

Agricultural Development and Economic Growth

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Industry, long considered the engine of growth, has been the darling of development. Agriculture, by contrast, was believed to be unresponsive to economic incentives and did not lend itself to technical change. Thus, policy-makers believed that promoting manufacturing industry at the expense of agriculture would sacrifice little in output – or so went the conventional wisdom in the 1960s and 1970s.

There was a logic to this conventional theory. Explicit agricultural taxes, such as export taxes, and implicit taxes, such as marketing boards paying farmers less than market prices, were easy to administer and extremely attractive in countries with a thin tax base. In addition, shifting scarce resources to industry was thought to be justified by agriculture's declining terms of trading, and by rising protection of agriculture in industrial countries. So policy-makers biased incentives against agriculture, directly through sectoral policies and indirectly through industrial protection and other policies.

But by the 1980s it was becoming apparent that agriculture was profoundly influenced by events external to the sector – industrial policy and exchange rates – which in turn affected investment, growth, and income in agriculture.

In order to better understand the effects on agriculture of price interventions, a recent World Bank study looked at 18 developing countries over 1960-85. The study came up with a number of findings that question the conventional wisdom regarding the impact of price interventions on agricultural prices, income transfers, growth, the budget, and income distribution. These findings provide a solid basis for prescribing agricultural price policies in developing countries.

The Impact of Government Policies on Agriculture

Governments influence agricultural prices both directly through agricultural sector policies, and indirectly through industrial protection and macroeconomic policies. Direct policies are defined

as sectoral policies that affect the price level of the agricultural sector relative to the price level of the nonagricultural sector domestic terms of trade. Such policies include agricultural price controls, export taxes or quotas, and import subsidies or taxes. Indirect policies are defined as policies originating outside agriculture, such as industrial protection and macroeconomic policies. Indirect interventions can depress the prices of agricultural tradables relative to nontradables, through their impact on the real exchange rate, and relative to other tradables, due to industrial protection. These policies affect production incentives by making agriculture less attractive than other sectors of the economy.

What have been the effects of such direct and indirect interventions? The indirect effect of industrial protection and real exchange rate overvaluation was to depress agriculture's domestic terms of trade by about 22 percent on average for the 18 countries over the sample period – nearly 3 times the direct effect from sectoral pricing policies. The total effect (direct plus indirect) was to depress agricultural domestic terms of trade by over 30 percent. These would have been about 43 percent ($30/70 = .43$) higher in the absence of total interventions.

Macroeconomic policies caused the appreciation of the real exchange rate, raised the relative cost of nontradable inputs, and reduced the farmers' real purchasing power from the sale of export and import-competing commodities. Moreover, protection for domestic industry hurt agriculture by raising the domestic price of importable agricultural inputs above world prices.

But some direct measures benefited agricultural producers. Governments often subsidized the cost of farm credit and important agricultural inputs, such as fertilizer. However, such subsidized credit and fertilizer was often rationed and generally went to the larger, better connected farmers. Moreover, many developing countries, to increase their food self-sufficiency, protected domestic producers of import-competing food products through quantitative restrictions or tariffs on imported commodities. Also, most countries, responding to the instability of world markets, intervened to stabilize domestic producer prices relative to world prices.

On average for the 18 countries examined, direct interventions protected importables (18 percent) and taxed exportables (16 percent). The average reduction of the price of exportables relative

to importables was over 30 percent. Direct interventions also led to a significant reduction in price variability: 32 percent on average for producer prices and 23 percent for consumer prices. On the other hand, the contribution of indirect interventions to price stability was negligible.

Since 1985, several countries in Africa, Asia, and Latin America have undertaken unilateral liberalization and stabilization programs resulting in relatively lower levels of industrial protection and real exchange rate overvaluation. Both the direct and indirect biases against agriculture have fallen in these countries.

The impact of Government intervention

In most industrial countries, the main objective of agricultural price policies is to maintain farm income and employment in the face of declining real world prices for cereals – with massive net income transfers to agriculture. In most developing countries, however, the primary objectives have been food self-sufficiency, domestic price stability, low food prices for urban consumers, and government revenue. This being said, the objectives of developing country agricultural policies have at times been quite contradictory. For instance, food self-sufficiency (implying high producer prices) and low consumer food prices are incompatible with generating government revenue. Fiscal constraints have forced an adjustment via lower producer prices.

On average, the net effect of direct and indirect interventions has been an enormous income transfer out of agriculture averaging 46 percent of agricultural gross domestic product a year during the period 1960-84. The average net transfer for the countries with a representative bias was 37 percent. Such enormous transfers must have severely depressed private investment in agriculture and agricultural growth. The big winners were government (net revenue gain), urban consumers (lower food prices), and industry (cheap raw materials).

