

## **Emerging Africa: is it possible?**

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### **1. Introduction**

This paper attempts to address the question whether, and under which conditions, a group of African countries will be able to start emerging at the beginning of the next century. Our assumption is that, although sub-Saharan Africa as a whole cannot yet be considered as a promising candidate for economic emergence, such a process could be initiated in a limited number of countries within the next two decades. Under the right circumstances, this may entail contagion of economic progress to the rest of the continent. The experience of East Asia in the past three to four decades describes rather well such a step-by-step process of economic catch-up of a whole region, starting from a situation of underdevelopment that was considered as desperate in the 1950s.

We describe an emerging country as an economy in which a dynamic growth process can be sustained for a long period of time, so that in two decades or so the GDP per capita can at least double. This is hoped to eventually trigger a catch up process, in which the economy converges to an OECD country level of development. In sub-Saharan Africa, doubling the GDP per capita would still not give these countries an income level comparable to that of emerging East Asian countries. However, the most successful of them would then enter the category of lower middle income countries, the average income of which was about \$1200 per capita in 1997, to be compared with a range of \$200 to \$700 in the sub-Saharan Africa region (with the exceptions of South Africa, Botswana and Mauritius).

Targeting lower middle income status is essentially motivated by two facts. First, it would put the countries in question in a much better position to start eradicating poverty, as shown by the experience of some lower middle income countries such as Morocco, Sri Lanka and Tunisia. As long as the average income is around \$1 or \$2 a day, pervasive poverty is all but inevitable. If the average income doubles, poverty alleviation policies can start being implemented.

Moreover, several growth studies on economic convergence have pointed to the existence of convergence clubs, where poor income countries are trapped in a low equilibrium club while middle income countries may be able to catch up to higher levels of development (see, e.g., Berthélemy and Varoudakis, 1997). In this sense, the emergence of (part of) Africa would mean that these economies would escape the poverty trap and then satisfy the necessary preconditions for long term economic

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progress. According to the findings of Berthélemy and Varoudakis (1997), changing from the poverty trap to a higher equilibrium entails large scale development of secondary education as well as capital mobilisation through a modern financial system, and none of these conditions can be satisfied in a poor income country. Apart from South Africa, Mauritius and Botswana, presumably no sub-Saharan African economy can be considered today as a member of the club of countries that have started a convergence process to a significantly higher level of development. Still, economic progress has been noticeable in several sub-Saharan African countries in recent years. It is therefore useful to assess the durability of this process, which can be considered as a preliminary step towards economic emergence.

In this study, we have decided to make an in-depth investigation of the growth perspectives of half a dozen of countries that were in one sense or another promising when the project was launched two years ago. These countries are Burkina Faso, Côte d'Ivoire, Ghana, Mali, Tanzania and Uganda. A few other countries could have been chosen, but the rather wide variety of experiences available in our six countries make them reasonably representative of the possible candidates to emergence in the sub-continent.

For the sake of comparability, we have chosen to study growth prospects of these six countries in one single analytical framework, although the quantitative assessment of the potentials of each country is specific. This amounted to constructing a common growth model for a typical sub-Saharan African country. This model was estimated over a panel data set of 27 African countries for which the necessary information was available. With this model, we have subsequently built country specific alternative growth scenarios, based on a number of assumptions regarding the relevant exogenous variables.

In section 2, we give a brief description of the model. In section 3, we proceed to describe our scenarios. Section 4 is devoted to a discussion of the role of domestic policies and institutions and section 5 deals with the role of donor countries. Section 6 concludes.

## **2. A simple African growth model**

Our model is based on three equations: a production function, an investment function and a balance of payment identity.

### ***2.1 Production function***

GDP is linked through a Cobb-Douglas function to capital, labour and imports. We impose constant returns to scale, which is consistent with our data set; this means that GDP per labour unit (LYL, all variables in logarithms) can be linked to the capital/labour ratio (LKL) and the import/labour ratio (LML), with a residual which defines total factor productivity (TFP).

$$\mathbf{LYL = \alpha LKL + \beta LML + TFP} \quad \mathbf{(1)}$$

In the countries considered, where agriculture still occupies a majority of the active population, total factor productivity may be improved simply by moving labour out of agriculture (where it is under-employed and has a low productivity) to non-agricultural sectors. In order to take this factor reallocation effect into account, we computed its size according to the Syrquin (1986) method (see the appendix for details), and then deducted this measure from output. Therefore, in our econometric estimation, the dependent variable is GDP per unit of labour, net of the Syrquin effect (LYLA).

Total factor productivity net of the Syrquin effect (TPFA) may in turn be explained by a number of economic and political variables. The explanatory variables of TFPA used here are: the level of human capital available in the economy, measured by the average number of schooling years in the adult population (LH), a diversification index (LDIV), a measure of distortions, based on the forex black market premium (LBMP)<sup>4</sup> and finally a measure of political instability, defined as the number of revolutions and coups.

The introduction of a diversification index deserves further comment. Diversification is defined as the spreading of production to a growing number of different outputs, which in themselves do not necessarily imply different productivity levels. The reason for testing the impact of diversification on productivity is principally empirical. It derives from the observation that rapid economic growth seems to be accompanied by a higher degree of diversification (for instance, in our sample, Mauritius provides an illustration of this, to be contrasted with the absence of diversification of countries such as Côte d'Ivoire or Ghana).

The impact of diversification on income may be transmitted mainly through two mechanisms. Lucas (1993) emphasises the effect of learning by doing by constantly introducing new, higher quality goods in the production mix of a country. The second mechanism through which diversification can increase income is by expanding the possibilities to spread investment risks over a wider portfolio. In other words, greater diversification will enhance average capital productivity in the long run by providing better investment opportunities at lower risk. Acemoglu and Zilibotti (1997) demonstrate a model where lack of diversification leads economic agents to invest in low return, safe traditional projects, rather than in riskier projects with higher growth potential.

We estimated the parameters of the production function on a panel data set of 27 African countries over the period 1960-1996, with a fixed-effects specification. This amounts to assume that all parameters but the intercepts are constant across countries. The parameter estimates are reported in Table 1 below:

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<sup>4</sup> In Franc Zone countries, the black market premium is negligible even in the presence of distortions, because the French Treasury guarantees the CFA franc convertibility, eliminating foreign exchange shortage. Therefore, LBMP is split into two variables, for non-CFA and CFA countries (LBMPNCFA and LBMP CFA).

**Table 1: Panel data estimates of the production function****Dependent variable: LYLA**

<b>Variable</b>	<b>Coefficient</b>	<b>Standard error</b>	<b>t-statistic</b>
<b>LKL</b>	0.397	0.032	12.60
<b>LH</b>	0.251	0.044	5.75
<b>LDIV</b>	0.043	0.013	3.48
<b>LML</b>	0.123	0.015	8.19
<b>LBMP CFA</b>	0.007	0.156	0.05
<b>LBMP NCFA</b>	-0.041	0.009	-4.76
<b>REVC OUP</b>	-0.014	0.007	-2.13

Estimation method: within (fixed effects)

Number of observations: 760

Number of countries: 27

Adjusted R-squared: 0.99

Hausman test:  $\chi^2(8)=1001$ 

LYLA= $\ln(\text{GDP/Labor})-\ln(\text{Reallocation effect, see above})$ , LKL= $\ln(\text{Capital stock/Labor})$ , LH= $\ln(\text{average number of schooling years in active population})$ , LDIV= $\ln(\text{diversification index})$ , LML= $\ln(\text{Imports/Labor})$ , LBMP CFA/NCFA= $\ln(1+\text{black market premium in forex market})$  for CFA and non CFA countries respectively, REVC OUP=dummy for revolutions and coups d'états. Trends and fixed effects are not reported.

*Balance of payments equilibrium*

The balance of payment equilibrium condition will determine the long term level of imports. Neglecting short term capital flows, and assuming that the variation in reserves will be zero in the long run, this equation is written as:

$$M * P_m - X * P_x - LTFLOWS = 0 \quad (2)$$

Where  $M$  and  $X$  are imports and exports respectively, expressed in volume,  $P_m$  and  $P_x$  are import prices and export prices respectively,  $LTFLOWS$  is net long term capital flows (foreign aid, loans and investment). Rearranging this equation gives:

$$M = X * TOT + LTFLOWS / P_m \quad (3)$$

Where we have used the fact that the terms of trade ( $TOT$ ) is equal to  $P_x / P_m$ .

In this equation, the outward orientation of the economy will be defined as the ratio of export to GDP ( $x$ ), rather than as the export volume itself. (See the appendix for details on the simulation of the export ratio.)

*Capital accumulation*

Finally, in order to simulate investment behaviour, we proceeded to estimate a function determining the rate of growth of the capital stock. This equation can be considered as a reduced form of a model encompassing investment demand and savings supply behaviours. It is assumed that capital accumulation depends positively

on the marginal productivity of capital, terms of trade and the volume of long term foreign savings (measured by the ratio of long term capital flows to capital stock). The first and second terms account for investment demand behaviour (firm invest more if capital becomes more profitable). The third variable accounts for the constraint from the availability of savings, keeping in mind that in the majority of African countries, investment needs to be financed principally by foreign savings, for lack of sufficient domestic savings. We also observe that capital accumulation is negatively affected by political instability, as measured by the REVCOU variable, with a lag of one year.

**Table 2: Determinants of capital accumulation**

**Dependent variable: DLK**

Variable	Coefficient	Standard error	t-statistic
<b>LTFLOWSK(-1)</b>	0.170	0.066	2.58
<b>LKPROD(-1)</b>	0.113	0.010	11.65
<b>LTOT(-1)</b>	0.034	0.006	5.70
<b>REVCOU(-2)</b>	-0.007	0.003	-2.35

Estimation method: within (fixed effects)

Number of obs: 566

Number of countries: 26

Adjusted R-squared: 0.50

Hausman test:  $\chi^2(2)=18.1$

DLKL=variation in ln(Capital stock), REVCOU=dummy for revolutions and coups d'états, LTFLOWSK=Real net long term capital flows (loans, aid and foreign investment) as a ratio of the capital stock, LKPROD=ln(0.4\*GDP/Capital stock), LTOT=ln(terms of trade). The numbers between parentheses indicate a lag operator. Fixed effects are not reported.

To summarise, the production function, the investment function and the balance of payment identity in combination with the simulation of the export ratio gives the following equation system:

$$\ln(Y) = \mathbf{a} * \ln(K) + \mathbf{b} * \ln(M) + (1 - \mathbf{a} - \mathbf{b}) * \ln(L) + TFP \quad (4)$$

$$M = x * Y * TOT + LTFLOWS / Pm \quad (5)$$

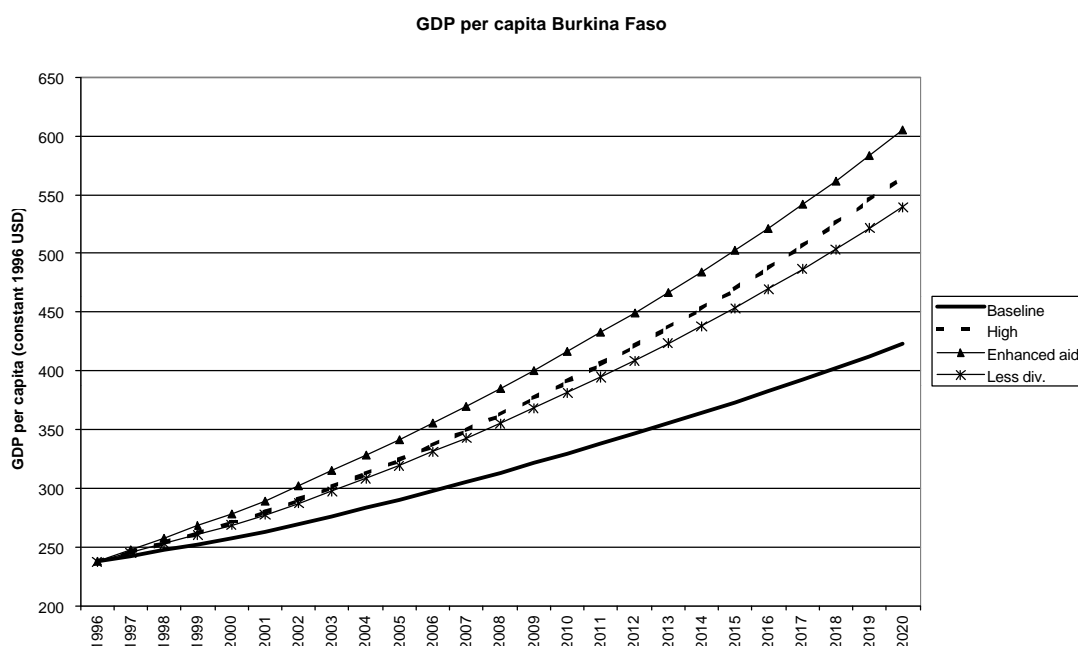
$$d \ln(K_t) = \mathbf{e}_1 * \ln(\mathbf{a} * Y_{t-1} / K_{t-1}) + \mathbf{e}_2 * (LTFLOWS_{t-1} / Pm_{t-1}) / K_{t-1} + E \quad (6)$$

where  $Y$  is  $GDP$ ,  $K$  is capital stock,  $L$  is labour,  $M$  is imports,  $TFP$  is total factor productivity, which is a (log) linear combination of the reallocation effect, the human capital stock, the diversification index, the black market premium and the number of revolutions and coups. Further,  $x$  is the export to  $GDP$  ratio,  $TOT$  is the terms of change,  $LTFLOWS$  is net long term capital flows,  $Pm$  is import prices, and  $E$  is a combination of other determinants of investment ( $TOT$  and  $REVCOU$ ). Time indexes have been omitted whenever this does not cause any confusion.

