The International Dimension of African Economic Growth
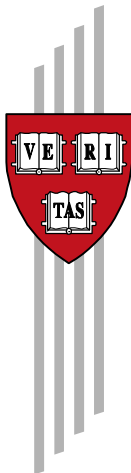
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Abstract

The paper sheds light on the importance of the international dimension for African economic growth. While existing evidence points to a positive impact of openness on growth, the appropriate dynamics of the implications are yet to be captured. The beneficial effects of exports are confirmed for African economies, though available evidence suggests that it is the manufacturing component that seems to really matter for growth. International shocks in the form of terms of trade declines; economic instabilities of capital (investment) and imports; world interest rates; real exchange rate misalignment; and external debt all appear to exercise adverse implications for growth in Africa.

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The International Dimension of African Economic Growth

Augustin Kwasi Fosu

The African economic growth record has been uneven both intertemporally and cross-nationally. For example, the mean annual GDP growth for sub-Saharan Africa (SSA), excluding South Africa, was 4.8 percent, 2.8 percent, 2.6 percent, and 2.0 percent for the periods: 1965-73, 1974-84, 1985-89, and 1990-96, respectively. Thus there has been a general downward trend in growth over time, though more recent evidence shows a reversal of that trend since 1995, with an average growth rate of 3.8 percent (World Bank data). Cross-nationally, there is evidence of greater differences among SSA than among non-African countries.[1] During the 1970s and 1980s, for instance, we had in one extreme Botswana registering an average annual GDP growth rate of over 10 percent, and several other SSA countries (Kenya, Lesotho, Malawi, and Mauritius) exhibiting growth of about 5 percent. In the other extreme, many countries stagnated with growth rates of at most 1 percent (Chad, Ghana, Liberia, Mauritania, Niger, Sierra Leone, Zaire, and Zambia). There have been similar cross-national disparities during the latter part of the 1980s and in the 1990s.

Although domestic factors, both structural and policy, have been identified as explanatory variables for the above inter-temporal and cross-country differences, external factors are likely to be just as important. Indeed, Wheeler [1984] noted, with qualifications, that the role of "environmental variables", consisting mostly of external forces, was more important than that of "policy" (domestic) factors.

The present paper concentrates on reviewing the evidence on the role of the international dimension in influencing African economic growth. How have such factors as openness, trade/exports, international shocks, the real exchange rate, and external aid and debt affected economic growth in Africa? Although numerous studies have analyzed the importance of these variables for developing countries generally, the current paper focusses on the subset of those studies that concentrate on African economies.

I.   Openness

The extent to which economies may be affected by external factors will, of course, depend on the degree of their openness, which is multi-faceted. Different measures of openness could actually be contradictory. For example, export-promoting policies that subsidize exports may enhance openness, and increase growth, by augmenting the size of the export sector. That same policy, however, distorts international prices and thus reduces openness. Nevertheless, a recent review study of openness concludes: "Open economies do grow more rapidly than closed economies...whether the measure of openness has to do with exchange rate overvaluation, relative price distortions, tariffs and quotas, share of trade in GDP, the black market premium, or a composite measure combining some of these with state monopolization of commodity exports and general socialism." (Easterly, 1998; p. 12)

Evidence on Africa regarding the role of openness is of two kinds. One group of studies, which contain some elements of the role of openness but do not necessarily concentrate on it, includes African countries as a sub-sample of the countries studied and assigns a dummy variable "Africa" to reflect possible African idiosyncratic differences (Barro [1991], Levine and Renelt [1992], DeLong and Summers [1992]). Several of these studies focus on African countries, however (Sachs and Warner [1997], Easterly and Levine [1997], Temple [1998], Collier and Gunning [1997]).

The other group of studies uses samples that comprise exclusively African economies. Those with significant focus on openness include: Fosu [1990, 1992a], Gyimah-Brempong [1991], Ghura and Grennes [1993], Lussier [1993], Assane and Pourgerami [1994], Ojo and Oshikoya [1995], Ghura [1995], Savvides [1995], and Rodrik [1998].

Though the findings in the above studies regarding the importance of openness for Africa differ somewhat, the overall result is that openness has a positive effect on growth in African economies. For example, Sachs and Warner [1997] find the lack of openness as by far the largest contributor to the dismal economic growth performance of sub-Saharan Africa (SSA).

The most comprehensive measure of openness appears to be the one used by Sachs and Warner [1995]. An economy is deemed open to trade if it satisfies five tests: (1) average tariff rates below 40 percent; (2) average quota and licensing coverage of imports of less than 40 percent; (3) a black market exchange rate premium of less than 20 percent; (4) no extreme controls (taxes, quotas, state monopolies) on exports; and (5) not considered a socialist country.

