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STEPHEN R. LEWIS, JR.*

AGRICULTURAL TAXATION AND INTERSECTORAL RESOURCE TRANSFERS†

The techniques of taxing the agricultural sector in the less developed countries (LDCs) have changed little in the past six years.[1] There have been a number of changes, however, in the conditions facing many LDCs, particularly those associated with rapid productivity gains of the Green Revolution, urban and rural unemployment, and related socio-political problems. In addition, a large number of empirical studies of the experience of the developing countries have appeared. Both the changes in conditions in the LDCs and the growth of knowledge about the effects of various policies on economic behavior have substantial implications for the discussion of appropriate devices for taxing the agricultural sector.

In this paper I first explain how I view agriculture in the process of growth. Section II contains a review of the purposes of making resource transfers from agriculture and of the instruments that can be used to tax the agricultural sector, directly or indirectly. In Section III, I review some of the recent changes in concerns and in conditions and some recent literature on the development process that is relevant to policies affecting intersectoral resource transfers. Section IV contains some proposals for the elements of a better system for taxing agriculture and transferring resources from it, and the final section presents general conclusions.

I. AGRICULTURE IN ECONOMIC GROWTH

In analyzing the growth of agriculture in most LDCs, and particularly in discussing basic policy options, I continue to find the two-sector model of W. Arthur Lewis most helpful (*32*). It has now been followed by a large number of models offering refinements and amendments,[2] and most of these capture a good number of the essentials, though generally not the richness, of Arthur Lewis's contribution.

* Professor, Department of Economics, Williams College.

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[1] Those techniques were examined in more detail in an earlier paper (*24*).

[2] Examples are the 1964 book by J. C. H. Fei and G. Ranis (*10*) and a recent paper by J. W. Mellor and Uma Lele (*39*).

Agricultural growth is crucial for two reasons. First, it is virtually impossible to have sustained growth of real income per capita, with some concern for the distribution of income, without having increases in agricultural production and in agricultural productivity. Agriculture is simply too large in the total economy for the situation to be otherwise; and studies by Simon Kuznets and others have demonstrated amply that rising agricultural productivity is intimately associated with rising incomes per head and with other characteristics of structural transformation during development (*21*).

The second reason for the central role of agricultural growth is instrumental: it will be very difficult (though not, in principle, impossible) for the rest of the economy, particularly the nonagricultural modern sectors, to grow rapidly in the absence of sustained growth in agriculture. Agriculture's "contributions" to development in other sectors, which have been widely discussed,[3] include feeding a growing nonagricultural labor force, earning more foreign exchange, providing capital for development of the rest of the economy, and serving as a growing market for domestic manufacturing. These latter contributions by agriculture depend not on total agricultural production but on the marketed surplus. In the short run, it may be possible to increase agriculture's contributions to nonagricultural growth even with relatively constant production if the marketed surplus can be increased (see *41* and *44*).

In the "normal" working of the Arthur Lewis model, the expansion of the capital stock in the modern sector provides employment for labor which otherwise would have to be absorbed by the traditional sector; the resources for increasing the capital stock come from the surplus of total value added over wage payments (which are assumed to be totally consumed); income per head rises as labor is moved from lower to higher marginal productivity occupations, and as a consequence the share of the modern sector rises in total output; and the share of saving in income also rises as the modern-sector share rises in total income. The classical phase of the model comes to an end happily in the "well-behaved" case where modern-sector wages rise because enough labor has been transferred from traditional to modern sectors and traditional-sector labor becomes genuinely scarce.[4]

Some important aspects of the model are seen, however, when all does not go well, particularly when food supplies to the modern sector do not expand as rapidly as the modern sector's demand for labor. In that case, the modern sector must give up a larger share of its output in order to feed its labor force, leaving fewer resources for capital formation. More food can be forced out of agriculture in the short run (*24*; *44*), but the long-run problem becomes one of ensuring a sustained growth of food supplies to support the growing modern sector. Again, the Fei-Ranis contribution on development in an open economy is helpful in exploring policy options of short-run food shortages (*9*).

Arthur Lewis originally pointed out that the model would come to an "abnormal" early end if real wages (in terms of modern sector output) rose before "unlimited labor" had become exhausted, since the increase in wages would result in a diminution of surplus and a failure of the capital stock to increase rapidly enough to absorb labor from agriculture. Lewis has pointed out in several recent

[3] The standard source is the 1961 article by B. F. Johnston and J. W. Mellor (*18*).

[4] A recent addition to the model by Fei and Ranis also describes the behavior of export composition in this well-behaved development of a two-sector economy (*9*).

contributions that this has been a substantial problem in a number of countries (*33*; *34*; *35*). It is worth emphasizing that accelerated development requires more resources, and that those resources have generally come from a surplus of value added over wage payments in socialist, capitalist, and mixed economies. The recent, and long overdue, concern for more equitable income distribution may tend to obscure the important fact that resources for development must be found somewhere, and it is unlikely that they will be found in the voluntary saving of wage laborers or of the salaried middle classes. In addition, while in the short run rising wages and salaries will cut into modern sector surplus, intermediate-run incentives may encourage recapture of some of the surplus through capital-labor substitution, which will adversely affect the amount of labor absorbed in higher productivity sectors per unit of surplus generated.[5]

II. TRANSFER OF RESOURCES FROM AGRICULTURE

Two aspects of agriculture's contribution to saving and to government revenue may be distinguished. One is agriculture's gross contribution to total tax revenue and to total domestic saving (*24*). The second is whether agriculture should be making a *net* contribution to a flow of capital or government services to other sectors; i.e., what is the optimal level and composition of net transfers from agriculture?

There are three basic methods of transferring income from agriculture into a "fund" of saving and of taxes. First, if private investment in agriculture falls short of the private saving generated, agriculture will make a net contribution to financing nonagricultural sectors. Second, the government may tax agriculture directly or through indirect taxes on items agriculture buys or sells and may provide capital projects for agriculture or undertake a variety of current expenditures or subsidies that benefit agriculture. The net of taxation from agriculture over the expenditures benefiting agriculture (both of which require incidence assumptions) would be agriculture's contribution to the nonagricultural sectors on government account.[6] Third, the government may turn the terms of trade against agriculture (relative to some meaningful standard) by a variety of policies (*24*). The beneficiaries of the adverse terms of trade for agriculture will be the nonagricultural sectors domestically (after netting out any indirect taxes that fall partly on agriculture and partly on nonagriculture). If the increased nonagricultural incomes are saved at a higher marginal rate than the decreased agricultural incomes, aggregate saving rates will increase, and agriculture will have made a net contribution to total saving in an indirect manner. In addition, the government can tax the increased nonagricultural incomes directly to capture part for government revenue (in which case a recalculation of agricultural and nonagricultural contributions to government revenue needs to be undertaken).