This system can now be solved by iteration.

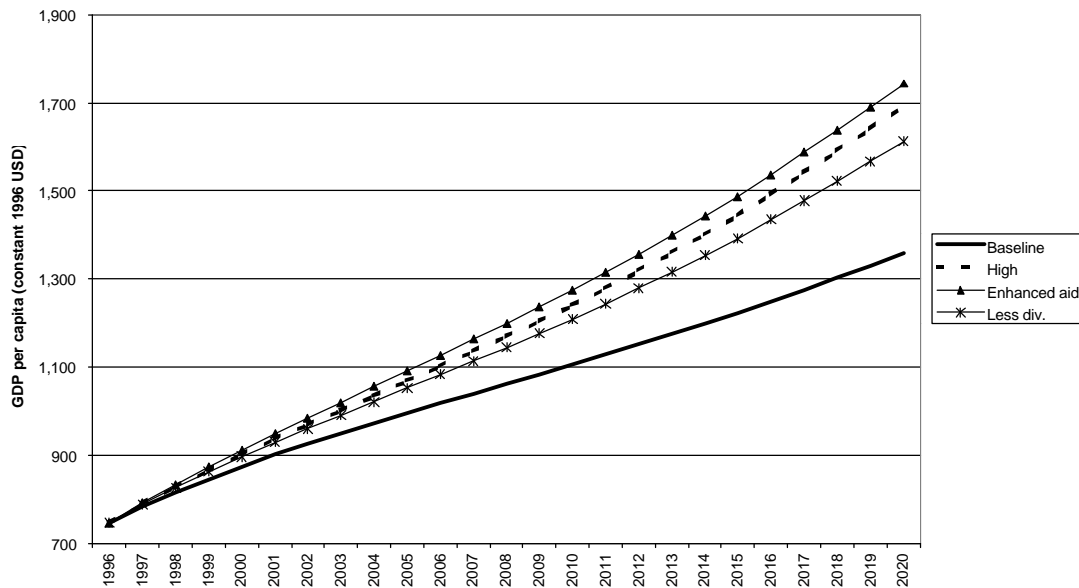
### 3. Results from the scenarios

We will now use the model described above to make scenarios for future growth up until the year 2020 in six countries. These countries – Burkina Faso, Côte d'Ivoire, Ghana, Mali, Tanzania and Uganda – all have good recent records in terms of economic growth. We construct two main scenarios, one of which with two variations. The first scenario essentially assumes a continuation of current trends in the underlying determinants for growth. We call this the baseline scenario. The second scenario –which is called ‘high’ in the figures below - is more optimistic and assumes improvement in certain variables, in particular relating to structural change, such as human capital and diversification of the economy. Two variations of the high scenario are also constructed, in order to isolate the effect of diversification in one case and aid efficiency in the other. In all scenarios, we assume absence of revolutions or coups, unchanged terms of trade, and a zero black market premium.<sup>5</sup> The results are showed below.

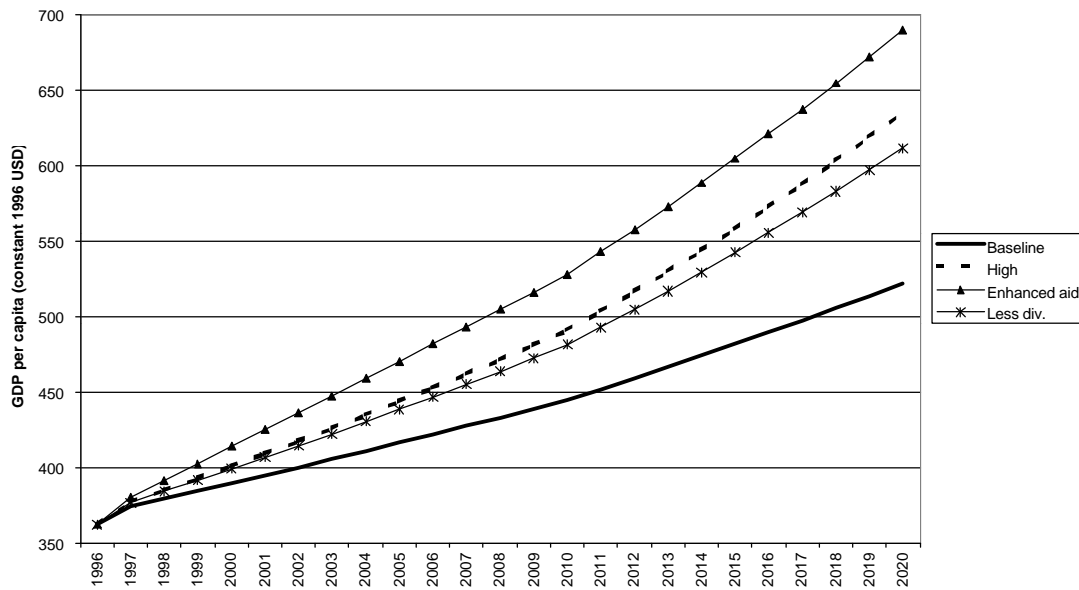


<sup>5</sup> There seems to be some evidence of re-emergence of a parallel foreign exchange market in Ghana, resulting from heavy intervention by the central bank in order to slow the depreciation of the cedi. However, we assume any such tendencies to be transitory.

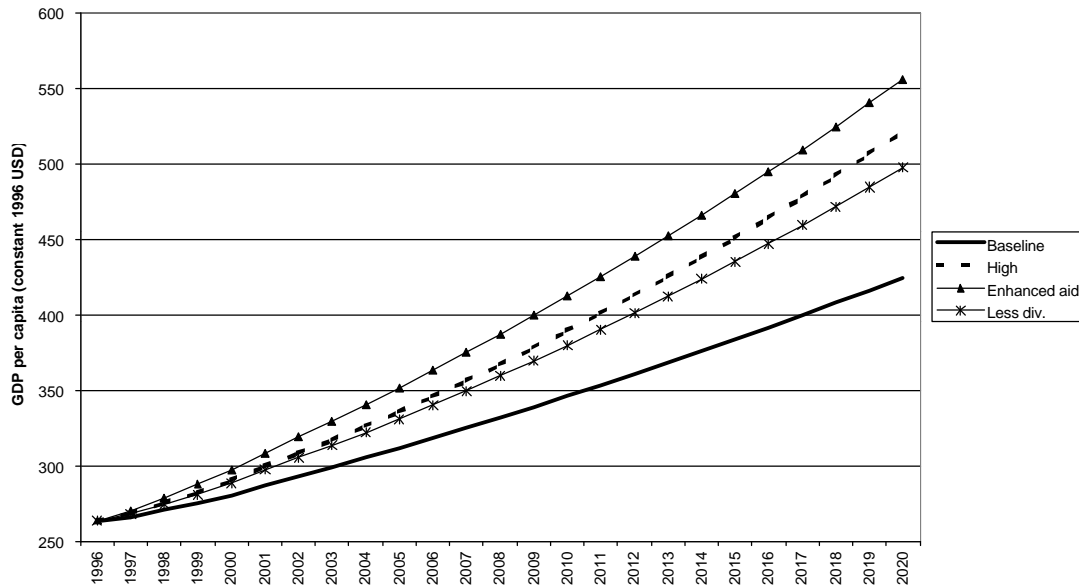
GDP per capita Côte d'Ivoire



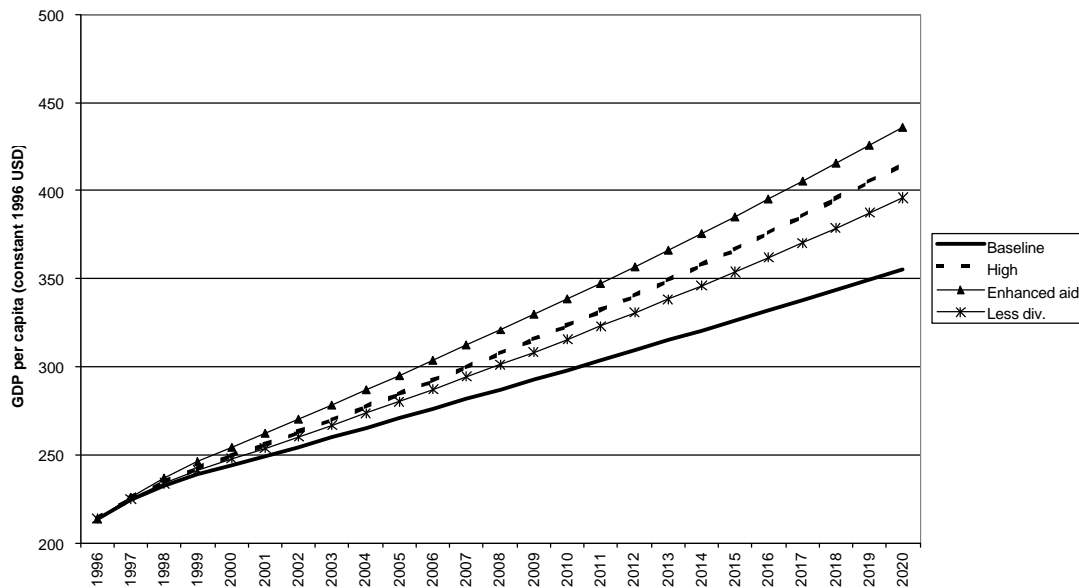
GDP per capita Ghana



### GDP per capita Mali

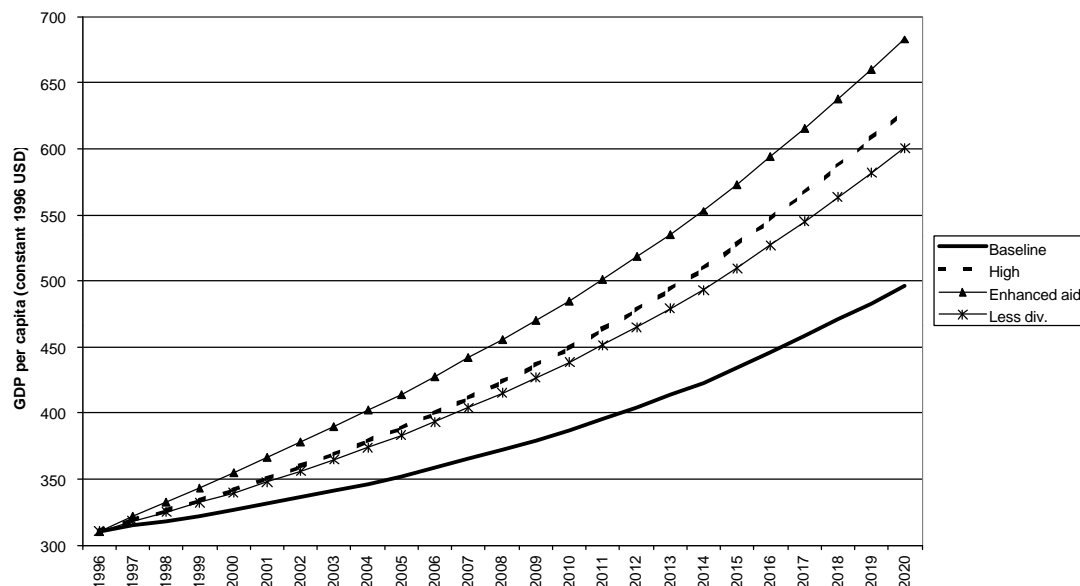


### GDP per capita Tanzania





GDP per capita Uganda



A few characteristics of the results from the scenarios deserve some attention before we analyse the sources of growth more in detail. Table 3 summarises the scenarios by giving some key indicators for the year 2020, which should be reasonably close to the steady state. Moreover, investment rates are given for the year 2000 in order to show the impact of enhanced aid on the investment ratio.<sup>6</sup> Uganda achieves the fastest long term GDP per capita growth under the baseline scenario, about 0.5 percentage points higher than Côte d'Ivoire and Mali on an annual basis, and as much as one percentage point higher than Ghana. This can mainly be explained by Uganda's strong commitment to education, and a demonstrated greater progress in terms of diversification compared to the other countries in the sample with the exception of Ghana.

