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**AID, EXPORT PROMOTION AND THE REAL EXCHANGE RATE:
AN AFRICAN DILEMMA?**

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Aid, Export Promotion and the Real Exchange Rate:
An African Dilemma?*

ABSTRACT

Africa, while a major aid recipient, has had disappointing export performance. This paper argues for a causal link: aid, by being partially spent on non-traded goods, leads to real appreciation and reduced export competitiveness. I demonstrate the importance of this effect by presenting econometric evidence on the positive relation between aid flows and real exchange rate appreciation and increases in the real wage in the traded-goods sector. Policy implications are discussed.

JEL classification: 121, 431, 443

Keywords: development aid, real exchange rate appreciation,
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Africa

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NON-TECHNICAL SUMMARY

One of the main purposes of development aid has always been the promotion of a viable export sector, in the hope that future export revenues so generated would over time do away with the need for aid as a source of foreign exchange. However, export performance in Africa has been almost uniformly disappointing, despite the fact that Africa has always been a major recipient of aid. High real wages and steady upward pressure on the real exchange rate (the relative price of home or non-traded goods to traded goods) appear to have thwarted a successful export take off. These trends, are documented in the World Bank's 1984 study of Sub-Saharan Africa.

In this paper I point out the possibility of a causal link between development aid and export performance which draws on recent analyses of the 'Dutch Disease'. Aid, like many otherwise effective medicines, has unwanted side effects that require the attention of policy-makers. In particular, aid will exert upward pressure on the real exchange rate, lead to increased labour costs in traded-goods producing sectors and reduce external competitiveness. If a substantial increase in the volume of aid inflows is not to lead to reduced export performance, policy-makers must introduce measures designed explicitly to reduce the conflict between export promotion and aid.

I outline conditions under which this conflict is particularly severe, and the need for policy adjustment most urgent. Increases in aid will permanently reduce productivity in export sectors when externalities such as 'Learning by Doing' are present in the traded-goods sector. When there is Learning by Doing, productivity in a sector depends on cumulative output over time; aid, by reducing output in the export sector, causes it to suffer an absence of 'learning' and a loss of productivity. If, in addition, capital markets are imperfect, the case for explicit export promotion becomes even stronger.

(ii)

Under such circumstances increased aid will magnify the cost of trade policies which are 'inward-oriented' and biased against exports. There is a very real possibility of a vicious circle: distortionary trade policies which are biased against exports lead to poor trade performance and lower real income, which in turn makes the country involved a more likely aid recipient. Increased aid will then lead to further deterioration in trade performance and increase the dynamic costs of anti-export policies, while at the same time allowing their continuation, and so on. Therefore, the analysis of this paper represents a strong case for aid conditionality: aid should be conditional on the elimination of any bias against international trade that is present in domestic tax or trade policies.

I finally present strong empirical evidence, for six African countries, of the relationship between increases in real aid flows and appreciation of the real exchange rate. It is this relationship that underlies the concerns raised in this paper on the conflict between aid and export performance. Moreover, in the theoretical analysis, upward pressure on real product wages in the traded goods sector was identified as an important element of the mechanism through which aid leads to real appreciation. The econometric evidence presented here strongly confirms this relationship between higher aid flows and increased real product wages in the traded-goods sector.

i. Introduction

One of the main purposes of development aid has always been the promotion of a viable export sector, in the hope that future export revenues so generated would over time do away with the need for aid as a source of foreign exchange. Casual evidence strongly suggests that that has not worked out well. From the export promotion point of view, aid has been a failure.

Cases in point are, on one end of the spectrum, Korea and Brazil; the Korean and Brazilian export miracles have been accomplished without much aid to speak of. On the other end is most of Sub-Saharan Africa. Export performance in Africa has been almost uniformly disappointing, while Africa has always been a major recipient of aid. Steady upward pressure on the real exchange rate and high real wages have, however, thwarted a successful take off for exports. (For documentation of these trends, cf the World Bank's recent study on Sub-Saharan Africa, World Bank (1984)).

In this paper I point out the possibility of a causal link, drawing on recent work on the "Dutch Disease" by myself and others (Corden [1984], Corden and Neary [1982], van Wijnbergen [1984a, b]). Aid, by being partially spent on non-traded goods, puts upward pressure on the real exchange rate. The resource-allocational consequences are a shift of labor out of agriculture into (often urban) services, upward pressure on real wages in terms of export goods, and a decline in external competitiveness. A decline in export performance is then unavoidable unless specific policy measures are taken to counteract it. The conflict between substantial volumes of aid and export promotion is a dilemma African policymakers will need to face.

In the remainder of this paper, I first outline a simple theoretical framework to show the channels via which aid can thwart export promotion (section 2), and use an intertemporal extension of this framework to discuss policy options (section 3). In section 4, I present empirical evidence on the impact of aid on the real exchange rate. Section 5 concludes.

2. A Theoretical Framework I: Wages, Aid and the Real Exchange Rate

The simplest model that still fits our purpose is a simple Salter-Swan model distinguishing traded and non-traded goods. This allows us to capture the essential point that aid comes in the form of foreign exchange, and so gives direct command over traded goods, but will partially be spent on non-traded goods, thereby causing a transfer problem.

We can describe production by a revenue function giving the maximum revenue from efficient production given relative prices and factor use:

$$R = R(Q, i; L) \quad (1)$$

where Q is the relative price of non-traded goods (NT) in terms of traded goods (the real exchange rate) and L the stock of labor. Capital is sector-specific and suppressed in the argument list. Efficient production requires the marginal value product of labor to equal the wage:

$$\begin{aligned} R_L(Q, i; L) = W &\Rightarrow L_D = L(W, Q) \\ L_W &= R_{LL}^{-1} < 0 \\ L_Q &= -R_{LQ} / R_{LL} > 0 \end{aligned} \quad (2)$$

W is the real wage in terms of traded goods. Labor market equilibrium is represented by locus LL ($L = L(W, Q)$) in Figure 1. LL slopes upward: higher real wages will, for a given Q , reduce labor demand in both sectors, but a

higher real exchange rate, for given real traded product wage, will increase labour demand in the NT sector. Because Q only affects labor demand in the NT sector if W stays fixed, the LL schedule is flatter than one: a higher W reduces labor demand in both sectors, so Q has to increase more than one for one to offset that. Increased aid will have no direct effect on labor markets.

