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INTRODUCTION

This paper will consider the effects of macro-economic adjustment policy – including stabilization and structural adjustment – on the agricultural sector, and in consequence on economic development. Of course, these effects differ according to countries. Reference is made mainly to African countries, but not only to them.

Most Sub-Saharan African countries have registered balance of payments deficits and have been led to adopt adjustment policies. Some did it at the end of the 1970s or at the beginning of the 1980s, some others more recently. Owing to the large share of the agricultural sector in these countries, the effects of policy reform strongly depend on their agricultural impact. The impact of adjustment on the agricultural sector is not easy to evaluate, because agriculture more than other sectors is affected by exogeneous factors, independent of economic policy. Moreover, a long time is often required for agricultural output to react to incentives changes.

Table 1 shows the average trend of constant prices agricultural value added for two nine year periods (1970–9 and 1979–88) and several sub-sets of countries. It seems that, during the 1980s, agricultural growth has remained below that of the other developing countries. The African countries, which for at least three years applied an adjustment policy with the support of the Bretton Woods Institutions, have improved their agricultural growth compared to that of the 1970s, which is not the case for the other African countries. These figures are only (simple) averages, calculated from incomplete and often not very reliable data, and with deviations within the sub-sets.

Although the observed results concerning agricultural growth are not corrected for the influence of exogeneous or environmental factors,¹ they cannot allow us to reject the assumption of favourable effects of adjustment policies on agricultural growth. However, the deviations within results lead us to think that adjustment policies, as they have actually been applied, have not always resulted in agricultural development.² It may be so because the main instruments of adjustment policies are not acting automatically, as is sometimes assumed.

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TABLE 1 *Agricultural value added rate of growth (1980 constant prices percentages)*

Simple average	1970–79	1979–88	Difference (same sample)
LDC	2.9 (85)	2.8 (92)	–0.2 (82)
adjusting	2.4 (42)	2.4 (41)	–0.1 (41)
without devaluation	1.9 (10)	1.8 (9)	–0.1 (9)
with moderate depreciation	2.3 (15)	2.7 (15)	0.4 (15)
with strong depreciation	2.8 (17)	2.3 (17)	–0.5 (17)
non-adjusting	3.3 (43)	3.1 (51)	–0.2 (41)
SUB–SAHARAN AFRICA	2.2 (35)	2.0 (36)	–0.2 (35)
adjusting	1.9 (20)	2.3 (20)	0.4 (20)
without devaluation	1.7 (7)	1.9 (7)	0.2 (7)
with moderate depreciation	1.5 (6)	2.8 (6)	1.3 (6)
with strong depreciation	2.6 (7)	2.2 (7)	–0.4 (7)
non-adjusting	2.6 (15)	1.6 (16)	–0.8 (15)
LATIN AMERICA	2.7 (24)	1.9 (28)	–1.3 (23)
adjusting	2.7 (12)	1.8 (11)	–0.9 (11)
with moderate depreciation	2.4 (4)	0.2 (3)	–2.2 (3)
with strong depreciation	2.9 (8)	2.5 (8)	–0.4 (8)
non-adjusting	2.8 (12)	1.9 (17)	–1.7 (12)

Notes: Data in brackets correspond to the number of observations in the sample in the period considered. The differences between two periods are calculated on a common sample. This applies to all tables.

The rate of growth of the agricultural value added at constant prices has been calculated by exponential adjustment.

Sources: *World Tables* (World Bank).

HOW ADJUSTMENT LOGICALLY FAVOURS AGRICULTURAL DEVELOPMENT

Structural adjustment means a lower external deficit for a given overall growth, or more overall growth for a given deficit. Such an outcome needs a change of the structure of production, leading to a larger share for tradable goods (either exports or import substitutes).³ In a market economy this change results from increased profitability of tradables production, which itself may come from two sources. One is the increase of the relative prices of tradables, the other is an increase of factor productivity.

So defined, structural adjustment is distinct from macro-economic stabilization, which means reducing external deficits through lower domestic demand, and a lower growth. However, these two ways of adjustment are often complementary over time. Structural adjustment involves effective

working of markets, avoiding high inflation or acute shortages. It needs the restoration of macro-economic balances, by the way of stabilization. Each of the two sources of structural adjustment (relative prices and productivity) has strong implications for agriculture.