Ghana's GDP per capita growth rate is the lowest among the studied countries in the baseline scenario despite its better ranking in terms of productivity growth. This is principally attributable to the low investment rate in the country. In fact, the capital stock both in Ghana and Uganda has scarcely kept up with the growth of the labour force since the introduction of reforms in the 1980s. Moreover, the gains from reallocating labour from agriculture to the modern sector are expected to be less in Ghana than in the other countries. The difference in productivity between the two sectors is the lowest among all studied countries, mainly due to the substantial comparative advantages of Ghana's cocoa sector.

<sup>6</sup> As the table shows, the effect of enhanced aid on the investment rate is decreasing over time. This is due to two features in our model: first, capital inflows enhance the import capacity, which directly affects production, and hence the denominator of the investment ratio. Secondly, the importance of aid and other capital flows for investment gradually decreases if the capital stock grows more rapidly than these flows.

**Table 3 - Scenario overview**

	Baseline	High	Enhanced aid	Less diversification
<b>GDP/capita growth in 2020</b>				
Burkina Faso	2.49%	3.67%	3.64%	3.44%
Côte d'Ivoire	2.06%	3.09%	3.09%	2.85%
Ghana	1.59%	2.59%	2.61%	2.40%
Mali	1.99%	2.88%	2.88%	2.65%
Tanzania	1.66%	2.43%	2.44%	2.20%
Uganda	2.61%	3.42%	3.39%	3.20%

Investment/GDP	Baseline		Enhanced aid	
	Year 2000	Year 2020	Year 2000	Year 2020
Burkina Faso	18.4%	18.1%	22.0%	19.6%
Côte d'Ivoire	20.1%	19.7%	21.7%	20.7%
Ghana	15.4%	15.5%	19.1%	17.4%
Mali	20.7%	21.3%	24.7%	23.2%
Tanzania	24.2%	23.5%	27.3%	25.3%
Uganda	12.1%	11.9%	15.0%	13.1%

Tanzania's growth prospects are the second lowest in the baseline scenario and the lowest in all other scenarios, despite the fact that it starts from a comparatively low level<sup>7</sup>. This is due to the fact that the country has showed very little tendencies for structural change recently – in particular regarding education, see below - and this is factored into the assumptions for the future. As a result, productivity growth is the lowest within the sample. By contrast, Tanzania obtains the highest investment rate, at around 24 per cent of GDP under the baseline scenario. According to our data, Tanzania has a relatively high capital to GDP ratio (around 3) requiring a higher investment rate in order to replace depreciated equipment and sustain a given growth rate than in other countries.

Conversely, Burkina Faso - which also starts from a very low level, but has recently shown better a performance in terms of structural change - is the second fastest grower in our sample. It must be noted, however, that Burkina will still be far from its steady state in 2020, in particular in terms of openness and factor reallocation, which to some extent explains its relatively high growth rate reported in Table 3.

**Table 4 - Baseline and high scenarios**

	GDP/capita in 2020 (1996 USD)			Total structural gap	Total structural gap %
	Memo: 1996	Baseline	High		
Burkina Faso	237	423	566	143	34%
Côte d'Ivoire	745	1,358	1,693	335	25%
Ghana	362	522	635	114	22%
Mali	264	424	521	97	23%
Tanzania	214	356	415	59	17%
Uganda	311	496	629	133	27%

Comparing the baseline and the high scenarios for all countries in the figures above, the tremendous importance of structural change for growth becomes evident. This is particularly relevant for the countries studied here, given the lack of structural change in their growth processes so far. As demonstrated by Berthélemy and

<sup>7</sup> Note, however, that the income levels shown in the table are not measured in PPP terms and are therefore not directly comparable.

Söderling (1999a), the recent rebound of a number of African economies has mainly been attributed to catch-up effects in the form of one-off productivity gains from adjustment measures, while an increase in investment and structural change has largely been absent. As mentioned earlier, the high scenarios distinguish themselves from the baseline scenarios by an acceleration of structural change. The kinds of structural change which will be analysed more in detail here are related to human capital accumulation, development of exports and diversification of the economy.

#### **4. The role of domestic policies and institutions**

##### **4.1 The importance of education**

The level of education in our model is represented by the human capital stock, measured as the average number of years of schooling among the population aged 15-65 years. We use the data from Nehru, Swanson and Dubey (1993) for the periods 1960-87. In order to extend the series up until 1996, we estimate a relation between the growth in human capital stock on one hand and enrolment rates, demographic variables, the duration of schooling and the current level of human capital stock on the other (see Berthélemy and Söderling 1999a). This relation is further used to simulate the future human capital stock under the following base line assumptions<sup>8</sup>: The duration of primary schooling will remain constant throughout the period. The enrolment rate for primary school will continue at its current trend unless this trend is negative, in which case we assume that it stays flat. Further, the UN World Population Prospects has been used to forecast population growth and dynamics in the demographic structure. The human capital from secondary and higher schooling is extended by simple extrapolation. Under the assumptions of the optimistic scenario, the enrolment rate in primary school attains 100 per cent in 2010.

Table 5 shows the development of the human capital stock and its resulting influence on productivity growth under the two scenarios (for more details, see appendix). The substantially higher impact on growth in Burkina Faso and Mali is reflected partly by the fact that both countries start from a significantly lower level but also from a demonstrated commitment to improving educational standards. Gross enrolment in primary school has increased from around 25 per cent in both countries in the mid 1980s to over 40 per cent in 1996. The estimated accumulated impact on total factor productivity from 1996 to 2020 is estimated at over 18 per cent in the baseline scenario and around 22 per cent in the high scenario.

Ghana has the highest level of human capital stock among the sample countries. Nevertheless, the country is assumed to continue to make significant gains in the near future. The primary school enrolment rate is currently around 75 per cent, which ensures a slow but steady growth of the human capital beyond 2020. However, the main strength of Ghana's education system compared to the other countries studied here is its extent of secondary schooling. According to our data, the average number of years of secondary schooling among the active population is as high as 1.2 years and is assumed to double around the year 2020. In the high scenario, we assume that human capital in secondary schooling accelerates in 2010 - after enrolment in primary

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<sup>8</sup> Except for Uganda, for which we have taken a different approach, see below.

school has reached 100 per cent – to attain 3 years in 2020, based on a trend comparable to the rate of progress observed in Mauritius in the 1980s.

**Table 5 - The impact of education**

	<u>Human capital stock</u>			<u>Accumulated impact on TFP</u>	
	1996	2020-baseline	2020-high	Baseline	High
Burkina Faso	1.0	2.2	2.5	18.7%	22.2%
Côte d'Ivoire	2.8	3.5	4.4	5.4%	10.9%
Ghana	4.2	5.9	7.0	8.7%	12.9%
Mali	1.0	2.1	2.5	18.4%	21.8%
Tanzania	3.2	3.7	4.2	3.4%	6.5%
Uganda	3.1	5.0	5.0	11.9%	11.9%

Note: The human capital stock is measured as the average number of years of schooling among the population aged 15-65.

In the case of Uganda, we have taken a different approach in constructing the scenarios, given the country's recent efforts to provide free primary education up to a limit of four children per family. Although this has already been implemented in 1997, we assume a gradual increase in primary school enrolment to 100 by 2010. This is done in order to compensate for some of the loss in quality of the education, given the higher pupil teacher ratio and to allow for some time to hire more teachers. Moreover, Uganda plans to extend the time in primary education from 7 to 8 years by the year 2010 (Bigsten and Kayizzi-Mugerwa, 1999). From the moment we obtain universal primary education we suppose that the efforts will be directed towards secondary education. Therefore, from the year 2010 onwards, we assume a growth rate in secondary human capital equal to the rate observed in Ghana during the last ten years, i.e. 3 per cent per year. Accordingly, Uganda stands to gain more under the baseline scenario than all other sample countries with a similar or higher level of human capital stock. However, given the substantial efforts implied under the baseline scenario, we did not find it reasonable to construct a more optimistic scenario.

The two laggards among the studied countries are Côte d'Ivoire and Tanzania which have actually seen a decline in primary enrolment rates ever since the beginning of the 1980s. Under the baseline assumption that they maintain the enrolment rates at their current level, we observe much more moderate gains in TFP than for the other countries.

#### **4.2 Openness to trade, diversification and the role of institutions**

Exports do not enter our production function directly. Rather, we assume that trade promotes economic progress through the technological transfer induced by imported products. Hence, the principal direct link between trade and GDP comes through the volume of imports that the economy can purchase, financed through exports and capital inflows. In our model, the volume of exports as a share of GDP tends towards an asymptotic maximum, which is determined based on the current level of a relevant benchmark country (see appendix for more details). This means that our model does not allow for any long term growth effect from trade openness since, by construction, exports and GDP are assumed to grow at the same rate in the long run. An alternative assumption would not be compatible with a steady state growth path, because either the ratio of export to GDP would fall to zero or it would

grow indefinitely. Nevertheless, since the countries under study here are all far from their steady states, medium term growth –and by consequence the level of income per capita in our scenarios - will be influenced by export promotion. However, Berthélemy and Söderling (1999b) showed that an increase in export volumes would have a limited impact on growth, much smaller than what would be obtained through enhancing diversification of exports. For instance, in the case of Côte d'Ivoire, an increase of the asymptotic level of the export ratio from the current value to a value corresponding to the average of a number of Asian NICs would render an increase in income levels per capita corresponding to 5 per cent by the year 2020. If diversification were also gradually increased to attain the level of the same NICs by 2020, an additional gain in income to the tune of 11 percent would be obtained. Hence, in the given example the effect from diversification would be more than double the effect from a pure increase in volume.

In light of these findings, we concentrate our analysis on diversification rather than on export promotion as such. However, the fact that diversification renders greater gains than a pure volume increase does not imply that export promotion should be de-emphasised to the exclusive benefit of diversification. Indeed, openness to trade is a prerequisite for diversification, given the small size of the markets in the African countries under study.

The question is then: what role can policy-makers play to enhance diversification? Numerous examples from African countries demonstrate that diversification can not be created by government decree. These examples include Algeria, Côte d'Ivoire (see Bourguignon, 1996) and Senegal (see Berthélemy and 1996) where attempts to diversify the economy by government directed investment resulted in distortions and substantial inefficiencies. The driving force must no doubt come from market force incentives. The role of the government will in other words be to create an economic environment conducive to private enterprise. One such example is the creation of an Export Processing Zone (EPZ).<sup>9</sup>

A well known African economic success, derived from a well-implemented EPZ is the case of Mauritius. Since the 1970s, Mauritius has developed from an economy based on sugar exports to a diversified manufactures producer, attributable to the EPZ scheme. The success of the Mauritian EPZ hinges on a number of factors. Contrary to several less successful cases<sup>10</sup>, the Mauritian policy makers understood that in spite of the enclaved nature of EPZs, its efficiency is not isolated from overall macroeconomic policies and other measures implemented in the non-EPZ part of the economy. Hence, outward looking policies were adopted and - with the exception of a few setbacks - competitiveness was ensured through proper exchange rate management, investment in education, health care and transportation and containment of inflation (see Alter, 1990). The key to the success of the Mauritian EPZ was the government's stance to provide a policy environment conducive to investment, while allowing market forces to make the business decisions and reap the benefits therefrom. Johansson and Nilsson (1997), show that out of a number of studied EPZs, it was generally those countries

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<sup>9</sup> It should be mentioned that an EPZ exists in Ghana but that it is too early to draw any firm conclusions regarding its potential to increase diversification in the Ghanaian economy.

<sup>10</sup> The Senegalese “Zone Franche de Dakar” is a well know failure story.

that implemented accompanying liberalisation measures that saw positive effects, while the EPZ may even have been detrimental to others.

To sum up, diversification can be viewed as the result of a combination of high quality of production factors (in particular skilled labour and well functioning infrastructure), a macro-economic climate favourable to investment, openness and access to non-traditional export markets, and finally an institutional set up auspicious to risk taking. Therefore, the dependence on several policy measures for the promotion of diversification makes it difficult to disentangle the influence from the various sources of growth.

