely to value this aspect more. To fulfill minimal nutritional requirements, the poor feel the pressure to substitute among food commodities much more acutely than do the rich.¹⁷ Accordingly, there are important implications for income distribution of food price stability.

Second, fear of food shortages in urban areas evokes a universal and visceral reaction. Governments are held accountable for provisioning cities at reasonable costs, and citizens have repeatedly demonstrated their capacity to bring down governments that fail in this obligation.¹⁸ It is acute food shortages--not the average level of food prices--that induce anti-government panics, however. Food shortages are simply the mirror image of sharp price rises. Price policies that successfully avoid such episodes clearly contribute substantially to levels of overall social welfare. This level of social welfare is reflected in a more stable political economy, with its attendant positive impact on investors' expectations.

The benefits from stabilizing the prices of basic foodstuffs, or other agricultural commodities with significant macroeconomic linkages, are considerably larger than those reflected in the models that have been used so far to analyze relative costs and benefits of price-stabilization programs. While little is known empirically about the size of the dynamic and macroeconomic benefits of stability, it is difficult to agree that they should be ignored in the evaluation of such programs. The pervasive, indeed universal, tendency of Asian governments to stabilize their domestic rice prices relative to unstable world market prices for rice suggests that the benefits may be very large. The relatively rapid economic growth in many of these Asian countries argues that the impact of efficiency losses and budgetary costs on growth cannot be too large, at least if the price-stabilization program is well designed and implemented. A focus on these operational issues of design

17. See Timmer (1981).

18. See Kaplan (1984) for a fascinating historical account of the relationship between urban masses and their rulers with respect to provisioning of basic foodstuffs.

and implementation, which are much better understood than the resulting dynamic and macroeconomic benefits, offers some practical guidelines in judging the efficacy of price-stabilization policies. The guidelines are drawn from countries that have been more successful than others in managing the complex tasks of intervening in agricultural price formation without incurring unacceptably large budgetary costs or sacrificing long-run efficient resource allocation.

Operational Issues in Analyzing Price-Stabilization Policies

All countries in Asia intervene in their rice markets. The primary analytical methodology used by economists to understand the impact of intervention, the border price paradigm, says they should not. This must be one of the widest gaps between theory and reality in all of economics. No single attempt is going to close that gap, but even a beginning might be useful. The essential starting point is to recognize that the gap exists because of failures at both ends. The analytical methodology has serious problems in purely theoretical terms. Relaxing the assumptions that make the framework simple and elegant, and therefore useful as a conceptual device, comes at a high cost in practical applicability. If analysts insist on realistic assumptions to reflect the pervasive market failures, nonequilibrium outcomes, and lack of information in the economies of developing countries, their methodologies are made progressively more complex, situation-specific, and dependent on the very knowledge that is lacking. On the other hand, most governments do intervene too much, at significant cost to the budget and the efficiency of the economy. One goal of this paper is to find an analytical process that copes with both of these realities in the hope that out of this process analysts can emerge with better methodologies and price policies.

For this analytical process to work, both the objectives for and problems with market interventions must be recognized.¹⁹ In rice-based Asian economies, rice price policy can affect economic growth, income distribution, and political stability--three important factors in any policy maker's objective function. Economic growth is affected by the level and stability of price incentives to farmers, which stimulate growth in output and rural incomes. Low and stable consumer prices keep real wages low, thus stimulating investment, industrial output, and exports. With purchases of rice still a large share of household budgets in many Asian countries and rice production the single most important farm activity, the impact of rice prices on real incomes by sector and income class is enormous. Most countries have no other policy instrument with a fraction of the potential of rice prices to alter the society's income distribution. Because of the economic significance of rice, maintaining reasonable stability in rice prices contributes directly to political stability. Nothing is more unsettling politically than rapid shifts in real income and wealth among large sectors of the population. Governments can eliminate at least one important cause of such instability by stabilizing rice prices.

