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SUSTAINABLE AGRICULTURAL DEVELOPMENT: THE ROLE OF INTERNATIONAL COOPERATION

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*Agricultural Trade and Pricing Policies in
Developing Countries: Implications for Policy Reform*

INTRODUCTION

In many developing countries there is a new attitude towards economic policies and the role of the public sector. The changing economic and political realities in so many developing countries call for a new development strategy. This seems to be an unprecedented opportunity for their agriculture. A large number of countries are embarking on a revision of trade and pricing policies, moving towards a more open economy and recognizing the importance of maintaining a realistic exchange rate for achieving broad-based, sustainable, economic growth.

The first section of this paper sets up a basic concept of an efficient structure of incentives from an economy-wide perspective against which actual policies can be evaluated. The second and third sections present evidence on the effect of price interventions in the past, to support the arguments for policy reform. For most of the past three decades, government policies regarding agriculture have adversely affected prices, production and farm income. The second section presents a synthesis of findings on the patterns of agricultural protection and taxation in 18 LDCs, based on studies by Krueger, Schiff and Valdés (1988) and Schiff and Valdés (1991). The third section examines how this pattern of incentives affected agricultural growth and farm income. The last section on policy reform identifies critical elements for a new agricultural trade strategy.

One of the complex questions for policy makers is how broad an effective reform process must be and whether the reform measures should be introduced in a specific sequence. The analysis indicates that there could be a strong interaction between the macro-economic process and the response to reforms by the agricultural sector. Furthermore, delineating the boundaries for the micro-economic aspects of liberalization raises complex issues which remain to be fully analysed. What should be the role of state agencies in agricultural marketing during and after trade reform? How to deal with a variety of markets currently subjected to extensive regulations, such as financial, labour and land markets, is a critical issue which deserves more analysis. Bottlenecks in related transport and communication sectors could also inhibit

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the output response and the credibility and sustainability of agricultural trade and price reforms.

ON THE CONCEPT AND MEASURE OF AGRICULTURAL INCENTIVES

In respect of agricultural incentives, a feature of the approach of Krueger, Schiff and Valdés (1988) was the distinction between direct (or sectoral) and indirect (or economy-wide) price interventions. Agricultural incentives were defined as the domestic price of agricultural goods relative to the price of non-agricultural goods (P_a / P_{na}). Price interventions were then measured as the percentage departure from the relative price of agricultural goods that would have prevailed in the absence of sectoral price intervention, as well as in the absence of trade intervention in the non-farm sector, and corrected for any exchange rate misalignment. For a given farm product, a negative price intervention occurred whenever the price of that good relative to the non-agricultural sector appeared below its counterpart price under a non-intervention scenario. Broadly, the non-intervention price is efficient under the assumption that: (1) the country is a price taker in the product in question, and (2) there are no externalities or economies of scale in production.

Direct (sectoral) price interventions were measured by the direct nominal and effective rate of protection at the official exchange rate, after adjusting for quality differences and transport and storage costs, in order to estimate the domestic price which would have prevailed under free trade. Policies underlying direct price interventions include tariffs and quotas, prior import licences, direct price controls, taxes and subsidies on products and inputs often operating through the activities of parastatals involved in the marketing of these products.

Indirect price interventions were defined as those arising from policies operating in the rest of the economy, such as trade restrictions in the non-farm sector and macro-economic policies resulting in exchange rate misalignment. Let P_a denote the price of agricultural tradables, P_{nat} the price of tradables outside agriculture, and P_{nah} the price of home goods outside agriculture. There are two economy-wide effects. As a result of higher industrial protection, P_a / P_{nat} and P_a / P_{nah} fall (the latter falls because of the appreciation of the real exchange rate caused by industrial protection, but it falls less than the former) and expansionary macro-economic policies lead to a further appreciation of the real exchange rate and to a further fall in P_a / P_{nah} . Defining $P_a / P_{na} = P_a / [\alpha P_{nat} + (1 - \alpha) P_{nah}]$ as agriculture's terms of trade (where α is the share of tradables in the non-agricultural sector) then the indirect effect of economy-wide policies was measured as the weighted average of the effects on P_a / P_{nah} and on P_a / P_{nat} .