The size of the net transfer of resources from agriculture is difficult both to measure and to evaluate in terms of optimality. The data requirements to mea-

[5] The recent paper by Mellor and Uma Lele incorporates an explicit landlord sector into the agricultural sector. Their device allows more explicit and careful analysis of the effects of various tax policies on resource allocation, choice of techniques, and levels of marketing in the agricultural sector (*39*).

[6] One should make allowance for some contribution of agriculture to the production of "pure" public goods such as defense as well as for the benefits from projects or services that benefit only agriculture. Some of the incidence problems on the tax side of the calculation are discussed by V. P. Gandhi (*11*).

sure the transfers are substantial. One must estimate the incidence of taxes and of the benefits of government current and capital expenditures, and one must have a standard of comparison against which to measure the actual terms of trade. Finally, assuming that each sector would adjust the level and composition of its output, inputs, and sales with changes in relative prices facing it, one should have estimates of supply and demand elasticities in order to measure the value of resource flows that actually took place as compared with those that might have taken place under different sets of relative prices. T. H. Lee's monumental study of Taiwan's experience meets most, but not all, of these exacting requirements in attempting to assess the size, composition, and direction of the resource flows from agriculture (*22*). The question of the optimal level is even more difficult to assess.

Optimal levels of resource transfer from agriculture will vary from country to country and, within countries, over time. The level of resource transfer (taxes plus other transfers) from agriculture could be: (a) "too small" in the sense that higher productivity uses of capital and of current government services in the nonagricultural sectors are left unexploited; or (b) "too small" in the sense that the government sector is unable to provide (without reducing higher-productivity uses of resources in nonagriculture) high-yielding public current or capital services to agriculture; or (c) "too large" in the sense that the agricultural sector is unable to finance higher-productivity activities while lower-productivity investments are taken up in nonagricultural sectors. In addition to these largely self-evident definitions of optimality in terms of maximum growth of output, consideration might also be given to income distribution, with transfers from agriculture "too large" or "too small" in terms of distributional goals.

The optimality of various resource transfers from agriculture obviously depends on the goals of the society and on existing conditions regarding the distribution of income and the productivity of investment and of current government expenditures in agriculture relative to other sectors of the economy.[7] However, in view of the large weight of agriculture in the LDCs, and the imperatives of structural transformation during development, I believe there is a presumption that the net flow of resources in general will be in the direction of optimality when agriculture is making a contribution to the financing of other sectors. And it is quite possible that within a net overall outflow of resources, government may make net inputs from the public sector. There may be times, though, when a confluence of circumstances (e.g., high-yielding agricultural varieties that substantially raise the productivity of capital in large-scale irrigation, drainage, storage, and transport facilities) may make a temporary resource transfer into agriculture sensible from the viewpoint of overall growth. Thus, within an overall net outflow over a period of time, there are still questions of timing and of composition which are more complex.

III. ARE THERE LESSONS FROM RECENT HISTORY?

This section is organized around three themes in the recent economic history of developing countries. First, it has become abundantly clear that government

[7] An interesting discussion of the optimality problem is given in *44* (see also *20*).

policies can markedly affect the terms of trade of agriculture and other relative prices; that such changes in relative prices can result in substantial transfers of income among sectors; and that entrepreneurs in all sectors of the economies of LDCs respond quite rapidly to changes in relative prices, both of inputs and factors and of output. Second, concerns about productivity growth that preoccupied economists somewhat earlier in developed country studies have begun to concern economists in LDCs. Rapid productivity growth in agriculture has in some cases substantially increased price elasticities of supply; and such growth has also exacerbated some problems of income distribution and of direct taxation of the agricultural sector. In addition, the *failure* of total factor productivity to grow rapidly in import-substituting manufacturing sectors has resulted in high and growing burdens on the sectors that must subsidize protected industry.[8] Third, and related to the first two themes, there has been growing unemployment and related unrest in a large number of LDCs and a substantial increase in concern for the distribution, as opposed to the growth, of income.

Effects of Policy on Relative Prices

The impact of government policies in changing relative prices immediately raises the question: changing them from what? Existing studies have used two different definitions of the situation with which to compare the price structure at some point in time. One set of studies, emphasizing the effects of price distortions resulting from protection, has used international relative prices facing the country, or international trade opportunity costs. The other set of studies has used the structure of domestic prices in some base period and has generally been concerned primarily or exclusively with movements in the domestic terms of trade of agriculture. The data requirements for any of these studies are formidable indeed. Data availability explains why most studies comparing domestic and foreign price structures have been single-year studies, while those concerned with movements of prices over time have been largely confined to movements of relative prices domestically.

The appropriate price comparisons, when one is interested in the possible distorting effects of policies, are between domestic relative prices and the set of prices (or, where appropriate, marginal revenues) the country faces in international markets.[9] If one is interested in agriculture's terms of trade under a given policy regime, the relevant set of prices with which to compare *actual* prices received and paid by agriculture is the set of prices agriculture would have faced had there not been particular policies with respect to foreign trade taxes, domestic taxes, and exchange rates that distorted the domestic price structure from that which would face the country in international trade. The comparison of the domestic terms of trade today with the domestic terms of trade in some past period may be of interest for some purposes. But, past prices do not present an alternative set of

[8] Some of these issues are discussed in *4*. It is important to point out, however, that growth of value added per worker is not enough, since this can take place through capital-labor substitution or other means. What is necessary is that the total resource cost (inputs and factors) of producing a given quantity of output must fall for the burden of subsidy to decrease.

[9] One is interested in trade opportunity costs, so where import supply elasticities and export demand elasticities are less than infinite, the trade opportunity costs are given by marginal revenues or costs rather than prices.

prices which could have been paid or received by agriculture today in the same way that today's international prices present a real alternative.[10]

Recent studies indicate that government policies in many countries have indeed had major effects on the structure of domestic (relative to world) prices, and that substantial amounts of income have been transferred both between sectors and between producers of different goods within sectors. Detailed comparative studies of a number of LDCs sponsored by the World Bank focused on the impact of indirect taxes, exchange rate policies, tariffs, and quantitative restrictions on imports in protecting or subsidizing various activities at the expense of others (*1*). Manufacturing industry was generally the beneficiary and agriculture the sector discriminated against, but within each sector there were a variety of subsectors subsidized and others "taxed" by the protective system. In some extreme cases, activities were found that yielded *negative* returns to domestic factors when the tradable output and the tradable inputs of the sector were evaluated at international rather than domestic prices; real national income would be higher if the activities simply ceased to exist.[11] This result has generally come from tariff "cascading," with a lower price of foreign exchange implicit in prices of inputs than in prices of output.

