

David, Cristina C.

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Philippine Institute for Development Studies

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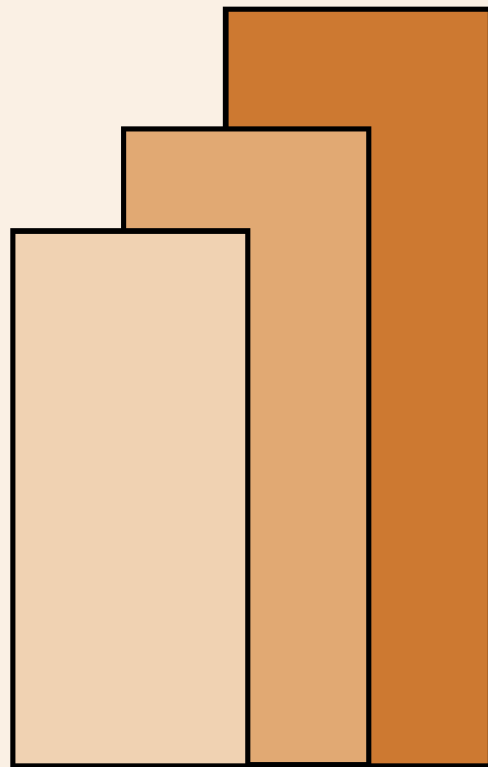
Cristina C. David

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For comments, suggestions or further inquiries please contact:

The Research Information Staff, Philippine Institute for Development Studies
3rd Floor, NEDA sa Makati Building, 106 Amorsolo Street, Legaspi Village, Makati City, Philippines
Tel Nos: 8924059 and 8935705; Fax No: 8939589; E-mail: publications@pidsnet.pids.gov.ph
Or visit our website at <http://www.pids.gov.ph>

**Constraints to Food Security:
The Philippine Case***

*Cristina C. David***

Two years into the Asian financial crisis, fears that economic recession in the region will be prolonged have abated. A recent OECD report now projects a higher growth of the global economy in 1999 than was previously predicted, the US economy continues to surge, the threat of the Asian crisis spilling into Latin America did not materialize, South Korea's and other Asian countries' economic growth recovered earlier than expected, and Japan has embarked on an ambitious fiscal stimulus package as reforms in the financial sector are being adopted.

The first quarter 1999 economic indicators for the Philippines also point to a recovery. Better than average weather conditions usually expected after a severe drought caused by El Niño has led to the strong performance of the agriculture sector. This was especially the case for rice, corn, and other annual crops which benefited from the unusually rainy dry season which raised both yields and cropping intensities. Remittances from abroad accelerated which may indicate greater confidence in the economy. The declining trend of gross value added in manufacturing has slowed to -1% compared to the previous quarter's -3.5%. Imports particularly of raw materials and capital equipment rose suggesting that producers are gearing up for domestic economic activities as the exchange rate stabilized at levels below ₱40 to \$1. Inflation rates remained manageable and interest rates have declined.

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** Research Fellow, Philippine Institute for Development Studies. The author is grateful for the excellent research assistance of Brenda B. Solis.

The 1998 economic recession in the Philippines which reduced gross domestic product (GDP) by -0.5% (GNP increased by 0.13%) was not as severe as those experienced in South Korea (-5.5%), Malaysia (-6%), Thailand (-8%), Indonesia (-13.7%), Hongkong (-5%) [ADB 1998 Annual Report, 1999]. The country actually suffered deeper economic recessions in 1984 (-7.4%), 1985 (-7.2%), and 1991 (-0.6%) due to unsustainable imbalances in macroeconomic fundamentals and to the political turmoil leading to the downfall of the Marcos regime in the early 1980's.

As in the other East Asian economies, structural weaknesses in the financial sector, including inadequate policies in handling large surges of mainly short-term capital flows, as well as subsequent "contagion" effects in the region have been important factors contributing to the recent Philippine economic recession [Intal and Medalla 1998; Lamberte and Yap 1999]. Were it not for the severe drought due to the El Niño, gross domestic product could have managed to grow, albeit at a much lower pace than in 1997. Gross value added in agriculture declined by 6.5% in 1998, the sharpest fall in the economic performance of the sector on record. Crop production as a whole dropped, especially those of the four leading crops -- rice (-24%), corn (-12%), coconut (-13%), and sugar (-14%).

Over the past two decades, Philippine economic growth has been erratic and lower than most developing countries in Asia. Indeed, a slowdown of the manufacturing sector was already evident in early 1997 before the Asian financial crisis actually began [Lamberte et al. 1999]. The agricultural sector which continues to account for more than 20% of gross domestic product and over 40% of employment has not performed very well since the 1980's (Table 1). The slower growth of Philippine agriculture compared to other Asian countries suggests that the country has been losing its competitive advantage in the sector. Indeed, the ratio of agricultural imports to

agricultural exports have increased from 30% to 160% by 1996, i.e., the sector has shifted from being a net earner to a net importer of foreign exchange (Table 2). And the measures of revealed comparative advantage in agriculture as a whole and for all major agricultural exports have declined sharply (Table 3).

In the late 1980's, serious attempts were made to reform the policy and institutional distortions introduced during the two decades of the Marcos regime. Export taxes; the copra export ban; government monopoly control over international trade in coconut oil, corn, soybeans, soybean meal, and marketing of sugar were removed; and import controls on fertilizers were lifted. All the agriculture-related agencies placed under the Office of the President, such as the National Food Authority (NFA), the National Sugar Trading Authority (NASUTRA) now the Sugar Regulatory Office (SRA), and the Philippine Coconut Authority (PCA) which were responsible for the most destructive policy distortions were transferred to the Department of Agriculture to facilitate the necessary streamlining of the agricultural bureaucracy. To ensure a more equitable distribution of benefits from agriculture and natural resource development, the Comprehensive Agrarian Reform Program (CARP) was launched encompassing both private and designated public lands. To address the serious threat posed by forest and watershed denudation and dwindling fishery resources on the sustainability of agriculture and ecosystems in general, the government raised forest charges, limited logging, and embarked on an aggressive expenditure program for rehabilitation and improved management of forest and fishery resources.

Unfortunately, institutional reforms to raise efficiency of the agricultural bureaucracy proved difficult to fully implement, unintended negative effects resulted in some reform measures and new policy initiatives, and price distortions were exacerbated by efforts to circumvent the spirit of agricultural trade policy reforms under the GATT-UR Agreement. The recommendations

of the Congressional Commission on Agricultural Modernization were recently adopted through the passage of the Agricultural and Fisheries Modernization Act (AFMA or RA 8435) that spells out the necessary policy and institutional reforms and public expenditure program to achieve food security. And at the beginning of the Estrada administration in 1998, the attainment of food security was declared as the central program of the new government.

Food security is often confused with rice and corn self-sufficiency, forgetting that the goal of food security is for the benefit of all Filipinos, particularly the poor. Also, the production of rice and corn is not the only, and often not even the dominant source of current and potential income of farm households who grow these crops. It should also be emphasized that food security as a goal is meaningful only at the household level. This goal aims to ensure that for all households, particularly the rural and urban poor households, food is available at prices that they can afford.

Rapid, sustainable, and equitable agricultural growth is a necessary condition for the attainment of food security because a large proportion of the poor are based in the rural sector. Increasing agricultural price protection will not lead to overall food security. High food prices hurt the food security of the large majority of the poor, including fisherfolks, non-rice and corn farmers, landless rural households and urban households who are net buyers of food and for whom cost of food constitute a high proportion of their total expenditures. And distorted price incentives lead to lower agricultural income for the sector and for the economy as a whole. Instead, appropriate policies with respect to trade and exchange rate, financial markets, intellectual property, biosafety, food safety, and so forth; cost-effective public expenditure programs in research and extension, irrigation, market infrastructure, regulatory instruments, etc., and efficient institutional frameworks for property rights, government bureaucracy, etc. are

required to address market failures pervasive in the agricultural sector. These arise from instability of domestic and world markets, public good nature and strong economies of scale of certain inputs and technologies and their generation, imperfect information, and externalities in agricultural production and consumption.

A year after the start of the Estrada administration, no coherent agenda for action and reforms to address the accumulation of policy and institutional failures have been articulated. Public expenditure for agriculture is supposed to increase, but this will largely go to waste without reforms in trade and financial market policies, improvements in the quality of government programs, reallocation of expenditures across programs, major changes in the budgetary and program planning process, rationalization and streamlining of the bureaucracy, and so forth.

With few exceptions, there is little evidence that agricultural policies and institutions are moving in the right direction. To the contrary, a number of major policy actions are definitely in the wrong direction, such as the transfer from the Department of Agriculture to the Office of the President of the NFA and NAFC. Attempts to do these also for other agencies and programs such as the NABCOR, SRA, Competitive Enhancement Fund, etc. will only further centralize the distribution of corrupting rents and dispensation of political favors, perpetuate ineffective government programs, and prevent the necessary rationalization and streamlining of the agricultural bureaucracy. Plans for the government to invest or provide loan or price guarantees in agricultural joint ventures or build-operate-transfer projects in what are properly private enterprise operations, such as agricultural production or processing, are very disturbing.

It is, therefore, imperative that the constraints to attaining food security be properly analyzed. The following sections of this paper will examine how trade and price policies, public

expenditure programs, and structure of property rights have hindered the achievement of a sustainable agricultural development and thus, food security for all households.

Distortions in Economic Incentives

Distortions in the relative prices of agricultural outputs and inputs arising from trade and exchange rate policies cause inefficiencies in resource allocation within the agricultural sector, between agriculture and non-agricultural sectors, and between tradeable and non-tradeable goods.

Past studies have already amply demonstrated that up to the early 1980s, price intervention policies both economy-wide and commodity-specific have created an incentive structure that is significantly biased against agriculture (David 1983; Bautista 1987; Intal and Power 1991). Moreover, that bias has been primarily through the overvaluation of the peso due to the industrial protection system and other economy-wide policies to defend an unsustainable deficit in the balance of payments.

Economy-wide Policies

Since the early 1980's, the government has adopted various structural adjustment and stabilization measures to correct fundamental distortions in the economic incentives and imbalances in the external and public sector accounts, including trade policy reforms to remove quantitative trade restrictions and reduce the level and dispersion of tariffs, liberalization of the foreign exchange market, and others. As a result, the overvaluation of the exchange rate, which was in the order of 20 to 30% from 1960 up to the mid-1980s, dropped down to 20% by 1992 (Table 4). This rate of peso overvaluation remains sizeable, imposing a substantial penalty against agricultural profitability particularly on exportable agricultural commodities.

Furthermore, the real effective exchange rates appreciated sharply (30%) between 1991 and 1996, which tended to lower relative prices of tradable agricultural products (Fig. 1). This

unfavorable trend has been caused by several factors. First, trade liberalization which should reduce distortions in the exchange rate was not accompanied by appropriate nominal exchange rate adjustments and other macroeconomic policies (Medalla et al. 1995). Second, short-term foreign capital inflows attracted by high interest rates due to the tight monetary regime accommodated an increase in the current account deficit, causing the real exchange rate to appreciate (de Dios and Associates 1993; Lamberte 1995). And finally, domestic inflation rates were higher than those of trading partners, particularly in 1995 when sharp increases in food prices led to double-digit inflation.

With the substantial devaluation of the peso in late 1997 and the success in controlling inflation, the real exchange rate began to increase. By early 1998, the real exchange rate have risen by more than 40%, benefitting the tradeable goods sector, including the exportable and potentially also the import competing agricultural commodities as their competitive advantage increases. Relative prices of these commodities are expected to rise, as their market demand simultaneously expand.