The sum of the direct ($NPRd$) and indirect ($NPRi$) nominal protection rates was defined as the total nominal protection rate ($NPRt$) which measures the joint impact of sectoral and economy-wide policies. A synthesis of the findings on direct, indirect and total nominal protection rates for 18 developing countries during 1960–84 is presented in Table 1.

TABLE 1 *Direct, indirect and total nominal protection rates (average, per cent)*

Region	Country	Period	Indirect	Direct			Total all
				Importable	Exportable	all	
Sub-Sahara Africa	Côte d'Ivoire	60-82	-23.3	26.2	-28.7	-25.7	-49.0
	Ghana	58-76	-32.6	42.9	-29.8	-26.9	-59.5
	Zambia	66-84	-29.9	-16.4	-3.1	-16.3	-46.2
			-28.6	17.6	-20.5	-23.0	-51.6
North Africa	Egypt	64-84	-19.6	-5.1	-32.8	-24.8	-44.4
	Morocco	63-84	-17.4	-8.2	-18.5	-15.0	-32.4
			-18.5	-6.7	-25.7	-19.9	-38.4
AFRICA			-24.6	7.9	-22.6	-21.8	-46.3
East Asia	Korea	60-84	-25.8	39.0	n.a.	39.0	13.2
	Pakistan	60-86	-33.1	-6.9	-5.6	-6.4	-39.5
South Asia	Sri Lanka	60-85	-31.1	39.0	-18.4	-9.0	-40.1
			-32.1	16.1	-12.0	-7.7	-39.8
	Malaysia	60-83	-8.2	23.6	-12.7	-9.4	-17.6
	Philippines	60-86	-23.3	17.4	-11.2	-4.1	-27.4
	Thailand	62-84	-15.0	n.a.	-25.1	-25.1	-40.1
South-East Asia			-15.5	20.5	-16.3	-12.9	-28.4
ASIA			-22.8	22.4	-14.6	-2.5	-25.3
Latin America	Argentina	60-84	-21.3	n.a.	-17.8	-17.8	-39.1
	Brazil	69-83	-18.4	20.2	5.4	10.1	-8.3
	Chile	60-83	-20.4	-1.2	13.5	-1.2	-21.6
	Colombia	60-83	-25.2	14.5	-8.5	-4.8	-30.0
	Dominican Republic	66-85	-21.3	19.0	-24.8	-18.6	-39.9
LATIN AMERICA			-21.3	13.1	-6.4	-6.5	-27.8
TOTAL AVERAGE			-22.5	14.4	-12.6	-7.9	-30.3

PATTERNS OF AGRICULTURAL PROTECTION

A most striking result in Table 1 is the high level of price intervention in agriculture. On average for all products and for all years, the total (*NPRt*) averaged approximately -30 per cent. In other words, in the absence of intervention, the relative price of agricultural goods would have been 42 per cent higher (30/70). Important differences among countries emerged. Côte d'Ivoire, Ghana and Zambia exhibit the highest degree of negative price intervention (*NPRt* equal to -51.6 per cent on average). The degree of price intervention for Malaysia and Brazil was substantially lower (*NPRt* between -17 per cent and -8 per cent) although still negative, and in Korea agriculture was protected (*NPRt* of 13 per cent).

A second important result concerns the source of price effects. On average, indirect price intervention accounted for approximately three-quarters of the total disadvantage affecting agriculture. This high negative indirect effect arose mainly from the high prevailing levels of industrial protection and, to a lesser although still influential extent, from exchange rate misalignment resulting from both macro-economic imbalances and industrial protection.