Relative price changes and agricultural growth

An increase of the relative price of tradables (or a decrease of that of the non-tradables, or the so-called decrease of the real exchange rate) is *a priori* favourable to the agricultural sector, in so far as this sector produces tradable goods in a larger proportion than others. Not only export goods but also most food crops are tradables: rice, maize and millet are traded between African countries, often with fewer tariff or administrative obstacles than manufactured goods. Of course, they are also used for farmers' own use.

It is generally admitted that a structural adjustment policy involves an increase of agricultural prices relative to those of other goods and services. Such an increase is often a reversal of the trend registered during the 1970s in numerous developing countries, especially in Africa (the so-called deterioration of the internal terms of trade). As such, it normally leads to lessening 'urban bias'.

If a structural adjustment policy actually leads to an increase of the relative or real price of agricultural products, which is not always the case, as will be seen, agricultural production is expected to rise. How far? This question has been hotly debated. Let us recall some simple conclusions of this debate.⁴ The price elasticity of agricultural supply depends on the working of rural markets: when farmers cannot sell their output or when they are unable to find anything to buy with their money, the elasticity is lower, and may even become negative. The long-term price elasticity is higher than in the shorter term, especially for perennial crops and in irrigated agriculture, or more generally when investment is needed to increase output.

In the short term the price elasticity for single products is significantly higher than that of global agricultural supply, since, when the price of a single product increases, output can be increased by replacing other crops. Global supply is limited by the available production factors, which may be fully used. In the long term, an increase of the global agricultural supply involves productivity improvements.

Productivity improvements and agricultural development

For the last ten years structural adjustment has often been considered as 'getting prices right'. However, productivity improvements, the other source of structural adjustment, are needed as well. They are complementary to relative price changes, wherever they occur, in agriculture or in other sectors.

The agricultural production of developing countries, more than that of other sectors, is limited by the availability of primary production factors. Thus productivity improvements are particularly needed to increase production. Agricultural relative price increases provide an incentive to technical progress in agriculture. It is the reason why the long-term price elasticity of supply is

probably higher than the short-term one, whatever difficulties there may be to test that proposition.

Indeed, in the long term, factors other than prices influence agricultural productivity, either directly or through the parameters of price reactions: health and education in rural areas, agricultural extension, agronomic research, quality of feeder roads and other communication means, access to credit, and so on.

It is not only the productivity improvements which directly occur in the agricultural sector which are favourable to agricultural development and structural adjustment.⁵ Productivity improvements in other sectors can themselves increase the relative price of agricultural goods. This is the case either when productivity improvements lead to a decrease of the price of goods (inputs or consumption goods) bought by farmers, or when they lower processing, transportation or marketing costs of agricultural products, which allows a better price at the farm gate for a given border price.

Briefly stated, structural adjustment, according to the concept itself, is in most developing countries logically favourable to the agricultural sector, even if it is time-consuming. It relies on two complementary means, a rise of the relative price of agricultural goods and productivity improvements. But structural adjustment policy, which aims at these two objectives and to maintain macro-economic balances, requires choices and trade-offs which are sometimes difficult and may or may not favour agriculture.

Diversity of the instruments of structural adjustment policy and of their effects on agricultural development

Structural adjustment policy uses many instruments, covering the various fields of economic policy (monetary and fiscal policy, public-sector management, public investment choice, rate of exchange policy and price and trade policy). Actual adjustment policies combine these different instruments in various ways, so they may focus on the restoration of macro-economic equilibrium, or on the elimination of price distortions, or on productivity improvements. These choices can be more, or less, favourable to the agricultural sector.

The main relevant choices which we consider here are devaluation (strong or moderate) versus maintaining the parity, total price liberalization versus maintaining some regulated or stabilized prices, and public expenditure reduction (more or less strong) versus increase in public receipts in order to reduce budget deficits. Each of these three choices has an impact on agriculture which is never mechanical. Often effects depend on political economy considerations.