The studies sponsored by the Organization for Economic Co-operation and Development (OECD) (summarized, interpreted, and extended in the volume by I. M. D. Little, Tibor Scitovsky, and M. F. G. Scott [*36*]), focused broadly on manufacturing and trade policies, and made it clear that policies that favored manufacturing in many countries did so at the expense of agriculture. By recalculating the gross domestic product (GDP) at international instead of domestic relative prices, Little et al. found that agriculture was subsidizing manufacturing by 10 to 20 percent or more of agricultural value added as a result of trade policies. Studies in Pakistan indicated that in the 1950s perhaps as much as 10 to 15 percent of agricultural income was being transferred out due to adverse terms of trade relative to world prices (*26*; *27*). S. M. Eddie's examination of Austria-Hungary in the late nineteenth and early twentieth centuries (the only study I am aware of which explicitly takes into account the supply response along agriculture's offer curve in response to changes in terms of trade) suggested that from 17 to 45 percent of the value of agricultural exports (except major grains) was transferred from Hungarian agriculture in intra-Empire trade as a result of protectionist policies favoring Austrian manufacturing (*6*).[12] T. H. Lee's study of Taiwan, while using domestic base period prices instead of international prices as the point of comparison, indicates that the deterioration of agriculture's terms

[10] An example may be helpful. Suppose one limited his attention to movements in domestic prices, and suppose the government followed a policy of using no indirect taxes or subsidies (except to correct for world demand elasticities of significantly less than infinity) and had a floating exchange rate. And, suppose under these circumstances one observed a deterioration in agriculture's terms of trade of 20 percent over a decade. Given the policy assumptions, the deterioration in the domestic terms of trade could have come about only because of a deterioration of world prices of similar agricultural goods produced domestically relative to world prices of manufactured goods purchased by the domestic agricultural sector. Domestic government policy *per se* has made no impact in terms of transferring resources from agriculture to manufacturing, even though the latter has clearly benefited from the movements of the terms of trade. The only way in which to maintain the earlier terms of trade for the domestic agricultural sector is to intervene with taxes and subsidies to protect (i.e., subsidize) agriculture and discriminate against (i.e., tax) manufacturing relative to existing international prices in the later period.

[11] Emile Despres once suggested calling the results of these activities "value substracted"!

[12] The study by Eddie distinguishes between the effects on major grains, where producers had some political power, and other exports, where they did not.

of trade in the 1950s and 1960s as compared with the 1930s involved an implicit (or, as he says, invisible) transfer from agriculture equivalent to one-half to two-thirds of the real capital outflow from agriculture in the latter two decades (*22*). R. P. Echevarria's study of Chile examines changes in relative prices (including changes in international prices of goods actually traded) over several subperiods and by calculating the transfer of resources involved in changes during the period from prices existing in the immediately preceding period (*5*).[13] He found that agriculture as a whole gained as much as 15 percent of its value added from changes in relative prices from 1959/61 to 1962/64, which suggests a similar loss of income in the earlier period relative to the later one.

The amounts of resources transferred from agriculture through the use of trade and indirect tax policies, then, have been very substantial in relation to agricultural output in a number of countries. The amounts are even larger in importance relative to the size of direct agricultural taxes, or industrial output, or government revenue and expenditures.

What have been the consequences of these large gross transfers? In the context of the well-behaved two-sector model, depressing agriculture's terms of trade and improving them for the modern sector might have improved the saving rate and rate of investment for the economy, the rate of growth in output and employment in the modern sector, and the rate of growth of output of the economy as a whole. The principal adverse effects might have been disincentives and lack of investment resources in agriculture which would eventually result in inadequate growth of agricultural output and marketed surplus and deceleration of the growth rate of the modern sector.[14]

The principal difficulty encountered by countries following the policy of turning the terms of trade against agriculture, however, is the inefficiency with which the nonagricultural sectors used the transferred resources. The nature of the trade policies followed encouraged the establishment of manufacturing industries aimed primarily at the domestic market, using imported (or exportable) raw materials, and capital goods purchased at favorable exchange rates compared to the exchange rate implicit in the prices at which they sold output. The nominal extent to which domestic prices of import substitutes exceeded their international prices (c.i.f.) substantially understated the extent of subsidy to value added in the import substituting industries.[15] *If* the import substituting sectors' profits had increased by the full amount of their subsidy from protection, and *if* profits were heavily reinvested, *then* the mechanism for accelerating development through the use of trade restricting devices might have worked.[16] However, detailed studies of protection in most countries show that a substantial portion of the increase in gross returns made possible by protection subsidized the inefficient use of capital, labor,

[13] This study by Echevarria has the virtue that it differentiates among large and small producers, tenants, agricultural and nonagricultural workers, nonagricultural producers, and the rest of the world.

[14] To the extent that capital is mobile, disincentives to agricultural investment might result in a shift to nonagricultural investment. It might also be that lower rates of return on agricultural investment would result in higher consumption and lower saving by farmers.

[15] The "effective rate of protection" or the protection to value added is designed to measure the combined effects of nominal protection to output and the presence of tariffs on or protection to industries producing inputs into the protected industry. The concepts are discussed and elaborated in *1* and *36*.

[16] Even in this case, to the extent that the protection raised the private rate of return artificially above that of projects with equivalent social rates of return in agriculture, overall growth would be lower if capital moved in response to private rates of return.

and intermediate inputs (*1*; *36*). Thus, a continuing subsidy to the industries became necessary simply to support the level of output and value added in such industries. And, therefore, the agricultural sector was being "taxed" *not* to increase overall saving in the economy, but rather to give an ongoing subsidy to industries that were unable to compete in international markets, even with a correction for the overvaluation of currencies that existed in countries following this pattern of "growth."

The first problem with a price-distorting strategy, then, is that it may encourage the establishment of industry that is inefficient in a static context. But the dynamic problems that have arisen often have been of greater consequence. The infant industry justification for protection (which is invoked along with the "raising saving rates" argument already explored) assumes that costs in the newly established industry will fall over some period of time. If the costs do not fall, however, the industry will need a continuing subsidy in order to keep producing at its initial levels of profitability. Thus, once such an industry is established, it becomes a permanent drag on the rest of the economy. And, in order to provide protection or subsidy to a new sector, or to allow a transfer of income from agriculture that would increase profits (and perhaps savings), the squeeze on agriculture would have to be increased. Alternatively put, if costs do not fall in a growing import substitution sector, that sector requires a growing subsidy from the other sectors of the economy just to maintain its growing levels of production.[17] If agriculture is unable to provide such a growing subsidy, there must be a diminution in the growth rate of the import-substituting sector.