Sachs and Warner [1997], hereafter S-W, define their openness variable as the proportion of years within 1965-90 that an economy was open to international trade according to the above criterion. On the basis of a sample of 77-79 developing (some developed) countries, of which 23 were SSA, S-W find that the 1965-90 average annual growth rate of GDP per capita was positively associated with openness, and that the SSA dummy variable was insignificant. They further observe that the openness variable generates the greatest impact among their baseline-model variables, which account for approximately 90 percent of the variation in cross-country growth between 1965 and 1990. Table 1 presents the importance of these variables relative to openness. Note that S-W's remaining variables exhibited insignificant coefficients: growth of neighboring countries, ethno-linguistic fractionalization, national saving ratio, and inflation.

*************Table 1 about here****************

S-W observe that openness to international trade affects growth via two channels: direct impact on growth and the speed of convergence to steady state. "For the average country in the sample, a switch from a closed regime to a completely open regime is estimated to raise the annual growth rate by 2.21 percentage points." (p. 346)

The direct effect of African countries' pursuit of relatively closed policies was a reduction in growth of .7 percentage points, compared to 1.4 percentage points if they had adopted the openness policies of fast-growing East Asian countries (S-W [1998, table 5]). Hence, such fast-growing openness policies would have resulted in a 2.1 percentage point increase via the direct impact. Through its convergence-accelerating property (that is interaction with initial GDP per economically active person), openness associated with the East Asian fast-growing openness would additionally contribute a net increment of .3 percentage point to Africa's growth. Thus the total net effect of East Asian-type openness would have been 2.4 percentage points, three times the .8 percent mean annual per capita GDP growth for SSA over the 1965-90 sample period.

It appears, therefore, that there is much to celebrate about the joys of openness even for African economies. Nevertheless, as Easterly [1998] also argues, there are sorrows of openness as well. Open economies are more likely to be vulnerable to terms-of-trade shocks and capital inflow interruptions. It is further observed:

"These risks can be substantial as dramatized by the recent Latin American financial and currency crises, and even more recently by similar but relatively severe crises in East Asia. Arguably, such risks could have been minimized by countries pursuing the right policies to begin with. Nevertheless, the 'contagion' effect can be substantial, and the 'speculative attacks' may lead to overshooting of the long-run equilibrium exchange rates. Such short-run equilibria can be destabilizing and highly deleterious to both economic and political institutions. It is thus conceivable that these 'short-run' disturbances would have medium- or even long-term adverse impacts on affected economies." Fosu [1998b, p. 31]

In addition, it may be worth noting that had the S-W 1965-1990 sample period been extended to the more recent era when some of the deep sorrows of openness were felt in East Asia, the above S-W optimistic message for African economies regarding openness might have been dampened somewhat. It must also be stressed that within the framework of the endogenous growth theory, the rate of convergence between African economies and high-performing countries is likely to be much smaller than the one predicted under the standard neoclassical Solow-type model estimated by S-W.

In effect, there may be a relatively low rate of technological absorption by African countries even under openness, unless there are sufficient structural changes in these economies. For example, Hakura and Jaumotte [1998] find that technological absorption is much higher in cases where there is production of a similar product being traded (intra-industry) than where trading is inter-industry. In addition, deindustrialization is likely to accompany liberalization efforts that open up the economy without a concomitant program to overcome structural impediments, such as low levels of education and training, as well as poor physical and institutional infrastructure (e.g., Lall [1995]).

It needs also to be recognized that the cross-sectional study of the S-W type misses the important dynamics likely to be characteristic of the role of openness. The fast growing East Asian economies are much more open today than at their initial stages of development. "There is ample evidence to anchor the view that these economies used, at some points in their initial pushes toward development, interventionist policies that were hardly openness-enhancing." (Fosu [1998b, p. 33]

Indeed, some have argued that it was not so much the openness but capital accumulation that led to these countries' rapid development (e.g., Rodrik [1997]). As these economies grew, however, the need to open up became imperative, for new markets were required to overcome bottlenecks in the economy. "The most recent example, and perhaps classic story, is likely to be that of China. The evidence is clear that China did not achieve its recent and current economic successes by pursuing open-market policies early on with the rest of the world. Indeed, the historical record is

replete with many countries initially adopting relatively restrictive policies to sufficiently develop their industrial structure before subsequently opening up." (Fosu [1998b, p. 33]). There is also a potential problem with S-W's openness variable: the proportion of years within the sample period that an economy was considered open, as defined by an intersection of five test variables. For example, a country that was closed **initially**, but attained a higher level of capital accumulation and industrialization accompanied by growth (with or without much help from openness), and then opened up subsequently for a relatively long period, might receive a high openness score. Yet, it is quite possible that if that economy had opened up initially, according to the above openness criterion, it might not have garnered the requisite capital accumulation and industrialization. It is thus a sequencing problem, which has not been well addressed in the literature. Hence, knowledge of the optimal **path** of openness, currently lacking, is imperative.