Consumer expenditure is described using an expenditure function, giving the minimum expenditure needed to reach welfare level U given relative prices:

$$E = E(Q, l; U).$$

The budget constraint says that total expenditure has to equal revenue from production plus transfers from abroad (A for aid):

$$E(Q, l; U) = R(Q, l; L) + A \quad (3)$$

By properties of the revenue function, the derivative with respect to Q equals the supply of non-traded goods. Similarly, the derivative of the expenditure function with respect to Q represents the (Hicksian) demand function for non-traded goods. Non-traded goods market equilibrium therefore is given by:

$$R_Q(Q, l; L) = E_Q(Q, l; U) \quad (4)$$

This is represented by schedule NT in Figure 1. The NT schedule slopes upward too: higher real wages for given Q will reduce the supply of non-traded goods, necessitating an increase in the real exchange rate. The NT schedule is steeper than one and therefore steeper than the LL schedule: a one-for-one increase in W and Q would leave the real non-traded product wage W/Q unchanged and so would leave supply of non-traded goods unaffected; however demand would have gone down at higher Q, calling for a further increase in W to reduce

supply to the lower level of demand in the NT goods market. NT therefore slopes up with a slope in excess of one.

Consider now the effect of an increase in aid, A. There will be no direct effect on labor markets, as can be seen from equation (2). However, welfare U increases because of the outward shift in the budget constraint. This in turn influences demand for NT goods (via U in $E_Q(Q, 1; U)$ in equation (4)). Higher welfare means higher expenditure, some of which will fall on NT goods. This will put upward pressure on their price, the real exchange rate θ ; the NT curve shifts to the right (Figure 1):

$$\left. \frac{d\theta}{dA} \right|_{NT} = C_Q / (R_{\theta\theta} - E_{QQ}) > 0 \quad (5)$$

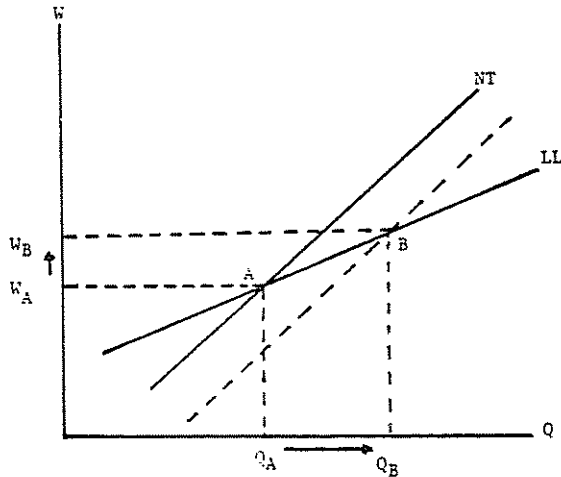


Figure 1: Wage and Real Exchange Rate Effects of Higher Aid

The net effect can be seen in Figure 1. Higher aid will indeed put upward pressure on the real exchange rate by causing "ex ante" excess demand for NT goods, at least to the extent that some of it will be spent on non-traded goods ($C_Q > 0$). The resulting increase in the real exchange rate will draw labor into the NT sector. In the African context this implies a shift out of agricultural cash crops production in rural areas into services employment, mostly in urban areas. To effect that transfer, the real wage in terms of traded goods, W , will increase (we move up from W_A to W_B). The increased labor costs in the external sector will translate into reduced external competitiveness and a decline in exports, all as a consequence of increased aid. Export promotion and increased aid are indeed conflicting objectives, requiring further policy intervention if they are to be reconciled.

3. A Theoretical Framework II: Export Promotion, Dynamic Gains from Trade and Other Intertemporal Aspects

In the previous section I showed how increased aid exerts upward pressure on the real exchange rate, causes high real traded product wages, and leads to a loss of external competitiveness and worsened export performance. Although all this sounds dramatic, it is in fact not enough to warrant explicit policy intervention: after all, a superficial observer could say, aid lessens the need for foreign exchange from other sources and so should lead to lower exports.

That, however, glosses over some important intertemporal aspects. First, aid is almost certainly temporary, which means that foreign exchange, while relatively cheap now, will be expensive in the future. That would not

be a problem in a world with perfect capital markets, since rational firms in the export sector would borrow and invest now so as to have the capital in place when the decline in aid will lead to increased external competitiveness. However, capital markets in Africa are a far cry from perfect. This in turn means that a temporary appreciation will cause suboptimal investment in the export sector.

A second point is more subtle. There is widespread evidence that productivity growth has been faster in trade-oriented economies than in more inward looking countries. Moreover, if one believes, a la Arrow (1962), that such productivity gains, rather than taking place exogenously with the passage of time, are a function of accumulated experience, active export promotion is called for to capture these dynamic gains from trade. In such a world, an aid-induced temporary real appreciation indeed leads not only to lower exports today, but to lower productivity in the traded sector in the future, even if capital accumulation in that sector does not suffer. In the remainder of this section I present a model that incorporates both points and derive policy conclusions.

Consider a two-period extension of the model of the previous section: period one ("today," with aid) and period two ("tomorrow," without aid). Capital letters indicate period one variables and lower case letters indicate period two variables. We will run ahead of our story to some extent, by already incorporating the optimal policy intervention, a subsidy to traded goods producers, S . Under the realistic (for most of Sub-Saharan Africa) assumption of external balance constraints, the budget constraint in period one equals:

$$R(Q, 1 + S) + A - SR_p = E(0, 1 + S; U) \quad (6)$$

R_p is the output of traded goods (the derivative of R with respect to their price $P = 1 + S$). SR_p therefore represents the cost of the subsidy.

A similar expression holds for period 2, although there will be no aid then, and no need for further subsidies:

$$r(q, 1; R_p) = e(q, 1; u) \quad (7)$$

The argument R_p in r (R_p is first period output of traded goods) captures the dynamic gains from traded goods production. We assume that more traded goods output in period one increases productivity in that sector in period two ($r_{p3} > 0$, $r_{q3} < 0$). We assume, for convenience, that $r_{33} = 0$.

In both periods, the real exchange rate needs to clear the NT goods market:

$$R_Q = E_Q, \quad r_q = e_q \quad (8)$$

If the dynamic gains from trade are not internalized, either because entrepreneurs are not aware of them or because imperfect capital markets do not allow their exploitation, the optimal policy intervention is a first period subsidy to traded goods producers ("export promotion"). To determine the optimal subsidy level, one needs to maximize intertemporal welfare $V = V(U, u)$ subject to the constraints set up so far. Note that tariff protection is not called for, since a tariff would add an unnecessary consumer tax to the optimal subsidy.