Little, Scitovsky, and Scott have put the problem in another way (*36*). They point out that the income contribution of the subsidized sectors is overstated by the use of domestic-price value added relative to the contribution of the sector measured at international prices. In like manner, the contribution of the sectors that are discriminated against is understated by the use of domestic prices. Reestimating value added in the major sectors in international, instead of domestic, prices raises the weight of the "taxed" (and usually more slowly growing) sectors and lowers that of the "subsidized" (and more rapidly growing sectors), thus lowering the rate of growth of the economy as a whole. Economists studying import-substituting industrialization have been concerned with explanations for the acceleration, followed by a deceleration, in industrial growth rates (the latter phase often accompanied by greater inflationary pressure and more severe balance of payments problems) (see *14*; *42*; *43*). With the remeasurement of overall growth rates, the acceleration phase is seen to be largely illusory growth, or a statistical artifact, while the deceleration indicates that the size of the subsidy required by the import-substituting sector has become too large for the more efficient sectors to maintain.[18]

[17] The impact of the growing need for subsidy may show up in the form of foreign exchange shortages, inadequate saving, inflation arising from excessive creation of factor payments domestically relative to productivity of factors, or a combination of all. Some of the problems are discussed by J. H. Power (*42*) and J. B. Sheahan (*43*).

Since this paper was written, I have worked out a more rigorous model to show how protection may result in a slower growth rate and increased balance-of-payments pressures (see *25*).

[18] The deceleration may also be brought on by the limitations of markets at the distorted prices prevailing: import substitutes run out of a growing market after imports have been replaced; and the currency overvaluation, the high cost-structure of protected industries, and the higher labor costs that often accompany the import substitution phase eliminate the possibility of entering the export market.

A second difficulty with the use to which the transfer from agriculture has been put has occurred where real urban wage rates have risen, particularly in the import-substituting sectors, well before the end of "unlimited labor." In these cases (and there is a growing list of countries where this is of concern) the transfer from agriculture has resulted not in increased saving or increased government revenue, but in increased consumption by the urban labor force (see *33*; *34*; *35*). When this use of the transfer is added to that absorbed by inefficient use of intermediate products and of factors, the amount left for the increase of private or government saving is further diminished. Thus, in countries where these forces have been at work in the nonagricultural sectors, the squeeze on agriculture, which has been real and sizable, has not fostered growth in the ways that a simpler view of the two-sector model would suggest.

A further set of problems engendered by price-distorting policies is related to the fact that all agricultural prices are not depressed relative to all manufactured goods prices when the terms of trade overall have moved against agriculture. I have already mentioned the effect of tariff "cascading" (lower rates of duty on capital and intermediate products than on final consumption goods) on the inefficient use of resources in the manufacturing sector. Within agriculture there have also been wide differences in the impact of trade, tariff, and price policies. Numerous studies have shown how quickly farmers in the LDCs adjust to changes in relative prices among agricultural products that compete for similar resources. It is not surprising, therefore, to find that trade-distorting policies result in inefficient use of resources within agriculture, particularly discrimination against export crops and in favor of crops that are import substitutes (*8*; *13*). Also, the distortions in product and factor prices that have led to a growing concern for efficient use of capital in the manufacturing sectors of many LDCs raise similar problems with respect to agriculture. The protective systems, and the overvalued currencies they defend, usually have made capital goods cheap both for manufacturing and for agriculture. This type of policy has probably had an adverse impact on the substitution of capital for labor in particular activities, on the composition of industries by labor intensity, and on the development of capital goods industries, about which I shall say more below. Even in the absence of substitution, the subsidized price of capital goods has provided an income transfer to users of capital goods from the rest of society.

Growth of Productivity

Certainly the most dramatic events of the past six years in the LDCs are related to the Green Revolution and to the impact of such rapid productivity growth in some parts of agriculture on taxation and resource transfer. One of the most obvious impacts has been the effect on domestic relative prices of agricultural commodities. These changes in domestic production costs and relative prices are directly related to the problems of the last subsection with an interesting set of twists.

If governments try to maintain some historical level of relative domestic prices (especially for import-substitute products, such as foodgrains on the South Asian subcontinent) in the face of falling domestic costs, resources will be drawn out of subsectors of agriculture that are efficient producers of tradables into these sectors

in which real costs are falling but prices are being prevented from doing so. Studies in Pakistan have suggested that the introduction of the new varieties may make cropping patterns even more sensitive to changes in relative prices than they had been under traditional conditions;[19] just as political pressures build up to prevent endogenous changes in relative prices, the need to make sure that prices reflect opportunity costs becomes even more important.

Another aspect of the rapid increase in productivity in some parts of LDC agriculture has been that the long-standing problem of lack of income-elastic taxes on agriculture has been made even more acute. Those countries with land-based taxes and relatively long periods between reassessment of the base for taxation have experienced substantial increases in agricultural incomes with no way to tap them because of the structure of taxation. In addition, the political pressure to maintain the prices of the products in which productivity increases have taken place means a further drain on government resources to maintain subsidies or guaranteed price purchasing arrangements. Thus, if prices do not fall substantially, a tax-policy question becomes: how does one capture some of the productivity gains in parts of agriculture for use by society as a whole?[20]

The possibility of rapid productivity growth in agriculture has another interesting dimension. As pointed out earlier, if there is little productivity growth in the protected nonagricultural sector, the expansion of that sector will require an increasing subsidy from agriculture (and from the efficient parts of nonagriculture) simply to keep going. The rapid growth of productivity in agriculture, then, can effectively postpone the time when nonagriculture must become efficient. If the nonagricultural sector was really in the process of cutting its real cost of production, this extra breathing room before balance-of-payments and other problems closed in would be welcome indeed. But if the nonagricultural sector were increasing its need for subsidy and remaining an inefficient producer of tradables, the increase in the growth rate of agriculture would simply enable the sector to put off the day of reckoning and would waste the productivity gains in agriculture.[21]

Growth of productivity in agriculture has another dimension relevant to both efficiency and equity. If rapid productivity growth puts downward pressure on the price of the commodity in question, it will have a depressing effect on the net barter terms of trade of agriculture. But, the income terms of trade need not deteriorate, a point often forgotten in discussions of the effect of the Green Revolution on farm welfare.[22] In addition, since a very large fraction of farms in many LDCs are net purchasers of food crops, the effects of productivity growth even with falling prices are likely to be favorable to farm welfare. Also, changes in the

[19] See the study by C. H. Gotsch and W. P. Falcon (*12*). To some extent the added sensitivity comes from the lack of specificity of the new technologies (i.e., tubewell water that can be applied to supplement many crops, so cropping patterns are not tied to timing of canal irrigation or rains; or new varieties have different growing seasons from traditional varieties and may affect profitability of growing crops in seasons other than those in which they themselves are grown).