An important finding concerning direct price intervention is the systematic difference observed in the treatment of importables *vis-à-vis* exportables, resulting in a strong anti-trade bias. While direct price interventions to agricultural import-competing activities were in most cases positive (*NPRd* between 7.9 per cent and 22.4 per cent for the country groups in Table 1), direct protection to agricultural exportables was in most cases negative (between -6.4 per cent and -32.8 per cent). On average for all countries, direct intervention resulted in a protection rate of about 15 per cent for importables and in a tax rate close to 13 per cent for exportables.

This pattern of direct protection is attributed to the desire to achieve a certain minimum level of self-sufficiency in food production, in the case of importables, and collecting government revenues, in the case of exportables. For example, it was estimated that for the sample countries the latter contributed to approximately 20 per cent of total public expenditure during 1960-9, 11 per cent during 1970-9, with a lower figure of 5.8 per cent in 1980-3 (Schiff and Valdés, 1991). Supporters of agricultural protection in Japan, Sweden and the EC have made persuasive use of the food security objective to make their case (Honma and Hayami, 1986). This is often justified by the gloomy picture of world demand and supply for cereals and the risk of food shortages. Our findings for this sample of LDCs suggest that a relatively high weight was also given to the food security objective, regardless of whether or not the relevant world food market in question was very thin (as for white maize) or fairly well developed with central transaction points (as for wheat).

These findings suggest that there was substantial resource misallocation between importables and exportables. The optimal export tax argument cannot be used as a defence of taxation of exportables, except in a few cases. Preliminary findings of a recent study by Panagariya and Schiff (1990) indicate that for 1986 the optimal export tax in Côte d'Ivoire was 25 per cent, and in Ghana about 20 per cent; hence the level of their export taxes was not too far from the optimum tax (however, rice was highly protected, so P_m/P_x was still

distorted). For Egyptian cotton the actual direct export tax (32 per cent) was below the optimum (53 per cent). Coffee in Brazil, Colombian rice and Thai rubber are other relevant cases. Similarly, Zambia has market power in white maize. Hence the marginal import cost is higher than the border price and an import tariff should have been imposed; however, our findings indicate an average direct *tax* on importables of 16 per cent. Thus, for non-price takers, allowing for optimal trade intervention does reduce the degree of the actual distortion (from direct price intervention) to exportables in a few cases. However, the case of non-price takers is not common, and when it does apply the actual tax levels often fail to coincide with the optimum levels. Relative prices within agriculture are distorted even when adjusted for the optimal trade tax.

POTENTIAL EFFECTS OF A TRADE AND PRICE POLICY REFORM: IMPLICATIONS FOR AGRICULTURAL GROWTH AND FARMERS' INCOME

Price intervention can affect agricultural growth, consumption and trade flows. In addition it may have other, broader, economic implications through its influence on the government budget, and on the real income of urban and rural households. As with most policy intervention, there are winners and losers, an issue on which more empirical research is needed if we are to understand the motivation underlying price intervention and the political and economic constraints impeding policy reform.

In this section we focus on two features: the consequences for agricultural growth and farm income. The background material providing the estimation of these effects is found in Schiff and Valdés (1991). An understanding of the effect of incentives on agricultural growth requires an economy-wide view of returns. This is because agricultural growth is influenced by intersectoral resource flows. The partial equilibrium methodology so common in the literature is inadequate for the task. Aggregate output responsiveness will depend on how depressed prices are, the credibility of reforms, the time-frame involved, and responsiveness to a given price adjustment.

We find that the difference in the rates of protection across sectors in LDCs is dramatic. While agriculture in the sample of African countries had an average direct protection rate of *minus* 20 per cent, the importable non-agricultural sector enjoyed a protection rate of 36 per cent.