Moreover, the relative potency of the test variables contained in the S-W's openness criterion is unknown. For instance, many studies have uncovered the deleterious effect of currency overvaluation. Might this be the major driving force or might it be some other variable?

Nor do we know the optimal **level** of openness. Is complete openness optimal? Hardly, for fallacy of composition and externality issues abound (Fosu [1998b, p. 33]). In particular, can the criteria levels established by S-W be considered optimal? Why not an average tariff threshold of 20 percent, for example, rather than the 40 percent specified by S-W?

The point here is that all we know is that those economies which were more open grew more rapidly. We do not, however, know if these economies could have grown even faster had they been more open, or if the optimal level is other than complete openness. Nor do we know the optimal path of openness with respect to the level of development. From a policy implication perspective, therefore, how far should we advise countries to open up, and should our advice differ with the level of development, for example?

II.   Trade, Exports and Growth

Export Expansion and Openness

The rate of export growth may be viewed as a form of openness. Export growth need not be synonymous with openness, however. On the one hand, a country with a large internal market may not need to concentrate its efforts on the export market and may thus exhibit a low level of export

expansion. Yet, such a country could have relatively low impediments to trade. Historically, the U.S. is considered a good example of this case.

On the other hand, countries may subsidize exports and/or impose relatively high selective tariffs on imports in order to protect certain industries, as in the case of several of the East Asian countries. In this regard, export expansion may be large, yet there is evidence of closedness. In such a case, therefore, the export promotion (EP) strategy may actually be backed by an amount of import substitution (IS).

Hence, export expansion need not be synonymous with openness. Using the S-W criterion of openness, for instance, one may classify an economy as not open where tariff rates are at least 40 percent, even though it may exhibit a high level of export expansion. On the other hand, countries with high levels of non-tariff barriers could be classified as open according to this criterion, regardless of its level of export expansion.

Theoretical Underpinnings and Econometric Specification[2]

The importance of exports for economic growth has been extensively discussed in the literature (e.g., Feder [1982], Keesing [1967], and Emery [1967]; for a summary, see Edwards [1993]). The positive implications of exports for growth include the following. First, export development permits the home country to concentrate investment in those sectors where it enjoys a comparative advantage. The resulting specialization is likely to augment overall productivity. Second, the larger international market allows economies of scale to be realized in the export sector. Third, worldwide competitive pressures are likely to lead to a reduction in inefficiencies in export production and to result in the adoption of relatively efficient techniques in the traded-goods sector overall. Finally, a larger export sector would make available more of the resources required to import in a timely manner both physical and human capital, including advanced technologies in production and management, and for training high quality labor. (Fosu [1990a])

The above theoretical arguments have led numerous authors to estimate an expanded version of the standard production function, the "augmented aggregate production function" (Fosu [1990a]):

(1) $Q = Q[(L,K);X]$

where Q is real aggregate output; L and K denote, respectively, labor and capital inputs; and X is exports. While X is not a proper argument of the production function in that it is not a production input in the neoclassical sense, it is intended to reflect international factors, enumerated above, that may influence productivity but are not captured in L or K. Thus X may be viewed as a systematic error term affecting Q, so that the conditional expectation $E(X|L,K)$ is nonzero. Hence, estimates of the impacts of L and K on Q may be biased or inconsistent unless the effects of X are controlled for. (Fosu [1990a])

Differentiating equation (1) totally and rearranging terms, we have:

(2) $Q' = e_L L' + e_K K' + e_X X'$

where Q', L', K' and X' are the growth rates of Q, K, L and X respectively, and e_L, e_K and e_X are the respective elasticities with respect to L, K and X. For estimation purposes, the modified version of the above homogeneous equation (2) may be written as:

(3) $Q' = b_1 + b_2 L' + b_3 K' + b_4 X' + u$

where b_1 is the constant term to allow for possible nonhomogeneity of the function; b_j (j=1, 2, 3) are the respective labor, capital and exports coefficients to be estimated; and u is the stochastic perturbation. Data availability leads to the final estimation equation:

(4) $Q' = b_1 + b_2 L' + b_3'(I/Q) + b_4 X' + u'$

where I is investment (dK), b_3 the new capital coefficient, which represents the marginal product of capital, u' the new error term, and the rest of the symbols are as previously defined.