However, the way we have designed the scenarios gives us a neat opportunity to study the institutional aspects of promotion of diversification. In the scenario called 'less diversification', we make the same assumptions as in the high scenario, with the exception that the degree of diversification in the economy follows the same progression as in the baseline scenario. As we have argued above, diversification will increase based on a number of aspects related to structural factors, such as the availability of skilled labour and infrastructure, to external factors including capital inflows and access to export markets and imported technology, as well as factors related to risk and political and economic stability. In the latter category we also include the quality of institutions. The business climate, and thereby the incentives for entrepreneurs to undertake investments in new areas, will be negatively affected by corruption and rent seeking, a poor judicial system, red tape and other distorting effects of heavy government intervention. One concrete example of institutional malfunctioning relevant to Africa is the weak protection of property rights, which increases the risks faced by banks and other financial institutions in their loan operations. Diversification will suffer as a result. Notice that in constructing the 'high' scenario and the 'less diversification' scenario we have assumed the same level of human capital and openness to trade, as well as the same level of macroeconomic and political stability. Moreover, capital flows are unchanged between the two scenarios implying that investment in infrastructure remains essentially unchanged.<sup>11</sup> In other words, the difference between the two scenarios in terms of diversification growth can come only from an improvement of institutions or from better access to export market for non-traditional products. Note, however, that the total volume of exports as a ratio of GDP is the same in the two scenarios.

Given the institutional character of this variation of the high scenario we will call the difference between the 'less diversification' scenario and the high scenario the diversification-institutional gap (see Table 6). This institutional gap is of course additional to the more direct impact institutions may have on growth through misuse of public funds or the deterring effect poor institutions may have on investment. In other words, good institutions not only enhance the volume but also the diversification of investment.

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<sup>11</sup> In fact, according to the investment function in our model, total capital stock will remain unchanged between the two scenarios, with the only exception of the beneficial impact on investment incentives by a higher capital productivity. This improvement in productivity is the direct effect of a higher degree of diversification.

**Table 6 - The institutional aspect of diversification**

	<b>GDP/capita in 2020 (1996 USD)</b>		<b>Diversification-institutional gap</b>	<b>Diversification-institutional gap %</b>
	<b>Less div.</b>	<b>High</b>		
Burkina Faso	540	566	26	5%
Côte d'Ivoire	1,612	1,693	81	5%
Ghana	611	635	24	4%
Mali	497	521	24	5%
Tanzania	396	415	19	5%
Uganda	601	629	28	5%

Table 6 clearly points to the importance of the quality of institutions for economic growth, although we only show a fraction of the effect here. In all countries under study, the accumulated effect on income by enhanced diversification resulting from an improvement in institutions is as much as approximately 5 per cent by the year 2020.

As indicated previously, there is also an aspect of external co-operation involved in the promotion of diversification. For instance, Uganda is a landlocked country, which makes it dependent on Tanzania and Kenya for access to the sea. Hence without some sort of concerted initiative for investment in infrastructure Uganda's prospects for export growth becomes difficult, which in turn imperils its potential for diversification. Undeniably, the relationship with potential trade partners also matters for the diversification of the economy. A key factor for the success of the EPZ in Mauritius was the fact that the country gained preferential access to export markets, in particular in Europe, through various international trade agreements. Nonetheless, it is doubtful whether trade agreements will have any major impact without a certain level of domestic institutional quality. Hence, well functioning domestic institutions is a prerequisite for trade and regional co-operation agreements to have the desired effect on diversification. The role of international trade agreements will be discussed in some detail below.

## **5. What can donor countries do?**

Above we discussed the lack of structural change and investment in recent African growth processes. Moreover our scenarios clearly showed the importance of structural change for development. A main obstacle in this respect is obviously the lack of domestic savings for the great majority of African countries. In addition, a substantial part of investments have to be imported, which necessitates the availability of foreign exchange. Berthélemy and Söderling (1999b) demonstrated that foreign aid could not be seen as a realistic alternative to export promotion in order to enable greater volumes of imports. Nevertheless, given the service of substantial debt accumulated by many African countries, draining a significant part of export revenues and other sources of capital inflows, aid and debt forgiveness remain important tools for assistance in Africa. However, previous experience has shown that domestic conditions must be right for foreign aid to have the desired impact. The following section will analyse three aspects of the relationship between donor countries and Africa: aid forgiveness and the HIPC initiative, aid efficiency<sup>12</sup> and integration of Africa into the global economy through trade agreements.

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<sup>12</sup> Actually, the analysis concerns the efficiency of all kinds of long term capital flows, in terms of their impact on gross domestic fixed investment. Nevertheless,

## 5.1 Debt relief

The heavy debt burden inherited from previous decades has been an obstacle to economic growth for many African countries in recent years. However, the Cologne initiative, which will enhance the 1996 Highly Indebted Poor Countries (HIPC) initiative, should help these countries solve their debt overhang issue.

Our model is not designed specifically to analyse the debt overhang, which can be considered as the result of multiple equilibria, where high debt prevents growth, which in turn prevents a solution of financial difficulties (see, e.g., Berthélemy and Vourc'h, 1994, and Berthélemy, 1999, for a discussion of the Cologne initiative).

A reduction of the debt burden can have direct and indirect positive consequences for an African economy. Directly, a lower debt – or more precisely, a lower net present value of debt – frees resources that can be invested in productive projects. Moreover, solving the debt overhang should in principle have an indirect positive impact on investment, insofar as high debt stocks create negative incentives to private investment. The indirect mechanism is not imbedded in our model, and its quantification would be difficult. However, a quantitative assessment of the direct effect can be attempted.

The Cologne initiative will provide highly indebted poor countries with a debt relief that would reduce the net present value (NPV) of the total debt stock to a level considered as sustainable. While in the 1996 HIPC initiative, the principal sustainability criteria was a NPV/Export ratio lower or equivalent to 200%, in the Cologne initiative, the threshold ratio has been lowered to 150%. A second criteria is, for countries that are highly open to foreign trade, a NPV/fiscal resources ratio lower than 250% (as compared with 280% in the 1996 HIPC initiative). This second criteria is relevant for only one country in our sample: Côte d'Ivoire.

In our sample, Uganda had already received a debt relief package based on the 1996 HIPC programme, before the Cologne initiative was launched. In order to take account of the enhancement of the previous scheme, Uganda's current relief package will be modified according to the new rules decided at the Cologne summit. Three other countries (Burkina Faso, Côte d'Ivoire and Mali) have already reached the decision point and should reach their completion point next year or the year after. Finally, Ghana and Tanzania are also eligible for the initiative, and the IMF expects them to reach the decision point this year.<sup>13</sup> An evaluation of the amount of NPV debt reduction proposed in the Cologne initiative is provided below. This evaluation is based on the Cologne debt sustainability criteria and on estimates of the NPV/export and NPV/fiscal income ratios that can be forecasted at the completion point of the initiative (for countries that have reached the decision point) or at the decision point

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given the dominant proportion of aid and concessional loans in these flows, we will here refer to aid efficiency.

<sup>13</sup> Ghana has recently declared that it will decline debt relief under the Cologne initiative, in order to protect its financial creditworthiness. We nevertheless proceed to estimate the potential gains from the scheduled debt relief for the country.



(for other countries), as they are reported in the IMF assessments of foreseeable debt relief packages.

This evaluation is an upper limit of the direct impact of Cologne, inasmuch as we compare the debt NPV after the completion point with the previous level of the debt NPV, without taking account of what would have been provided in previous debt relief schemes, such as in the 1996 HIPC program. Table 7 reveals a wide variation among countries of the amount of debt relief that would be provided. In our sample, Tanzania will by far be the biggest recipient, due to the current high level of its indebtedness. The amount expected to be received by Tanzania would be even higher than the largest HIPC package given so far (to Mozambique that received \$1442 million). Burkina Faso and Mali, which have much lower debt levels (partly attributable to previous bilateral debt reductions granted by France, and partly to a stricter financial control in previous years), would receive much smaller debt relief.

How would such a decline in the stock of debt impact the economy? In our model debt relief will essentially act the same way as an increase in aid flows. Therefore, it should improve the balance of payments and to some extent enhance the financing of investments. A difficult question, however, is to compare this relief to the flow of resources that the countries under study are assumed to receive in the years to come in our scenarios.

Although debt relief will be based on a stock reduction, its direct impact on the economy will not appear up-front, because the flow of debt service that will be suppressed would in principle have been stretched over a long period of time. In the framework of our model, the amount of debt relief provided through Cologne, needs to be compared to the flow of aid that the economy will receive. Therefore, we propose to estimate the flow of grant aid that would have the same net present value as the debt relief given through the Cologne scheme. This flow is to be compared with the flow of net transfer of resources that each economy will receive in our scenarios. For the sake of comparison, we compute this equivalent flow of grant aid assuming that it will grow at the same pace (2.5 percent a year) as other net resource flows. Table 7 provides such a comparison, based on a discount rate equal to 6 percent a year. The comparison is clear: the direct impact of the Cologne initiative, in terms of supplementary resource flows to which it is equivalent, is rather small. For Tanzania, which would receive the highest debt relief in the Cologne scheme, it is equivalent to a 13 percent of the flow of resources assumed in our baseline scenario. For Burkina Faso, Ghana, Mali and Uganda, it is as low as 3-4 percent of the corresponding flow.

**Table 7 - Direct effect of the Cologne initiative on financial flows**

	NPV of debt before relief [1]	NPV of debt after relief [2]	Cologne NPV debt relief [3]=[1]-[2]	Equivalent aid flow [4]=[3]*(p-g)/(1+p)	new financial flows (1997) [5]	% aid flow increase equivalent to Cologne 100*[4]/[5]
Burkina Faso	833	525	308	10	339	3
Cote d'Ivoire	7837	6689	1148	38	567	7
Ghana	5982	5127	855	28	969	3
Mali	1403	956	447	15	382	4
Tanzania	7177	4238	2939	97	758	13
Uganda	1796	1076	720	24	665	4

Note : columns [1] to [5] are in US dollar millions.

p=discount rate (6%), g=growth rate of foreign resource transfers (2.5%)

In other words, the direct impact of Cologne will be modest for the countries under study, and this does not justify the building of a new scenario that would specifically – and in a more precise manner than in the rough calculations that we have just presented – take account of this new debt relief package. However, one cannot discard the possibility of a stronger indirect impact that would facilitate future growth through better incentives to invest.

## 5.2 Aid efficiency

In order to study the importance of aid efficiency, we assess the impact of an improvement in the coefficient measuring the effect of aid and other capital flows on investment (see Table 2). This parameter can be interpreted as the share of foreign capital inflows that is actually invested in the economy, with the rest going to consumption through various leakage as well as through general equilibrium effects. In going from the high scenario to the ‘enhanced aid’ scenario, we increase this parameter from the rather low estimated level of 17 percent to 50 percent. It should be pointed out that the estimated coefficient in some sense is an average over a relatively large number of countries during a fairly long period and that this coefficient may vary substantially between countries and over time.

Moreover, governments are likely to have a greater influence on this coefficient than on other parameters estimated in the model. It may hence be unfair to suggest that all countries in our sample are currently at the low level of aid efficiency revealed by the estimated coefficient. The difference in income per capita between the two scenarios should therefore be interpreted purely as an indication of the importance of good aid efficiency, rather than as a measure of how much the countries in question would actually gain if they improved their aid efficiency to a reasonable level.

**Table 8 - Net aid and other capital flows (Annual average 1996-2020, constant 1996 USD million)**

	Net aid and other capital flows (Average 1996-2020, constant 1996 USD million)			
	Assumption in scenarios	Equivalent to enhanced aid efficiency Level	Difference	Difference %
Burkina Faso	462	854	393	85%
Côte d'Ivoire	761	1,675	914	120%
Ghana	1,316	2,697	1,381	105%
Mali	519	960	441	85%
Tanzania	1,028	1,696	668	65%
Uganda	906	1,767	861	95%

The remarkable importance of aid efficiency is made obvious in Table 8. In order to compensate for more efficient aid, roughly a doubling in volume is required for the countries under review. Naturally, the countries receiving the most aid - Ghana, followed by Tanzania and Uganda - would need the most supplementary aid in absolute terms in order to compensate for enhanced aid efficiency. The volume of aid and other capital flows becomes unrealistic, exceeding \$1.5 billion per year in four out of the six countries in the sample. One obvious problem from the donors’ point of view is that there is very little they can do to influence aid efficiency in recipient countries, at least in the short run. However, they can target aid towards countries

which have a demonstrated record of making sensible use of provided funds (cf. World Bank, 1998).

### **5.3 Integrating Africa into the global economy**

Compared to other developing countries, African countries have so far enjoyed relatively easy access to world markets, attributable to a large extent to the trade preferential treatment granted by the European Union under the Lomé EU-ACP conventions. Until present, only Mauritius has actually taken advantage of these facilities, through the development of its exports of manufactured goods such as in the textile industry. Overall, the African share in world trade has declined in the past decades, due to its poor macroeconomic performance.