Derivation of V with respect to S using the budget constraints (6) and (7) yields

$$-\frac{\partial V}{\partial U} \bar{r}_U^{-1} S + \frac{\partial V}{\partial u} \bar{e}_U^{-1} r_3 = 0 \quad (9)$$

or

$$S^* = \lambda r_3 \quad ; \quad \lambda = \frac{\pi \partial V / \partial u}{\pi \partial V / \partial U}$$

λ is the ratio of marginal utility of income tomorrow over the marginal utility of income today. In a perfect capital market, λ would equal one over one plus the world interest rate. That is clearly not relevant in the African context. The formula for optimal export promotion has a nice intuitive interpretation. If private producers of traded goods receive the benefits λr_3 , generated on the margin by the dynamic externality, they will produce the socially optimal level of traded goods in period one.

But this paper is not concerned with the need for export promotion per se. Instead, we wish to know whether increased aid strengthens the case for policies oriented towards export promotion and whether it raises the cost of the anti-export bias embedded in the trade policies of so many African countries. This we will show to be the case.

The workings of the model can be demonstrated using the diagram in Figure 2.^{1/} The locus NT1 in the first quadrant depicts non-traded goods

^{1/} The algebra of this model (applied to a rather different problem) can be found in van Wijnbergen (1984b).

market equilibrium in period one. Increased export promotion (higher S) draws resources out of the NT sector in the T-sector, putting upward pressure on the real exchange rate Q (NT1 slopes up). This is an unavoidable byproduct of export promotion.

The locus NT2 in quadrant 2 describes non-traded goods market equilibrium in period two. A higher first period real exchange rate Q draws resources out of the T-sector, thereby reducing the dynamic productivity gains arising in that sector. In the second period, therefore, traded goods production takes place with lowered productivity. This in turn means the private sector will devote less resources to it and produce more NT goods instead in period two. A fall in the period-2 real exchange rate follows (NT2 has a negative slope).

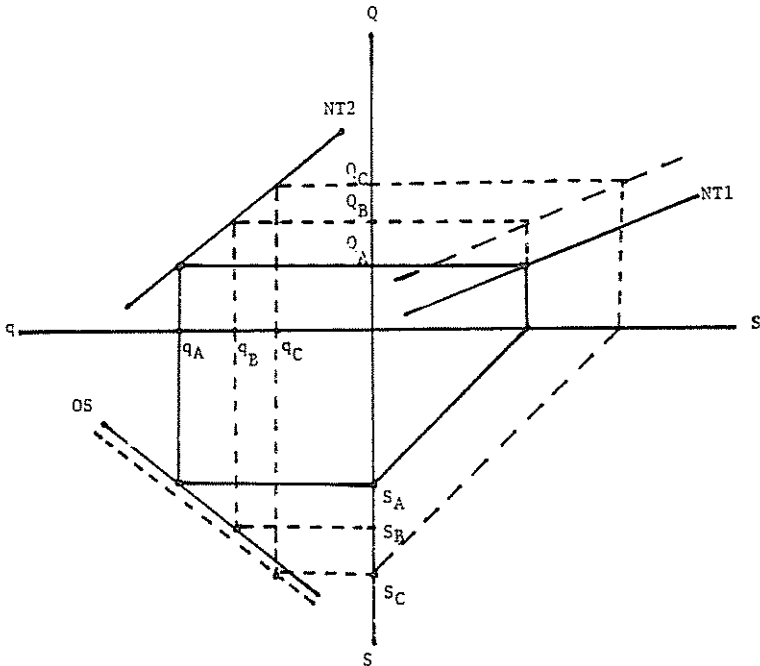


Figure 2: Optimal Export Promotion, Increased Aid Flows and the Real Exchange Rate

The third quadrant gives the link between the future real exchange rate q and the optimal level of export promotion in the current period (the locus OS). An anticipated future depreciation (q falls) increases the value of traded goods in that period and therefore increases the value of future productivity increases in that sector. Therefore an anticipated future depreciation strengthens the need for export promotion: S goes up and the OS schedule has a negative slope.

We can use this framework to explore the implications of a temporary aid program. Consider first the exchange rate effects. An increase in A will in period i , via the mechanisms outlined in Section 3, lead to a real appreciation in the same period (Q goes up and NTI shifts upward; see dotted line in quadrant 1). Some of the aid gets spent on NT goods necessitating a higher real exchange rate and a diversion of resources out of the traded goods sector. This is the conflict between aid and export promotion we encountered in the previous section.

New in this section are the intertemporal aspects. Reduced first period export performance reduces the dynamic gains from trade and therefore reduces future productivity in traded goods production. Accordingly, resources will be diverted away from the traded goods sector into the NT sector, leading to reduced export performance. Aid, even when temporary, permanently worsens export performance, unless proper policy measures are taken.

This brings us to the third quadrant and our main interest, the policy implications of the effects on the exchange rate and export performance of temporary development aid. The first effect comes through the anticipated future depreciation once the aid flows will stop (i.e., Q falls from Q_A to

Q_B). This means that traded goods will be more valuable in the future and so are, therefore, the dynamic productivity gains that come with more traded goods production today. This effect is measured by the slope of the OS schedule in quadrant three: export promotion should increase from S_A to S_B along OS.

There is, moreover, a second effect at play. Temporary aid increases income today and therefore decreases its marginal utility today. This raises the social discount factor and shifts the tradeoff between current costs and future benefits that determines the optimal level of export promotion in favor of tomorrow and so in favor of more export promotion. In terms of our diagram, the OS schedule shifts out and the optimal level of export promotion goes up further, from S_B to S_C . This second effect of course only matters in imperfect capital markets, since with perfect markets there will be no wedge between the social discount factor and the discount factor prevailing in international capital markets; however, the assumption of perfect capital markets has little relevance for Sub-Saharan Africa.