Unfortunately, there are serious problems with the price policies used to reach these three objectives. The most visible, and therefore the most important to government policy makers, is the cost to the budget of defending stable prices and of maintaining domestic price levels above or below prices in world markets. But there are important hidden costs as well. The budgetary costs are not painful just because taxes must be collected to pay for them if fiscal policy is to remain in balance. Expenditures for subsidies to producers or consumers have alternative opportunities in investments or other programs that might

19. For more extensive discussion of the operational issues in food-price stabilization and market intervention, see Chapter 3, "Implementing Price Policy: The Impact on Markets and Marketing" in C. Peter Timmer, Getting Prices Right: The Scope and Limits of Agricultural Price Policy (Ithaca: Cornell University Press, 1986); the "principles" section of C. Peter Timmer, "Analysing Rice Market Interventions in Asia: Principles, Issues, Themes, and Lessons," Development Discussion Paper No. 254, Agriculture and Food Policy Series (Cambridge, MA: Harvard Institute for International Development, 1987); and the Indonesian experience summarized in C. Peter Timmer, "The Role of Price Policy in Increasing Rice Production in Indonesia, 1968-1982," in Ray A. Goldberg, ed., Research in Domestic and International Agribusiness Management, vol. 6, (Greenwich, CN: JAI Press, 1986), C. Peter Timmer, "Regulation and Deregulation of Rice Markets in Indonesia: Reflections on BULOG's Changing Role and Mission" (Cambridge, MA: Harvard Institute for International Development, April 1988; typescript), and C. Peter Timmer, "Food Price Policy in Indonesia," in Terry Sicular, ed., Food Price Policy in Asia (Ithaca: Cornell University Press, forthcoming).

offer higher payoffs. Static efficiency losses due to misallocation of resources are seldom large when compared with income transfers or GDP, but if distortions are sufficiently large and persist long enough to be built into investment patterns, the losses become truly significant.

This is especially true when prices for a single commodity are the object of intervention and all other commodities are produced and consumed according to market signals, which is the approach suggested by the analytical arguments developed here. The spillover effects of price policy to other markets can be immediately troublesome when close substitutes in production and consumption exist, but the longer-run impact on the structure of the economy is also worrisome. Keeping resources in agriculture that should be encouraged to move to the industrial or service sector requires policies that can make the entire agricultural sector uncompetitive and therefore a high-cost burden to the rest of the economy. Diversification out of rice into commodities and livestock products with greater value added is a natural evolutionary process, which can be slowed or stopped altogether with price support and stabilization policies.²⁰ Structural change is impeded, rice farmers develop powerful political lobbying groups, and the potential for policy reform then rests with highly polarized sectoral interests. It is not clear whether the larger costs are to the economy or the political process.

Lastly, continuous market interventions and price controls have an impact on the development of a private marketing sector. Investments in physical and human capacity in this sector are not forthcoming if margins are squeezed, policy implementation is erratic, or the middleman is held responsible for policy failures. The loss is the absence of competitive traders in search of marketing opportunities for new commodities or greater volumes. Farmers need this dynamic search process; it provides them with information about what to produce and how profitable it will be. Government traders seldom reach farmers at all, much less with this type of information. Growth and diversification in agriculture is stimulated by transmitting information about changing

²⁰. See Timmer (1987a) for a discussion of the relationship between agricultural diversification and price policy.

demand patterns to farmers willing to experiment. Only a competitive, dynamic private trading sector has demonstrated much capacity to establish this link.