This does not mean, however, that the question of access to world markets will not be an issue for African countries in the future. The principal policy issue today concerns the renewal of the Lomé convention, which must be made compatible with WTO rules. The previous agreement was not compatible with these rules, because it implied discrimination against other developing countries, which face less generous custom treatments, under the GSP. For economies which belong to the so-called LDCs (least developed countries) category, this should not be much of an issue, because all LDCs will likely enjoy the same access to the EU market. However, for non-LDC ACP countries, a new system needs to be developed. In our sample, this concerns Côte d'Ivoire and Ghana.

Essentially, the EU proposes two solutions to non-LDC ACPs: either to abandon their preferential treatment and access the EU market under the GSP rules or to sign reciprocal free trade agreements with the EU (so-called REPAs, for Regional Economic Partnership Agreements). A REPA would imply that EU products could enter free of charge into these economies, after an adaptation period. This is considered as unacceptable by a number of countries, which want to protect their "infant" industries. However, given the limited size of the economies under study, the infant industry argument can not be considered pertinent. Rather, openness to trade is a prerequisite for the development of non traditional industries.

On the other hand, under the GSP, non-LDC ACP countries such as Côte d'Ivoire and Ghana would possibly face two limits to their diversification process.

First, the GSP provides duties on imports that compete with European products. Production that would result from a diversification process would inevitably fall into this category. This would be a serious impediment to diversification.

Second, the GSP is unilateral, rather than negotiated with developing countries. If, alternatively, these countries negotiate REPAs, they would have the opportunity to include a discussion of non-tariff barriers in the negotiations. Non-tariff barriers could become an even stronger impediment to their exportations of diversified manufactured products in the future. It is clear that tariffs are decreasing in importance in overall protection, which nowadays takes the form of various non-tariff barriers. Anti-dumping duties are a good example. The EU protection through such measures is often high and affects principally the textile, chemical and electronic industries, rather than high tech industries. The same applies to the USA. The most

affected countries are currently Asian NICs and China. Africa is not affected to a great extent, but this is simply because Africa is not yet competing with European manufacturers in the European market. If African countries such as Côte d'Ivoire and Ghana were to diversify and follow the path of the Asian NICs, they would likely face the same reactions from European companies in the future and would in turn be affected by such non-tariff barriers, which are not only high but also unpredictable and to some extent beyond the control of governments. However, if they secure preferential access to the European market within the boundaries of free trade areas with the EU, they will better escape such measures. The experience of Mauritius, which in the 1980s and 1990s escaped the impediments created by the Multi-Fiber Agreement, again provides a good example of the benefits of securing a preferential access to the EU market.

## **6. Conclusions**

We have pointed to the crucial role of structural change in order to sustain economic growth in the studied countries. The argument that development of human capital is of utmost importance for the future of African economies is not new but still highly relevant, as demonstrated by the simulations in the study. We have further argued that the promotion of a greater degree of economic diversification is necessary in order to sustain long term growth. It is important to underline that the effect of diversification on growth is not neutral to its source. Diversification must come from market incentives so as to have a positive impact on growth. In this respect, the quality of institutions is critical, essentially as a mean to limit risks for entrepreneurs. Aspects of poor institutional quality threatening growth prospects in Africa include corruption and rent seeking as well as weak property rights protection.

External relations in the form of preferential trade agreements can also help African countries enhance the level of diversification as showed by the example of Mauritius. In the upcoming international trade negotiations, securing free access to the world manufacture markets will be a major issue for African countries aspiring to economic emergence.

One important lesson from our scenarios is that although foreign aid will continue to play a decisive role in the near future, it is ultimately African countries themselves that will determine the fate of their economies. The recent Cologne initiative will only have a limited direct effect on investment and growth, although we emphasise that our model is inadequate to measure the indirect effects on investment incentives. Further, we showed that increased amounts of aid cannot be a substitute for improved aid efficiency. The obvious implication for donor countries is that it makes sense to concentrate aid to countries fulfilling certain criteria which ensures efficient use of supplied funds. Again, institutions have a critical role to play by limiting waste. In particular, sound financial institutions are needed in order to facilitate the channelling of inflows of funds to the most productive areas.

## 7. Appendix : hypothesis for the baseline scenarios

### 7.1 Production function equation

#### *Diversification*

The diversification indexes in Uganda and Ghana have improved quite substantially since the beginning of the respective reforms. However, the indexes are still at very low levels indicating that there is a great potential for improvement. Hence, in our baseline scenarios we assume a continuation of the trend observed since the beginning of the reforms, i.e. a yearly growth rate of 2.8 per cent and 3.1 per cent for Ghana and Uganda respectively. However, Burkina Faso, Côte d'Ivoire, Mali and Tanzania have not demonstrated any tendency to enhance diversification and their indexes are therefore assumed to remain constant. Under the ‘high’ scenario, we assume that Ghana attains a level of diversification comparable to the current level of a number of Asian newly industrialised countries (NICs) in the year 2020. Uganda attains the current level of Mauritius in 2020 and the other countries obtain a growth in the diversification index of 3 percent, corresponding to Uganda’s and Ghana’s recent record. The assumptions are summarised in the table below.

**Table 9 - Assumptions for the diversification index**

	Annual growth of index (%)		Accumulated TFP gain (%)	
	Baseline	High	Baseline	High
Burkina Faso	0	3	0.0	3.1
Côte d'Ivoire	0	3	0.0	3.1
Ghana	2.8	5.2	2.9	5.4
Mali	0	3	0.0	3.1
Tanzania	0	3	0.0	3.1
Uganda	3.1	6	3.2	6.2

#### *Labour reallocation*

In order to measure the effects on growth derived from reallocation of labour from the agricultural sector to the more productive modern sector, we applied the following equation, adapted from Syrquin (1986):

$$\mathbf{r}_t = (1 - \mathbf{a}) \sum_{i=Ag, non-Ag} \mathbf{u}_{i,t-1} \frac{\ell_{i,t} - \ell_{i,t-1}}{\ell_{i,t-1}}$$

where  $\mathbf{r}_t$  is the TFP gain due to labor reallocation from agriculture to non-agriculture at time  $t$ ,  $\ell_{i,t}$  is sector  $i$ 's share of total labor force and  $\mathbf{u}_{i,t}$  is the contribution to GDP by sector  $i$ . A level index of the effect of sectoral labor allocation is then computed by calculating cumulated annual increments. This index is one explanatory variable of TFP, with a theoretical parameter equal to 1. For the future projections, we extrapolate the trend in the part of total labour in agriculture observed since 1990 in the case of Burkina Faso, Côte d'Ivoire, Mali and Tanzania, 1983 for

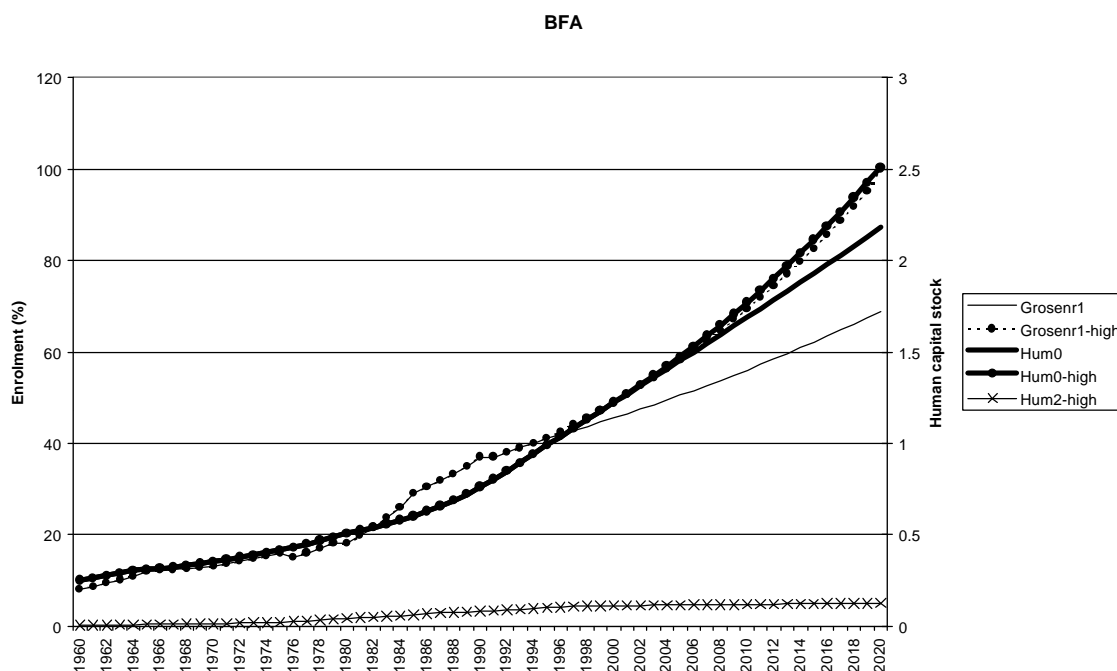
Ghana and 1987 for Uganda. Further, we assume that the relative productivity between the two sectors remains unchanged.

**Table 10 - Labour reallocation effect**

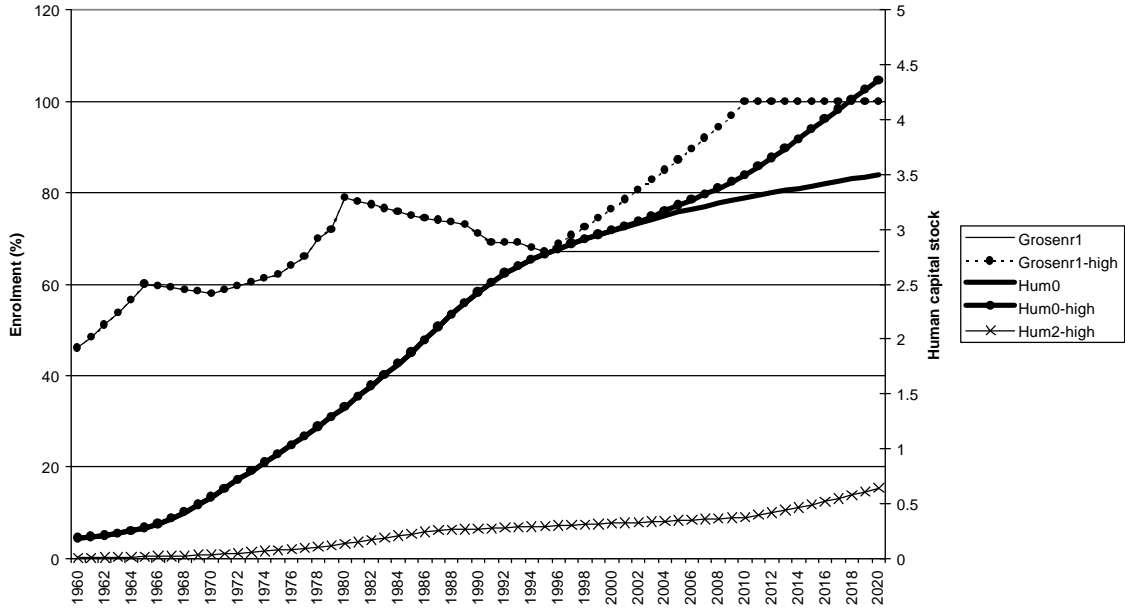
	Share of labour in agriculture (% of total)			Relative Accumulated TFP gain		
	1996	2020 Baseline	2020 High	productivity	Baseline	High
Burkina Faso	91.3	87.1	80.9	2.6	12.2	24.5
Côte d'Ivoire	54.4	36.9	23.1	2.0	8.8	14.3
Ghana	58.2	53.6	24.7	1.3	1.6	7.7
Mali	83.7	75.8	65.8	1.7	7.3	14.2
Tanzania	81.3	70.1	63.9	1.7	10.0	14.1
Uganda	83.5	78.8	65.6	1.8	7.9	18.6