4. Aid and the Real Exchange Rate: Empirical Results

In this section I present empirical evidence documenting the impact of aid flows on the real exchange rate and on the real traded product wage. To obtain this evidence I have estimated real exchange rate equations based on the theoretical model presented in section 2 and in line with the by now standard specification used in the analysis of the structural determinants of real exchange rates (Edwards (1985), Edwards and Ng (1985), Hsieh (1982) and Ghanem and Kharas (1985)). Also, since I argued that real traded product

wages play an important role, I present similar results for the real traded product wage.

The real exchange rate (RXR) is defined as the local currency index of import prices over the CPI (cf Edwards and Ng (1985)) for a discussion of different ways of defining and measuring the real exchange rates. Real traded product wages (RXRW) are defined as the hourly wage in the manufacturing sector over the local currency index of import prices; no wage index with sufficiently wide coverage was available for other traded goods sectors such as cash crops, etc. Finally aid (RAID) is the sum of disbursements of grants and concessional loans in dollars, deflated by the dollar import price index. We also include disbursement of non-concessional loans (RNT).

Since our main interest is in the effect of aid on the real exchange rate, I will not present the complete estimation results for all countries (these are, however, available from the author on request). To give the reader an idea of what has been estimated, I present the complete results for one country only, and then proceed to list the elasticity of the real exchange rate and the real traded product wage with respect to the real volume of aid for all countries in the sample.

Consider then first the complete results for Kenya before proceeding to the summary information on cross-country elasticities. The equation is based on (4), with U substituted out through the budget constraint. I do not have any data on total factors supplies; this is, therefore, proxied by total real GDP (RGDP). I also incorporate the Balassa-Samuelson effect of differential technological progress through inclusion of (equally) weighted average of the current and once lagged growth rate difference between the country under consideration and the industrial countries as a group (GDIF; cf

Edwards (1985) for a defense of this procedure). Finally, in a departure from the simple one-traded-good assumption of the previous two sections I include the terms of trade (TOT, export over import prices). \ln indicates a natural logarithm. The results for Kenya are:

$$\begin{aligned} \ln(\text{RXR}) = & -4.78 + 1.11 \ln(\text{RGDP}) - 0.02 \text{GDIF} - 0.28 \ln(\text{TOT}) \\ & (-4.41)(23.06) \quad (-7.86) \quad (-2.41) \\ & - 0.44 \ln(\text{RAID}) - 0.22 \ln(\text{RAID}(-1)) \\ & (-6.30) \quad (-2.08) \\ & - 0.0003 \text{RNT} \\ & (-6.51) \end{aligned}$$

$$R^2 = 0.996 \quad \text{DW} = 2.248$$

Note: OLS with Cochrane-Orcutt correction from 1969 to 1983. t-statistics are provided in parentheses.

The coefficients are all of the expected sign, although in particular the terms of trade effects are imprecisely estimated. An increase in aggregate supply leads to a real depreciation (the coefficient of $\ln(\text{RGDP})$), while positive growth rate differences lead to a real appreciation as argued in Balassa (1964). A terms of trade improvement also leads to a real appreciation (again in accordance with theory; see Edwards and van Wijnbergen (1985)), although this effect is not precisely estimated.

Of most interest is however the strong and highly significant effect of real aid flows on the real exchange rate. Higher volumes of aid lead to an appreciation of the real exchange, as predicted by the theory of section 2.

In the first year the elasticity is 0.44, but that increases to 0.66 after a second year has gone by.

Similar confirmation of the theoretical framework used is found by looking at the empirical results for the real traded product wage. This equation is derived by substituting (3) and (4) in (2):

$$\begin{aligned} \ln (\text{RXRW}) = & 12.77 - 1.81 \ln (\text{RGDP}) + 0.03 \text{GDIF} + 0.25 \ln (\text{TOT}) \\ & (8.81) \quad (-21.44) \qquad (7.91) \qquad (1.68) \\ & + 0.20 \ln (\text{RAID}) + 0.40 \ln (\text{RAID}(-1)) \\ & (2.05) \qquad (3.59) \\ & + 0.0004 \text{RNT} \\ & (4.74) \end{aligned}$$

$$R^2 = 0.993 \quad DW = 3.752$$

Note: OLS from 1969 to 1983. t-statistics are provided in parentheses.

Once again all signs are as predicted by the theory. Of particular importance is the strong and highly significant positive effect of real aid flows on the real traded product wage: a first year elasticity of 0.20 and a total elasticity of 0.60.

Consider now the cross-country results on elasticity of the real exchange rate and, where available, the real traded product wage, with respect to the real volume of aid. The results are summarized in table 1.

Table i

	ln(RXR)		ln(RXRW)	
	ln(RAID)	ln(RAID(-1))	ln(RAID)	ln(RAID(-1))
Kenya	-0.37 (-2.78)	-0.18 (-1.43)	0.21 (2.08)	0.40 (3.56)
Egypt	-0.43 (-4.70)	*	NA	NA
Malawi	*	-0.49 (-2.49)	0.14 (0.43)	0.44 (1.35)
Sierra Leone	*	-0.27 (-1.58)	0.09 (0.34)	*
Tanzania [B]	-0.20 (-0.73)	*	NA	NA
Ghana [B]	-0.70 (-2.48)	-0.17 (-0.58)	1.15 (3.90)	1.35 (4.55)

Note: Elasticities of the real exchange rate RXR and the real traded product wage RXRW with respect to the real volume of aid disbursement are estimated by OLS from 1969 to 1983. [B] indicates that the black market exchange rate was used in the calculation of the real exchange rate. * indicates that a variable had a low coefficient with t- statistic below 0.10 and was therefore omitted. NA indicates wage data were not available.

The results strongly support the theoretical prediction that increases in the real volume of aid cause real appreciation. The size of coefficient (summed over both years where relevant) ranges from a low 0.20 in Tanzania towards a high 0.87 in Ghana. Moreover the relevant coefficients are highly significant in all countries except Tanzania and, to a lesser extent, Sierra Leone.

In the theoretical section I argued that the mechanism behind the aid-real appreciation link starts with aid-triggered excess demand for non-traded goods "ex ante", subsequent real wage pressure in the traded sector and finally a real appreciation. This argument is supported by the second set of

elasticities report in table i, those of the real product wage in manufacturing with respect to real aid flows. The total elasticity (summed over two years) ranges from a low and insignificant 0.09 in Sierra Leone to a staggeringly high and very significant 2.50 in Ghana. The coefficients are moreover all highly significant except for Sierra Leone.