Alternatively, based on a two-sector model, Feder [1983] has derived a version of equation (4) as:

(5) $Q' = a + bL' + c(I/Q) + hX'(X/Q) + v$

where a, b, c, and h are coefficients to be estimated, v the error term, and the rest of the symbols as previously defined. In particular, $h = [d/(1+d)+F_x]$ is the export impact, which consists of the productivity differential between the export and nonexport sectors, d, and the externality effect on the nonexport sector F_x. Furthermore, by specifying exports as a multiplicative argument of the nonexport sector's production function, Feder derives an expanded function of the form:

$$(6) \qquad Q' = a + bL' + c(I/Q) + tX' + gX'(X/Q) + w$$

where $t=F_x(X/N)$ measures the externality effect (X/N is the size of the export relative to the nonexport sector); $g=d/(1+d)-t$; w is the new error term; and the rest of the symbols are as already defined above.

Empirical Evidence

Fosu [1990a] estimates equation (4) using 1960-70 and 1970-80 pooled data for a sample of African countries and, for comparative purposes, for a sample of non-African developing countries. He obtains a statistically significant coefficient of .12 for African economies, compared with that for other developing countries of .15. These estimates are further observed to be statistically indistinguishable. Thus it appears, as in the case of other developing economies, that African countries would benefit about just as much from export expansion.

Lussier [1993] extends the sample period to 1990 using the above models and an alternative specification based on the growth of relative share of exports (Helleiner [1986]). Lussier essentially estimates three models: the "Fosu", "Helleiner", and "Feder" models. His results based on the Helleiner specification suggest exports to be inconsequential for Africa. In contrast, the Fosu and Feder models indicate a positive export impact similar to the estimate in Fosu [1990a]. Lussier further finds that the additional term in the Feder model is inconsequential. That is, the estimate of g in equation (6) was statistically insignificant and rather small in magnitude. Indeed, including this term appears to lower the goodness of fit of the model. Lussier [1993, p. 117) concludes: "The extended empirical investigation corroborates Fosu's conclusion regarding the positive contribution of export growth to economic growth in African countries when panel data are employed."

Table 2 provides a summary of the findings from several studies on the impact of exports on growth in Africa or SSA. It is clear from these results, at least, that the export effect is positive.

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More remarkably, the point estimate is stable around .1, regardless of the sample period or sample composition. The export impact also seems to be invariant to whether the growth of GDP or its per capita rate is used as the dependent variable.[3]

************Table 2 about here*****************

The export effect estimate of .1 suggests that associated with a 10 percent increase in the growth of merchandise exports, ceteris paribus, would be a rise of 1 percent GDP growth. While this does not seem to be large, it must be noted that this estimate represents only the "externality effect" and does not include marginal productivity differentials between the export and import sectors (Feder [1983]). For example, the estimate of .1 for the export impact here implies an additional productivity differential of 11 percent.[4]

Role of Export Composition

If manufacturing exports generate externality or productivity advantages over other forms of exports, then the composition of exports should matter. For example, manufacturing would likely involve greater learning-by-doing than primary exports, which could in turn be transmitted to the nonexport sector: externality effect. Furthermore, international competition would prompt efficiency improvements in the traded-goods sector, especially in manufacturing, leading to improved positive marginal productivity differentials and positive externalities between the export and nonexport sectors.

Some studies have revealed that incorporating manufacturing, rather than total, exports into the augmented production function yields similar or better results in terms of goodness of fit of the models estimated for developing economies (Tyler [1981], Balassa [1985]). Others have additionally found that the export impact increases with the manufacturing share of exports (e.g., Fosu [1990b]), and that primary exports have little effect on the nonexport sector growth (Fosu [1996b]).

Fosu [1991b] sheds some light on the implications of export composition for low-income, versus middle-income, less developed countries (LDCs). Based on an analysis-of-covariance specification, he finds "an additional positive impact of the manufacturing export sector of low-income LDCs, notwithstanding their overall negative differential GDP growth." (p. 92)

The above studies on the implications of export composition for economic growth suggest that the finding of the non-trivial positive export effect for African economies might be driven in great part by manufacturing, rather than total, exports in some of these countries. However, existing studies do not isolate African countries. They suggest, nevertheless, that the relatively dismal performance of African economies generally since the mid-1970s might be attributable in greater part to their failure to diversify into manufacturing exports than to the deterioration in their primary export performance.

This last observation appears to contradict the neoclassical notion that given Africa's relative endowments in education and natural resources, the appropriate policy for economic growth is via improving primary rather than manufacturing exports (see, e.g., Wood and Mayer [1998]). Taken together, however, the above studies imply the desirability of pursuing policies that alter endowments in order to achieve export diversification and concomitant economic growth.

Caveats

The foregoing discussion implies the importance of export promotion strategies as a way of improving economic growth in Africa. Several studies have, however, questioned the reliability of the empirical underpinnings for such a prescription. The first entails the potential problem of endogeneity of exports. The White specification test applied by Fosu [1990a, pp. 833-834], however, suggests that "the errors are independent of the regressors, and that the model is correctly specified." In addition, based on the Hausman-Wu endogeneity test, Fosu [1996b, p. 473] finds that "the null hypothesis that exports are exogenous cannot be rejected at any reasonable significance level."