[20] Some of these issues are discussed for West Pakistan in *29* and *30*.

[21] It seems reasonably clear to me that the sudden increase in agricultural growth, combined with large inflows of foreign aid, provided the manufacturing sector in Pakistan with just such an increase in the availability of subsidy in the early 1960s and put off the need to rationalize the sector, thus maintaining the need to have a growing subsidy from the rest of the economy in order to expand. See *25* for a more detailed discussion of the intersectoral subsidy question.

[22] See Falcon (*8*) and Mellor (*38*) on the points raised in this paragraph.

net barter terms of trade arising from productivity growth do not have decisive consequences for the incentive to use improved inputs or new techniques. The expected payoff for improved inputs involves both the physical productivity of the inputs (rising with improved techniques) and the price of output (falling with new techniques) relative to the costs of the input.

Finally, the new agricultural technologies often involve the need for more sophisticated (and expensive) water control systems; in general, it appears that benefits from the new technologies will be optimized only with increased use of fertilizers and pesticides, which increase the need for working capital in agriculture. Even in "labor surplus" economies, the need for more careful preparation of fields and the increases in the sizes of harvests have led to a genuine (i.e., not caused by price distortions) need for investment in equipment of various kinds; and the increased input needs and physical output flows have created transport and storage problems which can be solved only by additional capacity in these systems. Such considerations suggest that the absolute allocation of private and public capital to agriculture will have to rise to optimize growth for the economy as a whole; but at the same time the growth of productivity stemming from the Green Revolution makes agriculture better able both to meet its own needs and to transfer capital to other sectors.[23] It would be dangerous to try to conclude anything "in principle" about net transfers from or to agriculture given this set of conflicting forces.

Employment and Income Distribution Questions

The shortage of domestic saving was *the* "development problem" of the 1950s. It was replaced briefly by the need for education and training in the early 1960s, but that gave way to the scarcity of foreign exchange in the mid- to late 1960s. Since the problems of employment and of equitable distribution of income appear to be the main foci of attention at the beginning of a new decade, one can only hope that as a profession we will sort out the relevant from the irrelevant, and the helpful from the harmful, sooner than we have on these other problems.

A number of papers on the Green Revolution have pointed out that, to a large extent, the initial beneficiaries of the new varieties and other new agricultural technologies have been the larger farmers (*8*; *39*). Part of this has to do with "progressiveness," part with ability to take risks, part with the need for working (and perhaps fixed) capital to exploit the new technologies. In any case, the new technologies seem to have increased the incomes of larger farmers faster than farm incomes as a whole. In addition, the new technologies have had a regional bias in some countries, most dramatically perhaps in India and Pakistan, which has added political strains of a different kind (*8*). Thus, the technological revolution in agriculture has created a need for a system of taxing agriculture to tap the additional incomes which are exacerbating already serious problems of unequal income distribution.

An additional problem in income distribution is the rise of modern sector wages ahead of labor scarcity. The rationale of squeezing agriculture to raise

[23] See *38*. Note too, however, that the growing capital needs of agriculture come from increased higher-productivity investment opportunities, thus raising the opportunity cost of wasting resources in lower-productivity protected sectors.

rates of saving and employment growth is lost when the resources are absorbed by rising urban wage rates. While the higher wage rates improve the income position of employed modern sector workers relative to large rural landlords and managerial classes in the cities, they do so at the expense of parts of the agricultural sector that cannot boast such large incomes as the groups to which they are transferring income; and, whether from the effects of reduced levels of saving and investment or from effects of capital-labor substitution resulting from higher wage rates, the employment opportunities in the modern sector at higher wages than available in traditional agriculture are diminished from what they might have been. In addition, since higher costs would limit competitiveness with some imports and in export markets, there is a reduction in demand for output which will also reduce employment opportunities. Incomes policy for the modern sector is therefore relevant to methods and levels of taxation of agriculture.

Product price distortions in agriculture and manufacturing involve questions both of income distribution and of employment growth. The overvaluation of currencies, bolstered by protective systems that leave prices of capital goods artificially low, in conjunction with interest rates facing the modern sector in both agriculture and manufacturing that substantially understate the opportunity cost of capital, present a set of conditions prevalent in a large number of countries. It should not be surprising, then, to find such countries experiencing problems of unemployment and unequal income distribution. This is particularly so in light of the experience of Japan and Taiwan, and more recently Korea, where, while government policies encouraging industry and agriculture as well could hardly be called neutral, the peculiar problems of recurring balance-of-payments problems, unemployment, discrimination against exports, and lack of local capital goods do not seem to be present in such abundance as in other countries which have pursued the somewhat stylized set of policies outlined above.

The policies that have sharply biased the prices of capital and of capital goods downward, thus lowering the user cost of capital relative to labor have had three kinds of effects. First, and most obvious, there is an incentive for capital-labor substitution, especially where the urban wage rate has moved well above the traditional sector wage, but also in agriculture, where the wage rate may not be much above the opportunity cost of labor but the price of capital is heavily subsidized (see 7; *19*). This effect reduces the amount of employment for any given industry structure and for any given technology. Second, the distorted prices of labor and capital lead to a choice of industry structure inconsistent with the resource endowment of the country, further reducing employment below what it could be with the available capital, and, in addition, putting pressure on the balance of payments from the inappropriate choice of techniques (and, where agriculture supplies most exports, placing an additional burden on agriculture as a whole). Third, the failure to price imported capital goods at their opportunity costs will discriminate against the production of capital goods domestically, which may have two effects: since capital goods industries are relatively labor intensive (in hand-skilled labor generally) a set of industries is further discriminated against that would have provided more employment opportunities (and more real output) per unit of capital than other industries; and since the locally made capital goods would be more likely to reflect local factor availabilities (and maintenance

tolerances), the discrimination against local production of capital goods will result in a capital stock embodying higher capital-labor ratios than would be the case with a larger proportion of locally produced capital goods in the total.