These results strongly suggest that the "Dutch Disease effect" of aid should feature high in any investigation of the poor export performance of Africa, and in policy discussions concerning the stimulation of export oriented growth.

5. Conclusions

The purpose of this paper was not to argue that aid is without merit or to belabor the obvious point that aid is no panacea. Rather, I point out that aid, like many otherwise effective medicines, has unwanted side effects that require explicit policy attention. In particular, aid will exert upward pressure on the real exchange rate, lead to increased labor costs in traded goods producing sectors and reduce external competitiveness. If reduced export performance is to be avoided after substantial increase in the volume of aid, explicit policies need to be designed to reduce the conflict between export promotion and aid.

I outlined conditions under which this conflict is particularly severe, and the need for policy adjustment most pressing. When traded goods production is characterized by positive "Learning by Doing" externalities, increases in aid will permanently reduce productivity in export sectors. If, in addition, capital markets are imperfect, the case for explicit export promotion becomes even stronger.

Conversely, under such circumstances increased aid will magnify the cost of inward oriented anti-export intervention in trade. The possibility of a vicious circle is a real one: distortionary anti-export biases in trade policies lead to poor trade performance and lower real income, which makes the country involved a more likely aid recipient; however, increased aid will lead to further deterioration in trade performance and increase the dynamic costs of anti-export policies, while at the same time allowing their continuation. Therefore, the argument presented in this paper presents a strong case for aid conditionality, making the transfer of aid conditional on the reduction of anti-trade biases in trade and domestic tax policies.

I finally present strong empirical evidence supporting the relation between increases in real aid flows and appreciation of the real exchange rate that underlies the concerns on the negative link between aid and export performance raised in this paper. Moreover in the theoretical section upward pressure on real traded product wages was identified as an important element of the mechanism through which aid leads to real appreciation; econometric evidence also presented here strongly confirms the upward effect of higher aid on real traded product wages.

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Appendix:

Data, Definitions, Values and Sources

Table 1
REAL GDP GROWTH RATE AND GROWTH DIFFERENTIALS
(in percent)

	Comeroon		Egypt		Ghana		Kenya		Malawi		Sierra Leone		Tanzania	
	GR.	DIF.	GR.	DIF.	GR.	DIF.	GR.	DIF.	GR.	DIF.	GR.	DIF.	GR.	DIF.
1968	6.5	1.2	2.7	-2.6	0.4	-4.9	8.0	2.7	-1.9	-7.2	-0.8	-6.1	5.8	0.5
1969	4.9	-0.1	6.8	1.8	6.0	1.0	8.0	3.0	5.9	0.9	12.2	7.2	3.0	-2.0
1970	3.0	0.1	5.6	2.7	9.7	6.8	-4.7	-7.6	0.5	-2.4	10.3	7.4	6.6	3.7
1971	3.8	0.2	3.4	-0.2	5.2	1.6	22.2	18.6	16.2	12.6	2.7	-0.9	3.4	-0.2
1972	2.6	-2.8	2.0	-3.4	-2.5	-7.9	17.1	11.7	6.2	0.8	-1.1	-6.5	7.3	1.9
1973	5.5	-0.5	0.7	-5.3	2.9	-3.1	5.9	-0.1	2.3	-3.7	3.1	-2.9	5.5	-0.5
1974	11.1	10.5	2.5	1.9	6.9	6.3	4.1	3.5	7.2	6.6	4.0	3.4	2.6	2.0
1975	-0.9	-0.5	9.1	9.5	-12.4	-12.0	0.9	1.3	6.0	6.4	3.0	3.4	3.8	4.2
1976	4.4	-0.6	14.6	9.6	-3.5	-8.5	2.2	-2.8	5.0	0.1	-3.0	-8.0	7.9	2.9
1977	8.8	4.9	12.7	8.8	2.3	-1.6	9.5	5.6	4.9	1.0	2.0	-1.9	6.6	2.7
1978	11.2	7.2	5.8	1.8	8.5	4.5	6.9	2.9	9.8	5.8	-0.2	-4.2	2.6	-1.4
1979	4.3	1.0	6.0	2.7	-3.9	-7.2	3.9	0.6	6.3	3.0	7.4	4.1	3.5	0.2
1980	7.7	6.4	13.0	11.7	1.7	0.4	4.8	3.5	-0.1	-1.4	3.0	1.7	2.6	1.3
1981	10.3	8.7	7.8	6.2	-5.7	-7.3	3.9	2.3	-0.3	-1.9	1.3	-0.3	-0.7	-2.3
1982	5.3	5.4	5.9	6.0	-6.5	-6.4	2.0	2.1	2.6	2.7	-0.2	-0.1	-3.2	-3.1
1983	4.4	2.0	5.7	3.3	0.7	-1.7	3.9	1.5	4.4	2.0	-0.3	-2.7	-5.7	-8.1

Note: Growth differentials are calculated as the percentage changes of real GDP in African countries minus the average growth rate of industrial countries.

Sources: World Table, IRRD; and International Financial Statistics, IMF.

Table 2

TOTAL NET ODA AND NET TRANSFERS OF NON-CONGRESSIONAL LOANS
(\$ million)