Second is the issue of causality. Do exports really promote growth, or is it the increase in overall growth that improves competitiveness and thus promotes exports? The empirical evidence on this question is rather mixed. For instance, using annual data for 37 countries, Jung and Marshall [1985] perform "causality" tests and find that in 22 of the cases, it was impossible to establish the direction of causation. In only four cases - Costa Rica, Ecuador, Egypt, and Indonesia - do they show the direction of causation as from exports to output.

By accounting for the phenomenon of declining marginal productivity differentials, Hutchinson and Singh [1992], however, establish one-way causation from exports to output for a

substantially larger number of countries (ten countries, versus three where output "causes" exports, with 18 cases showing no evidence of causality either way).

Furthermore, as Kwan and Kwok [1995, pp. 1158-1159] have observed, "causality tests are valid only for testing one component of 'strong' exogeneity" which, they argue, is a more relevant test for the export-led growth theory. Applying the framework of Engle, Hendry, and Richard [1983] to data on China, they find that exports are 'strongly exogenous' with respect to output and that the results support the validity of the export-led growth hypothesis (p. 1165). Of course, this finding is for China and the generalization of their result awaits its further application to other economies.

The causality issue, therefore, remains unresolved, though the evidence appears to tilt in favor of exports "causing" output. In any case, even in cases (the majority of them) where it is difficult to establish a direction of causality either way, it is likely because output and exports may move together as a result of some other exogenous factors. Such factors could include variables such as capital accumulation (Rodrik [1997]), as in the case of East Asia), which may result from fiscal and financial discipline as well as sound real exchange rate policies, or simply the undertaking of generally competitiveness policies. These policies may be as equally good for output overall as they are good for exports. Hence, exploring those factors that promote exports may also lead to fostering growth generally. Hence, unless the uni-directional causation from output to exports is the case, the issue of causality may not by itself be that important.

III.   International Shocks

International shocks to domestic economies might originate from the real or financial sector. One important variable reflecting conditions in the real sector is the international terms of trade (TOT). Studies finding positive effects of TOT on African economic growth include: Deaton and Miller [1996], Ghura [1995], Skinner [1987], and Wheeler [1984]. For example, in a model where a large number of variables are controlled, including export growth and investment, Ghura [1995, table 5] estimates the impact of the growth of TOT on per capita GDP growth in a 1970-90 annual panel of 33 SSA countries as .059. This represents one-half of the export growth effect reported therein. The estimate of the TOT impact also suggests that a 10 percent deterioration in TOT would lead to per capita growth of about .6, which is not paltry especially when compared with the .3 percent average per capita GDP growth over the sample period. With TOT also falling by 2.3

percent over the same period, the effect of TOT deterioration is estimated at 45 percent of the per capita GDP growth during the 1970-90 period. The "direct" impact of the terms of trade is thus considerable.

In addition, Deaton and Miller [1996, table 13] estimate a contemporaneous elasticity of output with respect to international commodity prices of .4, and a three-year cumulative lag elasticity of about .6. They find further that the greatest impact of international commodity prices is on investment (Deaton and Miller [table 5]). Hence, terms of trade shocks have had significant implications for growth in SSA, directly on output or indirectly through investment.

The role of world financial conditions may be represented by the world interest rate. Ghura [1995], for example, observes a statistically negative effect of the real interest rate, measured as the six-month Libor rate less the U.S. wholesale price inflation, on SSA per capita GDP growth. This finding is not surprising, since increases in the world interest rate, relative to the domestic, may encourage capital flight. In addition, higher interest rates are likely to increase the debt burden on variable interest rate-denominated debt.

External Instabilities

Instabilities in African economies need not emanate from domestic origins only. For example, fluctuations in export earnings may result in part from fluctuations in foreign demands or in world prices.[5] These could have deleterious implications for economic growth of African economies. The empirical evidence on this instability factor for Africa is mixed, however. For example, on the one hand, Gyimah-Brempong [1991] observes a statistically negative impact of export instability (EI) on GDP growth for SSA over 1960-86. On the other hand, Fosu [1992a] estimates a statistically insignificant, though negative, effect of EI for both SSA and Africa during 1970-86. In contrast, he finds a substantially negative impact for non-African countries over the same period.

Fosu [1991a] argues that EI is consequential for growth when it is transmitted into capital (investment) instability (CI). There is no guarantee that such a transmission is automatic, however, since "substantial portions of export proceeds may be channelled into consumption rather than investment" (p. 82). Using a 1967-1986 cross-country sample of 33 SSA countries, he finds little evidence in support of EI; however, he uncovers a substantial adverse impact of CI for SSA. From these results (Fosu [1991a, table 3, p. 80]), we calculate the GDP growth elasticity with respect to

CI, evaluated at the means, as .49. This compares with that of export growth and GDI/GDP of .27 and 1.1, respectively, similarly computed from the same table. Thus the adverse impact of CI is not paltry.