Stability of Expectations in Marketing Systems

Striking an appropriate balance between the public good and private interests is at the core of much of economic analysis and political debate. It is an ancient problem; the philosophical debate goes back to Aristotle and Plato and the analytical roots extend to Adam Smith, Pigou, and Lerner. The food price dilemma as a policy issue in developing countries is conceptualized in Timmer (1986c) in terms of the tension between private decisions by producers, traders, and consumers and the policy environment that affects those decisions. The issue here, however, is much more operational. How can government interventions into the level and stability of prices in domestic rice markets be designed to stimulate the development of a competitive private marketing sector rather than retard it? The issue is particularly difficult for policy analysts because the factors that stimulate the private sector are often subtle and hard to measure. Generating positive expectations about potential role and rate of return on investment is obviously essential, but there is little academic knowledge about the ingredients in such expectations, and few policy analysts have personal knowledge of what makes private traders tick. We do know that positive expectations are fragile; they take a long time to build and can be destroyed overnight with one foolish intervention. Trading is risky enough without having to figure out what the government will do. Perhaps the best that price policy analysts can do to encourage an efficient private sector is to create a stable policy environment, set price margins wide enough for significant participation by the private sector, and eliminate legal and bureaucratic barriers to entry by private traders. Simple as these tasks seem, they often conflict directly with the short-run or long-run interests of policy makers in food price stabilization and of food logistics agencies in implementing it.

Incentives to Farmers and Diversification

Price policy for rice or wheat has an obvious impact on the short-run profitability of growing rice or wheat. The less obvious influences of price policy on the structure of incentives occur when these prices are stabilized relative to the prices of other farm commodities, thus influencing the choice of crops in ways not immediately apparent from comparisons of static profitability. In this sense, price policy is the key link between short-run and long-run diversification efforts in Asia. Two different dimensions to agricultural price policy must be emphasized: the impact of rice price policy on the potential to diversify into non-rice crops; and the potential to use price policy for the non-rice crops themselves in an effort to enhance their profitability and adoption.

Price-stabilization schemes for basic food staples, for rice in Southeast Asia, have a direct impact on diversification programs through the following mechanisms: the enhanced profitability of rice production made possible by the stabilization (and support) of rice prices, and therefore the relative discouragement of non-rice crops; the trade-offs between the budgetary costs of price-stabilization programs for rice and the costs of adjustment for farmers and consumers if rice prices are allowed to fall (or rise); and the enhanced efficiency of the rice marketing system made possible by government investments on behalf of stable procurement and distribution capacity. Successful price-stabilization programs for rice greatly enhance the profitability of growing rice, an outcome once desired by most governments until the onset of gluts in the mid-1980s.

Redressing this increased profitability of growing rice due to price-stabilization programs is a difficult task. The government cannot simply give up the price-stabilization program for rice and allow the entire agricultural economy to reflect border prices at the prevailing exchange rate. This alternative is not desirable for reasons of both income distribution and long-run efficiency, not to mention short-run political realities. The price defended by the stabilization program is a topic of policy concern,

but continued efforts to stabilize domestic rice prices are likely in all countries that have been traditional importers of rice.

Nor is it feasible to redress the imbalance in the profitability of growing rice by setting up price-stabilization schemes for the non-rice crops as well. Rice in Asia has unique aspects that justify spending substantial financial and policy resources on stabilizing its price. For the same reasons that significant macroeconomic and general-equilibrium effects of price changes for rice must be factored into evaluation of stabilization schemes, the relatively minor nature of these effects for nontraditional crops argues against a "spillover" justification for stabilizing their prices. More important, many of these crops must seek export markets as well as urban domestic markets, and they must be price competitive on a day-to-day basis to establish a reputation of reliable supply. Finally, many of the nontraditional crops have very short shelf life--fresh fruits and vegetables, live fish, and livestock products, for example--or require relatively sophisticated and timely processing.

Price-stabilization schemes can work reasonably efficiently only when the commodity is storable at low cost and does not have wide variations in quality that are difficult to define in terms of standard price discounts and premiums. Few nontraditional crops meet these criteria, though corn and soybeans come closest. For countries that operate an import-substituting scheme for these crops, a temporary price-stabilization scheme organized around rural buying stations to prevent a collapse in local market prices as increased production comes on stream might make sense. But if the nontraditional crops must be exported, the most effective way to stabilize prices is to ensure that the f.o.b. price at the port is transmitted efficiently back to farmers, after conversion at a competitive exchange rate.