Commodity-Specific Policies

A wide variety of policy instruments directly affect agricultural output and input prices. Although import tariffs are generally levied on all agricultural products and inputs, their protective effect is limited as tariff protection is essentially redundant on exportable and non-tradable commodities. Up until 1995, non-tariff barriers -- quantitative trade restrictions, import prohibitions, price controls, and government monopoly control in international trade -- have been the dominant commodity-specific policy interventions in agricultural output markets. Tariffs are more commonly applied on inputs and agricultural products which are not locally produced in any significant quantity. Except in the aftermath of the devaluation in 1970 and the sharp increases

in world commodity prices in the mid-1970s, there have been few attempts to intervene in the production and trade of exportable agricultural products.

Trends in the nominal protection rates (NPRs) of major agricultural commodities do indicate that exportable commodities received no price protection (Table 5). The changing rates of nominal protection over time reflect to some extent government's attempts to stabilize domestic prices. The low and negative NPRs for exportable commodities ranging from -4% to -28% during the 1970s were in response to the devaluation and the subsequent boom in world prices. But the continued low or negative rates of protection in the early 1980s, despite the sharp drop in world prices since the late 1970s indicated the practical difficulties of protecting producers of exportable commodities from low world prices and abandoning policies that had outlived their original purpose as vested interests are created.

It is clear, however, that since the early 1980s there has been an upward trend in the nominal protection rates, particularly among the major import competing agricultural commodities. Sugar has been historically the most highly protected, initially because of the country's access to the US premium market. By the late 1980s, domestic prices of sugar have been about equal and often higher than export prices to the US, and about double the CIF world prices. Corn also has had one of the highest nominal protection rates together with sugar and chicken. NPR for rice has also risen; it reached about 65% in 1995 and 1996, reflecting a drastic reversal of rice price policy from the historically pro-urban to pro-farm bias.

The 1997 devaluation may be expected to reverse the rising trend of the NPRs as the government may try to protect domestic consumers from sharp increases in food prices. The nominal protection rates for rice and corn (and most likely also pork and chicken) did decline in 1998. The government simply authorized more imports to prevent domestic prices from rising,

a very important consideration in an election year. Figures 2 and 3 do show the real prices of rice and corn to have remained stable, and even declined. Interestingly, NPR for sugar increased significantly in 1998 to an average of about 100%, and even much higher (more than 200%) in some months. Not surprisingly, real price of sugar, an import competing commodity rose along with the exportable products such as coconut oil and copra as well as beef where import restrictions are relatively lax.

Trends in Terms of Trade

Increases in the nominal protection rates have been, in fact, sufficiently high to counter the declining trend in the relative price of agriculture to non-agriculture in the world market and the appreciations in the real effective exchange rates in the 1990s as evidenced by the more gradual decline in the domestic terms of trade of agriculture since the 1980's (Fig. 4). Indeed, many major import-competing agricultural products have been characterized by positive net nominal protection after considering the indirect disprotective effects of the overvaluation of the exchange rate. In the case of corn, sugar, and chicken, the net price protection still exceeded 50%, even higher than most manufacturing industries. Similarly, the rice sector has become highly protected by 1995. In fact, as will be shown in the following section, tariff rates on many major import competing agricultural commodities, altogether accounting for 50 to 60% of domestic agricultural production, increased significantly.

On the other hand, exportable agricultural commodities continue to be penalized by the overvaluation of the exchange rate that has worsened in the 1990's due to the steep appreciation of the real exchange rate in that period. Although the recent devaluation raised the real effective exchange rate, the domestic terms of trade in agriculture declined slightly in 1997 and 1998,

reflecting the government's decision to allow more imports among those effectively subject to quantitative trade restrictions.

Effective Protection Rates

Resource allocation is affected by the effective rates of protection which measure not only the policy effects on output prices, but also its effects on intermediate input prices. For agricultural crops, the proportion of the cost of intermediate inputs to the value of output is still relatively low, and hence trends in the nominal and effective rates of protection may not differ significantly. Given the declining trend in nominal protection rates of inputs to agricultural crops reported in Table 6, however, effective rates of protection would have risen even faster than nominal protection rates. The favorable impact of trade liberalization in agricultural inputs can be observed in the falling trends in the real prices of farm machineries, agricultural chemical, fertilizers which were in contrast to the rising real wages (Fig. 5). In the case of livestock and poultry, effective rates of protection may not have increased as much as NPRs, because the implicit tariff on corn, the most important ingredient in animal feeds, rose at a higher rate.

While the dispersion of protection rates within the agricultural sector has widened, the difference in the estimated average rates of effective rates of protection between agriculture and manufacturing has narrowed (Table 7). During the 1970s and 1980s, estimates of effective rates of protection of the manufacturing sector ranged from 44% to 79%, much higher than those for agriculture which ranged from 5% to 9% (Tan 1979; Medalla et al. 1995). By the mid-1990s, the average effective rates of protection between agriculture and manufacturing were about equal (Manasan 1996). This has been mainly because of declining protection rates of manufacturing including agricultural inputs, increasing rates of protection among the major import competing agricultural products, and decreasing share of exportable agricultural commodities. Projected

estimates of effective rates of protection, in fact, indicate that the agricultural sector would have higher rates of effective protection relative to manufacturing given the scheduled reductions in tariff rates up to the year 2000.

WTO Agreement

The country's membership in the World Trade Organization (WTO) could have set a decisive path towards an efficient price intervention framework for Philippine agriculture, as well as improve market access and world prices of the country's agricultural exports. Unfortunately, the specific agreement itself and the manner of implementation thus far, suggest that virtually none of these potential benefits will be forthcoming unless drastic redirection of government policies is achieved.

First of all, the rice sector, one of the most heavily regulated commodities, has been exempted from tariffication for the next 10 years, similar to the case of Japan and South Korea; this is because of rice, as a food staple, is a politically sensitive issue.

Second, while the quantitative trade restrictions were lifted on April 1996, these were replaced by applied tariffs that are equal to the high binding tariffs (EO 313), the maximum tariffs committed under the WTO. As Table 8 indicates, those binding tariffs of mostly 100% are typically higher than the nominal protection rates received under the regime of quantitative trade restrictions, and definitely higher than book tariff rates under the earlier EO 470 which programmed the unilateral tariff reductions of a wide range of agricultural and industrial goods. Moreover, tariffs on a number of imported agricultural products considered close substitutes for commodities where QRs are to be lifted (e.g., feed wheat and barley as substitutes for corn) were raised. Although the applied tariffs are scheduled to decrease over the next 10 years for these

commodities, they will be only about equal to or higher than tariffs rates in 1995 under EO 470 and definitely much higher than the 5% target average tariff at the end of that period (Table 9).

Third, the administration of the minimum access volume (MAV) provision of the Agreement has inevitably resulted in rent-seeking, inequities, high bureaucratic costs, and inefficiencies in allocating government revenues generated from importations. With the MAV provision, a tariff quota system has been established where a certain quantity of a number of agricultural commodities may be imported at a relatively low (in-quota) tariff rate, and others will have to pay the higher applied (out-quota) tariff rate. Because most of the MAV volumes are much lower than import demand at the in-quota tariff, large quota rents are created unless the rights to import the MAV volume are auctioned and granted on the basis of the highest bid. The few exceptions are the high MAVs for live animals, which the Department of Agriculture claims, are merely clerical errors and now are being negotiated for technical correction.

Overall, the Philippine agriculture's drift towards increasing protection has not been prevented under the current WTO agreement, because of the high binding tariffs and the exemption of rice, the single most important agricultural commodity, from coverage. In fact, the increases in the tariff protection of hogs, poultry, and meat products to compensate for the high nominal protection of corn have been facilitated. Of course, tariff ceilings, albeit high, will limit increases in price protection over the long-term.

The implementation guidelines of the MAV ensure that quantitative trade restrictions continue to be in effect despite tariffication. They extend the role of government parastatals, promote rent-seeking, fragment the budgetary process, and cause inefficiencies in public expenditure allocation. In any case, the GATT-URs failure to provide some control over

government parastatal involvement in agricultural trade, often as a monopolist, also allows WTO member countries to counter the spirit of the agricultural agreement on market access.

Recent analyses of the Agriculture Agreement now indicate that any expansion of market access in other countries and improvement in world prices will be very limited because of widespread dirty tariffication, concentration of tariff reductions on commodities where tariffs were already low, unusually high tariff equivalent due to low world prices in base year, exemption of rice from coverage in a few countries, and continued monopoly power of government parastatals (Hathaway and Ingco 1995; Winters 1995; Ingco and Ng 1998).

The current rules on reduction in aggregate measures of support and export subsidies will also have a limited impact on world prices for at least two reasons: rules apply to the aggregate and not to individual commodities allowing some major traded products to maintain high domestic support and export subsidies, and unilateral reductions adopted after the base year of 1986-88 already form the major part, if not all, of the obligations under the Agreement.

Public Expenditure Programs

Because of the unique features of agriculture and natural resources that cause market failures, public expenditures for providing public goods and addressing externalities in order to increase productivity, improve market efficiency, and protect the environment are required if the country's competitive advantage is to be enhanced. Public expenditures, however, have also been aimed at improving the unequal distribution of income, land ownership, and access to forest, fishery, and other natural resources. Oftentimes, public expenditures for price subsidies, concessional credit programs, and other types of subsidies are justified on the basis of mitigating the penalties imposed on agriculture by other economic policies, particularly price intervention policies. More recently, significant public resources have also been spent on the rehabilitation of

natural resources – forests, coral reefs, mangroves, etc. – to reverse the rapid deterioration of the ecosystem.

Trends Over Time

Public expenditures for agriculture and natural resources in real terms quickly recovered in the late 1980s, after bearing the brunt of contractionary policies in the early 1980s (Fig. 6). After reaching a peak around 1990, it began to decline and recovered again in 1995. As a proportion to GVA and total public expenditures net of debt service, public expenditures for the sector was already moderately high at 6% to 7% in 1987 and about 10%, in the late 1990s. However, Fig. 7 shows that recovery in public expenditures were initially allocated to the strengthening of natural resources and environmental management and rehabilitation of forest and fishery resources; they also went to rice price stabilization and redistributive purposes, namely the agrarian reform program and much less to productivity enhancing investments. Irrigation, the single largest item of public expenditures between 1947 and 1984 (close to half of agricultural public spending and 20% of total infrastructure budget), dropped sharply since about the mid-1980s, and continued to decline gradually into the 1990s. Public expenditure for agriculture increased sharply in 1996 and 1997 as the government developed “safety net” programs for the sector in the aftermath of the ratification of the GATT-UR Agriculture Agreement. Irrigation expenditure increase, but much greater allocation were made in the category others which consists of subsidies to postharvest facilities, farm machineries, seed, and other agricultural inputs.

Allocation By Purpose

A disaggregation of public expenditure for agricultural and natural resources between 1987 and 1994 is reported in Table 10. Close to one-fourth of public expenditure has been allocated for natural resource and environment, mostly for forest rehabilitation and protection.

Fisheries accounted for only about 15% of that allocation. Beyond that, public expenditures for agriculture (crops and livestock) have been mostly for redistributive purposes, with little regard for their productivity impact. The agrarian reform program accounted for about one-fourth of total expenditures. Although about half of that was spent on support services, most of the so-called support services are also redistributive in nature i.e., subsidies for credit programs and inputs, cooperative development, etc. The budgetary allocation for the National Food Authority (NFA) responsible for rice price stabilization constitutes nearly 10% and this can easily increase to 12% if the cost of market regulations in other agencies are included.