Regarding the possible implications of fluctuations in imports for the African economic growth process, Helleiner [1986] finds that import instability significantly reduced growth in Africa during 1960-1979. Using 1967-1986 cross-country sample of SSA countries, Fosu [1998a] corroborates the Helleiner result and further observes that import instability was an even greater deterrent, than either EI or CI, for economic growth in SSA during 1967-1986.

Another possible channel for foreign-originating volatility for African economies might be through export price instability (EPI). This form of economic fluctuations need not be correlated with either EI or CI, though. Based on a 1967-86 cross-country sample of 31 SSA countries, for example, Fosu [1997, p. 407] computes small zero-order correlation coefficients of EPI with respect to EI and CI of only .192 and -.078, respectively. He also observes that EPI does not exert a negative direct impact on GDP growth. Indeed, he estimates a positive, though insignificant, value for the EPI coefficient. What remains to be explored, however, is whether there is an indirect effect of EPI through exports or investment.

Although he does not provide direct evidence on African economies per se, Lutz [1994] reports 1970-1988 panel-data results on terms of trade volatility for several subsamples of developed and less developed countries (LDCs), including "low income" and "LDC primary product exporters". He finds that for both of these subgroups, the coefficient of the net barter terms of trade (NBTT) volatility was positive and, though that of income terms of trade (ITT) volatility was negative, neither was significant. He concludes: "The low-income countries and primary exporters are the only subgroups for whom ITT fails to explain changes in output growth." (p. 1970) These findings appear to support those for Africa and SSA reported in Fosu [1991b, 1992, 1997]. That is, it appears that for African economies, neither instability in exports nor in its price seems to help explain the low growth experienced in many of these countries.

IV.   The Real Exchange Rate

The optimal exchange rate policy in economic development seems to be now taking shape. Although the appropriate foreign exchange regime (fixed versus floating) is still a subject of

considerable contention, what is now emerging in the international/development literature is the desirability of maintaining the exchange rate as close to equilibrium as possible.[6]

Ghura and Grennes [1993] present empirical evidence on the roles of real exchange rate (RER) misalignment and volatility in macroeconomic performance in SSA. Using three different measures of misalignment on 33 SSA countries over 1972-1987, they observe an adverse relationship between per capita GDP growth and misalignment. They additionally report negative effects on export and investment shares of GDP. Furthermore, including investment in the growth equation reduced the magnitude of the misalignment coefficient only slightly while preserving its statistical significance. Hence, the impact of the RER misalignment on output appears to be both direct and indirect through investment. However, since exports are not controlled in any of their growth equations, it is unclear regarding the extent to which the observed negative impact on growth is attributable to the export channel.

Ghura and Grennes find further that fluctuations in RER have also been deleterious to the growth process in SSA. Their RER volatility variable appears fragile in their growth equation, however. Although its coefficient is significant in those growth models that exclude RER misalignment, it becomes insignificant when the misalignment variable is entered into the equation. In contrast, the coefficient of the RER volatility variable remains significant when misalignment is included in the **export** and **investment** equations. This outcome suggests that the effect of RER variability on growth is indirect, that is, through exports and investment.

V.   External Aid/Debt

The evidence on the effectiveness of external aid on economic growth has been quite mixed. On the one hand, several studies find that aid has been deleterious to the growth process (e.g., Griffin and Enos [1970], Mosley et al. [1987], and Krueger et al. [1989]). On the other hand, others have uncovered a positive effect of aid on growth (e.g., Grinols and Bhagwati [1976], Levy [1987], Pack and Pack [1990]). In a recent important contribution, Burnside and Dollar [1997] have argued that it is the interaction with the policy environment that determines aid effectiveness. They find that aid has been effective in good policy environment; however, aid by itself does not promote sound policies. Thus, external aid applied selectively can pay dividends in economic growth in African economies.

The role of external debt in economic growth of SSA countries has been receiving some attention recently. Generally, its effect has been observed to be deleterious to GDP growth (Ojo and Oshikoya [1995], Elbadawi et al. [1996], Fosu [1996, 1999]). These studies use different measures of the debt burden, however. Ojo and Oshikoya employ external debt outstanding as a proportion of GNP in a per capita GDP growth model for 17 African countries over the 1970-1991 period; they find a highly significant coefficient for their debt variable, suggesting the adverse effect of external debt.