*Human capital*

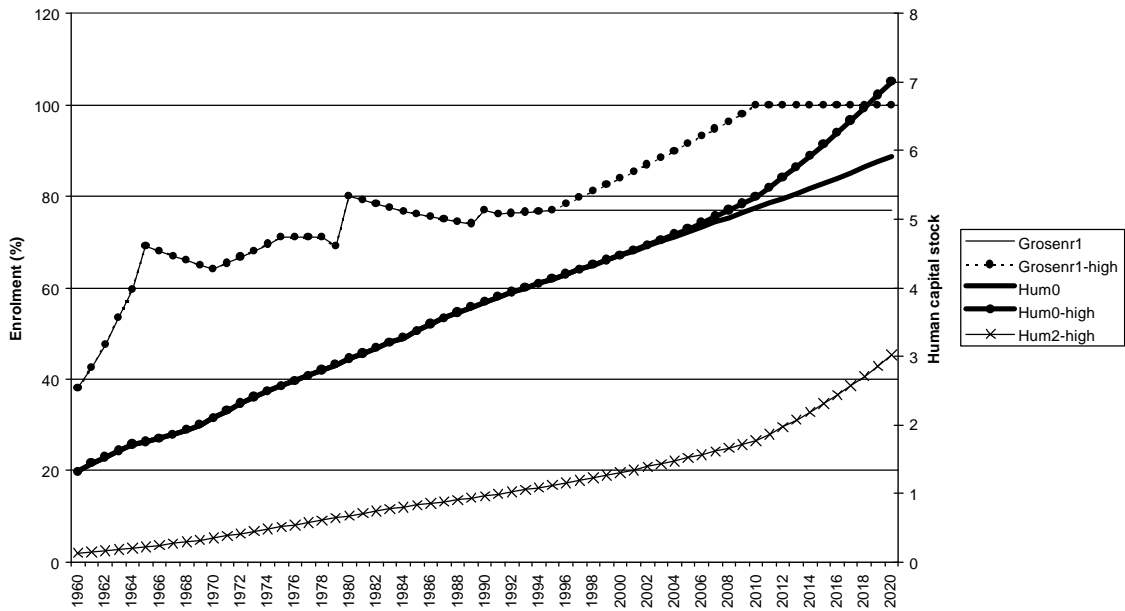
The underlying assumptions for the projection of the human capital stock are described in the text. The figures below show the data used and the resulting human capital stock. The variables are defined as follows: Hum 0=total human capital stock, Hum 2=humancapital stock in primary school, grosenr1=gross enrolment rate in primary school. 'High' indicates high scenario. Note that no high scenario has been constructed for Uganda (see text).



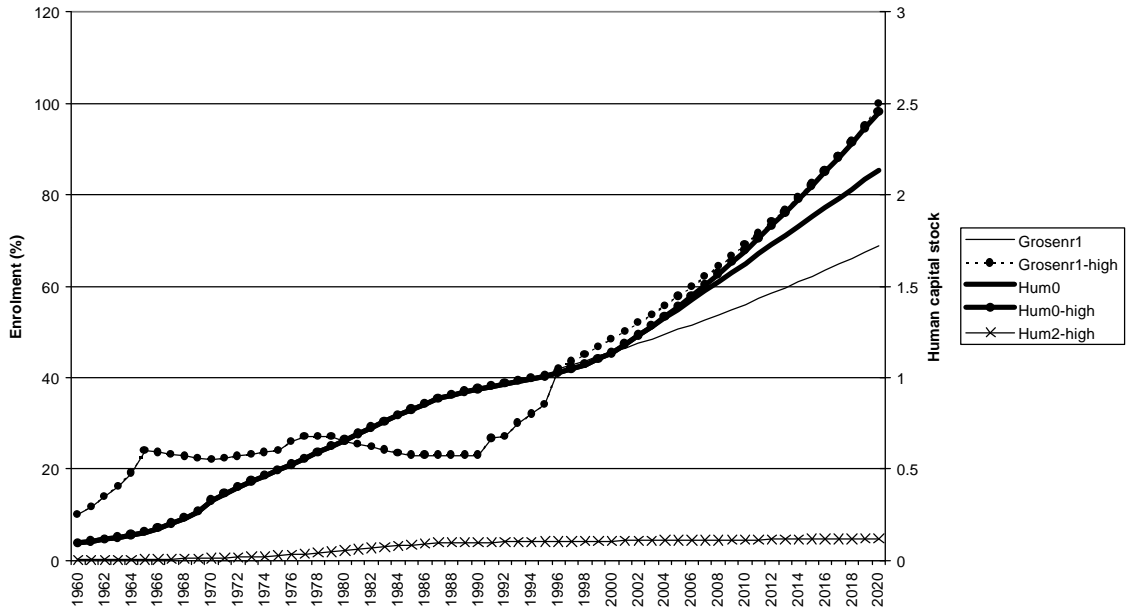
CIV



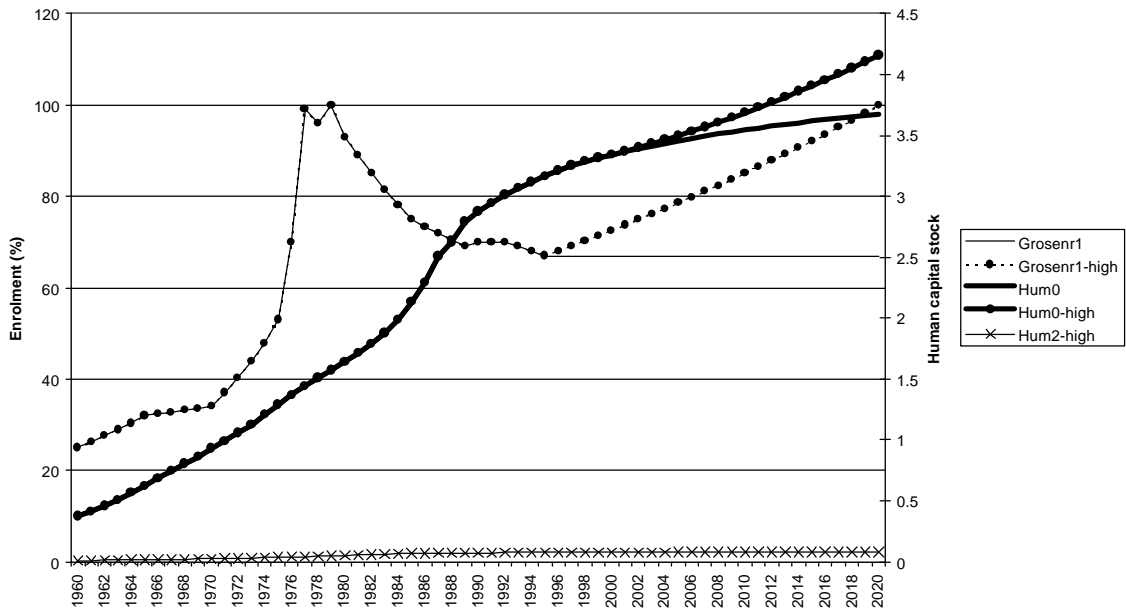
GHA



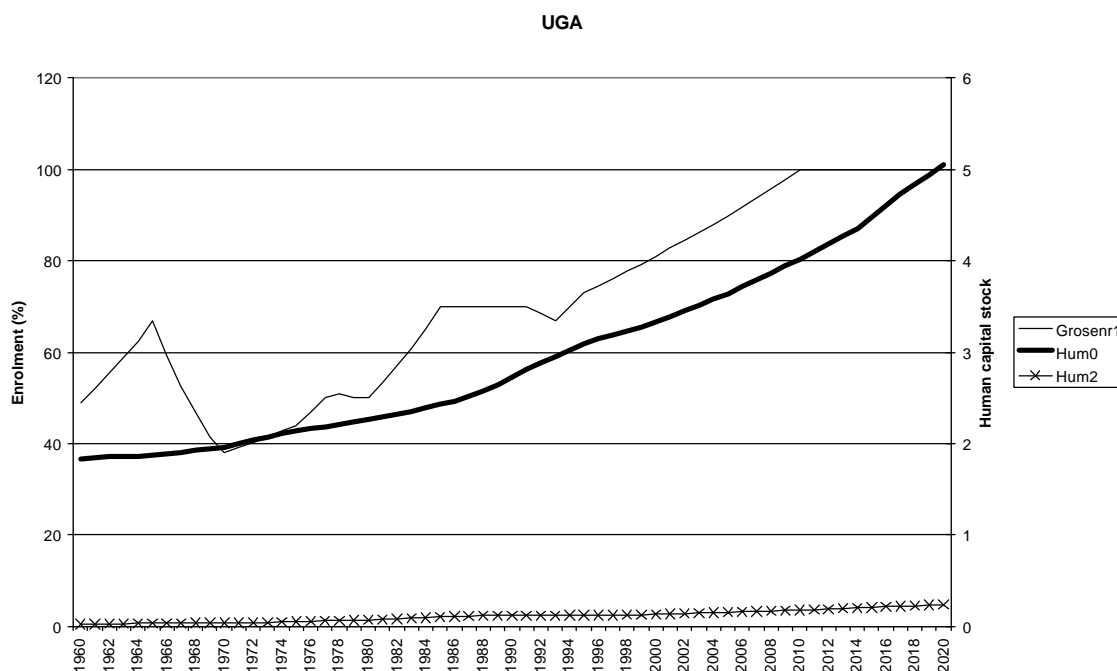
MLI



TZA







## 7.2 Balance of payments equation

### *Export performance*

Rather than simulating the absolute value of exports, a more reliable way is to estimate the export to GDP ratio. It should be mentioned that attempts to estimate an export function were unsuccessful. Prior studies (see e.g. Rodrik, 1998) have revealed difficulties in explaining exports by trade policy variables, in particular in the long run<sup>14</sup>. In order to simulate the development of the export to GDP ratio, we assume that, in the case of countries currently in the process of improving its economic performance, the export ratio will tend towards an asymptotic maximum. This maximum will be chosen subjectively either as the maximum level obtained in the studied period or as the current level of a country, which can reasonably be considered as a “catch up target” in the long run. The speed of convergence towards this maximum will be determined on historical data during a relevant period. More precisely:

$$lxy_t = \bar{x} - \frac{a}{t+b} \quad (A1)$$

where  $t$  denotes time,  $\bar{x}$  is the asymptotic maximum value and  $a$  and  $b$  are parameters. Moreover, the speed of convergence at time  $t$  equals:

<sup>14</sup> Similarly, Coe and Hoffmaister (1998) find that bilateral trade flows of African countries can simply be explained by a gravity model .

$$v_t = \frac{dxy}{dt} = \frac{a}{(t+b)^2} \quad (A2)$$

From (A1), one deducts:

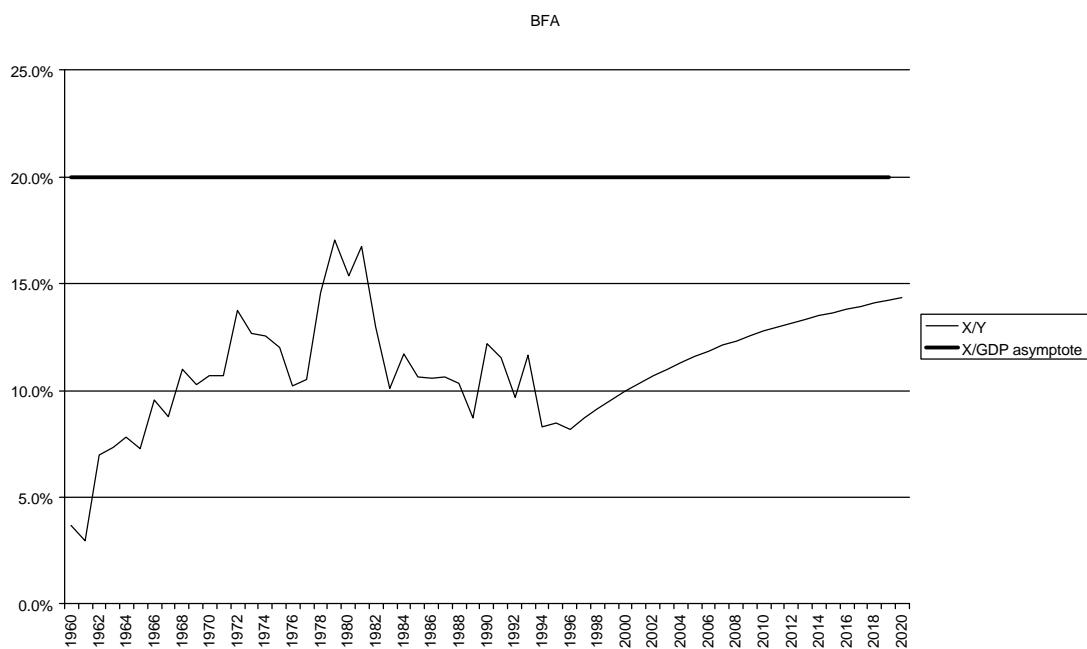
$$lxy_0 = \bar{x} - \frac{a}{t} \quad (A3)$$

and from (A2):