RATE OF EXCHANGE POLICY, REAL PRODUCER PRICES AND PRODUCTIVITY⁶

Most of the countries which have applied an adjustment policy with the support of IMF have been led to devalue several times or to adopt a floating rate. Noticeable exceptions in Africa are the franc zone countries and Liberia, and elsewhere Haiti and Panama.

Expected and observed effects of devaluation on real prices

Devaluation is indeed an essential instrument for structural adjustment, since it normally leads to a change in the ratio of tradable to non-tradable prices, that is, the real exchange rate. It aims at increasing the profitability, and then the volume, of exports or of import substitutes.⁷ Currency depreciation actually means a rise of the border price of exported or imported agricultural goods expressed in domestic currency, which *ceteris paribus* increases the profitability of the production of such goods.

However, the expected effect of the devaluation as an agricultural incentive is not an automatic one. The reason is that real producer prices are determined by the real international price of agricultural products, by the real exchange rate, and by the rate of levy which occurs between the border and the farm gate; that is to say, the rate of tax levy, and transportation and marketing costs.⁸ So the increase of the nominal border price due to currency depreciation may not lead to an increase of the real producer price, for two reasons. One is the domestic inflation induced by the devaluation, which means that a decrease of the nominal exchange rate results in a lower decrease of the real exchange rate (that is, the devaluation is more or less 'effective'). The other reason is that the increase in the nominal border price is not entirely passed on to the producer, because one part of it is kept either by the state through marketing boards and progressive taxation, or by monopolistic trading networks. So devaluation has a real incentive effect on agriculture only under some conditions.

The figures of Table 2 show that, from 1979–88, these conditions were not always satisfied. Contrary to what could be expected, adjusting countries whose currency has been strongly depreciated (20 per cent a year or more on average during the period) are those where the trend of the real producer prices has been the least favourable, both for food and export crops. Then come the countries with 'moderate' depreciation (less than 20 per cent a year on average). The trend of real producer prices appears to be positive (on average) only in the group of 'without devaluation' adjusting countries. The results hold for the whole sample of 85 (87) developing countries and the African sub-set. In Latin America the few countries with moderate devaluation show the better performance in real producer prices, contrasting with the results of the strongly depreciating countries of these regions.

All these results could indeed come from differences in the trend of the international price of the products exported from the various categories. In

TABLE 2 *Trend of real producer prices (1979–88), (linear trend coefficients)*

Simple average	Food crops	Export crops	Trend of the export crop producer price index to the real international price index (ratio)
LDC	-0.8 (85)	-1.2 (87)	7.6 (65)
adjusting	-2.1 (40)	-2.1 (40)	6.5 (33)
without devaluation	0.3 (10)	1.5 (10)	8.4 (8)
moderate depreciation	-1.7 (14)	-1.6 (14)	7.1 (10)
strong depreciation	-4.1 (16)	-4.8 (16)	5.0 (15)
non-adjusting	0.3 (45)	-0.5 (47)	8.8 (32)
SUB-SAHARAN AFRICA	-1.1 (36)	-1.3 (37)	9.8 (26)
adjusting	-2.4 (20)	-2.3 (20)	5.3 (14)
without devaluation	0.9 (7)	2.5 (7)	8.5 (5)
moderate depreciation	-2.8 (6)	-4.9 (6)	1.7 (3)
strong depreciation	-5.3 (7)	-4.7 (7)	4.5 (6)
non-adjusting	0.6 (16)	-0.3 (17)	15.1 (12)
LATIN AMERICA	-0.4 (24)	-0.3 (26)	6.9 (22)
adjusting	-1.9 (10)	-0.9 (11)	8.8 (11)
moderate depreciation	-0.6 (3)	5.8 (4)	16.4 (4)
strong depreciation	-2.4 (7)	-4.8 (7)	4.5 (7)
non-adjusting	0.4 (14)	0.1 (15)	5.2 (11)

Notes: Nominal producer prices for export or food crops have been deflated by the consumer price index (or GDP deflator).

Real prices for each country have been calculated from an arithmetic average of real producer price indexes, weighted by the relative importance of the main selected products in agricultural production.