Just as important is what the study did not find. Input subsidies did not compensate, or compensated very little, for the substantial income outflows resulting from interventions in output markets; and in most cases, public investment in agriculture (7 percent of agricultural GDP) did not compensate for the negative effects of price interventions. For the countries with the representative bias, the

income transfer through input subsidies was never higher than 1.1 percent of agricultural GDP; and for all 18 countries, the average for 1960-84 was only 2 percent. Higher investment by government to compensate for taxing agriculture was found, to varying degrees, in only 5 of 15 cases, with only Egypt and Morocco showing compensation for all agricultural price policy or income variables tested.

Bias against Agriculture

To examine the impact of price policy on annual growth of real agricultural GDP, the study compared the average agricultural growth rate in the group of countries in which the bias was lower (minimal protection rates were higher) than the average, with the rate in the group in which the bias was higher (protection rates were lower) than the average. This test showed that the group with the lower bias (higher protection rate) showed a higher average growth rate.

For the groups with high and low direct bias, the difference in mean agricultural growth is a small 3.3 percent versus 4.3 percent; i.e., 1 percentage point, and statistically not significant. But for the two total bias groups, the difference is large – 2.7 percent versus 5.2 percent, i.e., 2.5 percentage points, or 90 percent – and significant. This provides strong evidence of an association between high total bias (mainly indirect) against agriculture and low rates of agricultural growth.

Further statistical tests revealed that the relationship between total bias and agricultural growth was significant: the lower the bias against agriculture, the higher the growth. Higher agricultural prices reduce labor migration from the sector, increase investment, encourage wider adoption of new techniques, and result in a higher growth rate.

Responsiveness to Price Changes

There has long been a presumption that the production of individual agricultural products responds significantly to higher prices – because of shifts between products – but that total agricultural production is unresponsive to incentives. This presumption is wrong. Experience shows that in the long run, the aggregate response can be sizable, though it may require some years to materialize. This highlights the importance of having stable and persistent policies.

Direct and indirect bias against agriculture

	Period	Indirect bias (negative protection) (1)	Bias due to industrial protection (2)	Direct bias (3)	Total bias (4)
		(period average in percent)			
Extreme bias	1960-84	28.6	25.7	23.0	51.6
Côte d'Ivoire	1960-82	23.3	23.2	25.7	49.0
Ghana	1958-76	32.6	32.4	26.9	66.5
Zambia	1966-84	29.9	21.4	16.4	46.3
Representative bias	1960-86	24.2	32.8	12.0	36.4
Argentina	1960-84	21.3	39.5	17.8	39.1
Colombia	1960-83	25.2	37.8	4.8	50.0
Dominican Republic	1966-85	21.3	20.8	18.6	39.9
Egypt	1964-84	19.6	27.5	24.8	44.4
Morocco	1963-84	17.4	13.4	15.0	32.4
Pakistan	1960-86	33.1	44.9	6.4	59.5
Philippines	1960-86	23.3	33.0	4.1	27.4
Sri Lanka	1960-85	31.1	40.1	9.0	49.1
Thailand	1962-84	15.0	13.9	25.1	40.1
Turkey	1961-83	37.1	57.4	-6.9	31.8
Mild bias	1960-83	15.7	22.9	0.2	15.8
Brazil	1969-83	18.4	21.4	-10.1	8.3
Chile	1960-83	20.4	37.4	1.2	21.8
Malaysia	1960-83	8.2	9.9	9.4	17.6
Protectors	1960-84	13.6	13.9	-24.0	-10.4
Korea, Republic of	1960-84	25.8	26.7	-39.0	-13.2
Portugal	1960-84	1.3	1.0	-3.0	-7.7
Sample average		22.5	27.9	7.9	30.3

Source: Maurice Schiff and Alberto Valdés, *The Plundering of Agriculture in Developing Countries*, World Bank, Washington, DC, 1992.

Note: Direct and indirect interventions have depressed agriculture's domestic terms of trade (AGTOT) below the prevailing level in the absence of these interventions. Direct interventions depressed AGTOT by 7.9 percent on average (column 3), indirect interventions depressed AGTOT by 22.5 percent on average (column 1), and total interventions (direct plus indirect) depressed AGTOT by 30.3 percent on average (column 4=columns 1 and 3). The indirect bias is a weighted average of the effect of the real exchange rate overvaluation and of the effect of industrial protection (shown in column 2).

As noted above, price interventions in the 18 countries severely depressed agricultural prices during 1960-84. Without price interventions, agriculture's terms of trade would have been more than 4.0 percent higher. With such a large price impact from intervention, the effect of price reform on output is likely to be significant. How agricultural production responds to a price reform depends on how severely interventions have depressed prices, how extensive and credible the reform is, how responsive output is to a given price change, and what time period is considered.