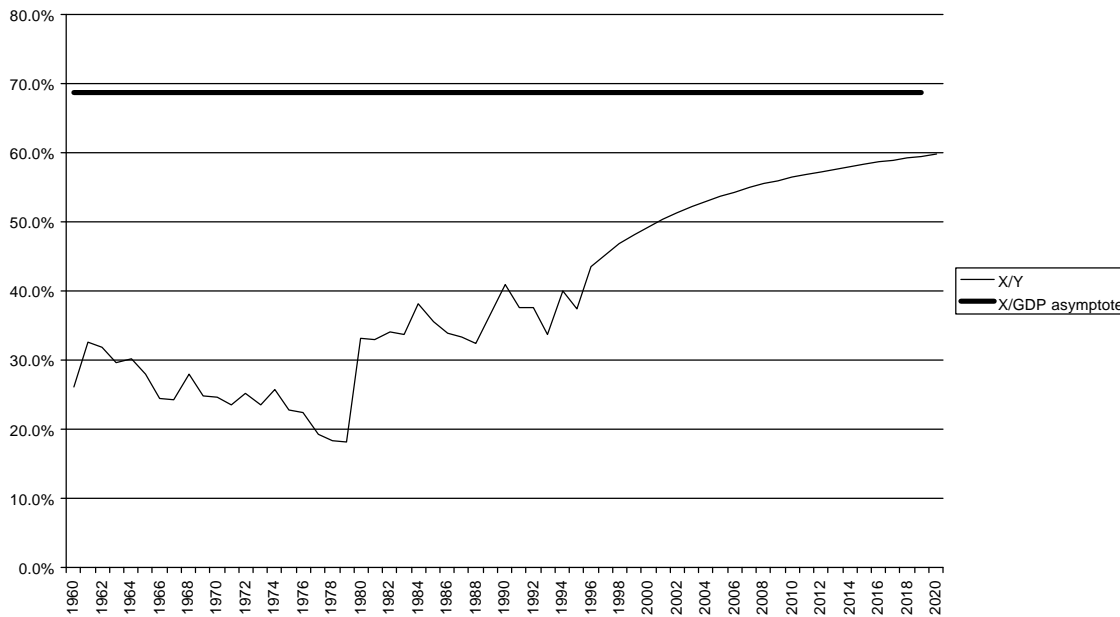
$$v_0 = \frac{a}{b^2} \quad (A4)$$

$\bar{x}$  and  $v_0$  are then easily calculated from (A3) and (A4).

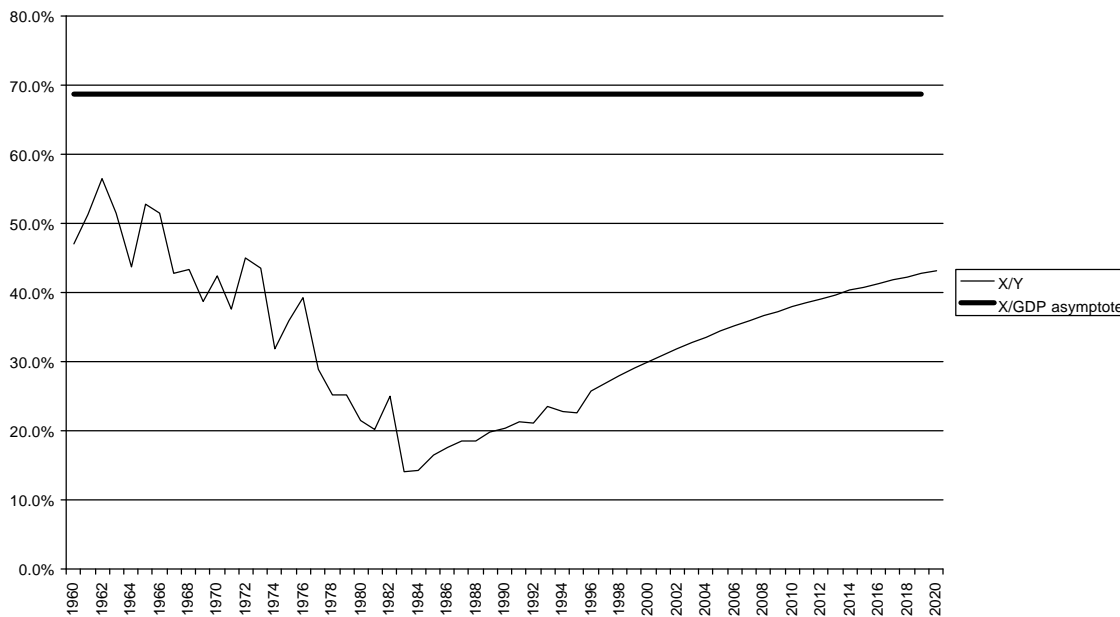
The hypothesis used in the scenarios are illustrated by the figures below.



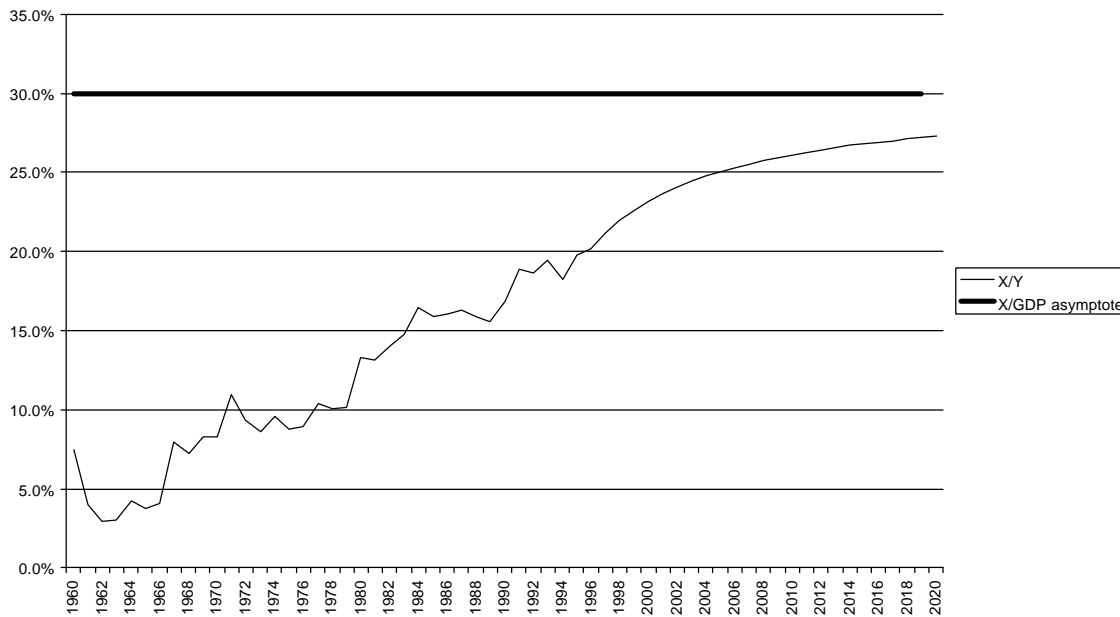
CIV



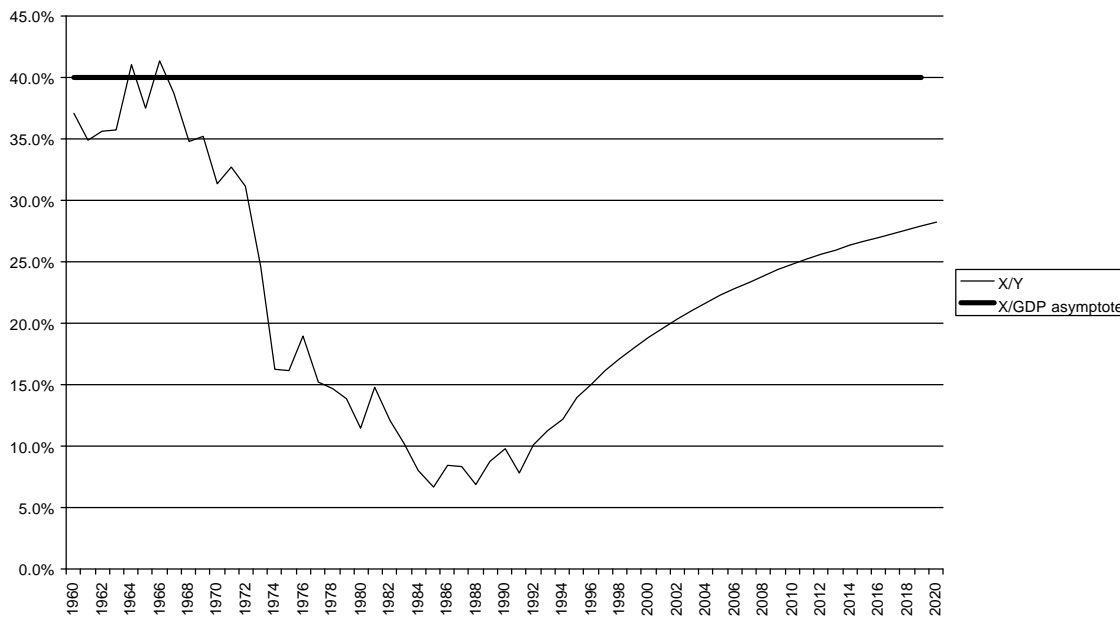
GHA



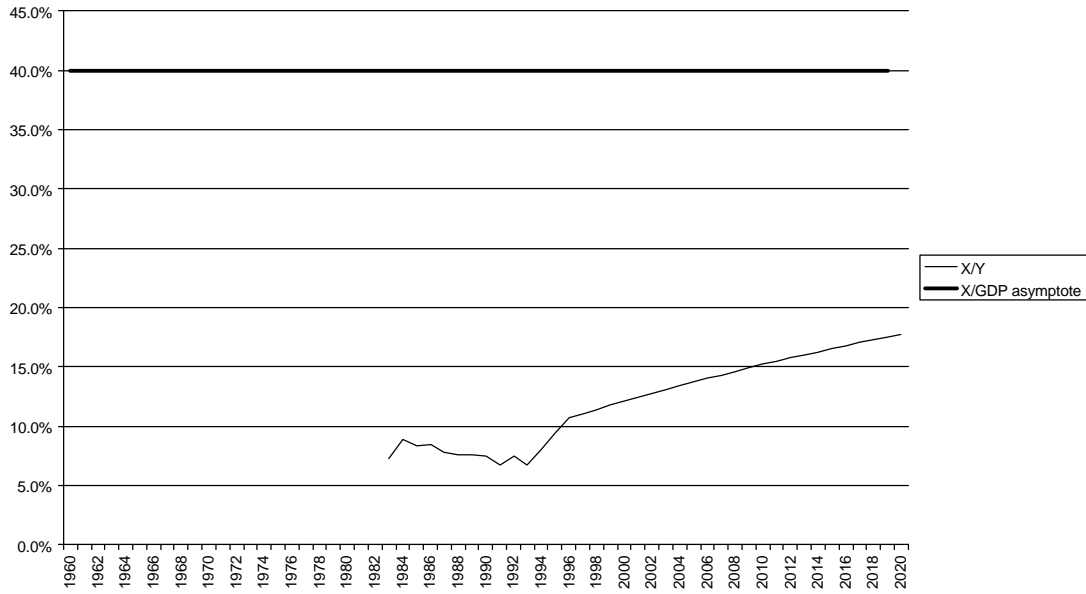
MLI



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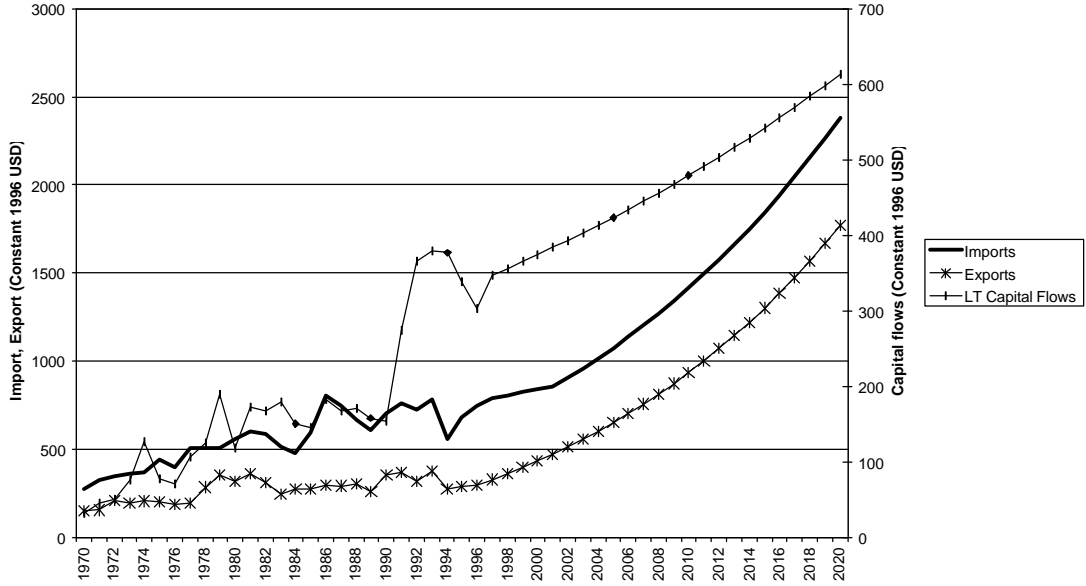