Only about 30% to 40% of public expenditures for the sector (representing about 3% of gross value added of crops and livestock) have been allocated for productivity-enhancing expenditures which the market will fail to provide. Agricultural research or technology generation, in particular, is severely underfunded with public expenditures representing only 0.4% of gross value added in contrast to an average of 1% among developing countries and 2-3% among developed countries (Table 11). In fact, only 5% of total public expenditures for agriculture have been allocated for agricultural research and 9% for extension. The opportunity cost of under-investing in public agricultural research and development in the sector is high as review of social rates of return estimates worldwide report this to be in the order of 40-60%. [Eveson 1996]. The problem, however, is not only with the low level of public expenditure, but equally important are the inefficiencies caused by the misallocation of research resources within the sector (e.g., across research program areas, and ecological regions) and weaknesses in the institutional framework of the research system including the organizational structure, lack of accountability, fragmentation of research, incentive problems, instability in leadership, and weak linkage between research and extension.

Allocation of research expenditures across commodities and regions have been highly incongruent to their relative economic importance in terms gross value added contribution to total agriculture of the commodity or region. Relatively greater research budgets are provided to minor commodities such as cotton, silk, or carabao, and too little on major ones such as corn, coconut, fisheries, and others (Table 12). Mindanao regions are relatively neglected in terms of research budgets of the DA and SCUs compared to regions in Luzon and to a lesser extent to those in the Visayas (Table 13). While congruency does not strictly coincide with optimal research resource allocation, the differences in research intensity ratios cannot be explained by possible differences in cost of research (probability of research success, etc.), private vs public sector roles, market potential, nor of equity considerations.

The allocation of budgetary resources by type of expenditures affects the productivity of research. As often complained about, too little. Resources are available to perform research activities and to properly maintain the physical facilities, after the salaries of personnel have been paid. Indeed, the average share of personnel services to direct budgetary outlays is close to 60% and as high as 70% to 80% in many cases. Consequently, either the research manpower is underutilized and/or the research agenda is driven by donor's priorities (David et al. 1998).

Public expenditures for agriculture continue to be disproportionately in favor of the rice sector (about half) which presently accounts for about 15% of gross value added of the sector. Aside from the budgetary allocation for irrigation and price stabilization, rice dominates expenditures for extension, land redistribution, credit programs, and subsidies for seeds, fertilizers, farm machineries, and post-harvest facilities. Yet, the transition problems encountered with the introduction of modern rice technology in the late 1960s and the implementation of land reform in rice in the mid-1970s that would have justified subsidies for credit and modern inputs are long

over. With respect to production credit for rice, traders, millers, and input dealers have successfully replaced land owners and rural banks as the major sources of credit.

Budgetary allocations for the exportable agricultural subsector have been quite meager in comparison with the 20% implicit tax indirectly imposed by the overvaluation of the exchange rate. An exception is the major effort to address the falling productivity of the coconut industry by financing fertilization and replanting through a foreign-funded program. Whereas the distribution of subsidized fertilizer was on schedule, however, very little progress has been made on the replanting program where public support is most needed. Because of uncertainties about land reform, land owners hesitate to make long-term investments; they prefer to convert land use to non-agricultural purposes thereby avoiding the land reform program.

There has also been very little effort, thus far, to address the problem of declining competitive advantage of major import-competing commodities, particularly corn and sugar through productivity-enhancing public expenditure programs. While irrigation investment may not be socially profitable for these commodities, technology generation in sugar and corn is clearly underfunded. As has been pointed out above, budgetary allocation for sugar research has been only about 0.5% of its contribution to gross value added, and for corn, it has been miniscule at less than 0.1%.

Institutional Issues

Cost-effectiveness of the public expenditure program has been constrained by institutional weaknesses including the (a) overlapping and fragmentation of responsibilities across agencies; (b) the emphasis on use of costly regulations and direct production of support services, rather than use of market-based policy instruments and indirect provision of support services; (c) government's performance of private sector's roles; (d) instability in leadership positions and

consequently, the chain of command and organizational structure; (e) problems in the design and implementation of the devolution process; and (f) inadequacies in the incentive structure and qualifications of staff.

Overlapping and fragmentation. The DENR and DA functions overlap in promoting sustainable development in upland areas. Upland areas with 18% slope or over are under DENR, but it does not have the comparative advantage to effectively provide the necessary support services in these areas which are now largely under cultivation and pasture grazing. On the other hand, the DA has historically focused on lowland agriculture, in part due to the geographical division of responsibilities. Although the DA and DENR have sometimes developed ad hoc cooperative arrangements to undertake upland development projects, funded mostly from foreign sources, these efforts have not been institutionalized.

DAR's involvement in the delivery of support services to agrarian reform beneficiaries overlap with DA's overall responsibility for agricultural development. About one-half of the agrarian reform budget between 1987 and 1994 were allocated for support services. While only a third of that has been directly administered by the DAR, the fragmentation of the budgeting process and the linkage of the support service allocation to land reform, rather than to technological and market opportunities reduce the cost-effectiveness of such expenditures. The allocation of DAR's support services would tend to be biased towards short-term support projects (e.g. credit subsidies in priority land reform areas) against institution building efforts, or projects that may have higher, long-term economic pay-off (such as agricultural research). Furthermore, the bureaucratic cost of allocating funds and implementing agricultural support services in a highly fragmented manner also increase.

The fragmentation of the agricultural research and extension system is one of the most important weaknesses of the sector's institutional structure. Whereas the DA assumes the overall responsibility for agricultural development and the DENR for the sustainable management of the natural resources and environment, the mandate, authority, and budget for technology generation and dissemination are spread over several agencies under the DOST, DA, DENR, SCUs and LGUs. Until the AFMA provisions are fully implemented, the mandate for technology generation in agriculture, fisheries, and natural resources officially belong to PCARRD and PCAMRD which are under the DOST. Yet, the Secretary of DOST does not have any direct responsibility over the productivity performance of the sector no comprehensive review process is conducted and PCARRD, PCAMRD, SCU's, DA, DENR defend their budgets separately. Extension function rests primarily on LGUs, though extension functions within PCA, SRA, NTA, and FIDA were not devolved..

Considerable overlap and fragmentation of functions also characterize several agencies within the DA. In livestock alone there are six separate agencies, despite the devolution of most of the technical regulatory functions, on-site research, and extension. The BAI continues to have a Dairy Development Division, notwithstanding the existence of the NDA. The LDC operations overlap with BAI in several respects including policy formulation, livestock development and monitoring and developing contacts with the private sector. Furthermore the Dairy Development Fund from cattle registration fees, the LDC has also directly administered a number of livestock development projects.

NAFC likewise perform functions beyond its mandate as a consultative body. Because of the additional assignment to monetize and allocate the proceeds of commodity grants, it has become a funding unit for a variety of projects, as well as an implementor of livelihood and other

projects. The ACPC has become involved in the administration of credit programs, a task that is beyond its staff functions.

Irrigation development in DA is the responsibility of two agencies: the NIA for national gravity and deep tubewell systems, and the BSWM for the small water impounding and shallow tubewell projects. A separate corporation for cotton exists, together with FIDA, though fiber is a relatively minor crop.

Cost of market regulations. A major part of the agricultural bureaucracy has been concerned with direct marketing operations in rice and administering market interventions arising from the pervasive use of quantitative trade restrictions. The NFA operations alone accounted for about 27% of the total budget of the DA and its agencies, and employed more than 5000 staff. Several commodity-based agencies are also heavily involved in administering market regulations e.g., SRA (sugar), BAI (livestock), BPI (seeds and other), NTA (tobacco). The pervasive market interventions have not only bloated the bureaucracy and shifted scarce budgetary resources away from growth-enhancing activities, these have also promoted rent-seeking among government employees engaged in trading, allocating import/export permits, issuing licenses, and so forth.

With the genuine abolition of quantitative trade restrictions under the WTO, many of the staff in the above commodity-based agencies will become redundant, requiring major institutional adjustments. Although rice has been exempted from the WTO agreements, the high budgetary cost of NFA operations should warrant a shift towards more cost-effective, indirect policy instruments to achieve the same objectives.

Private Roles. Besides involvement in agricultural marketing activities, the DA, particularly attached agencies, has been engaged in several activities that are basically private sector functions. And while the original intention may be to initiate the activity as a means of

promoting private sector investments, the opposite often prevail because the heavy subsidies on government operations create unfair competition. Moreover, even if there are economic justifications for government provision or subsidies of such goods and services, these are often more cost-effectively produced by the private sector. For example, the government provides veterinary and artificial insemination services, operate animal stock farms and dairy processing facilities, and produces breeding animals, activities that are essentially private in nature. The other examples are the operations of fishing ports and cold storage facilities (PFDA), general cold storage and warehousing facilities (FTI), and tomato canning factory in Northern Luzon.

Commodity-based Structure. The current organizational structure reflects the proliferation of agricultural commodity-based agencies in the 1960s and the 1970s. Although these have been brought under the DA in 1986, they have remained largely intact as attached agencies, retaining the weakened controls and accountability in their bureaucracies and constraining coordination of research and extension. The commodity-based structure of the DA leads to fragmentation of the agricultural bureaucracy and contributes to instability and inflexibility as the DA has been divided into more and more commodity-based agencies, motivated in part by political economy factors rather than on consistent, sound, and logical criteria. Moreover, the commodity-based structure tends to favor regulations against growth-enhancing activities - - research, extension, Irrigation - - which have longer-term pay-off. Regulations are easy to implement, have short-term impacts, generate resources for the agency, and rents for those involved in allocating import/export permits, issuing licenses, and so forth. In contrast, well-documented justifications and record of performance are necessary to raise budgetary support for productivity-enhancing activities. Furthermore, heads of commodity agencies are typically non-technical persons who may not fully appreciate the potential contributions of

technological change and the scientific skills and different type of management style required for productive research.

Devolution Process

The devolution of responsibilities for delivering front-line services from the national to local government units is potentially one of the most important institutional reforms for improving the efficiency of providing public support services and effecting a bottom-up approach to development. However, major flaws in the design and implementation of the LGC have hindered the realization of those potential benefits.

Incomplete devolution. The devolution is not complete. Although about one-third of DA staff has been devolved, extension agents of the attached agencies/corporations of the DA such as PCA, FIDA, SRA and NTA have not been covered by the devolution. Neither has any personnel from NIA been devolved to LGUs, despite the transfer of responsibilities of communal and other small-scale irrigation projects.

Funding constraints. The shift in national budgetary allocation was much less than commensurate to the responsibilities devolved to the LGUs. The problem was exacerbated by the bias in fund allocation in favor of cities and barangays and urbanized LGUs, against the more rural provinces and municipalities, which carry the bulk of responsibilities, related to agriculture and natural resources (Manasan 1995). Moreover, poorer regions which have a greater proportion of population dependent in agriculture, particularly upland agriculture, also have lower total budgetary resources and relatively fewer devolved personnel due to the same bias in the original personnel allocation of DA regional offices (Cabanilla 1995). Finally, the mechanisms for LGUs to directly manage foreign-funded projects, a major source of funding for irrigation and natural resource and environment management projects at the national level, have not been fully

developed. Hence, the ability of the LGUs to effectively carry out their responsibilities in the sector has been adversely affected by funding constraints.

About 80% of budgetary allocations by LGUs for agriculture, veterinary, and natural resource services are spent on salaries and wages of personnel, whereas the average for total LGU budget is 50%. Salaries of LGU personnel, particularly in poorer regions have fallen behind equivalent national level staff. Salaries of agriculture-related personnel in poorer regions have also lagged behind other technical staff because of mandated allowances and salaries for DOH personnel, causing widespread demoralization. Given the bias in personnel allocation and funding availability against poorer regions, it is not surprising to find in several cases studies that agricultural support services have expanded in the more progressive areas, but deteriorated in the poorer LGUs (Cabanilla 1995).