A particularly vivid example of the above effects is explored carefully and empirically in the excellent study by H. Kaneda and F. C. Child of the industries supplying capital goods to agriculture in the Pakistan Punjab (*19*). Kaneda and Child are able to include an additional, and in my view very important, aspect of the problem, since their study covered some firms that were relatively privileged in their access to capital and foreign exchange as well as a preponderance of firms that operate without such access (and, indeed, for the most part without knowledge of the authorities that they exist). Their findings suggest that (a) the privileged access (at low prices) to capital and to imported capital goods and materials has the effect of increasing the use of these items within the same industry (relative to firms that do not have access at subsidized prices); (b) local firms produce capital equipment more consistent with local resource availabilities (including maintenance) than is imported capital equipment; (c) access to capital and to capital goods at low prices (from foreign credits provided by aid agencies in this case) has induced larger farmers to adopt capital-using and labor-displacing methods, while the capital goods produced by the local concerns tended to be labor-complementing (used to break labor bottlenecks at harvest time); and (d) the allocation system for imports at the official exchange rate (which greatly undervalued foreign exchange) had substantial adverse effects on the small and unprivileged firms, who were unable to get raw materials even at premium prices.[24]

One final aspect of the income distribution and employment question relates to the distribution of land and the incentives to use land in production. Land, more than most physical assets, is both a store of value and a speculative holding. Thus, part of the reason for holding land (apart from prestige and tradition) is unrelated to the return from current productive uses of land. It may be quite rational in the process of selecting and managing a portfolio of physical and financial assets not to maximize the current return to land. This would be more true the lower the marginal utility of current income to the owner, which one would expect to be the case with the larger than the smaller landowners. How could the tax system be used to discourage this and encourage more intensive use of land?

A number of studies in different countries have indicated that larger farms are generally used less intensively than are smaller farms (in terms of both output per acre and labor input per acre), even where farm is defined in terms of management units rather than ownership units (*2*). Where differences in output per acre are small, there may still be differences in labor input per acre, reflecting capital-labor substitution in larger management units. Land taxes have substantial income effects which tend to increase the application of other inputs so as to increase current output (as well as current marketings). The evidence suggests that this may have been an important factor in obtaining the substantial contribution of agriculture to development in Japan.[25] The lack of a land tax, then, or a land

[24] This last point is also emphasized in *31*.

[25] On the general point see, inter alia, Lewis (*24*). On the relation to Japan, Johnston is the standard source (*17*). For a recent review, see Uma Lele (*23*).

tax with very low rates relative to current productive capacity of the land will tend to induce less intensive use of land for current production at all levels of land holdings, but presumably it will make the greatest difference with the larger landholders.

There is a further problem which may contribute to the lack of intensive use of land especially by larger land holders in some countries. It is quite common for capital gains to be treated with preferential rates (relative to ordinary income) or to go untaxed completely. One can expect reasonably good returns after taxes from holding land even in an economy that is not undergoing rapid price level inflation. If there are costs to getting current income from the land (management time that could better be spent on other parts of the asset portfolio, bother with tenants if that is the principal other option, or just a feeling that one does not want to get tenants used to living on one's land for social and political reasons), it may be quite rational to leave land uncultivated, the more so the lower the eventual tax on capital gains.

In such circumstances, the tax system can be used to increase employment opportunities for smaller tenants and landless laborers and can simultaneously be made more progressive. The more progressive the tax on capital gains and the greater the progressivity of the land tax (by size of total holdings, presumably), the more costly it would become to rely on appreciation for income in the future and the more costly it would be to hold land with low current levels of production and income; and the greater the pressure would be on individual landowners, especially larger ones, either to farm more intensively themselves, or to let more land to tenants, or to sell off those parts of their land that, under the revised rules of the tax game, were no longer rational parts of their portfolio of assets.

IV. ELEMENTS OF A BETTER SYSTEM OF TAXING AGRICULTURE

In speaking of a "better" system, one must have in mind some set of criteria by which to judge methods (and levels) of income transfers from agriculture. This section first discusses the means of getting a gross transfer from agriculture to government and to nonagriculture, and then deals briefly with the subsidy and expenditure side of the government budget. In the discussion, "better" refers to the above critique of past policies in many countries, both their adverse effects on long-run sustainable growth (in agriculture and in the whole economy) and their adverse effects on the size distribution of income and on employment.

Improved Means of Achieving a Gross Transfer

Exchange-rate policy is intimately related to questions of fiscal policy, income distribution, and intersectoral transfers. A crucial element in designing a better system of taxing agriculture is the movement toward an exchange rate that more nearly approximates the real cost of foreign exchange to the economy, which in most LDCs will involve raising the price of foreign exchange.[26] Such a move has a number of implications. Where exports are predominantly agricultural, it will

[26] See *29* and *30*. Note also that the protection system that defends the overvaluation must correspondingly be changed.

reduce the implicit tax on agriculture from currency overvaluation. It will also improve the efficiency of resource allocation in agriculture where export crops must compete with import-substituting crops selling currently at a higher implicit exchange rate. In addition, in countries which have made a practice of selling foodgrains at prices above world levels, increased production from the Green Revolution has made the problem of maintaining these prices more difficult. If exports were possible at prices reflecting the opportunity cost of foreign exchange to the economy, there would be a floor to domestic prices which would have an economic meaning, and which would be self-financing in a way in which government guaranteed prices often are not. So, moving toward a less overvalued currency is also desirable in terms of easing transitional problems of rapid productivity increases in parts of agriculture. The move to more realistic exchange rates should often be accompanied by use of selective export taxes so that producers and exporters face world marginal revenue rather than world price.[27]

Closely related is a second element in a better system: the reduction of the overall level of protection afforded to the nonagricultural sectors and a reduction in the spread of effective rates of protection in those sectors. The high level of protection has enabled countries to maintain exchange rates that understate the opportunity cost of foreign exchange to the economy; and a movement toward a more realistic exchange rate would necessitate a change in the levels of protection.[28] The high and differentiated levels of protection afforded nonagriculture in many countries has required a heavy burden of subsidy from agriculture. More important, the subsidy often has been used *not* to increase the rate of capital formation but to subsidize the inefficient use of resources by the nonagricultural sectors. The nominal increase in the prices agriculture pays for nonagricultural tradables (when compared with the prices received for agricultural tradables) measures the gross income transfer from agriculture. What happens to the gross transfer depends on (a) the extent to which the government takes a share in the form of indirect taxes on output, (b) the extent to which the net nominal protection (after adjusting for domestic indirect taxes) is cascaded into higher levels of effective protection by differential tariffs on inputs and on output, and (c) how the producer "uses" the effective level of protection or subsidy on value added (as between earning maximum profits or relaxing productive efficiency, thereby using larger amounts of labor and capital in earning only "satisfactory" profits).[29]

Government tax and exchange rate policies can have a major effect on the uses of any given level of gross transfer. In particular, a differentiated tariff structure, with lower rates of tariff on intermediate and capital goods than on finished products produced in the country, will increase the share of subsidy to value added for any given amount of nominal protection. Thus, an aim of a "better system" should not only be one of reducing the nominal protection to the non-

[27] That these should be used selectively and *only* to correct for differences between price and marginal revenue should be stressed in light of the number of countries that have overused export taxes in the past 15 to 20 years.