Source: FAO annual statistics.

order to eliminate the influence of this factor, we have calculated the trend of the ratio between the real producer prices and the real unit value of exported goods, for the main export crops of each country. This trend, calculated for 65 developing countries, is highest in the non-adjusting ones and in the adjusting countries without devaluation, and lowest in the strongly depreciating countries. Again only in Latin America, does the group of countries with moderate depreciation (only four countries), perform as expected, showing the highest trend.

Economic policy implications

A choice between an adjustment with or without devaluation is not always possible. In countries which registered high inflation, where real exchange rates strongly appreciated, and where simultaneously a strict exchange control associated with foreign exchange shortage resulted in a large parallel market for foreign exchange, with a large gap between the official rate and the parallel one, a strong decrease in the nominal official rate was unavoidable (Ghana, Guinea, Tanzania for example). Its main aim was to unify the foreign exchange market and to integrate the informal or parallel transactions into the official ones. It is difficult to estimate the effect of such depreciations on agricultural activity; indeed a significant increase of agricultural exports occurred in the depreciating countries (Balassa, 1990), but the share of it due to the conversion of unofficial into official transactions is not known.

However, some African countries which did not register a strong appreciation of their real exchange rate could choose to adjust with or without devaluation. Implications of an adjustment without devaluation have frequently been debated.⁹ Franc zone African countries which made such a choice succeeded in lowering their real exchange rate. They did so thanks to the depreciation of the French franc (until 1986), but also by adopting a disinflation policy, which lessened domestic price increases, bringing them below the world inflation rate.

Thus one main difference between countries adjusting with or without inflation is the following: the first adjust through inflation and money illusion, the others with disinflation, which makes a difference for agriculture. Inflation may be particularly dangerous in agriculture, for two main reasons. First, small farmers savings may be held principally in cash, which is then reduced by inflation. Second, inflation generates uncertainty about prices which slows down innovation. Another difference between the two categories of countries is a lower real exchange rate depreciation in countries which have not devalued. But maintaining parity gives an incentive to look for other means of adjustment. Thus franc zone countries have been led to lower taxation on agricultural exports (groundnuts, cotton) – a means which is necessarily limited by budget constraints – and to look for productivity improvements in agro-industrial activities. One most interesting case is that of cotton, when facing the fall of world prices in the mid-1980s. Profitability has been maintained without devaluation, mainly thanks to economies achieved in transportation, marketing and processing.

Briefly stated, devaluation is assumed to act on supply mainly through an increase of real agricultural producer prices, but a stronger depreciation does not necessarily lead to higher real prices. It depends on the effectiveness of the devaluation in real terms; that is, on the macro-economic policy applied. The need to reduce budget deficits often leads governments to use devaluation for that purpose, rather than to increase producer prices. As for adjustment policy without devaluation, it is compelled to rely on productivity improvements. These improvements, when achieved outside agriculture have in turn a positive effect on producer prices.

TRADE LIBERALIZATION AND THE PROBLEM OF PRODUCER PRICE INSTABILITY

In Africa, adjustment programmes have to some degree included a liberalization of domestic trade and prices, in particular of agricultural prices. Liberalization is a natural way to structural adjustment, since market mechanisms and efficient competition are supposed to eradicate price distortions.¹⁰ It also has macroeconomic consequences.

Agricultural prices are necessarily liberalized in countries with floating exchange rates and where currency is fast depreciating (Guinea and Zaire, for example). In these countries administered prices would have to be permanently revised and would have no real meaning. But in countries with a rather stable rate of exchange, the regulation of some prices remains possible, although not necessarily advisable.

Food crops

Liberalization has probably been stronger in the food sector, for several reasons. Boards in charge of stabilization of food prices have often been particularly inefficient (a large share of the transactions remaining outside their operations) and simultaneously costly (for example OPAM in Mali, OPVN in Niger). Moreover, when price fluctuations are linked to supply variations, they stabilize farm income to some degree. These reasons, however, leave room for limited state intervention on markets, for instance through security stocks.