Delineation of responsibilities. Delineation responsibilities in many areas are unclear and/or not well understood. For example, interviews with municipal-level staff suggest that many LGUs do not as yet consider the development of communal and small-scale irrigation as an integral part of their functions. LGU involvement in irrigation, so far, has been simply to facilitate the implementation of national projects by identifying potential irrigable areas or recipients of shallow tubewells, assisting in distribution of tubewells, and overseeing the construction of small water impounding projects.

Role of National Agencies. Considerable efforts were devoted to the orderly transfer of personnel from the DA to the LGUs. However, the DA did not systematically anticipate, monitor, and address the problems faced by the devolved personnel in their new roles, as well as by the LGU heads in taking responsibility for the devolved functions. For example, the provincial and municipal agricultural officers and other devolved personnel have been used to implementing

programs conceived and designed at the central offices. Indeed, the field personnel were still in the process of being transformed from being specialists into generalists, capable of dealing equally well with all aspects of farming systems under the decentralized DA structure. Therefore, a strong, concerted effort to assist LGU personnel in developing new skills, attitudes, and mode of operation should have been mounted to effectively function in their new more independent role.

There was also little effort to establish specific guidelines, procedures and institutional mechanisms for interaction among LGUs to resolve common problems and harmonize programs; and between national agencies and LGUs for developing joint programs and effecting a bottom-up approach of governance. The spread of the hoof and mouth disease in wide areas of Luzon in 1995 was caused primarily by the limited coordination of efforts between local and national agencies.

The LGC did not specify any mechanism of interaction among agricultural personnel across municipalities and between municipalities and province. And it was not until late 1995 as the need became apparent that municipal and provincial agricultural officers decided to form associations as venues for such interactions and as a mechanism for organizing their interaction with DA.

The interactions between LGUs and national agencies continue to be largely ad hoc and top down in the nature of getting nationally conceived and funded programs such as the GPEP, Gintong Ani and now the Makamasa programs implemented by the LGUs. Developing appropriate mechanisms for interaction between LGUs and national level agencies will likely be frustrated by weaknesses in the institutional structure of agriculture-related agencies at the national level, specifically their highly fragmented and largely overlapping nature. The problem is especially critical in trying to link the extension and agricultural research, which is conducted

independently by a wide variety of institutions. Thus far, only the organizational structure of regional offices were reorganized, but even the new interim structure does not reflect any attempt to reorient the relationship between the central and regional offices and the field personnel under the LGUs. In order to achieve an efficient working relationship with the LGUs, a restructuring of the Department of Agriculture and related agencies is clearly called for.

Weak Property Rights Structure

As the rate of population growth continue to be high, the supply of land has increasingly become scarce. Cultivation frontier has moved progressively into the marginal upland areas, while widespread deforestation, soil erosion, and intensive cultivation have degraded land quality. To maintain agricultural competitiveness, long-term investments in land improvements and flexibility in land market transactions (sales and rental) to facilitate changes in land use/cropping patterns as well as land management arrangements (small vs. large farm vs. contract farming, etc.) are necessary. However, the government policy of generally retaining ownership of lands with slope beyond 18 degrees and agrarian reform programs have inadvertently stifled efficient operation of land markets, lowered incentives for long-term investments in land improvements and tree crops and eroded collateral level of land. These effects are reflected in the declining ratio of agricultural loans to gross value added in agriculture and total loans reported in Table 14.

Upland Policies

Because most of the uplands is still classified as public lands, full property rights cannot be conferred, even in slightly sloping areas suitable for crop production, agro-forestry, or livestock pasture. A variety of user rights arrangements have been instituted such as Certificates of Stewardship Contracts (CSC), Community Forest Management (CFMA), Industrial Forestry Management Arrangements (IFMA), pasture leases, and so forth. CSC's are granted to small

upland dwellers, but area coverage of these as well as the CFMAs and IFMAs are still relatively small. Moreover, these property rights instruments do not have collateral value because of the limited terms of tenure and non-transferability. A 25-year tenure (renewable once) would still be short in relation to the growth period of forest products. On the other hand, the very low rental fee for pasture leases have led to excess demand and consequently, to allocation of these rights in large parcels to politically powerful families and inefficient management of these lands.

Agrarian Reform

To address the highly unequal distribution of rural incomes caused by the inequitable distribution of lands, a series of land reform programs have been instituted, starting with the 1963 law (RA 3844) which fixed the sharing ratio between tenants and landlords. Land transfer was effected for rice and corn areas by the Presidential Decree 27 signed in 1972, according to three steps -- first with the conversion of tenancy arrangements from share tenancy to leasehold; second, the issuance of Certificates of Land Transfer where payments to landlords or the Land Bank are considered amortizations; and finally, the granting of emancipation patents or title of ownership.

In 1987, RA 6675 better known as the Comprehensive Agrarian Reform Program (CARP) was passed which aim at the redistribution of all agricultural lands to tillers, together with fair compensation to the landowners. The Program was designed not only to include land redistribution, but also the provision of support services to beneficiaries. Because of inherent political difficulties and high cost of implementing the land transfer program, progress has been slow and the target hectarage will not be met by the ending date of the Program in 1998.

Certain provisions of the agrarian reform programs, as well as CARP's slow implementation have increased distortions in land markets with unintended negative effects.

- * Share tenancy was made illegal, even if such labor-land market arrangements may be efficient and a means for landless households to step up the agricultural ladder.
- * Under PD 27, when the land reform was confined to rice and corn, landowners were discouraged from growing these crops in areas where intercropping of rice or corn with coconut or other crops have been traditionally practiced.
- * Premature conversion of agricultural land use to non-agricultural purposes is induced and facilitated by weak controls and lack of national land-use or zoning policy have allowed.
- * Prohibition of private land sales even after land reform has been effected erode collateral value of land in the formal credit market, which is particularly detrimental for promoting investments in land development and tree crop farming, and cultivation of non-traditional crops requiring more cash inputs.
- * The linking of CARP implementation to provision of support services lowers efficiency in the delivery of such services, as short-term, subsidy types of instruments tend to be funded, rather than long-term productivity-enhancing public investments.

Even the threat of land reform inevitably discouraged agricultural investments, particularly those with long gestation periods, such as the growing of tree crops, land development, irrigation and so forth, because of the risk of not reaping their return. Although it is very difficult to document these effects rigorously, casual evidence abounds. For example, the cutting of coconut trees for lumber is widely observed, while the replanting program funded by a World Bank loan

has had limited demand. In sugar, there has been no significant investment in the modernization of sugar mills even though milling efficiency is much below other countries, nor in farm mechanization despite rising real wages and relative large farm size. Rice production has grown at a faster rate than other major crops, because the land transfer program under PD 27 has been largely completed by the 1980s. Several large scale plantation projects in oil palm, rubber, bananas proposed by multinational corporations have not materialized because of rigidities in land market.

Summary and Conclusions

Overall, the policy and institutional framework continue to be a constraint in achieving sustainable growth of the agricultural sector and thus to an efficient path to food security. While price intervention policies have become more favorable to the sector, these have been achieved by increasing protection of major import-competing commodities and reducing implicit tariffs on inputs rather than reducing disincentives on exportable commodities caused by distortions in exchange rates. Thus, improvements in agricultural incentives have occurred at the cost of greater inefficiencies in resource allocation arising from widening distortions in prices within agriculture, and between agriculture and agro-processing. Higher food prices have also had adverse effects on equity because a greater majority of the rural and urban poor are net buyers of the highly protected food commodities. And the high and wide dispersion of tariffs among close substitutes promote rent-seeking. Technical smuggling of cattle and wheat, for example, will intensify given the large differential tariff between breeders/fatteners and beef and between feed wheat and wheat for food.

The wide distortions of prices within agriculture is particularly detrimental not only to the growth and employment objective of the whole economy, but of the agricultural sector itself.

Because supply of land which is a major input in agricultural production is essentially fixed, artificially raising profitability of rice, corn, and sugar increases the cost of land for other crops. Consequently, competitive advantage of exportable agricultural commodities in the world market is reduced indirectly. Corn is the single most important input to the hog and poultry industries, whose potentials for growth are high and whose contributions to gross value added in agriculture and labor and land productivities are even higher than corn. The high corn price policy has hindered the international competitiveness of the hog industry (still consisting mostly of small, backyard producers), as studies have showed the country's comparative advantage in hog production (Gonzales and Perez 1991).

The very high protection of sugar hurts not only the consuming household, but also the food processing industry, which accounts for over 40% and 20% of manufacturing value added and employment, respectively. In contrast to sugar which is clearly import-competing and for which domestic consumers have to pay about twice as much as world price, the food processing industries heavily using sugar as an input has greater export potential. At least 25% of domestic production of processed vegetables, fruits, chocolate, and sugar confectioneries are exported.

The excessively high protection of a number of food commodities have had adverse effects on equity because a great majority of the rural and urban poor are net buyers of the highly protected food commodities. High food prices also put pressure on wages as evidenced by the clamor for increasing minimum wages resulting from the food price-induced inflation in recent years. High wages labor-intensive manufacturing industries less competitive in relation to the low wage-cheap food economies such as Vietnam and China.

The inefficiencies caused by price intervention policies are not only through the distortions in incentives but through the choice of policy instruments. Continued use of quantitative trade

restrictions and government's direct and indirect involvement in agricultural imports rather than using tariffs promotes rent-seeking, reduces government revenues, incurs significant bureaucratic cost, and introduce price uncertainties. And recent policy changes in response to the WTO agreement seems to have exacerbated rather than mitigated such problems.

Although public expenditures for agriculture has recovered in the late 1980s, after bearing the brunt of contractionary policies in the early 1980s, much of that recovery was allocated for redistributive purposes (agrarian reform and market subsidies) and strengthening of natural resource and environmental management, rather than on long-term productivity-enhancing investments to reverse the declining competitive advantage of the sector. The continued use of quantitative trade restrictions have not only limited the generation of tax revenues, but dissipated scarce government resources on the high cost of administering market regulations, particularly NFA operations. Agricultural research in particular has been severely underfunded with public expenditures representing only 0.3% of gross value added in agriculture in contrast to 1% among developing countries and 2-3% among developed countries. Budgetary allocations have also continued to be disproportionately in favor of the rice sector, with very meager allocations to other major commodities such as corn and others. On the other hand, public investments for market infrastructure also continue to favor large urban centers particularly those close to Metro Manila.

The issue is not only the level of public expenditure and its allocation, but equally important are the inefficiencies caused by poor choices of program instruments, faulty budgetary process and planning approach, and weaknesses in the bureaucracy in terms of organizational structure, incentive problems, transitional difficulties with devolution, and instability in leadership. In particular, the fragmentation of the research and development system, as well as the weak

linkage between research and extension have failed to promote technological development in many key commodities especially corn, coconut, sugar and other traditional crops. Moreover, the weak planning, political factors, and excessive graft and corruption have lowered effectiveness of public investments in market and irrigation infrastructure.

While the property rights policies both for public and private lands are well-intended as environmental and equity objectives, slow implementation and certain provisions that limit these property rights in terms of length of tenure and transferability have inadvertently had negative effects. Land market transactions have been greatly hindered, incentives for long-term investments lowered, collateral value of land eroded, and land conversions from agricultural to non-agricultural uses accelerated.

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Table 1. Average annual growth rates of gross domestic product (GDP), agriculture gross value added (GVA),^a and agricultural exports^b in selected South and Southeast Asian countries, 1970-1997 (%).