Elbadawi et al. [1996] use both the debt outstanding measure EDTGDP and the debt service ratio as a proportion of exports DSX additionally in a per-capita-GDP growth model, estimated cross-sectionally for 99 developing countries, including African countries. They find the DSX coefficient to be significantly negative. They also observe the coefficients of EDTGNP and its squared lagged term to be positive and negative, respectively. Overall, they find that "debt overhang has retarded growth in sub-Saharan African countries." (p. 59)

Arguing that the debt burden is likely to affect economic growth via its impact on the marginal product of capital, Fosu [1996] specifies external debt interactively with investment (as a ratio of GNP) in a GDP growth equation. He estimates several cross-country models on data for 29 SSA countries over the 1970-1986 period, using various measures of the external debt burden based on debt outstanding and debt service. Estimating both "continuous interactive models" (CIM) and "discontinuous interactive models" (DIM), he reports significantly negative impacts of external debt on average for all the debt measures used. The absolute elasticities at the sample means (on the basis of CIM) range from .2 to .3 for the various debt measures (see table 3), with .33 considered the "best" estimate based on the relative goodness of fit (GOF) of the models. Similarly, based on DIM, he estimates that associated with "high indebtedness" was a reduction in growth of 25 percent to 52 percent, depending on the debt measure used, with 35 percent as the "best" estimate according to GOF.

***************Table 3 about here****************

In addition, Fosu [1996a] observes that the GDP growth-external debt relationship is indeed non-monotonic: "positive at low levels of investment and, after a GDI/GDP threshold of about 16 percent, it becomes negative." (p. 108) Using this threshold criterion, he observes that for the

majority of SSA countries in the sample (20 out of the 29), external debt was adverse to growth, and that "associated with a high-debt country is a fall in GDP growth of about 1 percentage point annually...approximately one-third of the sample mean growth of GDP." (p. 108)

In a more recent study, Fosu [1999] estimates the impact of external debt on GDP growth in the 1980s, based on a cross-country analysis of 35 SSA countries. He observes that "net external debt", measured as total external debt outstanding less total reserves, as a proportion of GDP, is probably the best measure of the debt burden. In an attempt to circumvent the potential problem of causation, he uses the external debt measure for the first half of the period as well as that for the entire period. He finds a partial elasticity of growth with respect to external debt of .5 for either measure. He concludes that "SSA's growth could have averaged 1.2 percentage points, nearly 50 percent, higher during the decade of the 1980s" in the absence of the external debt burden. (p. 12)

VI.   Conclusion

The present review paper has attempted to shed light on the importance of the international dimension for African economic growth. Although a large number of studies exist on this subject for developing economies generally, we have concentrated our review on those that directly pertain to African economies. Most of the selected studies are also sufficiently cross-country, rather than country-specific, in order to permit some generalizations to be made.

The evidence seems to point to a positive impact of openness on growth in Africa. As we have argued above, however, the appropriate dynamics of the implications of openness for growth are yet to be captured. Without this, the question of how far a country must open up at a given level of development remains open, notwithstanding the empirical finding that openness on **average** promotes growth and substantially so.

There is a vast body of literature on the implications of exports for growth in developing economies. It tends to support the view that higher GDP growth is associated with a larger rate of export expansion. This view is supported for African economies as well. However, recent literature points to the importance of export composition on the role of exports in the growth process. In particular, developing countries with greater manufacturing export growth tend to grow faster. Although the issue of causality between output and exports is far from decided, the overall result seems to be that, in order to promote growth, African countries may need to engage in policies that foster competitiveness especially in manufacturing exports.

The paper has cited evidence bearing on the influence of international shocks on growth in Africa. For example, increases/decreases in the growth in the external terms of trade would increase/decrease GDP growth. This route could be direct, or indirect, that is, via investment.

The role of economic instabilities, presumably due to external forces, is a little more complicated, however. The available evidence for Africa appears mixed for export instability (EI). While EI per se does not appear to have been adverse to growth in SSA, it could be potentially growth-inhibiting if EI were translated into capital (investment) instability (CI). Similarly, though negative for developing economies generally, the effect of the volatility in the external terms of trade does not seem evident for African economies. Existing evidence, however, seems to support the view that import fluctuations are adverse to growth in SSA.

The rather little evidence currently available suggests that financial tightness in the international financial markets matters for African economic growth. The evidence points to an inverse relationship between SSA growth and world interest rates.

Virtually all studies on the impact of the real exchange rate (RER) on African economic growth show RER misalignment to be adverse to growth, whether through its direct impact on output or via its effects on investment or exports. The evidence on RER volatility is not as strong, however. While on balance the results suggest a negative relationship between growth and RER volatility, the impact appears indirect, that is, via exports and investment.

The available evidence on the role of external aid in growth is generally not isolated for African economies. It suggests, however, that those countries with sound economic policies should benefit from aid. What is unclear, though, is how to foster good policies, to begin with; after all, aid by itself appears not to engender sound policies.