	Guatemala			Egypt			Ghana			Kenya			Malawi			Sierra Leone			Tanzania		
	Total Aids & Grants	Net Tr.	Loans	Total Aids & Grants	Net Tr.	Loans	Total Aids & Grants	Net Tr.	Loans	Total Aids & Grants	Net Tr.	Loans	Total Aids & Grants	Net Tr.	Loans	Total Aids & Grants	Net Tr.	Loans	Total Aids & Grants	Net Tr.	Loans
1968	23.2	1.1	22.2	-03.8	32.2	6.9	42.2	0.8	23.2	-3.1	10.1	-4.8	33.7	14.8							
1969	37.5	10.4	10.8	-103.1	71.2	-4.6	55.9	-9.2	27.6	-0.3	8.9	-5.0	39.2	12.8							
1970	59.3	13.0	50.2	70.2	59.0	-16.1	57.5	17.0	36.9	10.3	6.8	-5.0	51.2	0.9							
1971	48.2	10.0	38.6	155.8	56.7	-14.3	67.0	-14.0	31.6	-2.8	10.4	-5.1	61.3	5.3							
1972	63.5	42.2	35.3	83.1	58.1	-7.5	71.8	45.7	36.2	1.3	10.3	-1.7	58.6	2.6							
1973	60.8	0.5	79.1	-234.1	40.6	-6.0	94.6	115.5	29.6	1.9	14.0	1.6	96.2	-2.7							
1974	62.3	18.7	169.2	53.4	36.6	7.9	117.6	133.9	41.7	-0.3	10.5	26.6	162.5	2.2							
1975	125.3	55.9	346.5	-23.7	125.6	-30.1	130.6	36.5	63.9	7.7	18.1	9.0	297.5	21.0							
1976	134.2	98.7	519.9	-28.6	66.0	-7.6	160.0	106.0	64.1	15.4	15.1	-7.4	267.0	23.9							
1977	175.7	149.6	745.8	373.0	91.2	37.5	186.3	36.5	89.1	49.3	26.2	5.8	340.1	66.0							
1978	177.7	134.1	1052.9	17.7	133.9	26.8	283.0	312.0	98.7	59.6	40.2	6.3	424.1	91.0							
1979	274.0	294.6	1450.6	303.7	169.9	3.0	350.6	148.0	141.8	43.6	53.2	8.2	588.3	139.5							
1980	264.1	289.9	1387.5	84.8	191.6	-39.1	396.5	111.7	143.3	39.5	92.9	13.6	666.2	164.3							
1981	200.4	93.5	1292.9	402.8	145.3	6.5	449.3	-43.8	137.6	-1.7	60.9	9.9	673.3	70.6							
1982	213.6	-80.8	1462.2	302.6	141.2	-9.9	464.9	-106.0	121.2	-27.5	82.2	4.6	695.3	91.7							
1983	131.4	141.4	1444.3	204.3	107.1	2.4	397.3	-130.6	116.7	-35.5	59.0	-3.8	577.0	131.9							

Source: Development Co-operation Annual Review, OED, and External Debt Files, IFOD.

Table 3

EXPORT PRICE AND IMPORT PRICE INDICES
(1980=100)

	Cameroon		Egypt		Ghana		Kenya		Malawi		Sierra Leone		Tanzania	
	Export	Import	Export	Import	Export	Import	Export	Import	Export	Import	Export	Import	Export	Import
1968	28.5	34.3	13.8	16.8	5.9	6.8	23.4	18.6	35.1	26.0	27.3	22.2	29.3	21.2
1969	30.0	35.3	14.2	17.1	7.2	7.2	23.2	18.8	37.6	26.3	28.9	25.8	29.8	21.4
1970	35.5	38.6	14.0	17.3	7.3	9.3	25.0	19.1	42.6	26.2	30.1	26.0	30.9	22.7
1971	34.4	37.4	14.6	18.7	6.4	11.2	25.5	21.0	47.2	28.3	30.7	28.9	31.7	24.1
1972	32.3	40.2	14.1	18.9	8.1	13.8	31.4	24.1	45.2	30.0	31.2	31.2	31.8	26.2
1973	35.3	45.7	17.4	20.2	10.5	12.7	34.7	28.6	52.5	34.5	37.5	36.1	37.8	30.9
1974	45.4	53.0	28.0	32.6	15.2	19.0	44.7	41.0	69.0	46.4	41.2	41.6	57.3	46.3
1975	53.0	66.5	27.8	37.8	18.6	21.5	50.6	51.3	80.9	56.4	51.2	51.8	54.1	51.2
1976	51.5	72.7	32.2	41.8	17.8	24.3	65.6	58.9	90.5	71.7	55.5	59.8	74.0	57.1
1977	78.0	80.6	36.9	48.0	27.0	28.1	88.0	63.4	119.2	71.7	61.0	60.9	100.3	64.4
1978	83.9	81.9	42.4	60.3	42.3	47.9	78.9	67.1	107.3	72.1	84.0	62.0	87.6	69.4
1979	87.4	90.3	79.3	88.1	116.4	80.2	83.9	77.4	96.7	82.1	94.0	78.0	93.9	86.5
1980	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1981	76.2	99.3	108.7	96.4	71.0	102.6	93.7	107.1	104.2	98.4	85.1	101.3	88.9	101.0
1982	69.9	97.1	99.2	90.8	60.5	98.1	90.2	102.8	102.7	96.1	82.7	97.0	85.2	97.0
1983	70.0	92.0	89.0	86.0	58.0	91.0	84.0	95.2	114.0	90.0	86.0	91.0	83.0	91.0

Sources: UNCTAD, UN; and World Table IIRD.

Table 4

TERMS OF TRADE IN SELECTED AFRICAN COUNTRIES
(1980=100)

	Cameroon	Egypt	Ghana	Kenya	Malawi	Sierra Leone	Tanzania
1968	83.2	82.0	87.2	125.5	134.9	123.0	138.0
1969	85.0	83.3	98.8	123.3	142.8	112.1	138.8
1970	92.1	80.8	78.4	130.6	163.1	115.8	136.0
1971	91.9	78.1	56.8	121.4	166.4	106.2	131.6
1972	80.2	74.6	59.0	129.9	150.4	99.8	121.3
1973	77.2	86.2	82.6	121.5	151.9	98.5	122.1
1974	85.6	85.8	80.1	109.0	148.6	99.0	123.7
1975	79.7	73.7	86.7	98.6	143.5	98.8	105.7
1976	70.9	76.9	73.2	111.4	126.1	92.8	129.6
1977	96.8	76.9	96.1	138.9	166.2	100.3	155.7
1978	102.4	70.3	88.4	117.6	148.8	135.5	126.2
1979	96.8	90.0	145.2	108.5	117.8	120.5	108.6
1980	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1981	76.8	112.8	69.2	87.5	105.9	84.0	88.0
1982	72.0	109.3	61.7	87.8	106.9	85.2	87.8
1983	76.1	103.5	63.7	88.2	126.7	94.5	91.2

Note: Terms of trade is calculated by the ratio of the export unit value to the import unit value.

Sources: UNCTAD, UN; and World Table, IBRD.