	1970-80			1980-90			1990-97		
	GDP	GVA	Agr'l exports	GDP	GVA	Agr'l exports	GDP	GVA	Agr'l exports
Philippines	6.4	4.9	14.6	1.0	1.0	-4.6	3.2	1.6	6.4
Indonesia	8.2	2.0	20.0	5.5	4.9	4.7	7.6	3.3	13.3
Malaysia	8.7	6.5	19.3	5.3	3.8	3.1	8.7	2.0	11.5
Thailand	7.3	4.2	21.2	8.7	3.9	4.9	8.0	2.9	7.9
India	4.0	1.8	14.6	5.5	3.2	0.8	6.1	2.8	10.8
Pakistan	5.2	3.0	13.8	6.0	4.3	3.2	4.8	3.6	-4.0
Bangladesh	5.6	1.4	2.6	3.9	1.9	-1.5	4.5	1.7	-1.6

^a Includes crops, livestock and poultry, fishery, and forestry.

^b data refer to 1990-1996.

Source of basic data: ADB Key Indicators, various issues.
FAO Trade Yearbook

Table 2. Agriculture's share in total imports and exports and ratio of agricultural imports to exports, 1960-1996 (%).^a

	% share to total		<u>Imports</u> Exports
	Imports	Exports	
1960	19	64	31
1965	21	63	36
1970	14	44	34
1975	10	54	26
1980	8	35	31
1985	9	26	46
1990	10	15	96
1995	8	11	126
1996	7	9	160

^a Agricultural imports include imported non-agricultural inputs such as agricultural chemicals, machineries and fertilizers.

Source: FAO Trade Yearbook

Table 3. Trends in revealed comparative advantage in agriculture and selected major agricultural exports, 1960-1995.^a

	Agriculture ^b	Coconut	Sugar ^c	Banana	Pineapple (canned)
1960	3.0	-	-	-	-
1965	2.7	131.8	15.3	-	-
1970	2.6	145.0	21.4	-	-
1975	3.8	211.2	22.0	29.3	-
1980	2.9	224.1	12.1	30.4	82.2
1985	2.4	212.3	7.6	31.2	91.6
1990	1.6	212.4	3.8	23.4	70.2
1995	1.1	153.5	2.0	14.1	41.5

^a Estimated as the ratio of the share of a commodity group in a country's exports to that commodity group's share of world exports.

^b Includes crops, livestock, poultry, and fisheries.

^c Note that sugar has been historically exported to the US typically at a premium price (i.e., higher than world prices). Hence a value greater than unity in this case does not reveal comparative advantage. However, the sharp declining trend may still be interpreted as a rapid deterioration in comparative advantage.

Note: Except for 1960, all are 3-year averages centered at year shown.

Source of basic data: FAO Trade Yearbook

Table 4. Selected estimates of the degree of real exchange rate overvaluation Philippines (%).

	Intal & Power ^a	Medalla & Associates ^b
1960-61	24	
1962-66	19	
1967-69	23	
1962-69		45
1970-74	20	12
1975-79	27	
1975-80		30
1980-82	28	
1989		26
1992		21

^a Intal, Ponciano, and J. H. Power (1991). "The Philippines" in A.O. Krueger et al., Political Economy of Agricultural Pricing Policy, Baltimore and London: the Johns Hopkins University Press.

^b Medalla, Erlinda, M. (1995). Philippine Trade and Industrial Policies: Catching Up with Asia's Tigers, Philippine Institute for Development Studies, Makati City

Table 5. Trends in nominal protection rates of major agricultural commodities, 1970-1998 (%).^a

	1970-79	1980-84	1985-89	1990-94	1995 ^c	1996 ^c	1997 ^c	1998 ^c
Rice	-4	-13	16	19	63	91	82	34
Corn	24	26	67	76	104	54	96	72
Sugar ^b	5	42	154	81	91	93	66	99
Coconut products								
Copra	-17	-28	-6	0	0	0	0	0
Coconut oil	-4	-4	7	18	10	5	0	0
Desiccated coconut and copra cake and meal	-4	-4	0	0	0	0	0	0
Bananas, pineapple, tobacco, abaca	-4	-4	0	0	0	0	0	0
Pork	6	-9	43	31	44	na	na	na
Chicken	34	46	39	74	84	na	na	na

^a NPR is the percentage difference between domestic wholesale price and border price converted by the official exchange rate. The border price is an FOB export unit value for exportable products and the world price adjusted by 15% as a measure of CIF import unit value for importable products. In the case of pork and chicken, the CIF import unit value of Singapore was used.

^b Weighted average of NPR on sugar exported to the US (ratio of export unit value to the US to the border price and NPR on sugar for domestic use (ratio of domestic wholesale price to border price). Border price is the FOB world price of sugar adjusted by 15% to obtain the CIF price.

^c Imports of rice, sugar, and recently corn, did not pay either the in-quota or out-quota tariffs, except for imports of sugar in late 1998, which paid out-quota tariffs.

Source of basic data: World Bank
National Statistics Office

Table 6. Trends in implicit tariffs on agricultural inputs, 1970-1998 (%).

	Fertilizer ^a		Pesticide ^b	Tractors ^b		Threshers ^{bc}	Water pumps
	Urea	Ammophos		2 wheel	4 wheel		
1970-74	-13	-9	29	21	21	24	46
1975-79	28	54	35	46	24	24	46
1980-84	21	19	35	46	24	24	46
1985-89	11	15	20	30	10	30	30
1990-94	5	12	16	28	10	22	24
1995	5	na	3(10) ^d	10	10	20	10
1996	3	3	3(10)	10	10	10	10
1997	3	3	3(10)	10	10	10	10
1998	3	3	3	10	10	8 ^e	10

^a Based on price comparisons, i.e., percentage difference between ex-warehouse price and CIF import unit value.

^b Based on book rates. Implicit tariff from 1960-84 includes the import tariff and advance sales tax (10% and 25% mark-up). The advance sales tax was abolished in 1986 and hence the implicit tariff from 1985 onwards include only the tariff rate.

^c Includes also other farm implements produced domestically.

^d Figure in parenthesis (10%) refer to insecticides and the 3% refer to herbicide, fungicides and other agricultural chemicals.

^e Changed to 5% effective July 10, 1998 by EO 486.

Source of basic data: National Statistics Office
 Tariff Code
 World Bank

Table 7. Estimated effective protection rates by major sectors (%).

	Agriculture, Fishery, and Forestry	Manufacturing	All Sectors
Tan			
1974	9.0	44.0	36.0
Medalla et al.			
1983	10.3	79.2	52.8
1985	9.2	74.1	49.3
1986	5.0	61.2	39.8
1988	5.2	55.5	36.3
Manasan (preliminary)			
1993-95	24.4 (28.1)	29.1	26.7
2000	19.1 (25.9)	19.2	18.4

Source: Tan, Norma A. 1979. "The Structure of Protection and Resource Flows in the Philippines," in Bautista, R. M., et al. Industrial Promotion Policies in the Philippines, Philippine Institute for Development Studies, Makati City.

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Note: Figures in parenthesis refer to crops and livestock only.

Table 8. Nominal protection rates, book tariff rate, and GATT binding tariff and minimum access requirements for 1995 and 2005.

	NPR	EO 470	Binding tariff		Minimum access		
	1990-94	1995	1995	2005	Tariff	Quantity (000 mt)	
	------(%)-----				(%)	1995	2004
Rice	19	50	na	na	50	59.73	238.94
Corn	76	20	100	50	35	130.16	216.94
Sugar	80	50	100	50	50	38.43	103.40
Coffee		50			50	0.06	0.06
Garlic		30	100	40			
Onions		30	100	40	30	1.61	2.68
Potatoes		30	100	40	50	930	1550
Cabbage		30	100	40	30	2.10	3.51
Pork	31	30	100	60	30	32.52	54.21
Poultry meat	74	50	100		50	14.09	23.49
Beef		30			30	4.00	5.57
						000 heads	
Live hogs					30	2570.00	2570.00
Live pouktry					40	5708.12	9513.54
Cattle					30	12.20	20.34

Source: David, Cristina C. 1994. "GATT-UR and Philippine Agriculture: Facts and Fallacies." Journal of Philippine Development, Vol XXI, No 38.

Table 9. Summary schedule of out-quota tariffs of agricultural commodities under EO 313 (figures in parenthesis are in-quota tariffs) in percent.

	April	July				
	1996	1996	1997	1998	1999	2000
Corn (whole grains)	100 (35)	100 (35)	80 (35)	80 (35)	65 (35)	65 (35)
Corn (worked grains, i.e., hulled, rolled flaked, pearled, slice, etc.)	100	100	80	80	60	60
Sorghum	60	60	50	50	45	45
Rye, Barley, Oats	40	40	35	35	35	35
Buckwheat, millet and other cereals; groats and meal of corn, wheat other cereals; worked grains (barley, oats, others); other preparations of a kind used in animal feeding	50	50	45	45	45	45
Oat & rice groats and meal	50	45	45	45	45	45
Corn bran, sharps and other residues; corn oil cake and other solid residues	30	30	25	25	25	25
Sugar (raw cane or beet sugar not containing flavouring or coloring matter); other sugar	100 (50)	100 (50)	80 (50)	80 (50)	65 (50)	65 (50)
Sugar (containing added flavouring or coloring matter)	70	70	60	60	55	55
Coffee (all kinds)	100 (50)	100 (50)	80 (45)	80 (45)	60 (45)	60 (45)
Extracts, essence and cocentrates of coffee, tea or mate and preparations thereof	100 (30)	100 (30)	80 (30)	80 (30)	65 (30)	65 (30)

cont.

Table 9. Summary schedule of out-quota tariffs of agricultural commodities under EO 313 (figures in parenthesis are in-quota tariffs) in percent.

	April	July				
	1996	1996	1997	1998	1999	2000
Potatoes, fresh or chilled	100 (50)	100 (50)	80 (45)	80 (45)	60 (45)	60 (45)
Onions, shallots, garlic, leeks and other alliceous vegetables fresh or chilled; cabbages, cauliflowers and other similar edible brassicas, fresh or chilled	100 (30)	100 (30)	80 (30)	80 (30)	60 (30)	60 (30)
Manioc (cassava); sweet potatoes	50	50	45	45	45	45
Live bovine animals; live swine of more than 50 kg	40 (30)	40 (30)	40 (30)	40 (30)	35 (30)	35 (30)
Live swine; (less than 50 kg); live sheep and goats	60 (30)	60 (30)	50 (30)	50 (30)	45 (30)	45 (30)
Live poultry	80 (40)	80 (40)	65 (40)	65 (40)	50 (40)	50 (40)
Meat of bovine animals; meat of sheep or goat (all)	60 (30)	60 (30)	50 (30)	50 (30)	45 (30)	45 (30)
Meat of swine (all)	100 (30)	100 (30)	80 (30)	80 (30)	60 (30)	60 (30)
Meat of poultry (all except meat of turkey ("other") meat of geese or guinea fowls	100 (50)	100 (50)	80 (45)	80 (45)	60 (45)	60 (45)
Offals of ducks, geese, a guinea fowls except liver	80 (50)	80 (50)	65 (45)	65 (45)	50 (45)	50 (45)
Processed meat (all types)	100 (30)	100 (30)	80 (30)	80 (30)	65 (30)	65 (30)

Source: Tariff Code

Table 10. Distribution of public expenditures for agriculture and natural resources by policy instruments, 1987-1994 (P million).

	1987-94	1994
Agrarian Reform	32,775 (26)	5,179 (24)
Land Acq'n Dist'n	16,204	3,272
Support Services	16,571	1,907
Natural Resources and Environment	28,602 (23)	4,805 (23)
Fishery	4,240	697
Forestry/others	24,362	4,018
Agriculture	67,675 (51)	11,575 (53)
Irrigation (NIA)	15,600 (12)	1,704 (8)
Price stabilization (NFA)	11,746 (9)	2,765 (13)
Research	5,074 (4)	985 (5)
Extension	9,497 (7)	2,014 (9)
Coconut development	2,082 (2)	368 (2)
Livestock	1,826 (1)	467 (2)
Others	21,850 (17)	3,272 (15)
Total	129,052	21,559

Table 11. Agricultural research intensity ratios of selected countries.