It is difficult to provide a global evaluation of the recent experience of grain trade liberalization, in particular in African countries. Indeed cereals output noticeably increased during recent years in countries where liberalization occurred (Sahel, Madagascar), but a simultaneous improvement in weather conditions has also to be noted.¹¹

Export crops

For export crops,¹² much doubt has also appeared about the possibility of an efficient price stabilization scheme, for at least two reasons. One is the risk of a delinking of domestic prices from international prices, then of giving up comparative advantage. Another risk is that stabilization mechanisms were diverted from their initial role and transformed into instruments for excessive agricultural taxation. Actually, the experience of stabilization funds and marketing boards has generally been poor; boards were used to tax the agricultural sector, and the money levied when international prices were high was spent and was not available when prices fell. So adjustment policies often attempt to eliminate these 'parasitic' institutions.

However, the basic principle of producer price stabilization for export crops remains a relevant aim in adjustment policy. It is well known, in particular

because of risk aversion, that for a given average price output is higher with a stable price than with an unstable one. Moreover, price instability is probably a brake upon innovation and investment, especially for small farmers. In addition instability does not only affect farmers. Public income instability disturbs macro-economic management, as evidenced by the literature about Dutch disease. Jointly with the objective of producer price stability, an objective of public revenue stability has to be aimed for.

In order to avoid previous errors, the stabilization of producer prices and public income can be efficiently achieved only on two conditions, which are not necessarily unrealizable. One is that price stabilization relies, not on a fixed price, but on the trend of the observed international price, in order to avoid a misallocation of resources. The other is that stabilization funds are absolutely independent of the tax levy and are statutorily deposited outside the reach of the public treasury, in order to avoid both their disappearance and the risk of Dutch disease.¹³

Some countries have maintained some partial stabilization schemes, as is the case in Papua New Guinea for several products, in French-speaking African countries for cotton and for hevea in Côte d'Ivoire. These schemes, the operation of which may, of course, be a matter of debate, aim at establishing some stability of producer prices, without delinking them from international prices, and by depositing the funds beyond the reach of public treasury.

The choice between more or less stability in producer prices is not actually independent of exchange rate policy. It can be noted (Table 3) that during the 1980s the instability of real producer prices (both for food and export crops) was highest in the countries where monetary depreciation was strongest. It was lowest in countries adjusting without devaluation or with moderate devaluation. These results appear in the whole sample and each of the two sub-sets (Africa and Latin America). In order to check for the influence of the instability of real international prices, we have measured a stabilization coefficient by the difference between this instability and that of real producer prices. The coefficient of stabilization (from 1979 to 1988) was highest in the non-adjusting countries, followed by the countries adjusting without devaluation, then by the countries with moderate devaluation, and was lowest in the countries with strong depreciation.

Briefly stated, liberalization policy involves a mix of the correction of price distortions and the search for an environment favourable to productivity improvement. Monetary stability favours real producer price stability for food crops and is a necessary but not sufficient condition for an efficient stabilization of (real) producer prices for export crops.

DECREASE OF THE BUDGET DEFICIT, AGRICULTURAL TAXATION AND PUBLIC EXPENDITURE

As noted above, structural adjustment involves a preliminary or simultaneous reduction of budget deficits. So it needs a choice between a mix of tax increases and public expenditure decreases. Increasing public revenues appeared particularly difficult in African countries, although the tax-GDP ratio is rather low.

TABLE 3 *Instability of real producer prices (1979-88 percentages)*

Simple average	Food crops	Export crops	Degree of stabilization of producer prices for export crops
LDC	12.4 (75)	13.4 (75)	7.0 (51)
adjusting	13.5 (37)	15.9 (36)	2.8 (26)
without devaluation	7.2 (10)	8.2 (10)	9.6 (7)
moderate depreciation	7.2 (14)	10.5 (14)	4.3 (10)
strong depreciation	25.1 (13)	28.4 (12)	-3.9 (9)
non-adjusting	11.3 (38)	10.9 (39)	11.4 (25)
SUB-SAHARAN AFRICA	13.8 (34)	12.9 (35)	7.2 (25)
adjusting	12.8 (19)	14.9 (19)	1.1 (13)
without devaluation	7.7 (7)	9.4 (7)	9.9 (5)
moderate depreciation	8.4 (6)	11.1 (6)	1.2 (3)
strong depreciation	23.3 (6)	25.2 (6)	-7.8 (5)
non-adjusting	15.1 (15)	10.4 (16)	13.8 (12)
LATIN AMERICA	15.6 (19)	20.1 (19)	3.3 (12)
adjusting	20.7 (8)	24.8 (9)	-0.6 (6)
moderate depreciation	5.8 (3)	12.3 (4)	-0.3 (3)
strong depreciation	29.7 (5)	34.8 (5)	-0.9 (3)
non-adjusting	11.9 (11)	16.0 (10)	7.3 (6)

Notes: Real producer price instability is the average quadratic deviation from linear trends in percentages.