Incentives and agricultural growth

An assumption of much of the development strategy followed in the past was that aggregate agricultural supply was relatively unresponsive to incentives. If that were the case, taxing agriculture would have redistributive effects (from agriculture to the rest) but no major impact on overall output. It is true that most empirical studies of aggregate response in LDCs show a weak effect of price changes; though it is also true that the empirical foundation of most of

this analysis is still quite fragile. Most of the literature is dominated by studies using a single-equation time-series approach which fails to capture the underlying migration and investment processes in a dynamic framework (see Binswanger, 1989, and discussion by Valdés in the same issue). More recent econometric work, by Mundlak, Cavallo and Domenech (1991) on Argentina, and Coeymans and Mundlak (1991) on Chile, explicitly include intersectoral resource re-allocation over time through migration and investment responding to prices. These studies obtain a larger supply response. Unfortunately, there are still unsolved questions such as the extent to which parameters change in response to policy changes (the Lucas critique), how to control for exogenous changes in infrastructure provision, and the consequences of the prevailing uncertainty about the future course of the domestic terms of trade.

Based on the sample of 18 LDCs during 1960–84 (373 observations), two tests were performed to examine the relationship between price intervention and agricultural GDP, one parametric and the other non-parametric. In the non-parametric test, the average growth rate of agricultural GDP was compared with the average protection across two groups, those with high and low levels of protection (Schiff and Valdés, 1991). In the case of total nominal protection, the difference in the average annual growth rates of the low and high protection cases is large (2.5 percentage points or a 93 per cent difference) and significant. The evidence of such an association for direct price intervention is weaker. Consequently, this test suggests a strong association between high total taxation and low growth rates of agricultural GDP.

For the parametric test, a model of growth of agricultural GDP consisting of a long-term growth equation supplemented by an error-correction equation was estimated. It was found that removal of total taxation would have increased the annual rate of agricultural growth from 2.5 per cent to 3.1 per cent, or about 22 per cent. In fact, this provides a lower bound of the actual effect because agricultural growth was found to depend on overall growth, which we assumed to be exogenous. Hence removal of total intervention could have had an additional positive impact on agricultural growth through the positive effect on overall growth, considering that total interventions were also found to be negatively associated with overall growth.

Effect on farm income

A second important consequence of interventions is that they can generate substantial resource transfers within and between sectors. In fact, one expects that the prime motivation of the policies is to have precisely that effect. Transfers may take a variety of forms. In some export products, it may appear as higher government revenue from export taxes. If the exportables are also food products, it lowers food prices to urban consumers. Or it may take the form of input subsidies (on fertilizers and credit) or appear as parastatal monopoly of agricultural trade, capturing revenues from trade or bearing losses from selling at lower domestic prices. Transfers from indirect price intervention can result from exchange rate misalignment, and from the effect

of industrial protection on the prices paid by farmers for inputs and consumer goods.

Price-related transfers were defined as the change in real income of agriculture resulting from direct and indirect price interventions affecting output and input prices and those of consumer goods purchased by farm households (Schiff and Valdés, 1991). Specifically, these transfers were measured as the change in value added, resulting from both price interventions measured at the actual level of production and adjusted for the change in the rural consumer price index. Non-price transfers were defined to include public investments that can be considered public goods, such as irrigation, roads, research and extension. Marketing-related expenditures by state agencies, such as on storage, were excluded on the grounds that (1) their effects are reflected in domestic prices paid or received by farmers and thus appear under price intervention, and (2) they do not clearly constitute a transfer to agriculture since these activities could be, and in many countries are, undertaken by private traders.

As an illustration of the magnitudes of income transfers, Table 2 presents estimated effects of total price interventions for three Sub-Saharan African countries during the period 1960–84, all expressed as a percentage of agricultural GDP. Similar computations are available for direct price transfers and for the other 14 LDCs (Schiff and Valdés, 1991). The results show that total price interventions on outputs reduced agricultural GDP by about 28 per cent, and transfers into agriculture through input subsidies raised agricultural income by approximately 8 per cent. Expanding the output coverage to the rest of agriculture (given that input subsidies apply to most of the sector) and assuming that there are no direct price interventions for the rest of agriculture (that is nominal rates of protection equal to zero) raises the average total net transfer out of agriculture to a staggering 103.3 per cent. Finally, the non-price-related transfers into agriculture amounted to approximately 8 per cent, resulting in a net overall transfer out of agriculture of approximately 96.3 per cent of agricultural GDP.