The importance of price policy to diversification efforts is thus somewhat contradictory. Rice price policy actually tends to be part of the problem rather than part of the solution, but there are likely to be tangible benefits that justify imposing these added barriers to diversification. Price policies for non-rice crops might also be part of

the problem, however, if they have the effect of causing farmers to produce crops for sale to government procurement agents at a guaranteed floor price and the government is then unable to turn around and sell them at a profit. The different technical and market characteristics of each crop must be examined before a uniform judgment can be made in this regard, but many nontraditional crops proposed as suitable candidates for rice diversification programs have either too complicated a set of marketing and processing requirements for government agencies to handle them efficiently or, at market prices, too low a production value to be adopted by farmers. Pilot projects to demonstrate technical feasibility of particular crops in a particular region are obvious exceptions to this general rule, but they illustrate the nature of the problem. Diversification crops must create more value added for the economy than that created by the rice they displace, and enough of the increment must be garnered by the farmer to make it profitable to adopt the crop in the first place. Rice production with modern technology under irrigated conditions at stable prices is very profitable. It will be difficult to find substitutes that have wide applicability.

Budgetary Costs

Governments enact programs to stabilize commodity prices because free-market prices do not provide a satisfactory degree of price stability. These programs are subject to two basic principles: they are activities of the public sector that require the expenditure of public resources; and price stabilization is inherently destabilizing to some other part of the economy, usually the budget or credit system.

Stabilizing grain prices has two distinct but related components: seasonal price stabilization between postharvest lows and preharvest highs; and year-to-year stability relative to world prices. The high costs of seasonal price stabilization often catch policy makers by surprise. Squeezing the price margin to less than the lows and highs that would be dictated by the full costs of storage incurred by the private sector, including the profit and risk premium, is an expensive undertaking. One simple model shows that costs

to the government budget rise with the *square* of the "squeeze" on the full price margin-- that is, the proportion of the full seasonal price rise that the government attempts to prevent by implementing a narrow band between permitted low and high prices.²¹ The costs in this generic "floor and ceiling" price model do not include the overhead costs of maintaining an effective food logistics agency, nor the probability that storage costs for the public agency are likely to be substantially higher than those in the private sector.

Stabilizing domestic prices in relation to world prices is most easily accomplished through a national buffer stock operated in conjunction with trade policy. Coordination is achieved by placing monopoly control over imports and exports in the hands of the same agency that manages the logistical operations involved in running the buffer stock. In principle, this role for the agency permits international trade to be the balance wheel that maintains a stable equilibrium between domestic demand and supplies available to the market from domestic production and net trade (and stock changes). Such direct quantitative controls often conflict with GATT rules or desires of trading partners, but they are standard in rice trade in Asia. Of the major countries in Asia, only Thailand does not restrict international trade in rice to a state-controlled monopoly, and even Thailand has often used extensive intervention into its export trade to stabilize (and lower) domestic rice prices.

Unlike seasonal price stabilization, which always costs the government money, monopoly of international trade can sometimes yield revenue for the budget or the state trading company. The key is the level of the domestic price relative to the international price and the direction of trade. Economic forces limit the options, however, and push the results toward subsidies rather than revenues. Countries that keep their prices below border prices tend to discourage production at efficient levels and hence end up importing the needed supplies, at a cost to the budget, to keep domestic prices low (again, the exception is Thailand). In reverse fashion, countries that maintain prices to farmers well above border prices frequently produce surpluses that must be stored or exported at a

21. See Timmer (1986b), pp. 63-66.

loss. Consequently, schemes for both seasonal and annual price stabilization require public resources to be effective.