Budget policies

The fiscal effects of specific agricultural price policies have received much attention and generated intense debate. But there have been few, if any, systematic attempts to quantify the net fiscal impact of price interventions. Consumer food subsidies have frequently been cited as a major drain on government budgets. But while they were a drain for some food-importing countries, this was not the case for most countries. Similarly, many countries have a tradition of subsidizing agricultural credit and inputs, conventionally interpreted as compensating producers for the heavy taxation of agricultural production. Yet such subsidies represent only a small part of government expenditure (averaging only about 2 percent over 1960-1985) while taxing agricultural exports yields substantial revenue to the government (averaging 10 percent of government expenditure). Indeed, the net effect of direct price interventions in agriculture was a net revenue gain (of output and input policies) to the government of nearly 7 percent over the period 1980-85, and as much as 17 percent during the 1960s.

The government's need for revenue to fund expanding development programs was probably the major impetus behind taxing agricultural exports, and it remains the major constraint to reform of direct interventions. On the other hand, in some countries the fiscal burden of input and food subsidies escalated so rapidly that it led to macroeconomic imbalances that could be corrected only through policy reform. Changes in agricultural policies in Portugal were dictated chiefly by budget pressures in the early 1980s, when fertilizer and feed subsidies were essentially eliminated. Attempts to reduce food subsidies in Egypt, Morocco, Pakistan, and Zambia also show the link between price policy and the budget.

In most countries, the net budget effect of direct price interventions in agriculture was a gain in revenue, mainly through taxes on agricultural exports. And in three countries – Brazil, Ghana, and Sri Lanka – export tax revenues amounted to 20 percent or more of total government spending over the entire 1960-85 period. Over time, however, the net contribution of the price interventions for this group of countries fell substantially, from 18 percent of government spending in the 1960s to 5 percent in 1980-84. But in a few countries the revenue contribution remains important and undoubtedly constrains any policy reforms designed to reduce direct agricultural taxation. In those countries, sectoral reforms that would eliminate or reduce agricultural export taxes would need to be accompanied by economywide tax and fiscal reforms.

Urban versus Rural Benefits

Contrary to the widely held view that cheap food policies prevail in developing countries, direct price interventions penalized urban consumers in 6 of 14 countries for which data were available. In fact, most countries protected the production of agricultural importables, mostly food; and only a few of these countries also reduced consumer food prices through explicit food subsidies. Moreover, despite widespread direct interventions, the impact on the real income of urban households was generally small. In only 4 of the 14 countries (Argentina, Egypt, Pakistan, and Turkey) were the real income effects on both low- and middle-income households higher than 3 percent of their income.

However, adding the indirect price interventions, it was found that the total income gain for low-income urban consumers ranged from 0.2 percent to 5.3 percent of household incomes in 7 of 14 countries, and was 10 percent or more in three countries – Argentina, Egypt, and Turkey. The effect of the so-called cheap food policies took place mainly through real exchange rate over valuation rather than through direct price interventions. On the other hand, on the whole, direct price interventions have achieved the objective of stabilizing domestic agricultural prices. Hence, a motive underlying food price interventions may have been to prevent sudden large real-income losses in years of higher-than-average food prices rather than to raise the standard of living of the urban poor.

For the rural poor, the short-run income effects of price

interventions were substantially higher and in the opposite direction from those for urban households in the same country. In most countries, rural households suffered real income losses. And direct interventions had considerably more impact on the real income of larger farms (or wealthier rural households), whether these were positive (as in Korea and Portugal) or negative (as Egypt and Turkey). Ghana was the exception, with small farmers gaining from direct price interventions because they produce more rice which was protected, and with larger farmers losing because they produced more coffee and coco, which were heavily taxed.

In the long term, the poor have lost disproportionately. Price interventions seem to hurt most of the poor in the long run (possibly because the full picture at the household level could not be measured). Taxing agriculture reduces rural demand for labor, so that rural employment and real wages fall. This leads to increased migration to the cities and increases competition for employment, and thus to a fall in income in the informal urban sector as well. Moreover, to the extent that the benefits from food subsidies were captured mainly by urban households, there has been a reduction in the real income of the rural poor and, indirectly, of the urban poor in the informal sector.

In the long run, indirect interventions affect income far more than direct intervention. Thus, governments should not use direct (sectoral) price interventions in order to redistribute income, because the distributive benefit is small while the efficiency cost can be very large.

Policy reform

Since the mid-1980s there has been profound change in development strategies – with movements toward more open outward-oriented economies. Further, there has been a shift in thinking about the role of government in general. This has prompted reform of policies that affect agriculture in a number of developing countries.

Economic stabilization and trade liberalization have gradually emerged as the centerpiece in the reform of several developing countries' development strategy. This is most clearly the case in Latin America, but it is gradually being adopted in other regions as well. A consensus is emerging that preconditions necessary to restore

economic growth include deep structural reforms that would open all economies and restore the private sector as the principal player. Thus, during the late 1980s in Latin America, for example, most countries embarked on a unilateral process of tariffication consisting of converting quantitative restrictions to tariffs, binding the tariffs under GATT, drastically reducing the coverage of nontariff barriers, removing export taxes, and reducing average import tariffs as well as their dispersion.