Stabilization degree is the difference between international price instability and real producer price instability for export crops.

This is because taxes are levied mainly on external trade, such taxes being more easily imposed on those transactions than on domestic ones, or on domestic incomes. But structural adjustment logically involves lowering taxes on external trade which are a source of distortion.

However, some countries which devalued, originally to change relative prices, have been tempted to increase levies on agricultural exports. Such a policy made it easier to balance public finances but, as seen above, did not lead to the expected increase of real producer prices (for example, Madagascar from 1982 to 1986). The stabilization objective then prevails over structural adjustment.

In order to reduce the deficit without increasing revenue, adjusting countries are led to cut public expenditure, though the effect on various categories of expenditures have varied. Most often, because it was easier, rural expenditures declined more than urban ones, capital expenditures more than current ones and, among these, working expenditures more than salaries. It seems, therefore, that the expenditures allocated to agriculture, in particular those on which agricultural productivity depend, have been significantly affected:¹⁴

they are rural, they are for large investment expenditures (infrastructure) or expenditure for services which particularly need working means (health, extension, research, for example).

Of course, the evolution of agricultural public expenditures can vary according to the kind of adjustment policy adopted and especially according to exchange rate policy. Currency depreciation increases somewhat the ratio of public income to GDP, which relies mainly on tradables, and then the public expenditure GDP ratio. But, simultaneously, it tends to increase expenditures allocated to the purchase of tradables, firstly of external debt service, so the relative share of other public expenditures is likely to decrease. This may be the case for expenditures on agriculture, which have a relatively high content in tradables. Finally, the impact of currency depreciation on the agricultural expenditure to GDP ratio is uncertain (as is the comparability of data on such expenditures).

The figures of table 4 show differences among country groups in the evolution of agricultural public expenditures from 1970–9 to 1980–8. The reduction of their share in total public expenditures, as well as in GDP, is higher in adjusting than in non-adjusting countries. Among adjusting countries, the share in GDP decreases on average only in the category of countries with strong depreciation, and it increases only in countries with moderate depreciation.

Briefly stated, the choice or mix between increased taxes and lower expenditures involves some trade-off between the two ways to structural adjustment, correction of price distortions and productivity improvement: choosing less public expenditure may be better for agricultural prices, but is likely to be unfavourable to agricultural productivity. The countries with strongest currency depreciations seem to be those where agricultural expenditures have been the more affected (though they have not succeeded in raising real producer prices).

CONCLUSION

To sum up, structural adjustment policies are theoretically favourable to agricultural development, since they aim at improving price incentives and productivity. Actual policies, in particular in Sub-Saharan Africa, seem on average to have improved the pace of agricultural growth, but they have not always succeeded in doing so. Several reasons can be advanced:

- (1) During the application of these policies, the agricultural sector faced several shocks due to climate, or international markets, to a variable degree according to country.
- (2) Adjustment policies have been applied for a longer or shorter time and with more or less public involvement; reaction lags in agriculture may be long.
- (3) These policies used various combinations of different instruments, the effects of which are never automatic. As a result, illustrated above by exchange rate policy, trade liberalization and budgetary policy, an un-