Two distinct forms of financial resources must be committed on behalf of the public food logistics agency. Assuming the agency is implementing a floor and ceiling price policy through a combination of domestic procurement, market injections from short-run buffer stocks, and international trade, it needs a line of credit to purchase domestic grain during the harvest and to store it until needed for market injection, as well as a continuing budget allocation to cover operational losses incurred because of the squeeze on the price margin. The subsidy required to cover losses on international trading (or profits) depends on prices in world markets relative to domestic prices, and this relationship can change dramatically from year to year. South Korea nearly always profits when it imports rice from world markets; Indonesia did in 1983, but its imports required subsidies in 1980 and 1981. In 1985 and 1986 Indonesia had to subsidize rice exports.

With proper financial controls and accounting procedures, central banks and ministers of finance should expect their food logistics agencies to repay, with full interest, the credit used for domestic procurement and seasonal stockholding when the stocks are sold in the market. Continuing losses incurred on behalf of policy-dictated objectives for price stabilization should be visible in the routine budget. Such an open financing mechanism for food-price stabilization has the twin advantage of clearly identifying the regular subsidies incurred by society to stabilize its staple food prices and highlighting the fact that the instability is transferred to the outstanding debts owed by the food logistics agency. When crops are good and purchases are high, credit needs rise sharply. This credit is not repaid until the stocks are needed to contain domestic price rises. Repayment can take quite a while if the private sector (including farmers) also holds stocks from the good harvest and provides supplies to domestic markets for longer than normal. The added interest costs on the "excessive" public stocks must then be added to the agency's routine subsidy, or the stocks must be exported (probably at a loss). The

main point, however, is that demand for credit becomes unstable as grain prices become stable. Since the outstanding credit held by a food logistics agency is often a substantial share of total credits outstanding from the formal banking system--20 to 30 percent is common--the macroeconomic consequences of this financial instability can be quite dramatic (especially if the country is operating under strict credit ceilings imposed by an IMF standby agreement, as in Bangladesh in the early 1980s).

The transmittal of instability in credit and budget requirements to the rest of the economy can impose significant adjustment costs, no matter whether the food logistics agency is increasing or decreasing its use of credit and budgetary resources. When needs rise, interest rates rise or government loans are rationed, budgets of other agencies are cut, investment projects are delayed, or the deficit is financed by increasing the money supply, with attendant potential for inflation (although the large grain crop that generated the requirements for additional credit has a negative impact on inflation). When loans are unexpectedly repaid as stocks are drawn down, money and purchasing power are withdrawn from the economy, with potential recessionary impact. Changes in the real scarcity of food require that adjustments be made somewhere in the economy. The important questions for the analysis of stabilization schemes for food prices are which adjustments do the least damage to the growth prospects for the economy, and to the desired distribution of income. These questions require a general-equilibrium analysis with dynamic investment functions linked to the impact on expectations of instability in food prices, in credit markets, and in budgetary behavior of the government.

The operational significance of the two basic principles--grain price stabilization both costs public resources and destabilizes either the government budget or the credit market--is quite profound. Failure to face them directly is the most common reason for failure of stabilization programs. Planning of stabilization activities can be based on expected values under normal circumstances, and budgets can be drawn up under these assumptions. But actual operations must be conducted as reality unfolds, and reality is likely to hold surprises with respect to the size of the harvest, level of consumer demand,

expectations of the private sector and its participation in storage and transportation, world market prices (in dollars), and the country's exchange rate.²² For the logistics agency to cope with these surprises, it must be able to arrange for substantial credit lines on very short notice, often no more than a week or two. Many government agencies have difficulty allocating resources so quickly unless they understand in advance the need and can trust the logistics agency to spend the money, with adequate financial controls, for the intended purposes. It is no wonder that so few countries have been able to carry out this task successfully over a long period of time.