While input subsidies and public investment do to some extent compensate for the negative transfer through output prices, albeit in an inefficient form (Table 2), this compensation is equivalent to only a fraction of the income loss, particularly when the indirect effects are taken into account. The magnitude of the net transfer out of agriculture is so large that its cumulative effect must have had a profoundly harmful effect on farm investment and income in the long term.

SOME GUIDELINES FOR A NEW AGRICULTURAL TRADE STRATEGY

Recognition is growing that governments are burdened with economic functions which they are incapable of performing efficiently. Simultaneously, many government roles which cannot be performed by the private sector, such as primary education in rural areas, management of land titles, construction of roads, and agricultural research, are neglected. Broadly speaking, there

TABLE 2 *Net income transfers to (+) and from (-) agriculture as a result of total (direct and indirect) price and non-price interventions, 1960-84 (percentage of agricultural GDP)*

Country	Period	Total price transfers									
		Output of other agricultural products				Sum of total price transfers			Sum of total price and non-price transfers		
		Output of selected products (1)	All inputs (2)	Assum. 1 (3)	Assum. 2 (4)	Assum. 1 (1) + (2) + (3) (5)	Assum. 2 (1) + (2) + (4) (6)	Non-price transfers (7)	Assum. 1 (5) + (7) (8)	Assum. 2 (6) + (7) (9)	Avg. of assum. 1 & 2 (half of (8) + (9)) (10)
Côte d'Ivoire	1960-69	-13	1	-10	-55	-22	-67	6	-16	-61	-38.5
	1970-79	-32	3	-42	-126	-71	-155	18	-53	-137	-95
	1980-82	-15	2	-27	-78	-40	-91	20	-20	-71	-45.5
	1960-82	-21	2	-26	-89	-45	-108	13	-95	-95	-63.5
Ghana	1962-69	-28	1	-65	-154	-92	-181	3	-89	-178	-133.5
	1970-76	-25	4	-60	-218	-81	-239	3	-78	-236	-157
	1976-84	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
	1962-76	-26	2	-63	-184	-87	-208	3	-84	-205	-144.5
Zambia	1960-70	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
	1971-79	-19	9	-80	-144	-90	-154	5	-85	-149	-117
	1980-84	-71	36	-304	-411	-339	-446	4	-335	-442	-388.5
	1971-84	-37	19	-160	-239	-178	-257	5	-173	-252	-212.5
Group average*	1960s	-20.5	1.0	-37.5	-104.5	-57.0	-124.0	4.5	-52.5	-119.5	-86.0
	1970s	-25.3	5.3	-60.9	-162.7	-80.7	-182.7	8.7	-72.0	-174.0	-123.0
	1980s	-43.0	19.0	-165.5	-244.5	-189.5	-268.5	12.0	-177.5	-256.5	-217.0
	1960-84	-28.0	7.7	-83.0	-170.7	-103.3	-191.0	7.0	-96.3	-184.0	-140.2

Notes: n.a. indicates that data were not available.

*Simple, unweighted group average.

(1) The change in the gross value of output of selected agricultural products as a result of direct price interventions (relative to the counterfactual simulation without intervention).

(2) Transfers resulting from the price interventions on inputs, including credit subsidies (and replanting subsidies for rubber), on all agricultural products.

(3), (4) The additional effect of price-related transfers on the gross value of output for the rest of agriculture. Under assumption 1, the rate of nominal protection for the rest of agriculture is assumed to be zero (not shown); under assumption 2, it is assumed to equal nominal protection (or taxation) for the selected products.

(7) Nonprice transfers include public investment in irrigation, agricultural research and extension, and land improvements.

are four economic policy reform issues which affect agriculture in LDCs: (1) policy reforms to improve the economic environment for agriculture; (2) strengthening the public sector to support technology development and transfer, education in rural areas and infrastructure projects supportive of agriculture; (3) encouraging opportunities for increased economic participation of the historically disadvantaged (that is, small farmers and landless workers); and (4) natural resources management.