[28] A large devaluation with a failure to change tariff levels would lead to an increase in foreign exchange reserves, which may be suitable luxury consumption for neomercantilist nations of the developed world, but is a waste of resources for the LDCs.

[29] This assertion of the results assumes that the country does not produce much of the intermediate and capital goods that are discriminated against by the tariff system so that the higher costs of protection are paid by the agricultural sector, rather than by some substantial portion of manufacturing.

agricultural sectors but also be one of reducing the differentiation of the tariff structure, to make sure that less of agriculture's gross transfer subsidizes inefficiency of resource use in other sectors.

The third element of an improved system would be increased use of indirect taxes on the domestic production of manufactured goods. This is closely related to the reduction of net protection, since domestic indirect taxes (such as a sales tax regardless of origin) can be used to raise the price to the purchaser without providing protection to domestic producers. This type of policy has three separate objectives. First, it can be used as an across-the-board tax to capture part of the income transfer for the government. Second, it can be differentiated by categories of goods consumed by different income levels, without simultaneously increasing the incentive to produce luxuries domestically. Third, the purchase or sales tax might be raised to reasonably high levels on machinery and equipment used in both the agricultural and nonagricultural sectors for "pure" labor displacement. This latter would be difficult to define, in many cases, but the effort to do so would seem well worthwhile in view of the capital-labor substitution which, buttressed by tied-aid arrangements of well-meaning bilateral and multilateral foreign aid agencies, appears to be taking place in a number of countries (*3*; *7*; *19*).

The fourth part of an improved system is an old favorite: a tax on the value of land. The virtues of the land tax are well known (see *24*; *15*). With increased concern about questions of income distribution and employment, the land tax takes on some added significance. A tax on the value of agricultural land would raise the cost of not using land most productively relative to labor and capital, and would encourage more intensive land use. This would especially affect larger landowners who may be underutilizing land and who would have added reason (with an effective land tax) either to cultivate more intensively themselves or to increase the tenant population on their lands.[80]

There are considerable problems in introducing progressivity into systems of land taxation, as is well known. However, some form of land tax progressivity would be most desirable from the point of view of its employment effects, its complementarity to land reform policy and its effects on equity. Recent papers on Pakistan and Colombia, as well as numerous earlier studies, point to the desirability of increasing the rate of tax as size of holdings increases, but there are always problems in combining a tax on land with a tax on persons. Some variant on the type of "agricultural income tax" which is used in parts of the South Asian subcontinent may be appropriate (*29*). This tax is in effect a progressive surtax on land tax paid. The rate of "agricultural income tax" (which is of course misnamed) rises as the total amount of land tax paid by any single reporting unit increased. To ensure effective enforcement, it would be necessary to combine a progressive land tax surcharge system with that of the income tax, thus making some crosschecks available with another system of collection and helping to ensure that ownership was translated into taxable spending or income units.

[80] See R. A. Berry for a good recent discussion with reference to Colombia (*2*). The recent International Labor Office / United Nations Development Program (ILO/UNDP) Employment Mission to Kenya discussed these issues of the inverse relation between labor inputs (and overall production per acre) and farm size, and recommended the introduction of a progressive land tax as a part of the solution to the employment and income distribution problems faced by Kenya (*15*).

Despite a fairly widespread agreement on the desirable features of some kind of tax on agricultural land related not to actual but to potential value of output there has certainly been no comparable widespread move to introduce or to improve land tax systems. The fundamental problems are political, though there are also some major administrative problems in countries that do not have established land records and surveys. However, the administrative problems are worth trying to overcome if one thinks of a reasonable time horizon for tax reforms and for establishment of an enduring system of taxation. With the alarming increase of population pressure on land, the virtues of a land tax, especially one in which progressivity can be included, are worth the initial administrative outlays.

The fifth element in an improved system is a reasonably progressive income tax that includes incomes from agriculture in taxable income.[31] In thinking about planning over one or two decades, an objective to move an increasing segment of the population into a tax system which is reasonably flexible and progressive should get some priority in fiscal reform. Such a tax system cannot reach down terribly far in the income levels of most developing countries because of the administrative costs relative to the tax collections, but it would be a way of ensuring that governments will share in productivity increases of larger farmers at least. In addition, the overall tax system is significantly improved if a basic and established income tax is in operation. The tie-in with the land tax has been discussed; there would be connections with capital gains taxation as well.

Introduction or improvement of capital gains taxation is a sixth aspect of improving the mechanisms for taxing agriculture. The absence of a capital gains tax makes less-productive uses of agricultural land more attractive for those whose demand for current income is not high. The use of both land taxation and capital gains taxation would be complementary to other efforts to promote more intensive use of land; and the use of a higher price of foreign exchange and of excise or purchase taxes on machinery and equipment that may be labor displacing would tend to make the increased intensity of cultivation of land result in more application of labor to the land as well.

Questions of Expenditure Policy

In addition to the above suggestions for revising taxes and related policies, there are some changes which may be warranted on the expenditure side of government policy as well.

First, questions have been raised increasingly in recent years about the desirability of subsidies to agricultural inputs and to agricultural credit. While one can hardly get into the debate properly in a short space, the use of below-market interest rates (especially when borrowers are the more wealthy farmers), the sale of irrigation water at below its opportunity cost (as occurs in India and Pakistan), and similar use of subsidized prices that must be accompanied by non-price rationing systems clearly present situations in which government revenues can be increased by higher charges and which will simultaneously improve resource allocation by penalizing low-productivity uses of scarce resources. The use of sub-

[31] One of the difficulties with direct taxation of agriculture in India and Pakistan is that agricultural incomes are not taxable under federal law; taxation of agriculture is a provincial subject. For a suggested way around this problem, see *29*.

sidized prices to encourage adoption of yield-increasing innovations by farmers falls a bit outside the scope of this paper. However, to the extent that use of subsidies and taxes will induce farmers to undertake socially productive innovations that they might otherwise have avoided, resources must be available to the government sector to finance such policies. Thus part of the gross transfer from agriculture may come back through use of subsidies; and to the extent that government resource constraints would limit the productive use of subsidies, the failure to extract a gross transfer from agriculture would limit agricultural growth.