The role of external debt in growth seems rather complicated. First, the various measures of the debt burden may have different implications for growth. Second, the growth-debt relationship does not seem straightforward. For example, by making available additional resources to expand the production set, debt may actually be growth enhancing. However, the reverse implication of debt would occur if it negatively distorted resource allocation due to liquidity constraints or debt overhang. The empirical evidence for African economies suggests that while a non-monotonic growth-debt relationship is likely, external debt appears to have been adverse for the bulk of SSA countries.

Notes

1. Based on 1970-86 samples of 30 SSA and 38 non-African countries, respectively, Fosu [1992, table 3] computes the coefficient of variation of GDP growth for SSA and non-Africa as 84.4 percent and 57.9 percent, respectively.

2. This section borrows generously from Fosu [1990a].

3. Of course, other studies not reported here may yield different estimates. For example, while the above estimates are based on merchandise exports, other studies use "goods and nonfactor services" for exports and obtain larger estimates for the export effect. Fosu [1991, table 3]), for instance, reports an estimate of .3 using this more general category of exports for the 1967-1986 period.

4. That is, we solve the equation $\{d/(1+d)-.1)\}=0$, which assumes that the coefficient of the additional term based on the Feder specification, g in equation (6), is zero. This assumption is implicit in those restricted-form specifications that omit this additional term, as in Fosu [1990a], and appears justified for the Africa/SSA sample as shown in estimates by Lussier [1993].

5. Of course, export fluctuations may also be supply-induced, which may have little to do with the external sector.

6. See, for instance, Williamson [1997] for a discussion of this and related issues.

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Table 1

Relative Impacts of Various Variables on Per Capita GDP Growth[*]

Variable	Relative Impact (%)
Openness	100.0
Life Expectancy	77.8
Institutional Quality	66.7
Central government saving	66.7
Natural resource abundance	55.5
Population growth (economically active relative to dependent)	44.4
Tropical climate	44.4
Landlockedness	33.3

[*]Figures are expressed relative to the impact of openness, using calculations by Sachs and Warner [1997] based on per unit changes in the respective standard deviations of the variables.

Table 2
Export Impact on Economic Growth in Africa

Author(s) [Table nos.]	Dep. var. [Period]	Samp. size [No. ctrys.]	AF/SSA?	Estimate[*]
Fosu[1990a] [1]	GDP Growth56 [28] [1960-80]		AF	.12 (2.66)
Lussier[1993] [A2(ii)]	GDP Growth57 [19] [1960-90]		SSA	.10 (3.17)
[A4(ii)]	[1960-90]	72 [24]	AF	.11 (2.39)
Ojo and Oshi-koya[1995] [2]	Per Capita GDP Growth68 [17] [1970-91]		AF	.09 (2.33)
Ghura[1995] [5]	Per Capita GDP Growth578 [33] [1970-90]		SSA	.12 (5.05)

Note: The export impact is the coefficient of export growth. Where more than one model is estimated, we report here the estimate based on the "best" model in terms of the goodness of fit. AF is Africa, and SSA is sub-Saharan Africa.

[*]Absolute t ratio in parentheses.

Table 3
External Debt Impact on GDP Growth in Sub-Saharan Africa, 1970-1986

Debt Measure[a]	Model: CIM[b]	Model: DIM[c]
DODY	-.0194 [.267]	-1.03 [35.3]
DODR	-.0059 [.330]	-.764 [24.7]
DSY	-.3464 [.336]	-1.29 [41.7]
DSR	-.0654 [.212]	-1.62 [52.4]

Source: Fosu [1996a]

[a] DODY is debt outstanding and disbursed as percent of GNP; DODR is defined similarly as DODY, but expressed as a proportion of exports. DSY is debt service as percent of GNP; DSR is similarly defined, but expressed as a proportion of exports.

[b] CIM is the "continuous interactive model". The non-bracketed figures are marginal effects, and the bracketed values are partial elasticities computed at the sample means. The marginal effects are calculated as $b_5 + b_{32}k$, where b_5 is the coefficient of the continuous debt variable and b_{32} is the coeffient of the debt variable interacted with the investment-GDP ratio, k; k is measured at the sample mean. The growth of the labor force and k are controlled in the estimated regressions.

[c] DIM is the "discontinuous interactive model". The non-bracketed values are the estimated effects of being classified as "highly indebted" (debt measure exceeding its respective sample mean value). The bracketed values are the effects expressed as percent of the mean sample GDP growth rate. They are computed as $b_2' + ck$, where b_2' is the coefficient of the discontinuous (dichotomous) debt variable, and c is the coefficient of the debt variable interacted with the investment-GDP ratio, k; k is measured at the sample mean. The growth of the labor force and k are controlled in the estimated regressions.