In this paper we address the first of these four categories. The section is structured around three issues: trade and macroeconomic factors; guidelines for successful agricultural price and trade reform; and the need for simultaneous reforms in selected sectors which impinge on the success of the agricultural trade policy reform process.

Trade and macroeconomic factors

These are perhaps the most important influences on the success or failure of agricultural price reform. A reduction in industrial protection alone would produce a major improvement in agricultural incentives, as indicated in an earlier section. For the sample of 18 countries analysed, reduction in industrial protection to, say, a uniform tariff of 15 per cent would induce an increase in relative prices for agricultural tradables by approximately 22 per cent relative to industry, and by about 15 per cent relative to the entire non-agricultural sector.

Moreover, there has been a strong interaction in the past between the macro-economic circumstances and the prevalence of government controls of individual agricultural markets. For example, the majority of price controls has been imposed in an effort to reduce inflation, and price controls and quantitative restrictions have been intensified because of inflationary pressures and/or balance of trade difficulties. Thus the persistence of macro-economic disequilibrium will create strong pressures against the removal of price controls on farm products, particularly on food.

If there is one clear lesson from the experience of the bold trade liberalization programmes in the Southern Cone countries in South America during the late 1970s (Corbo, Goldstein and Khan, 1987), and in New Zealand after 1984 (Sandrey and Reynolds, 1990) it is the considerable risk for agriculture which can arise from the macro-economic management of the economy. At the time, the financial strategy of the governments in these countries resulted in a very high real interest rate which attracted a considerable inflow of funds from abroad. As a result, high interest rates adversely affected agriculture, both because of the high cost of capital and because of the impact of higher capital inflows on the real exchange rate, adversely affecting agricultural investment and its international competitiveness, delaying the agricultural output response to the trade reform.

Thus reducing the indirect effects of fiscal deficits and real exchange rate appreciation, and avoiding sharp fluctuations in real interest rates and exchange rates, are necessary and fundamental elements of a policy reform package as it affects agriculture.

Guidelines for successful agricultural price and trade reform

Four significant results have come out of recent studies on the agricultural trade regime in LDCs. First, there is a marked contrast between the direct policies adopted towards traditional export crops and those directed to import-competing food products; governments heavily tax the production of exportables and protect the production of food. Second, quantitative restrictions (QRs) on agricultural trade (such as quotas, licences and state trading) are widespread in most LDCs. Third, a characteristic of the trade regime in farm products has been its discretionary and selective nature, its lack of transparency and the implicit discrimination against sub-sectors of agriculture. Fourth, in some countries, revenues from trade taxes represent a significant share of government revenues, and thus a removal of trade distortions without increasing revenues from other sources might not be possible in those countries.

It is submitted here that dismantling of QRs, even if some degree of protection is maintained, is a condition of the liberalization package. Replacing QRs with tariffs has several advantages, most importantly that the role of the price mechanism is enhanced. QRs are more selective and less visible than tariffs – they mask the level of protection and insulate the domestic markets from world market changes. In addition, dismantling of QRs could greatly reduce the role of state agencies in trade. An additional advantage of replacing QRs with tariffs is that the latter generate government revenue, removing one of the obstacles to trade reform in some countries. Bold steps to eliminate QRs on output and inputs, and to dismantle the administrative machinery, were an important element in the successful trade liberalization programme in Chile, and are an explicit component of the ongoing trade reform programmes in Mexico, Bolivia, Colombia, Venezuela, Peru and several other countries.

Furthermore, an important goal of trade reform is to achieve more neutrality in the trade regime; that is, narrowing the range of nominal and effective rates of protection. As documented in the earlier section, agricultural price interventions were found to have a strong anti-trade bias, with a wide dispersion in tariff equivalences within importables as well as in the export tax equivalent on exportables. There are strong arguments against selectivity in the pattern of trade restrictions. One is a strictly economic argument. Many farm products are intermediate inputs to processing industry and, depending on their share in the cost structure, even small differences in nominal tariffs across the economy can result in wide variations in effective rates of protection to processors, unrelated to the initial goal of the reform.