Table 5

MONTHLY WAGE IN MANUFACTURING AND CONSUMER PRICE INDEX
(1980=100)

	Cameroon		Egypt		Ghana		Kenya		Malawi		Sierra Leone		Tanzania	
	WAGE	CPI	WAGE	CPI	WAGE	CPI	WAGE	CPI	WAGE	CPI	WAGE	CPI	WAGE	CPI
1968	41.6	35.0	40.4	36.1	11.1	3.1	44.2	31.5	40.3	37.0	36.9	31.9	38.7	26.0
1969	36.2	34.6	45.7	39.4	11.7	3.3	45.7	31.2	45.5	37.3	41.3	32.8	41.1	26.3
1970	47.7	36.6	45.1	40.9	13.8	3.4	51.1	31.9	46.4	40.8	43.4	35.1	43.0	27.0
1971	41.4	38.1	44.5	42.2	14.1	3.7	49.6	33.1	48.7	44.2	43.7	34.5	45.0	28.3
1972	66.7	41.2	52.0	43.0	14.0	4.1	50.7	35.0	53.7	45.8	42.7	36.4	46.4	30.5
1973	72.1	45.5	52.9	44.9	13.5	4.8	54.5	40.8	53.1	48.1	64.0	38.4	51.8	33.7
1974	46.4	53.3	59.5	49.8	19.1	5.7	58.1	45.7	62.3	55.6	53.0	44.0	70.8	40.2
1975	66.7	60.5	61.4	54.6	21.4	7.4	66.3	54.4	63.9	64.1	59.2	52.7	71.8	50.8
1976	66.7	66.5	73.9	60.2	22.6	11.5	70.6	60.6	65.5	66.9	63.5	61.8	76.1	54.4
1977	72.0	76.3	87.9	67.9	40.5	24.9	78.1	69.6	71.3	69.7	66.2	66.9	80.6	60.6
1978	94.5	85.8	100.0	75.4	55.3	43.2	82.5	81.4	77.4	75.7	69.4	74.2	78.9	67.5
1979	96.5	91.5	—	82.9	64.4	66.6	86.6	87.9	83.6	84.0	72.3	90.0	89.4	76.8
1980	100.0	100.0	—	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1981	116.3	110.7	—	110.3	124.8	216.5	111.1	111.8	112.0	109.5	100.5	123.3	—	125.6
1982	116.4	125.4	—	126.7	—	264.8	123.4	134.7	163.3	119.7	—	161.6	—	162.0
1983	—	146.0	—	146.9	—	590.1	133.7	150.2	—	138.1	—	274.2	—	205.8

a/ 1978=100

Sources: World Table, IRRD, and Yearbook of Labor Statistics, ILO.

Table 6

NOMINAL EXCHANGE RATE AND BLACK MARKET RATE IN SELECTED AFRICAN COUNTRIES
(Local currencies per US\$)

	Cameroon			Egypt			Ghana			Kenya			Malawi			Sierra Leone			Tanzania		
	Nominal Exch. Rate	Black Market Rate	Nominal Exch. Rate	Nominal Exch. Rate	Black Market Rate	Nominal Exch. Rate	Nominal Exch. Rate	Black Market Rate	Nominal Exch. Rate	Nominal Exch. Rate	Black Market Rate	Nominal Exch. Rate	Nominal Exch. Rate	Black Market Rate	Nominal Exch. Rate	Nominal Exch. Rate	Black Market Rate	Nominal Exch. Rate	Nominal Exch. Rate	Black Market Rate	
1968	246,853	—	0.435	0.840	1.855	7,143	8,250	0.833	0.901	0.833	0.901	0.833	0.833	—	—	—	—	—	—	—	—
1969	259,710	—	0.435	0.907	1.020	7,143	9,100	0.833	0.976	0.833	0.976	0.833	0.833	—	—	—	—	—	—	—	—
1970	277,710	279,917	0.435	0.914	1.020	7,143	9,708	0.833	1.024	0.833	1.024	0.833	0.833	—	—	—	—	—	—	—	—
1971	277,130	280,833	0.435	0.832	1.029	7,143	9,608	0.831	1.250	0.831	1.250	0.830	0.830	—	—	—	—	—	—	—	—
1972	252,210	246,479	0.435	0.805	1.325	7,143	9,438	0.892	1.144	0.801	1.144	0.801	0.801	—	—	—	—	—	—	—	—
1973	222,700	226,500	0.398	0.672	1.161	7,001	10,654	0.819	0.915	0.816	0.915	0.816	0.816	—	—	—	—	—	—	—	—
1974	240,500	239,625	0.391	0.637	1.150	7,143	8,571	0.851	0.922	0.856	0.922	0.856	0.856	—	—	—	—	—	—	—	—
1975	214,320	215,342	0.391	0.708	1.150	7,363	8,763	0.864	1.244	0.864	1.244	0.864	0.864	—	—	—	—	—	—	—	—
1976	238,990	236,771	0.391	0.761	1.150	8,367	9,379	0.913	1.475	0.913	1.475	0.913	0.913	—	—	—	—	—	—	—	—
1977	265,670	265,593	0.391	0.721	1.150	8,277	8,625	0.903	1.469	0.903	1.469	0.903	0.903	—	—	—	—	—	—	—	—
1978	225,640	227,188	0.391	0.718	1.764	8,955	8,396	0.844	1.567	0.844	1.567	0.844	0.844	—	—	—	—	—	—	—	—
1979	212,720	216,104	0.700	0.750	2.750	7,475	8,513	0.817	1.513	0.817	1.513	0.817	0.817	—	—	—	—	—	—	—	—
1980	211,300	209,521	0.700	0.762	2.750	15,868	7,630	0.813	1.577	0.812	1.577	0.812	0.812	—	—	—	—	—	—	—	—
1981	271,730	274,667	0.700	0.876	2.750	26,250	10,867	0.895	1.876	0.895	1.876	0.895	0.895	—	—	—	—	—	—	—	—
1982	128,630	312,833	0.700	1.040	2.750	61,467	14,004	1.056	1.898	1.056	1.898	1.056	1.056	—	—	—	—	—	—	—	—
1983	361,070	400,333	0.700	1.114	8.830	76,583	16,238	1.175	1.828	1.175	1.828	1.175	1.175	—	—	—	—	—	—	—	—

Sources: International Financial Statistics, IMF; and Pick's Currency Yearbooks.