TABLE 4 *Evolution of public expenditure on agriculture*

SIMPLE AVERAGE	Percentage of GDP			Percentage of total expenditure		
	1970-1979	1980-1988	difference (same sample)	1970-1979	1980-1988	difference (same sample)
LDC	1.7 (84)	2.1 (85)	0.3 (74)	7.4 (87)	7.2 (86)	-0.5 (69)
adjusting	1.6 (37)	1.6 (39)	0.0 (35)	7.5 (37)	6.3 (38)	-1.2 (32)
without devaluation	1.6 (7)	1.6 (9)	0.0 (7)	6.5 (7)	5.6 (9)	-1.8 (6)
moderate depreciation	2.0 (15)	2.5 (14)	0.5 (13)	9.2 (15)	9.2 (13)	-0.4 (13)
strong depreciation	1.2 (15)	0.8 (16)	-0.3 (15)	6.2 (15)	4.4 (16)	-1.7 (13)
non-adjusting	1.7 (47)	2.4 (46)	0.5 (39)	7.3 (50)	7.8 (48)	0.2 (37)
SUB-SAHARAN AFRICA	2.0 (33)	2.3 (30)	0.3 (27)	8.9 (33)	7.6 (30)	-1.0 (25)
adjusting	1.9 (18)	1.8 (19)	-0.1 (17)	8.8 (18)	7.2 (19)	-1.9 (15)
without devaluation	1.5 (5)	1.7 (7)	0.1 (5)	7.1 (5)	6.0 (7)	-2.1 (4)
moderate depreciation	2.7 (6)	3.0 (5)	0.3 (5)	11.3 (6)	10.3 (5)	-1.9 (5)
strong depreciation	1.6 (7)	1.1 (7)	-0.4 (7)	7.9 (7)	6.2 (7)	-1.9 (6)
non-adjusting	2.1 (15)	3.1 (11)	0.8 (10)	8.9 (15)	8.3 (11)	0.3 (10)
LATIN AMERICA	1.4 (25)	1.7 (24)	0.3 (21)	6.2 (24)	5.7 (23)	-1.5 (15)
adjusting	1.1 (9)	0.6 (9)	-0.3 (8)	5.9 (9)	3.7 (9)	-1.7 (8)
moderate depreciation	1.6 (3)	0.8 (2)	-0.3 (2)	6.2 (3)	3.9 (2)	-1.9 (2)
strong depreciation	0.9 (6)	0.6 (7)	-0.2 (6)	5.7 (6)	3.6 (7)	-1.6 (6)
non-adjusting	1.5 (16)	2.2 (15)	0.6 (13)	6.4 (15)	7.0 (14)	-1.2 (7)

Notes: Because of absence of data in some cases averages have been calculated from reduced samples.

Sources: World Bank, Government Finance Statistics Yearbooks and World Tables.

equal weight has been given by the various countries to the elimination of price distortions and to productivity improvements.

- (4) Means of structural adjustment are largely complementary and some trade-offs occurred, the result of which has not always been optimal. This means that it remains important to scrutinize how economic policy can promote agricultural development, in Africa and elsewhere.

NOTES

¹An attempt to eliminate this influence from the observed results is presented by Goi (1988).

²We consider here the effect of structural adjustment policies on agricultural output growth, and not the more general problem of their effect on the social situation in rural areas. On this point see Azam, Chambas, P. Guillaumont and S. Guillaumont (1989).

³More details on the adjustment concepts can be found for instance in P. Guillaumont and S. Guillaumont (1990b, 1990c, 1991a).

⁴See, for instance, Binswanger (1989), Bond (1983), Bonjean (1990a), Chibber (1988). On the particular problem of the influence of consumer goods markets, see Azam, Berthelemy and Morrisson (1991), Azam and Faucher (1988), Berthelemy and Morrisson (1989), Bevan, Collier and Gunning (1989), Guillaumont and Bonjean (1991a).

⁵The conditions are studied in P. Guillaumont and S. Guillaumont (1990b, 1991a).

⁶The implications of an adjustment with or without devaluation are more thoroughly examined in some of our previous work, especially S. Guillaumont-Jeanneney (1988), P. Guillaumont and S. Guillaumont (1990b), P. Guillaumont, S. Guillaumont and P. Plane (1991).

⁷The growth of some agricultural production, due to adjustment policies may lead to a significant decrease of international prices. It is not discussed in detail.

⁸The relationship between international prices, real exchange rates and real producer prices

is examined in particular by P. Guillaumont and S. Guillaumont (1990c), P. Guillaumont and C. Bonjean (1991b), P. Guillaumont, S. Guillaumont and P. Plane (1991); and, according to a different method, by Krueger, Schiff and Valdés (1988).