These reforms have led to a reduction in industrial protection and to a less distorted level of the exchange rate. Consequently, the indirect bias, the largest component of the total bias on agriculture, fell significantly in many countries. This was the case, for example, in Argentina, Chile, Colombia, Ghana, India, Mexico, Morocco, and Turkey, among others.

The direct bias has also been reduced in several countries. For example, in Argentina the export tax was eliminated. Export taxes were removed in Brazil, Colombia, the Dominican Republic, and many other countries. However, there are still many countries, such as India, where trade reform has not yet reached the agricultural sector.

Hence, trade liberalization in the manufacturing sector and a reduction of export taxes on agricultural commodities have reversed the strong anti-export bias prevailing before the mid-1980s in a large number of countries. At the same time, however, there have been new developments that affect incentives for agriculture. One emerging concern has been the evolution of the real exchange rate (RER) in the same countries that have adopted the trade reforms. Largely as a result of increased private capital inflows following stabilization and trade liberalization, several Latin American countries (and this is also becoming an issue in India) have seen their real exchange rate appreciate. This RER phenomenon is already creating tension regarding trade liberalization programs for agriculture in some countries, such as Argentina, Colombia, and Chile. A key determinant of the success of trade liberalization is maintaining a competitive real exchange rate that encourages exports and gives some exchange rate protection to import-competing activities. Effective RER management could be most important for the sustainability of agricultural trade reform in the near future.

Policy Recommendations

The findings of the study emphasize the importance of economywide factors on agricultural performance. Several policy recommendations emerge from these findings: If a country wants to prosper, it should not bias incentives against agriculture relative to other sectors or, what amounts to the same thing, it should not use policies to depress agriculture's domestic terms of trade. But to start this practice, the country must do more than dismantle the sectoral or direct intervention in agricultural prices – it must, in addition eliminate the indirect bias against agriculture (about three quarters of the total bias against agriculture in 1960-85), including removing industrial protection and getting the exchange rate into line with its long-run equilibrium value.

If a country wants to reap the large income gains possible from the reform of agriculture, it should stop the direct taxation of exports and the direct protection of imports (so as to put imports and exports on an equal footing) – and it should dismantle quotas, licenses, and state trading companies (which obscure the real winners and losers from subsidies or taxes), as well as those internal, agricultural marketing regulations that prevent a free flow of goods and services within the country.

To reap the full benefit of reforming agricultural prices and agricultural trade, it helps to improve finance, transport, and communication. If a country wants to stabilize prices at a relatively low cost, it should develop efficient hedging instruments, reform other agricultural policy interventions, and stop interest groups from subverting the price stabilization program in order to obtain a favorable change in the price level.

A number of reforming countries have seen their real exchange rate appreciate because of the capital inflows resulting from the reform. This has led to pressure by the agricultural lobbies for protection (e.g., in Chile, Colombia, New Zealand, and other countries). Consequently, in order to ensure that the reforms are not reversed, governments should carefully manage the short-term component of these large capital flows.

This theme has been developed more fully by the authors in the March 1995 issue of *Finance and Development*, under the title "The Plundering of Agriculture in Developing Countries."

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NSSM 200 and the World Population Explosion

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On March 30, 1995, Pope John Paul II made public his encyclical letter entitled *Evangelicium Vitae*, which assailed both abortion and contraception, in the strongest terms, charging that they are crimes which no human law can claim to legitimize and condemned even democratic decisions which did not conform to his concept of what constituted morality. This encyclical was the most sweeping attack on measures designed to save planet earth from the impact of the ongoing population explosion currently taking place in the poorest countries of the world. If followed it would effectively condemn the planet to deforestation, desertification and eventual ecological disaster. Sadly, the fact is that even prior to this latest ruling, the Vatican had already blocked one of the most conscientious efforts to slow down the slide toward world-wide disaster which has been increasingly evident to informed observers for several decades: this was the Vatican's success in blocking an American policy decision to combat this threat which dated from Richard Nixon's presidency, but was never put into effect.

In 1992, President Richard M. Nixon reasserted his long-held belief that overpopulation gravely threatens world peace and stability. In his book, *Seize the Moment* (Simon & Schuster, 1992), he ranks assistance in population growth control as the most important effort the United States can undertake to promote peace and stability – and, thus, protect U.S. security. He goes on to say:

We must help break the link between spiraling population growth and poverty....Where they have been tried, family planning programs have largely worked....Many pro-life advocates ...contend that to condone abortion even implicitly is morally unconscionable. Their view is morally shortsighted....if we