Country	RIR (%)	Reference year
Philippines	0.41	1995
Thailand	1.40	1992
Indonesia	0.27	1990
Malaysia	1.06	1992
China	0.43	1993
Taiwan	4.65	1992
Australia	3.54	1992
India	0.52	1990
Pakistan	0.47	1992
Bangladesh	0.25	1992
Sri Lanka	0.36	1993
South Korea	0.56	1993
Japan	3.36	1992

Source: ISNAR
David et al. (1998)

Table 12. Indicative estimates of research intensity ratio
by commodity 1994-1996 (%).

	RIR
Overall (excl. SEAFDEC)	0.41
(incl. SEAFDEC)	0.45
Rice	0.25
Corn	0.05
Sugar	0.50
Coconut	0.30
Fiber crops	2.5-3.0
Cotton or silk	25
Abaca	1
Tobacco	1.1
Livestock	0.15
Carabao	3.6
Other livestock	0.02
Fishery (excl. SEAFDEC)	0.12
(incl. SEAFDEC)	0.35
Forestry	3.5

Source: David, Cristina C. et al. 1998. "Philippine National
Agricultural and Natural Resources Research System:
Resource Allocation Issues and Directions for Reform",
Philippine Institute for Development Studies, Makati City

Table 13. Distribution of agriculture-related research & development expenditures and gross value added in added in agriculture, 1994-96 (P million).

	R&D Expenditure			GVA ^a	Research Intensity Ratio ^c (%)		
	Total	DA Reg. Offices	SCUs		Total	DA Reg. Offices	SCUs
Luzon	497.75	151.91	346	183,049	0.272	0.083	0.189
Luzon w/o Southern Tagalog	228.34	128.13	100.21	108,700	0.210	0.118	0.092
CAR	20.76	4.74	16.02	7,532	0.276	0.063	0.213
I. Ilocos	62.89	19.15	43.74	22,616	0.278	0.085	0.193
II. Cagayan Valley	59.83	50.44	9.39	20,287	0.295	0.249	0.046
III. Central Luzon	37.43	13.21	24.22	38,286	0.098	0.035	0.063
IV. Southern Tagalog ^b	269.41	23.78	245.63	74,349	0.362	0.032	0.330
V. Bicol	47.43	40.59	6.84	19,979	0.237	0.203	0.034
Visayas	115.97	69.45	46.52	77,634	0.149	0.089	0.060
VI. Western Visayas	31.32	18.36	12.96	43,459	0.072	0.042	0.030
VII. Central Visayas	33.82	33.06	0.76	18,198	0.186	0.182	0.004
VIII. Eastern Visayas	50.83	18.03	32.80	15,977	0.318	0.113	0.205
Mindanao	84.72	51.50	33	135,463	0.063	0.038	0.025
IX. Western Mindanao	20.29	17.93	2.36	25,631	0.079	0.070	0.009
X. Northern Mindanao	12.91	10.17	2.74	34,526	0.037	0.029	0.008
XI. Southern Mindanao	10.99	9.96	1.03	48,448	0.023	0.021	0.002
XII. Central Mindanao	31.52	4.43	27.09	17,188	0.183	0.026	0.158
CARAGA	3.72	3.72	-	-	-	-	-
ARMM	5.29	5.29	-	9,670	0.055	0.055	-
Total	696.64	271.61	425.03	396,146	0.176	0.069	0.107
Total w/o Southern Tagalog	429.03	249.08	179.95	321,797	0.422	0.245	0.177

^a Includes crops, livestock and fisheries.

^b Includes UPLB and UPMSI.

^c Research Intensity Ratio = R&D Expenditure/GVA X 100.

Table 14. Trends in loans granted to agriculture in real terms (1985 prices) and as percentages of gross value added in agriculture and total loans granted.

	Agricultural loans (P million)	Agricultural loans as % of	
		GVA	Total loans
1970	24,196	33	12
1975	30,882	29	6
1980	53,480	47	9
1985	28,050	26	8
1990	25,774	21	6
1993	27,054	21	2

Except for 1960 and 1993, all years are three-year averages centered at year shown.

Source: Agricultural Credit and Productivity Council

Appendix Table 1. Growth rates of gross value added (at constant prices) of palay, corn, coconut, sugar, banana, other crops, livestock, poultry, fishery, and forestry, 1990-1998 (%).

	Palay	Corn	Coconut	Sugar	Banana	Other crops	Livestock	Poultry	Fishery	Forestry
1990-91	4.0	1.3	-4.0	27.2	-0.3	2.7	1.2	3.4	4.0	-35.4
1991-92	-5.6	-0.8	0.3	4.8	3.6	0.4	0.8	10.9	1.2	-11.5
1992-93	3.3	3.9	0.2	7.9	0.3	0.9	4.7	6.2	1.4	-16.5
1993-94	11.7	-5.8	0.1	1.3	1.4	1.9	4.8	2.6	1.1	-15.0
1994-95	0.0	-8.7	8.0	-25.6	-1.0	5.0	5.2	5.3	2.0	-48.6
1995-96	7.1	0.6	-6.6	21.3	7.2	2.2	6.6	11.3	1.3	24.3
1996-97	-0.1	4.4	5.7	0.4	6.5	6.2	5.3	6.8	0.0	-41.4
1997-98	-24.1	-11.8	-13.1	-13.8	-5.8	-5.8	4.1	-0.3	1.2	-19.3

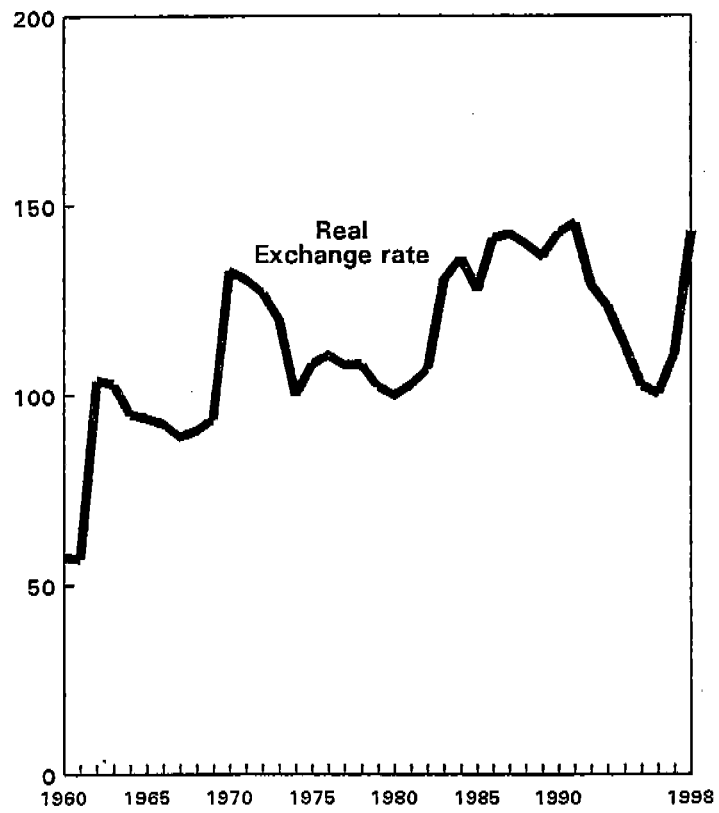


Fig.1. Trends in the real exchange rate, 1960-1998.

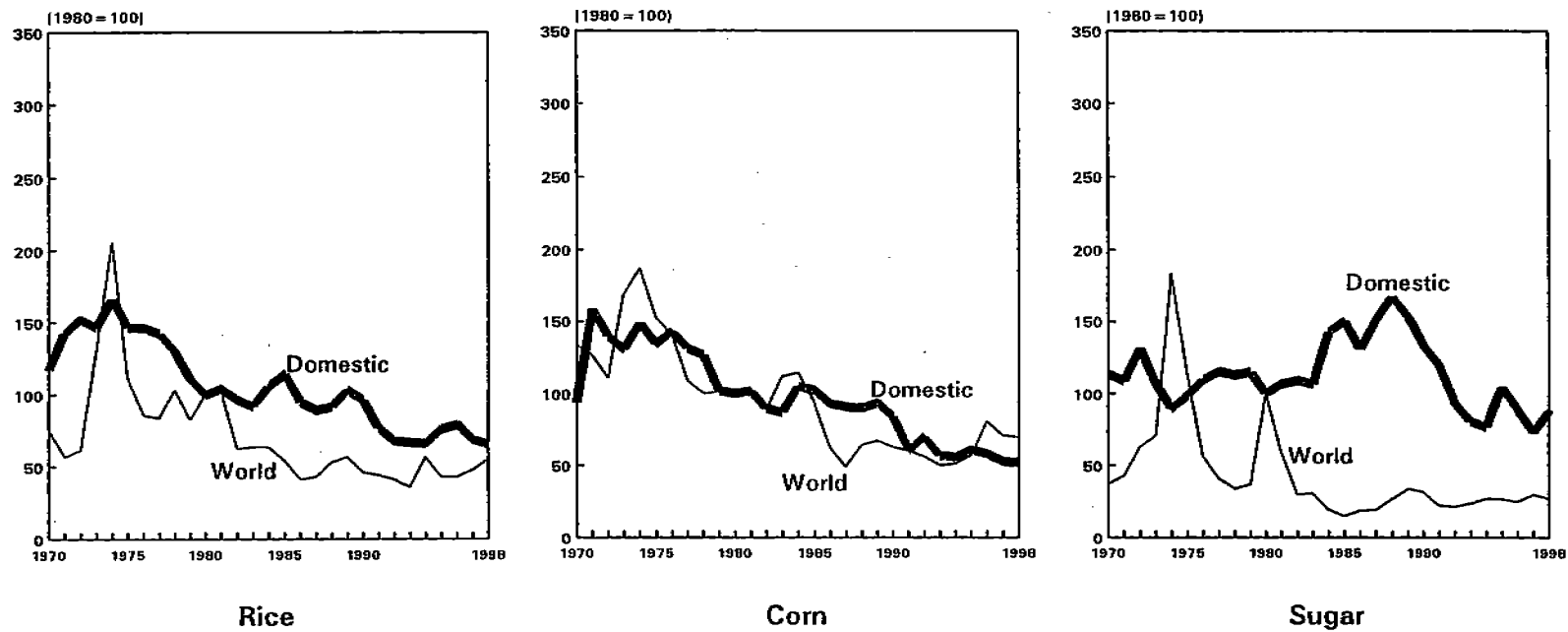


Fig.2. Trends in domestic and world prices of rice, corn, and sugar, in real terms, 1970-98.*

* Domestic price refers to wholesale price deflated by CPI for non-food.