Second, an expanding agricultural sector will need a variety of government services and capital projects that will require government expenditures if agricultural growth is not to be inhibited. The mix of capital projects, government research efforts, extension services, and the like will vary from country to country and over time. However, the lack of government finance to provide such services will lower the rate of agricultural growth, and the taxation of the agricultural sector may provide the public resources to accelerate agricultural growth.[32]

A third opportunity for expenditures may appear in countries undergoing rapid productivity growth in foodgrain production. As a part of the transition from food imports to self-sufficiency (or even to exports), there may be a need to adjust domestic prices of foodgrains to world prices at a realistic price of foreign exchange. The possibility of abrupt declines in foodgrain prices has induced some countries to opt for price support systems which at best are a temporary drain on public resources, and at worst involve serious financing problems, adverse effects on the balance of payments, and inefficient resource allocation. In the face of sharp increases in domestic production caused by productivity gains from new varieties or new technologies in agriculture, governments have an opportunity to undertake needed labor-intensive public works investments and finance them from domestic borrowing without additional tax revenue. The increased demand for foodgrains from the labor employed on the projects will provide some support for foodgrain prices, and instead of government expenditure on increasing inventories of foodgrains (with no employment created) there is an increase in the productive capital stock and in employment of labor as well (*8*; *28*). The parallel with similar uses of P.L. 480 imports of foodgrains comes to mind: some countries anticipated P.L. 480 imports and used them to offset the wage costs of public works projects, while in other countries heavily subsidized distribution took place essentially as famine relief with little resulting capital formation. It would be a pity if countries now facing an expansion of resources at very low opportunity cost were unable or unwilling to take advantage of this means of increasing both the capital stock and employment.

Private Resource Transfers

The transfer of resources from agriculture to the nonagricultural sectors on private account has been neglected, as have questions of the resources and incentives for private saving and investment in agriculture. In part this is due to my own ignorance in this area, but in part it is based on the observation that in the

[32] It is again worth stating that a presumption of a gross flow of resources out of agriculture during development does not rule out the possibility of a net inflow on government account, or that the net outflow on government account need be large.

Indian and Pakistan Punjab, when investments in agriculture were profitable (even under an adverse set of terms of trade for agriculture) the agricultural sector found the resources to undertake investments (see, e.g., *40*). Thus, I think the emphasis should be on public sector resource transfers and a reasonable set of price incentives; and that the private capital needs of agriculture are likely to be a less critical bottleneck, especially if the government is providing research outputs of new and profitable crop varieties and technologies.

Restructuring of relative prices, particularly of capital goods and agricultural implements, may also have some implications for the transfer of resources from agriculture on private capital account. The study of the Pakistan Punjab by Kaneda and Child points out the importance of family finance in the development of small-scale, agriculturally-based industry (*19*).

J. Macrae's study of the development of the Indian Punjab (*37*) emphasizes that industrialization there was closely related to agriculture and that it was located in smaller towns, as was the case with much of the industry in the Pakistan Punjab. If government policies discriminate less against local production of equipment for agriculture, there may be a flow of private agricultural capital to profitable investment in the nonagricultural sectors closer to home, where rates of return are higher and perceived risks are lower than would be the case with the institutional types of investment in nonagricultural sectors normally open to farmers. Results in both India and Pakistan suggest that the semirural type of nonagricultural growth is fairly labor-intensive as well.

Finally, there are noncapital transfers between sectors, particularly remittances from the nonagricultural sector back to the farm. These transfers are important for the welfare implications of policies aimed at transferring income out of agriculture, particularly where such policies permit or encourage an increase in urban wages. While transfers from urban workers back to rural areas will not mitigate the effects of high wages on capital-labor substitution, they will help ensure that the agricultural sector shares in the increase in urban wage rates, which mitigates the adverse effects on the size distribution of income of increasing wages in the high-wage sector. Thus, in evaluating the net effects of policies for transferring income through the price system, or the "invisible transfer" that T. H. Lee discusses, it is necessary to take account of these transfers as well. That they can be important is indicated by a recent study in Kenya suggesting that about 20 percent of the wage bill earned by Africans in Nairobi was remitted to rural areas (*16*).

V. CONCLUDING OBSERVATIONS

In the past few years considerable attention has been given to the adverse effects on output and employment growth in nonagricultural sectors from the distorted set of prices they faced—distorted, that is, from international trade opportunity costs. A considerable literature has also developed emphasizing that both farmers and industrialists react to price signals rather rapidly, so that the prices facing the private sector must be carefully considered as a part of government development policy. As a result of the difficulties encountered by some countries using seriously price-distorting policies, a number of countries have removed some of these distortions, particularly adjusting the price of foreign

exchange to reduce the bias in favor of import substitution and against exports.

Perhaps it is now time to warn that distortions of the prices of major agricultural commodities away from international trade opportunity costs may be even more dangerous in its short-run balance-of-payments implications than distortions within the manufacturing sector, due largely to the relative importance of agriculture in production of tradables. The danger is particularly serious in countries undergoing rapid productivity change in agriculture, the more so the farther are existing exchange rates from reflecting the value of foreign exchange to the economy; the total size of subsidies needed to keep agricultural prices above world prices at the official exchange rate, and the implications of this for government finance are substantial. Finally, inappropriate choices of factor combinations also present more serious problems for employment growth when the largest employment sector is making inappropriate choices, rather than the small, modern, manufacturing sector.

For all these reasons, the dangers of major price distortions within the agricultural sector may be more serious than similar distortions in the nonagricultural sector.[33] The only counteracting factor is that agricultural land and much of the reproducible capital stock in agriculture (except that in tree crops) are less product-specific than the capital stock in manufacturing, so that changes in composition of agricultural output could be made relatively fast as price distortions are corrected.

There continues to be substantial scope in a great many countries for government intervention through the tax system both to increase tax revenue and to improve the allocation of resources by correcting the prices that face the private sector. Some of these changes in tax rates would strike directly at prices paid by some or all farmers for goods they buy. Others would reduce the rates of protection being received by the nonagricultural sectors, which would tend to lighten the burden being borne by agriculture in subsidizing those sectors. Rapid productivity increases in agriculture in some countries will make it much more feasible for agriculture to contribute a rising amount of resource transfer to the government and to the nonagricultural sectors. But a movement away from some of the policies of price distortion among internationally tradable goods is necessary if the gross transfers from agriculture are to be effective in raising growth rates of output and employment in nonagriculture and in sustaining agricultural growth itself.

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