Table 7

REAL EFFECTIVE EXCHANGE RATE INDICES IN SELECTED AFRICAN COUNTRIES
(1980=100)

	Cameroon	Egypt	Ghana	Kenya	Malawi	Sierra Leone	Tanzania
1968	103.29	51.84	355.46	86.95	80.39	70.62	116.48
1969	113.40	51.76	341.24	89.77	82.29	70.61	103.23
1970	118.43	52.41	350.67	92.98	78.97	70.16	105.81
1971	118.71	53.48	344.88	96.11	77.92	75.54	107.94
1972	113.68	57.53	442.02	98.89	77.48	76.89	109.12
1973	113.29	61.03	394.16	104.00	87.75	84.40	112.91
1974	123.84	64.51	391.25	107.25	92.43	91.08	114.72
1975	106.16	64.00	334.38	101.83	91.19	90.12	102.84
1976	106.77	58.85	215.56	105.00	90.80	92.70	110.28
1977	102.72	55.85	109.73	100.90	96.98	99.54	108.40
1978	96.16	57.22	94.47	93.20	96.69	96.85	103.15
1979	99.30	106.76	131.36	96.26	99.57	94.53	110.94
1980	100.00	100.00	100.00	100.00	100.00	100.00	100.00
1981	103.00	86.93	44.17	105.49	95.81	84.86	79.19
1982	103.76	73.26	34.87	103.91	96.04	65.46	66.60
1983	98.92	61.61	18.91	112.75	92.13	49.36	60.98

Note: Real Effective Exchange Rate indices are calculated as the trade weighted geometric average of the bilateral exchange rates adjusted by the ratio of domestic consumer price index to the corresponding trade to the corresponding trade partner wholesale price index

Sources: International Financial Statistics, IMF; and Direction of Trade Statistics, IMF.

Table 8

REAL EXCHANGE RATE INDICES USING IMPORT PRICES
(1980=100)

	Cameroon	Egypt	Ghana	Kenya	Malawi	Sierra Leone	Tanzania
1968	114.5	27.3	81.4	56.8	72.3	55.1	71.2
1969	125.5	24.0	81.4	57.9	72.4	62.4	71.0
1970	138.5	26.2	101.6	57.8	65.7	58.9	73.2
1971	128.8	27.5	114.3	60.9	65.6	66.1	74.0
1972	116.6	27.2	162.9	66.4	64.7	65.4	74.8
1973	105.9	27.9	112.4	66.0	72.4	77.2	78.6
1974	113.4	36.6	139.6	86.4	86.6	77.1	100.4
1975	111.5	38.7	121.3	93.3	93.5	84.7	90.5
1976	123.7	38.8	88.3	109.6	120.5	102.5	107.4
1977	122.8	39.5	47.3	101.5	114.4	99.4	107.5
1978	102.0	44.7	71.1	85.8	99.0	83.4	96.7
1979	99.3	106.3	120.4	88.7	98.3	87.3	112.9
1980	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1981	115.3	87.3	47.4	116.8	99.1	90.7	81.3
1982	120.5	71.7	37.1	112.3	104.4	70.8	67.8
1983	113.7	58.5	49.5	113.7	94.3	59.6	60.1

Note: Real exchange rate indices using import prices are calculated as the nominal exchange rate adjusted by the ratio of the import unit value to the domestic consumer price index.

Sources: International Financial Statistics, IMF; and World Table, IBRD.

Table 9

REAL EXCHANGE RATE INDICES USING BLACK MARKET RATES
(1980=100)

	<u>Cameroon</u>	<u>Egypt</u>	<u>Ghana</u>	<u>Kenya</u>	<u>Malawi</u>	<u>Sierra Leone</u>	<u>Tanzania</u>
1962	—	48.5	25.7	59.5	40.2	—	32.1
1969	—	51.7	23.5	66.9	43.6	—	35.3
1970	147.7	50.7	29.9	71.2	41.5	—	40.2
1971	117.6	46.4	28.9	74.3	50.8	—	46.5
1972	114.8	46.3	35.5	79.5	47.6	—	62.2
1973	107.6	39.7	25.1	91.1	41.6	—	63.5
1974	113.8	34.9	36.3	94.1	48.8	—	73.9
1975	112.9	64.3	36.3	101.0	69.3	—	98.5
1976	123.6	67.6	35.7	111.4	100.2	—	109.6
1977	123.7	66.9	65.5	95.9	95.2	—	108.6
1978	103.5	75.4	62.5	84.6	94.6	—	63.9
1979	101.8	104.6	118.1	91.6	93.8	—	64.2
1980	100.0	100.0	100.0	100.0	100.0	—	100.0
1981	117.6	100.4	78.4	127.2	106.9	—	105.5
1982	123.0	97.8	144.0	130.6	92.1	—	92.9
1983	120.4	85.6	74.4	125.8	75.6	—	83.3

Note: Real exchange rate indices using black market rates are calculated as the average black market exchange rates adjusted by the ratio of import unit value to the domestic consumer price index.

Sources: Pick's Currency Yearbooks; and World Table, IBRD.

Table 10
REAL EXCHANGE RATE INDICES USING MANUFACTURING WAGES
(1980=100)

	<u>Cameroon</u> ^{a/}	<u>Egypt</u> ^{b/}	Ghana	Kenya	Malawi	Sierra Leone	Tanzania
1968	103.7	130.9	438.8	246.6	150.7	209.8	209.3
1969	83.4	145.3	437.1	252.6	168.4	201.6	219.7
1970	94.2	141.6	400.2	277.3	172.7	209.7	217.5
1971	84.2	129.4	332.4	245.6	167.8	191.6	214.6
1972	138.8	149.7	210.3	218.1	181.1	179.2	203.4
1973	149.6	142.3	249.6	202.3	152.5	215.9	195.5
1974	76.7	110.0	240.4	147.2	129.8	156.4	175.4
1975	99.0	98.1	239.0	130.7	106.6	132.6	156.2
1976	81.1	106.6	223.1	106.3	81.2	100.3	130.5
1977	76.9	110.5	343.9	110.5	89.4	99.6	123.7
1978	108.1	100.0	180.3	117.4	103.3	112.2	120.9
1979	106.2	—	80.4	111.2	101.3	92.0	103.1
1980	100.0	—	100.0	100.0	100.0	100.0	100.0
1981	91.1	—	121.6	85.1	103.3	89.9	—
1982	77.0	—	—	81.6	130.7	—	—
1983	—	—	—	—	—	—	—

^{a/} Using nominal construction wage
^{b/} 1978=100

Note: Real exchange rate indices using manufacturing wage are calculated as the nominal exchange rate adjusted by the ratio of import unit value to the domestic manufacturing wage index.

Sources: World Table, IBRD; and Yearbook of Labor Statistics, ILO.