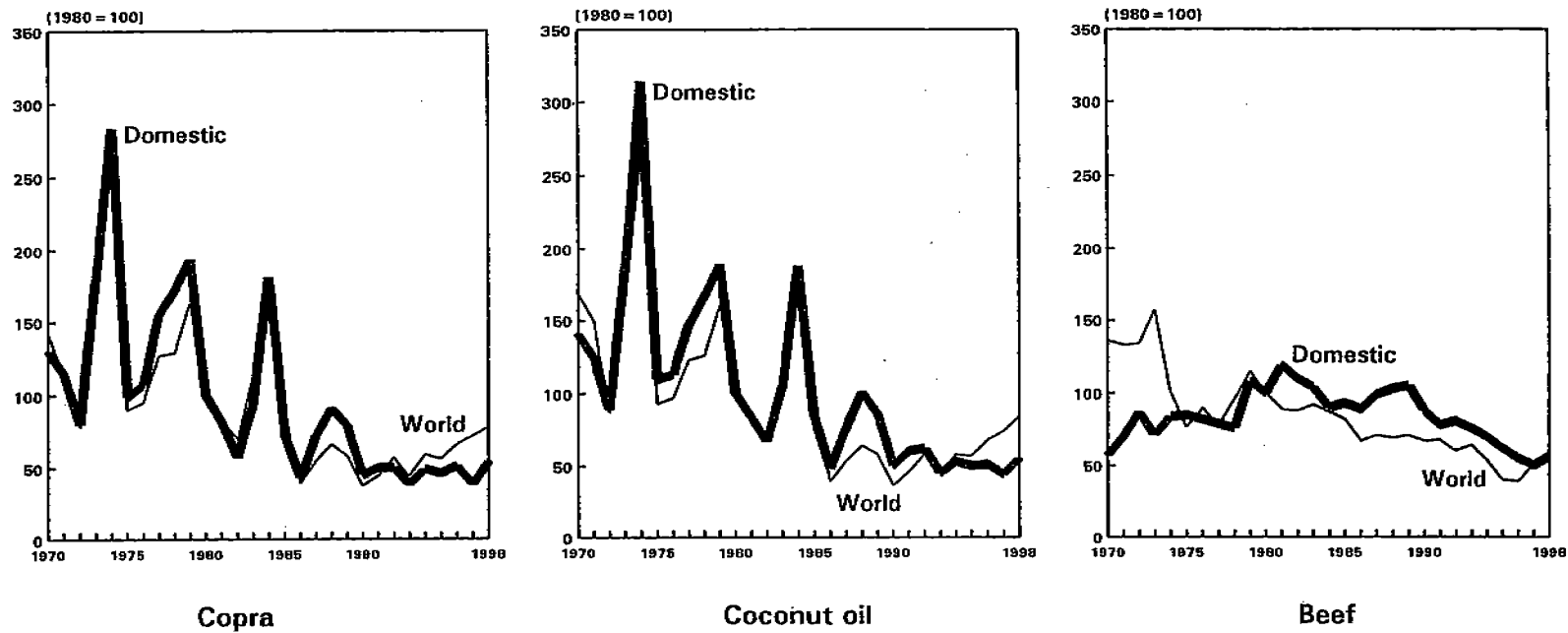


Fig.3. Trends in domestic and world prices of copra, coconut oil, and beef, in real terms, 1970-98.*

* Domestic price refers to wholesale price deflated by CPI for non-food.

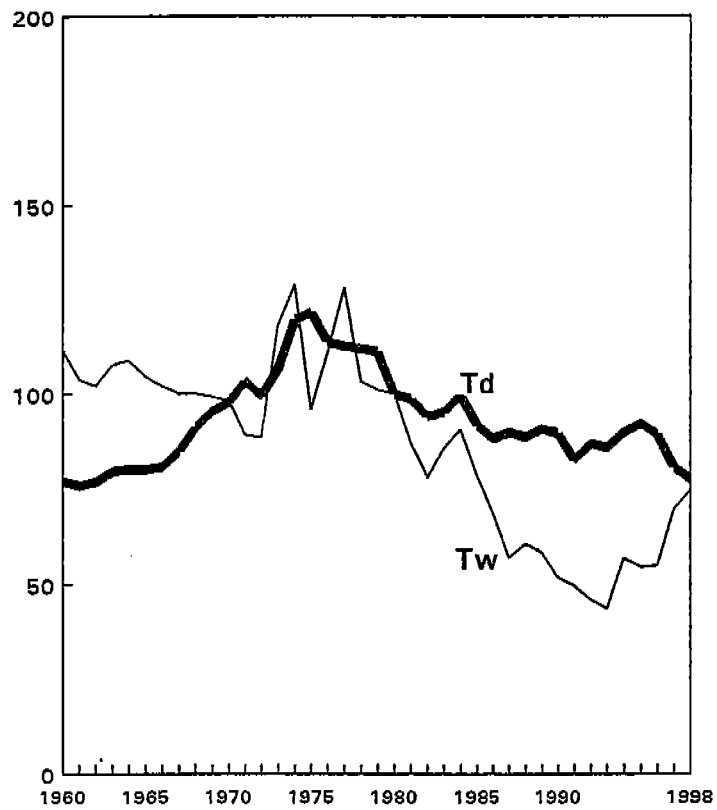


Fig.4. Trends in the real world (Tw) and domestic (Td) agriculture/non-agriculture terms of trade, 1960 - 1998.

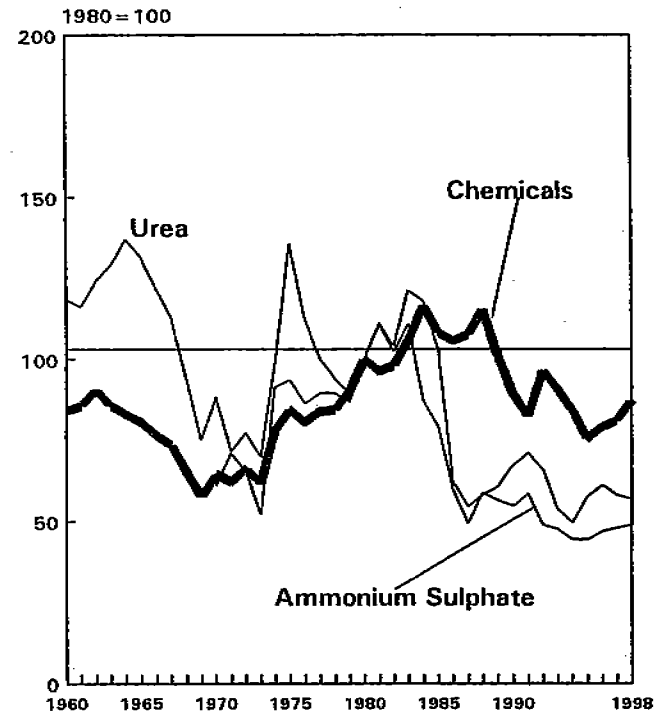
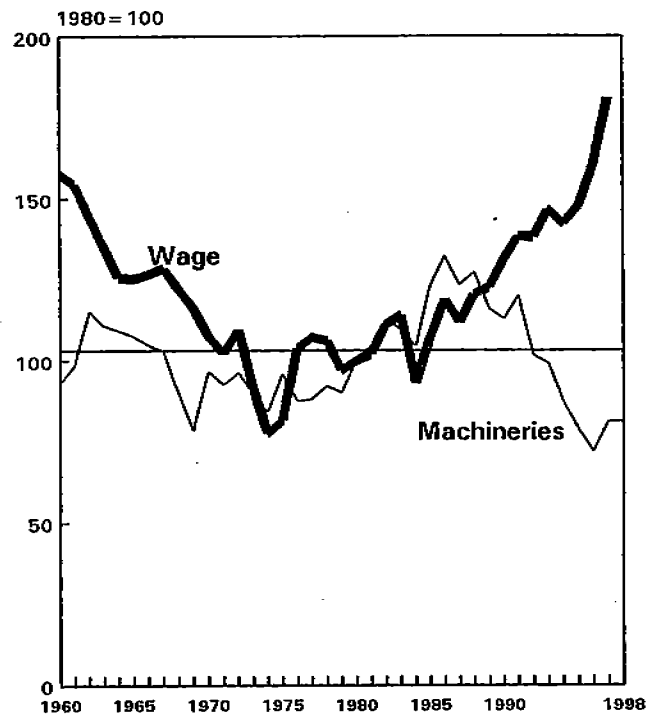


Fig.5. Trends in index of real wage, and retail prices of urea, ammonium sulphate, machineries, and chemicals, 1960-1998.

* deflated by GVA deflator

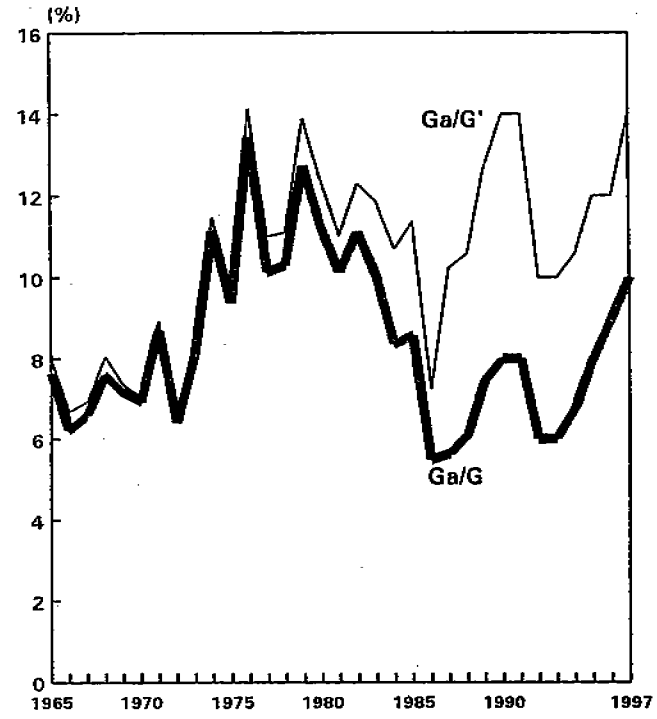
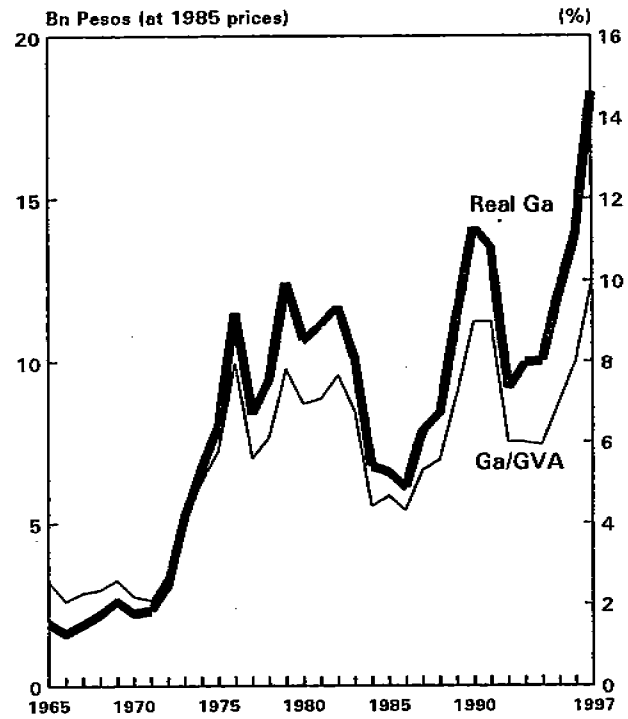


Fig.6. Trends in real government expenditures in agriculture (Ga), its ratio to gross value added in agriculture (GVA), total government expenditures (G), and G less debt service (G').