From Analysis to Implementation of Market Interventions

Making government agencies understand the financial and operational mechanisms that permit a food logistics agency to implement successfully a stabilization program for food prices requires a capacity to analyze and explain the complicated issues involved. If governments are willing to let world markets determine domestic prices, no complicated analysis of price interventions is needed. It is also possible to intervene heavily into market outcomes without any analysis of the likely outcome, but such an idiosyncratic and unsystematic approach to agricultural pricing has proven ineffective in helping societies reach their food policy objectives. The alternative is food policy analysis, a somewhat formal effort to understand the impact of existing and proposed policies on these objectives. The principles and basic methodological frameworks for this analysis are presented elsewhere.²³ The experience of Asian countries in applying these principles and frameworks to price-stabilization policies demonstrates several common issues that all analyses of food price policy must address. Four issues seem pervasive, but only one is analytical in the narrow sense.

22. Pinckney's analysis of the Kenyan experience with these issues presents several operational guidelines for coping with the deviation between planned and actual intervention levels.

23. See Timmer, Falcon, and Pearson (1983); and Timmer (1986b).

Analysis

How does an analyst know which policies are best? This is the narrowly analytical issue, but even at this level, a simple determination of optimal answers is not possible. A broad set of objectives must be incorporated into the analysis, as well as a clear recognition of the actual starting point for the food system. The dynamic and macroeconomic benefits from stabilization of food prices are not revealed in the standard analytical models used to evaluate price interventions; this problem alone argues that intuition based on extensive experience in a country is likely to be at least as valuable as formal economic models based on optimization techniques in analyzing the costs and benefits of price interventions.

Communication

How can the results of policy analysis be communicated effectively to policy makers, so that appropriate policy decisions are made? This effort to communicate involves the analyst in a negotiating role in which pedagogy can be crucial to the outcome. Although the negotiating role involves a subtle change in the analyst's task from that of understanding to advising, it does not necessarily require advocacy of specific policy recommendations. Rather, the advocacy is for the analysis itself and for an understanding by policy makers of the trade-offs identified in the analysis. Communication across agencies is especially important in building the understanding of the resource requirements for successful implementation of food-price stabilization schemes for extended periods of time. Clearly, a full understanding of these requirements might lead to a decision that stabilization is too expensive. A common mistake, however, is to decide that stabilization is worthwhile on the basis of gross underestimates of the costs, with subsequent under-financing of the logistics agency. Speculative attacks on the agency cause it to fail, thus exacerbating price instability and significantly jeopardizing credibility in all government activities because price-stabilization schemes are usually

among the most visible of government interventions.²⁴ Such government failures are a major justification for the free-market approach to agricultural pricing, but they are not inevitable. Relevant policy analysis that is effectively communicated to policy makers can be an important input to more successful policies.

Analysts in donor agencies such as the IMF, the World Bank, or USAID now play an important role in communicating the results of policy analysis. To improve the effectiveness of the aid process, development agencies increasingly conduct independent assessments of policy environments in various countries. These assessments can simply be offered to policy makers as input to their own process of policy analysis and design, in which case little controversy arises. Indeed, the added analytical resources available to governments in this manner are often warmly welcomed.

Increasingly, however, donor assessments of policy form the basis for a policy dialogue with countries, the object of which is to induce policy changes in directions that the donors think advisable. If the analysis has been conducted in a way that genuinely illuminates the problems facing the country, this dialogue can be extremely productive. But such is not always the case. Often there are sharp disagreements over the directions of appropriate changes in policy. In many cases the donor analysts have the economics right within the context of their models, which claim to represent the policy issues being discussed. But they fail to understand the shortcomings of the models, which do not incorporate the broader dimensions of the economic analysis discussed in this paper, as well as the other ingredients in effective policy analysis. When donor analysts fail to communicate their analytical results in a convincing fashion because the results depend critically on basic assumptions in the underlying models used, challenges to the models can unravel the entire foundations of the policy advice and the usefulness of the policy dialogue.

24. See Salant (1983) for an analysis of the conditions leading to successful speculative attacks on public food agencies, and their impact on price stability.