Another argument derives from political economy considerations. The experience with trade interventions suggests that, through time, a selective approach to interventions tends to be captured mostly by the more powerful pressure groups, deviating considerably from the initial motives for interventions. This has been the case, for example, with credit and input subsidies which tend to be captured mostly by larger farmers, and with protection to the products of particular regions or by certain classes of farmers. Thus liberalizing agricultural trade means not only lowering the average levels of protection and removing export taxation and restrictions, but also narrowing the range of nominal and effective rates of protection.

Even though economic analysis identifies several economic motives for trade and price intervention in agricultural markets, the case for deviations from the uniform tariff rule are very few (Valdés and Siamwalla, 1988). These include the optimum tariff case and the fiscal revenue motive (both mentioned earlier in the text), interventions to deal with world price instability, and food subsidies for the most vulnerable households. To avoid a capricious and distorting pattern of trade intervention, we submit that the goal should be in the direction of equality of nominal rates of protection on inputs and final products throughout the economy, including agriculture. Special cases should be only those – very few exceptions – where the burden of proof is to demonstrate the merits of the special case.

Need for simultaneous reforms in related sectors

A number of markets are subject to controls of varying degrees of severity, including financial and labour markets, transport and communications, the importance of which will vary from country to country. As in the case today of Eastern European agriculture, delineating the exact boundaries for a successful micro-economic reform package is obviously a very complex issue of which we have a very limited experience.

It is widely recognized that the cost of adjustment (in terms of unemployment and financial pressure for farmers) precedes the benefits of liberalization and trade reform. There is, however, a real risk that the benefits in terms of agricultural output, employment and farm income could take many years, reducing political support for reform. Owing to the biological nature of agriculture, some adjustment lags are inevitable. However, the challenge is to identify the possible bottlenecks that could slow down the output response. In most countries, these related markets are still subject to extensive regulation, and this could inhibit the agricultural output response to trade and price liberalization, reducing the credibility of the reforms.

We highlight the following: (1) security of property rights and deregulation in land markets with respect to rentals, very important at least in Latin America; (2) developing medium- and long-term credit lines with competitive interest rates and methods for dealing with accumulated farm debt; (3) development of competitive services on transport and communications, particularly important for the growth of nontraditional exports; and (4) public sector reforms to improve productivity in the use of public sector resources and privatization of state agencies whose continued holding by the public sector is not justified on policy grounds. These are believed to be particularly significant in respect of the sequence of reforms.

Our experience in the analysis of agricultural policy reforms in LDCs is still very limited. In the future we should be able to offer more precise guidelines about the order in which reforms must be undertaken. For example, should agricultural trade and price policy reforms follow stabilization, and not be attempted before macro-economic equilibrium and stability are firmly established? Similarly, should changes in agricultural trade and price policy reform, which could occur rapidly, be delayed because of others which would

take longer (like improving physical infrastructure, providing security of property rights and developing an efficient service sector)? It will take several years to have these elements in place. It is important to move ahead to initiate the necessary reforms. My intuition tells me that the only case for delaying agricultural trade and price policy reform is in countries suffering unsustainable macro-economic policies accompanied by high and variable rates of inflation, and by variability in the key macro-economic variables, namely the real exchange rate and real interest rate.

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DISCUSSION OPENING – RASHID M. HASSAN*

Economists, policy makers and even politicians all subscribe today to the urgent need for rigorous economic reforms in developing countries to remedy the serious imbalances in their domestic and foreign sectors. There is no consensus, however, on the components and order of reform programmes. The paper by Valdés provides a realistic framework for analysing the influences of trade and pricing policies and macro-economic adjustments on output, income and growth in agriculture. His paper summarizes the strong evidence for the negative impacts of government intervention in the agricultural and non-agricultural tradables and home-goods markets on the performance of the

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farm sector. Measures of protection in 18 country case studies have shown the bias built into the structure of incentives against agricultural tradables and in favour of the urban-based manufacturing and home-goods sectors. The case for a new agricultural development strategy is well established, and important lessons learned from the past are synthesized in a set of useful guidelines for broad-based sectoral policy and macro-economic reform. I want to emphasize some important issues raised in the paper and add comment on what I see as grey areas.