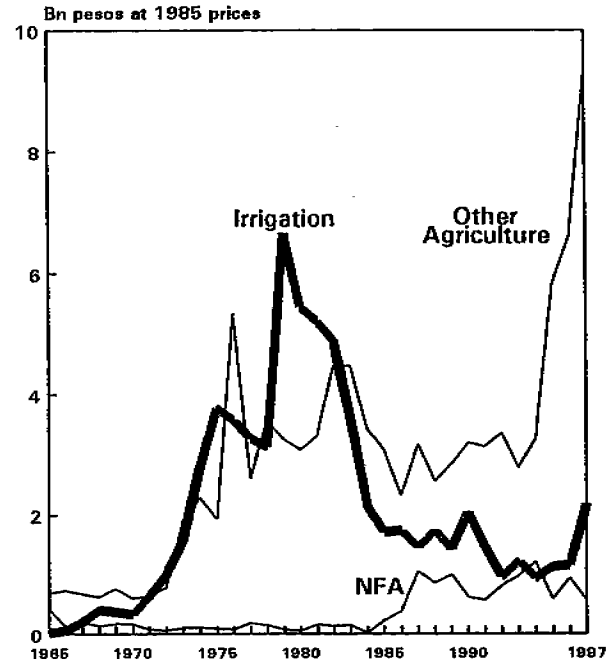
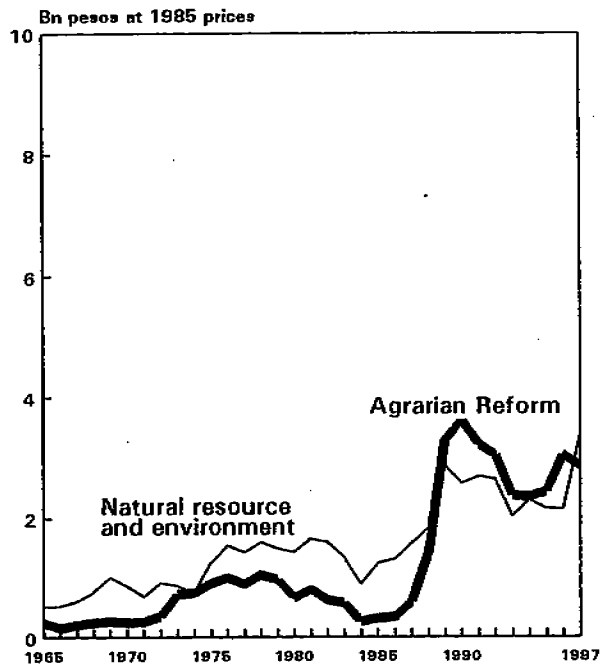
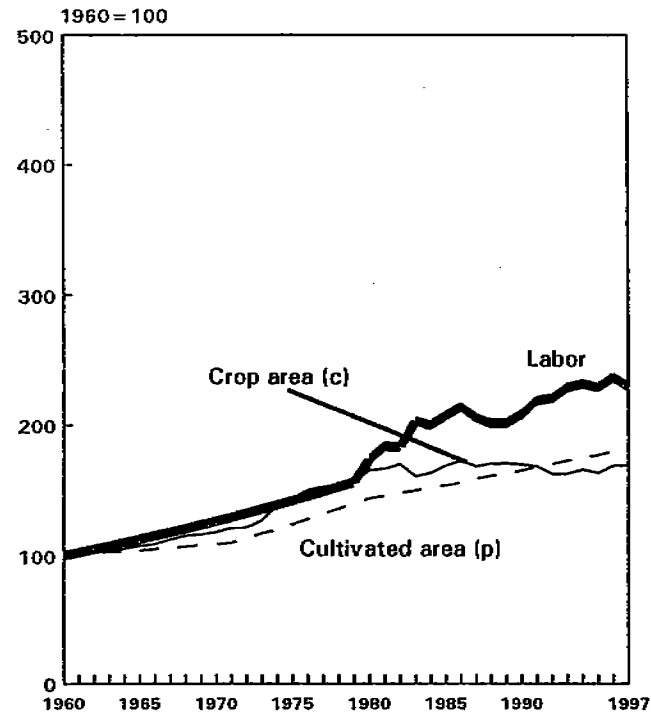
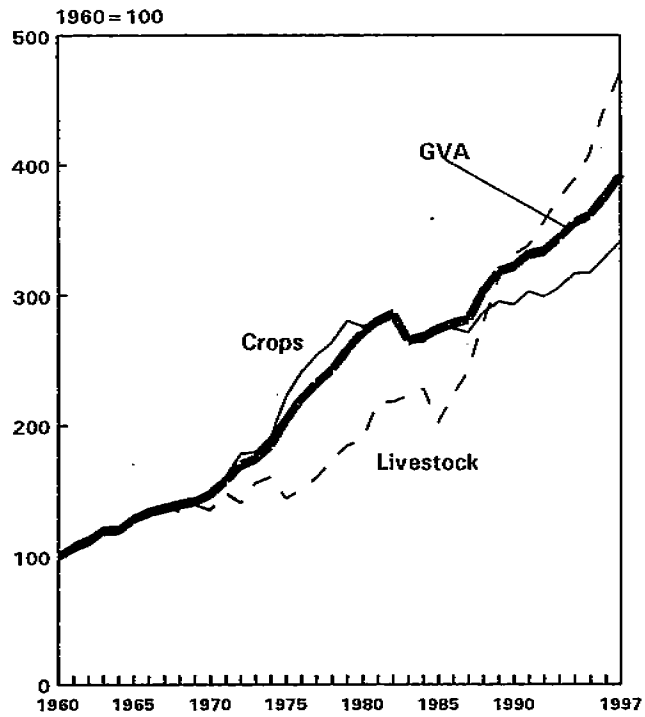
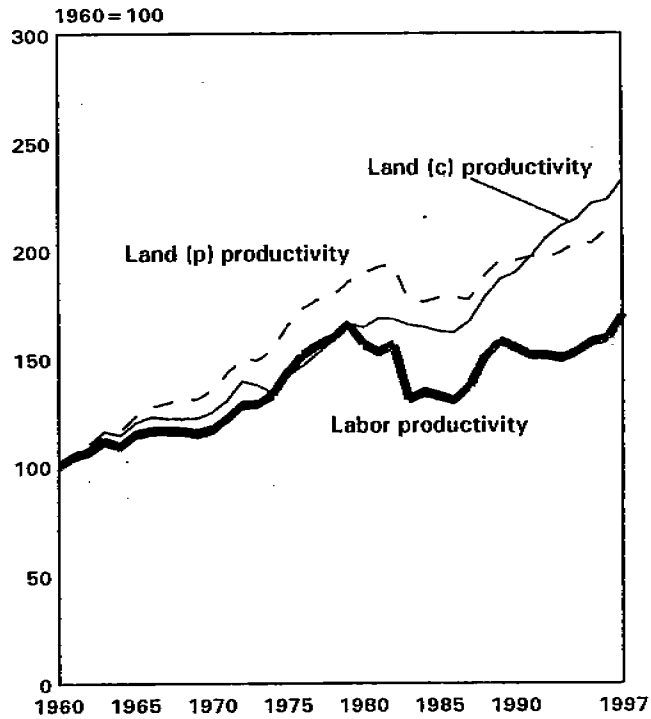


Fig. 7. Trends in real government expenditures in agriculture by policy instrument.

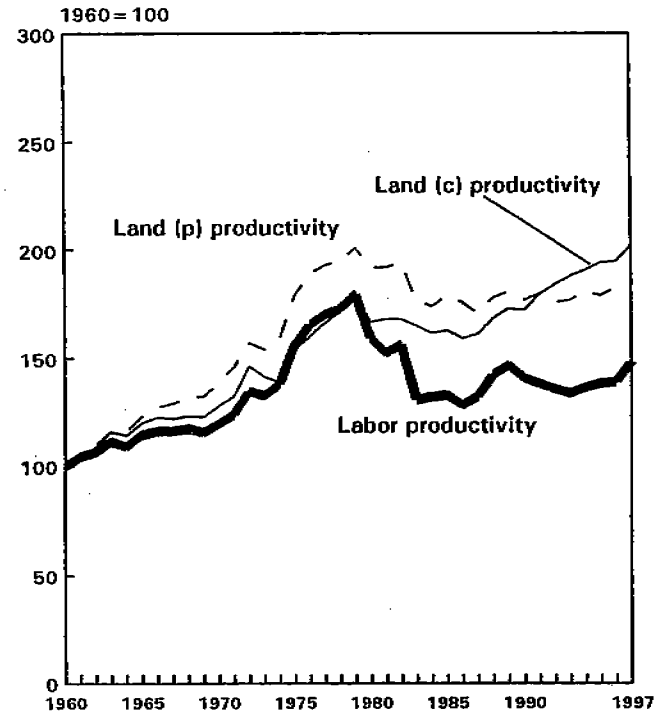


Appendix 1. Trends in real gross value added in agriculture by crops and livestock (incl. poultry), agricultural labor, cultivated land and crop area, 1960-1997.

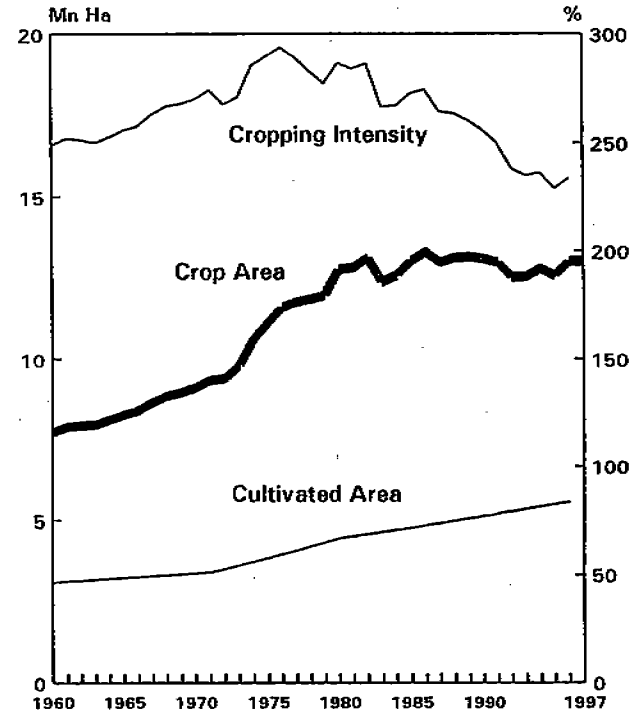
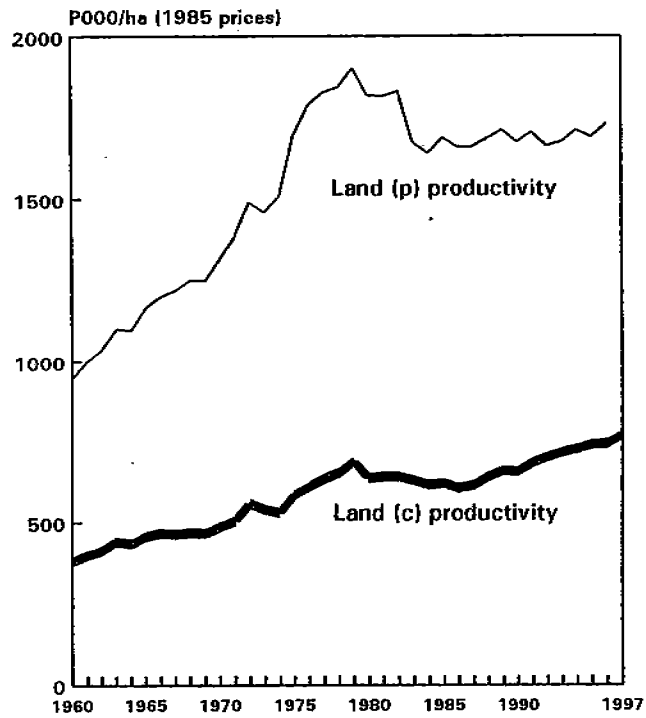
Agriculture



Crops



Appendix 2. Trends in labor and land [cultivated area (p); crop area (c)] productivity for the crop and agriculture (crops and livestock incl. poultry) sector, 1990-1997.



Appendix 3. Trends in cultivated land, crop area, cropping intensity, and land [cultivated (p); crop area (c)] productivity of the crop sector, 1960-1997.