The importance of basic models to drive policy advice is linked to the very short time horizons in which donor analysts must often work. Three-week trips to unfamiliar environments mean that analysts must rely on readily accessible data, basic models with wide applicability in many countries, and a willingness to let fairly restrictive assumptions determine results. This approach may be workable for project analysis, with its relatively limited scope to question assumptions about the external policy environment. When that environment itself is the subject of review, however, the "sortie" approach to policy analysis requires reliance on an underlying ideology about appropriate policy interventions rather than an understanding of the complexity of any given country's policy environment. A particular problem with development economics has been its vulnerability to wide swings in the prevailing political ideology and the resulting enthusiasm for particular approaches to the development process.²⁵ A special advantage to watching this process in one country over a long period is the realization that intellectual fads come and go, but the basic structural problems that must be addressed by policy remain. The only way to improve the effectiveness of the policy dialogue between donor and country is for both sides to recognize the long-run nature of the development process and the necessity for policy makers to live with the complex outcomes of policy changes in the short run.

Implementation

The third issue to be treated in the analysis of price-stabilization schemes is whether a new or revised policy can be implemented. A frequent criticism, especially of economists, is that they are excellent at designing policies, but ones that governments are not capable of implementing. Such criticism misses the main point: policy analysis that ignores problems of policy implementation is simply bad analysis. The problems may be

25. The free-market approach has been in vogue for much of the 1980s, but community development, central planning, rural development, basic needs, and redistribution with growth were enthusiastically pursued in earlier periods. Sustainable development seems likely to become the next enthusiasm.

economic, political, social, or cultural, but they must be incorporated into the policy analysis itself if implementation is to be successful.

Many observers feel that implementation of a policy is the most difficult aspect of government intervention into the development process. Frequent failures in this regard cause a wide gap between objectives and outcomes, between rhetoric and results, and they have led to widespread disenchantment about the actual potential of interventions to improve on simple market-determined outcomes. Part of the reason is simply the unpredictable nature of the world and the slower response of government policies to changed environments than the responses observed in markets. But much of the problem stems from efforts to implement policies that are unrealistic, that is, not based on careful analysis of the likely constraints that face policy managers and implementers. For a policy to be adopted, effective policy analysis must be communicated to policy makers in a clear and convincing fashion; likewise, the analysis must incorporate the problems that will be faced after the policy has been approved for implementation. Although incorporating constraints on implementation vastly complicates the analytical tasks, it simplifies the task of communicating with policy makers because it is immediately clear that the analyst understands the problems the policy maker faces in the day-to-day tasks of policy management.

A very wide array of constraints impinges on the potential success of a policy. A major reason why successful policy analysis requires extended time and knowledge of the country concerned is because constraints on policy change are unique and idiosyncratic. Politics are frequently invoked as the main reason why good economic policies cannot be adopted. Sometimes this means there would be such broad, popular opposition to the new policies that even elected governments would be in jeopardy. Rice riots have brought down more than one government, and promises of cheap rice have elected others. Sometimes it means narrower vested interests will be negatively affected by the policies and can use their influence on policy makers to prevent the change. Trade unions or the military often oppose increases in food prices or devaluations of the

country's currency. And sometimes it just means that the minister does not think the change in policy is a good idea. A vague distrust of the market is easily translated into political opposition to price incentives and wider margins for traders.

What is often forgotten when officials are criticized for lack of political will to implement needed policy reforms is that virtually all changes in agricultural price policy hurt someone's interests, vested or not. If those interests are the food consumption of the poor, political opposition to changes in pricing is desirable, even if the new price policy is intended to generate more output and employment in the long run. Unless compensating programs for those most negatively affected can be implemented simultaneously with the price reforms, political opposition on behalf of the poor is both understandable and important. This argument obviously does not hold in those environments in which current price policy is so badly distorted or poorly implemented that the interests of the poor are being sacrificed, possibly even to the benefit of the better-off segments of the society. Whatever the political arguments, it is important for the policy analyst to determine the actual distributional impact of current policy and the effect of the proposed changes on the distribution of benefits.