⁹This question is debated in P. Guillaumont and S. Guillaumont (1990b), P. Guillaumont, S. Guillaumont and P. Plane (1991).

¹⁰The problem of the liberalization of external trade, often linked to that of domestic trade, is not considered here and is a complex one. Protectionism raises the price of importable agricultural goods as the objective of structural adjustment advocates, but on the other hand it raises the cost of food and then of labour, which lessens the competitiveness of other production. Moreover, it is often ineffective.

¹¹On the experience of Niger, see Bonjean, in P. and S. Guillaumont (1991a) and, on that of Madagascar, Berg (1989).

¹²On this question, see P. and S. Guillaumont (1990a, 1990c, 1991b), Bonjean (1990a, 1990b), O. Knudsen and J. Nash (1990), U. Lele and R.E. Christiansen (1989), J.W. Mellor and A. Raisuddin (1988), M. Schiff and A. Valdés (1990).

¹³See a discussion of these principles, and of costs and advantages of the various schemes of export crops producer price stabilization, in P. and S. Guillaumont (1990a, 1991b).

¹⁴This has been noted by Mosley (1989) for several African countries.

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DISCUSSION OPENING – REBECCA LENT*

The goal of Guillaumont's paper is to evaluate the impact of macro-economic adjustment policy on the agricultural sector. It is certainly a worthwhile objective, since agriculture is an important, if not the most important, sector for most developing countries. He rightly stresses that impact evaluation is not an easy task. Not only is there an insufficient number of observations, there is also a myriad of variables and causal relations to sort out. Five comments will be made.

1. We do need to standardize key words and phrases. For example 'structural adjustment' is first defined as a lower trade deficit at the same growth rate, or a higher growth rate with the same deficit. Later in the text it appears as a global term for free-market oriented monetary, fiscal, institutional and pricing policies. As another example 'macro-economic adjustment policy' is defined as encompassing stabilization and structural adjustment. Further confusion arises in use of the 'real exchange rate' and over the impact of inflation on real rates. The discussion in the paper indicates that an increase in inflation results in an appreciation of the real exchange rate, while textbook definitions indicate an inverse relationship between the two (Lindert, 1986). It appears that definitions may differ in Europe and North America; thus there is all the more need for establishing common ground in discussion.

2. Two results in the paper are particularly interesting. First, countries undergoing structural adjustment are shown to exhibit higher growth rates in value added in their agricultural sectors. This is encouraging and certainly more optimistic than preliminary findings (Jayne and Weber, 1988). Second, producer price increases appear to be greater in those countries which did not devalue their currency. This is more troublesome, not only for policy makers, but also for economists, since it amounts to questioning the very foundation of neo-classical theory.

3. As Guillaumont points out, price response is at the heart of many structural adjustment issues. To a certain extent, arguments for and against currency devaluation also touch on price response issues. There are many estimates of supply responses in the literature which could enrich the discussion, though the author does not report any of them, apparently because of the difficulties associated with estimation. Caution could be in order since over-estimation of supply elasticities led to some disappointing outcomes in the early days of structural adjustment. However, more recent estimates, such as those for rice in Senegal (Martin and Crawford, 1991) are more conservative. I was also struck by the absence of discussion of demand elasticities which can also influence the impact of adjustment policies. In Burkina Faso (Reardon *et al.*, 1988) it has been suggested that cross-price elasticities between imported and

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local, traditional cereals, are lower than was assumed. It should also be noted that understanding of demand structure is essential if supply is relatively more erratic than demand.

4. Securing the desired results in Third World structural adjustment may be impeded by lack of reciprocity in the developed countries. For example, export subsidies on beef shipped from the European Community to the Côte d'Ivoire simply encourage imports. Furthermore, low-priced supplies are displacing Sahelian meat exports (Burfisher and Missaien, 1987; Josserand, 1990). In addition, record budget deficits in Canada and the United States, along with many barriers to imports throughout the developed world, can only aggravate the situation in the poorer countries.

5. My final point relates to the analysis of adjustment, either in forecasts of possible consequences or in post-evaluation. It is vitally important, since use must be made of the magnitude of critical elasticities, to have a solid understanding of the underlying micro-economic structure of the country under consideration.

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