A comprehensive list of measures, ranging from lower indirect taxation to exchange rate alignment and financial liberalization, is proposed by the World Bank and the IMF for economic recovery in developing countries. As pointed out earlier, the current challenge to economic research and policy making concerns choice of the appropriate combination of prescribed adjustment measures, and the sequence in which to apply them. I find myself in full agreement with Valdés's guidelines suggesting movement towards the use of neutral tax and exchange rate regimes as the basis for promoting efficient intersectoral allocation of resources. Accordingly, policy reform programmes should begin by removing relative price distortions caused by the use of differential tariff, tax and exchange rates. Replacing quantitative restrictions with tariffs on trade is also an important step towards a more effective role for the price mechanism in reacting to market signals.

While unification is crucial and relatively easy to adopt, determination of optimal tax levels and a realistic rate of exchange depend on key structural features of the economy in question. Elasticities of demand for exports and imports, as well as domestic supply responsiveness to economic incentives, are important factors to consider. The small country assumption, for example, is critical for an effective devaluation of over-valued currencies. An elastic supply structure of agricultural exportables is also essential for exchange rate adjustments to have positive impacts on the trade balance.

Most studies, including this one, focus on measuring the effect of intervention policies on the structure of incentives within the economy. Unfortunately, little information is available about the degree of responsiveness of supply and demand for agricultural tradables to changes in relative prices. Proper estimation of elasticity parameters is therefore needed in order to verify key assumptions underlying strategy proposals. The trade-off between dynamic specifications and the Lucas critique on parameter stability, discussed by Valdés, is important.

Another issue to consider in determining optimal taxation relates to impact on macro-economic equilibrium. While structural adjustment calls for reduced indirect taxation, taxes on trade are the main source of government income in developing countries. Lower tax revenues may therefore worsen the budget deficit and induce monetary expansion in the absence of alternative financing sources, placing unfavourable inflationary pressures on the real exchange and interest rates. One way out of this apparent conflict between structural adjustment and stabilization policies is through increased reliance on direct (income) taxes and open market operations (borrowing from the private sector) to finance the budget deficit. While these are effective measures of monetary control in developed economies, they are rarely used in

developing countries, where capital markets are non-existent and tax collection institutions are inefficient. Liberalization of highly controlled domestic credit markets and associated interest rates, together with substantial improvements in the institutional efficiency of tax collection, are therefore necessary for balanced economic growth.

Most studies analysing the influence of intervention policies and economic reform concentrate on commodity markets. While this takes care of demand for factor services, the implications of changing economic incentives for suppliers of primary factor resources have not been equally stressed. Factor immobility reduces output response to changes in relative commodity prices, and limits the efficiency of intersectoral re-allocation of resources. Like food prices, however, factor markets are difficult to liberalize. Nevertheless, inflexible land, labour and capital markets reduce the capacity of the economy to adjust to changing economic conditions. More research is needed to evaluate the relative importance of removing factor market distortions. That is important for several reasons. The order of liberalization and the distributional impacts of reforms are two important issues, about which our knowledge is rather deficient, as Valdés points out.

Much more also remains to be done in assessing the distribution of costs and benefits from structural adjustment and stabilization programmes. We need to provide answers to questions concerning effects on the functional and regional distribution of income and poverty, and to consider the identity of gainers or losers among smallholder farmers, landless farm workers and the urban poor.

My last problem relates to sequence of reform. From the results in Table 1 of the paper, the indirect effects of non-agricultural policies on the incentive bias against agriculture are much higher than the influences of direct trade and price policies. This indicates the key importance of macro-economic reforms. However, whether macro-economic adjustment and liberalization of factor markets should precede, follow, or go hand-in-hand with sectoral commodity trade and price reforms remains an unresolved research question challenging economic policy analysis.