For good reasons or bad, the political constraint is always important. The task of the policy analyst, however, is not just to incorporate constraints into the policy analysis. Rather, analysts need to determine which dimension of a policy is objectionable, to whom, and to what degree of impact. Is it possible to design compensating programs or an information campaign to clarify exactly who gains and loses under the new policy? This approach can be risky, especially when the vested interests are close to power, or are simply powerful. Sometimes policy analysis is a feeble instrument for inducing change; at other times courage and simple facts bring surprising results. Only individual analysts wrestling with their own conscience and the realities as they perceive them can decide which time has come.

Evaluation

The last issue for the policy analyst is whether the new policy is actually working. After the analysis, communication, and implementation, the policy must be evaluated. Much is to be learned by the original policy analyst from the evaluation process because unexpected problems always arise. Trying to distinguish systematic elements in these problems from purely idiosyncratic ones provides valuable lessons for the next cycle of policy analysis.

Evaluation is the poor relation of the policy analysis family. Once the analytical design, policy negotiations, and implementation have taken place, few individuals or institutions have much energy or budget left for evaluation. If the policy works, it will be obvious; if it fails, it is better not to stir up a hornet's nest. Unfortunately, this caricature of attitudes about policy evaluation contains too much truth to be dismissed. Opportunities should not be missed to understand the reasons a policy went awry and to channel this information back into the process of policy analysis and design. Policy evaluation not only completes the linear process, of design, communication, implementation, and evaluation, but also provides an important input into the design process itself, thus making the policy process an evolving circle rather than an arrow.

To provide the necessary links in this circle, it is desirable for the original policy analysts to be involved personally in the implementation of the policy and the monitoring of its outcome. They thus develop a heightened sense of responsibility because they must live with the problems created by their own design, and, for individual analysts, it also creates continuity of insight. Such continuity is important for building the intuitive sense of the economy's likely response to various shocks and policy interventions, a skill that is essential to making policy analysis relevant to policy makers. In further support of this "intuition building," analysts can participate in the trouble-shooting that is an integral part of making a new policy work. When this role in on-going implementation and short-run evaluation is built into the original terms of reference of the policy analyst, analysis

and design of policy are likely to be more pragmatic and capable of successful implementation. Few countries have an adequate supply of the analyst-practitioners that can conduct this amalgam of thinking and doing. Few universities have positions for scholar-practitioners who can develop the methodological tools for policy analysis; ideally such tools are an outgrowth of teaching, field research, and experience with policy design and implementation.²⁶

The gaps in present approaches to improving policy analysis are painfully obvious. Academic scholars and methodologists are drawn to narrower and narrower topics that are amenable to formal mathematical treatment, whereas practitioners become more and more disenchanted with the perceived irrelevance of the new techniques.²⁷ To close the gap, academics need to serve as practitioners, at least on enough occasions to understand the complex reality in which policy analysis and design actually take place.

The goal of such cross-fertilization is not simply improved analytical methodologies for messy policy problems, although that is reason enough. The intended outcome from keeping policy analysts, including academic ones, involved in the complete circle of the policy process is to improve policies. Lessons about problems in design and implementation should feed back to the analytical methodologies, to be sure, but they should also be incorporated in policy adjustments on a regular basis. The necessity to monitor and adjust policies, rather than merely evaluate them for the historical record, has important implications for the design itself. Policy becomes a process rather than a result, flexibility and the capacity to change policy become a virtue rather than a sign of governmental weakness, and continuity and consistency in the government's economic strategy is judged by its pragmatic attention to problems, including the problem of maintaining stable prices, rather than by any ideological yardstick.

26. Perhaps more than other academic institutions, the Harvard Institute for International Development (HIID) has grappled with this problem.

27. The debate over the costs and benefits of price stabilisation is a clear case in point. The dynamic and macroeconomic benefits posited in this paper are not mathematically tractable in a general model without very specific empirical parameters, which immediately cost the model its generality and credibility.

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