UGA

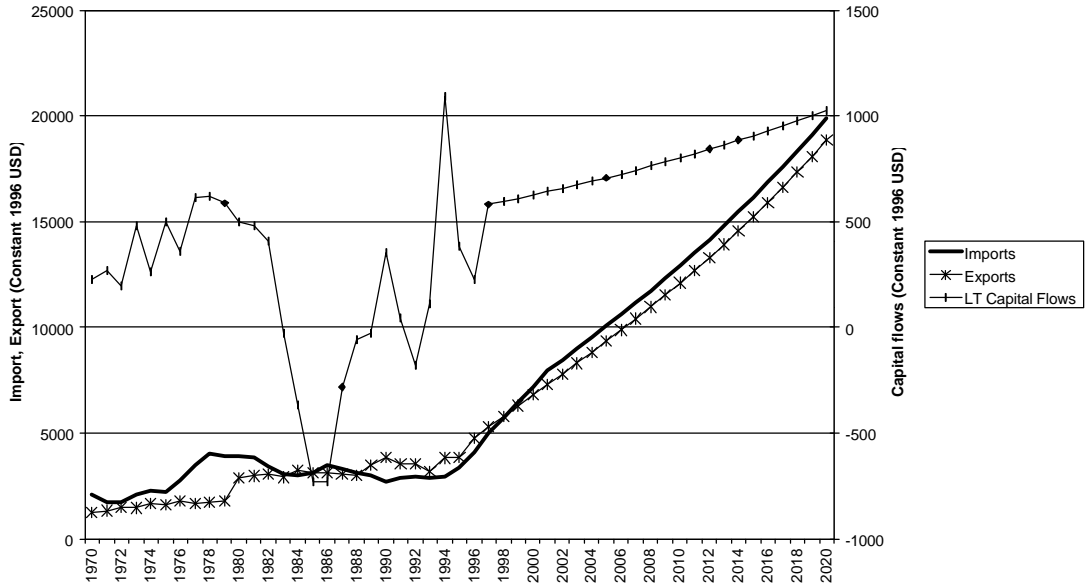


In order to forecast imports, we use the simulated level of exports and make some assumptions regarding the terms of trade and long term capital flows. Given the inherent uncertainties about future commodity prices, we assume that the terms of trade will remain constant. Moreover, we assume that capital flows to Africa will remain more or less constant as a share of aggregate GDP of the OECD countries. It is further reasonable to assume that import prices will progress at the same rate as prices in the OECD. Taken together, these assumptions imply forecasting a rate of growth of *LTFLOWS/Pm* equal to the aggregate rate of real GDP growth in the OECD countries. A reasonable long term growth rate for the OECD would be around 2.5 per cent annually. As a starting point, we use the average capital flows during the 1994-96 period. The resulting simulations are showed below.

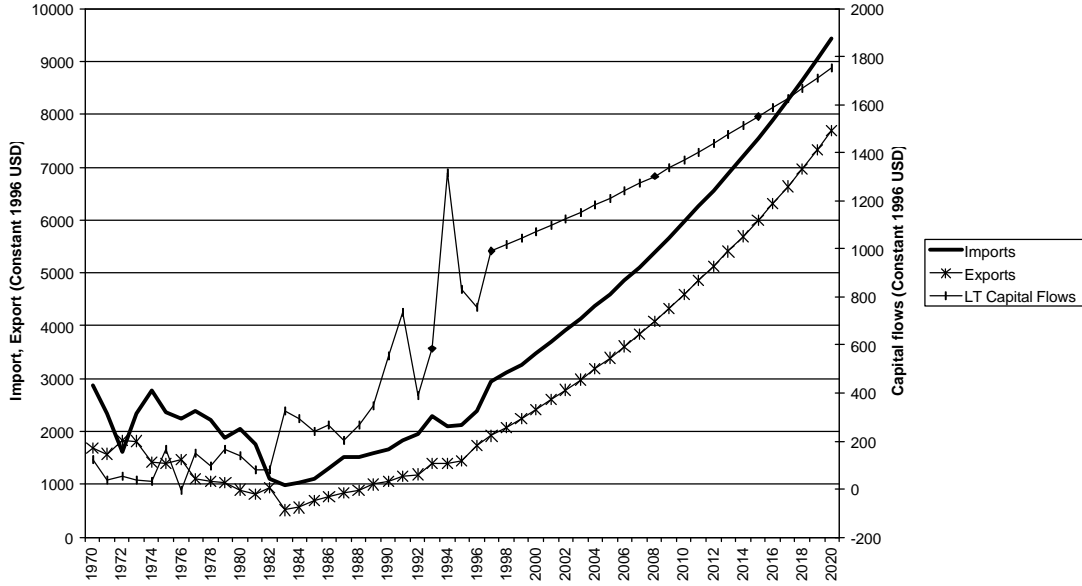
Exports, Imports and Capital Flows Baseline\_BFA



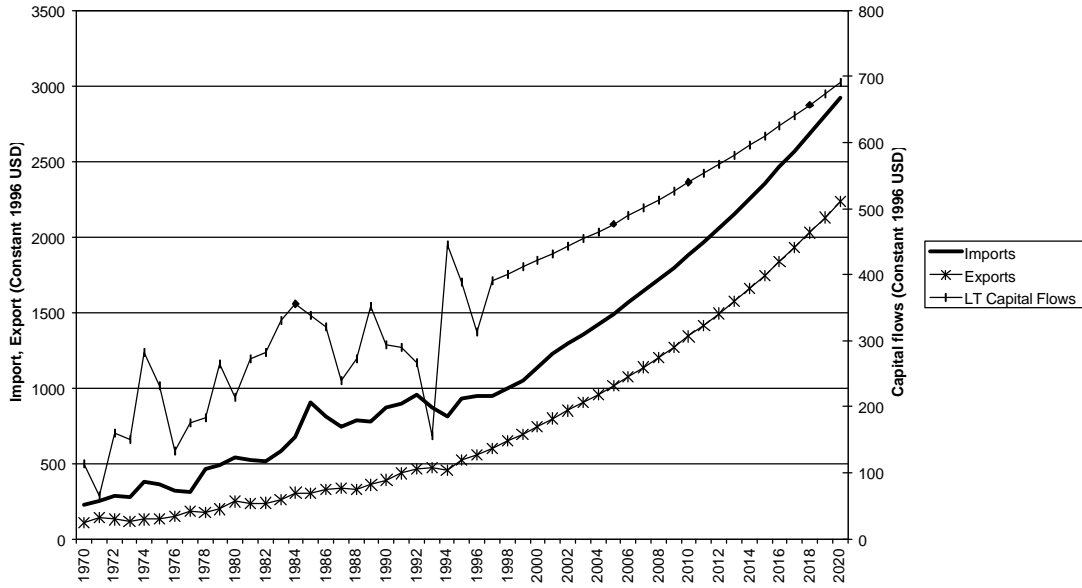
Exports, Imports and Capital Flows Baseline\_CIV



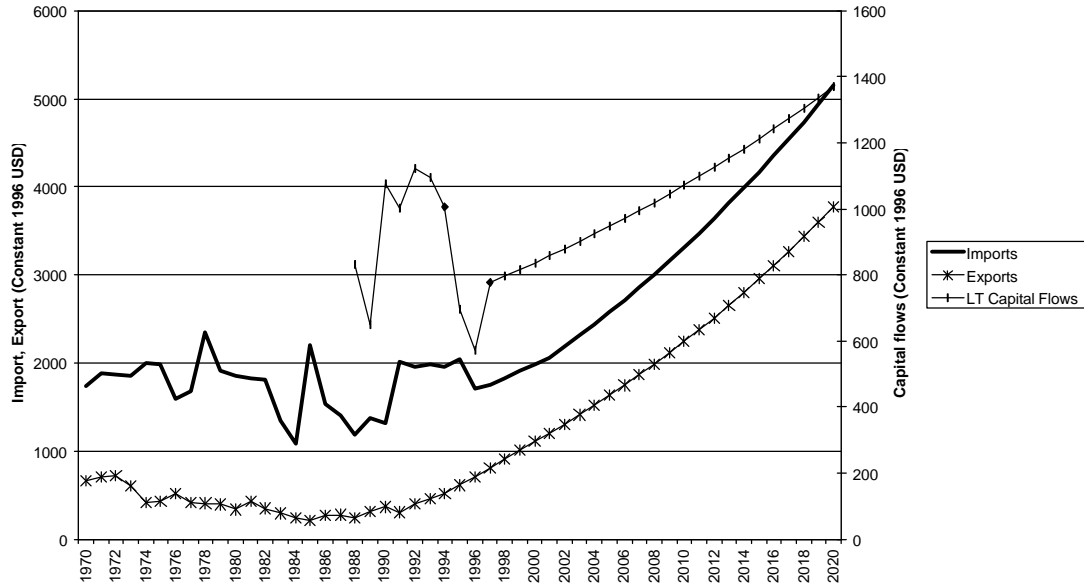
Exports, Imports and Capital Flows Baseline\_GHA



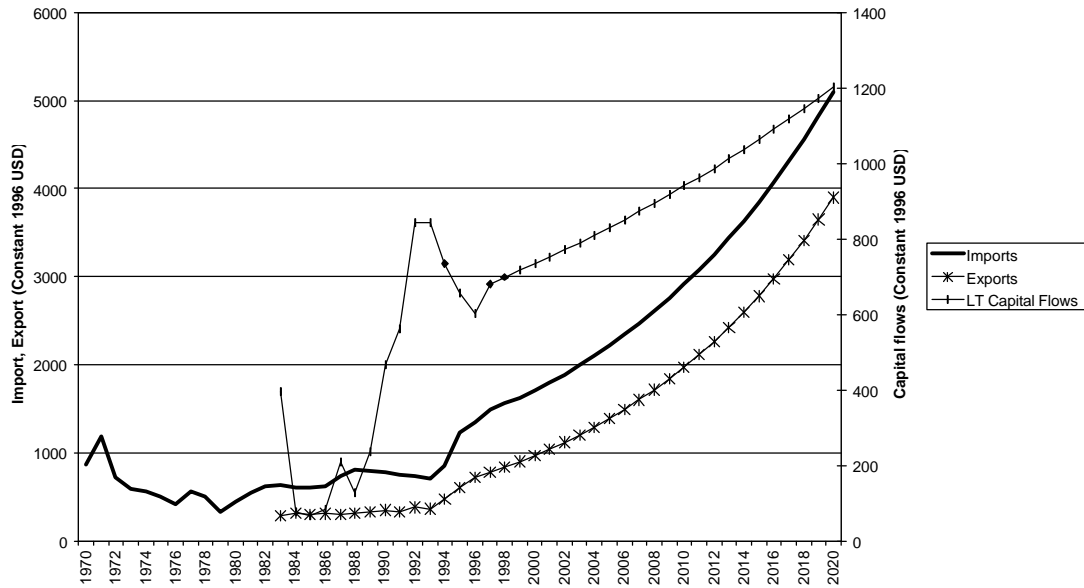
Exports, Imports and Capital Flows Baseline\_MLI



Exports, Imports and Capital Flows Baseline\_TZA



Exports, Imports and Capital Flows Baseline\_UGA





## References

- Acemoglu, D. and Zilibotti, F. (1997), "Was Prometheus Unbound by Chance? Risk, Diversification and Growth", *Journal of Political Economy*, vol. 105, no. 4, 709-751.
- Alter, R. (1990), "Export Processing Zones for Growth and Development: The Mauritian Example", IMF Working Paper WP/90/122.
- Comments on Gunning and Mash », forthcoming in proceedings of the ABCDE conference in Europe, The World Bank, Paris.
- Berthélemy, J.C. and F. Bourguignon (1996), « Growth and Crisis in Côte d'Ivoire », The World Bank, Washington D.C.
- Berthélemy, J.C. and L. Söderling (1999a), « The role of Capital Accumulation, Adjustment and Structural Change for Economic Take-off: Empirical Evidence from African Growth Episodes, OECD Development Centre Technical Paper 150 and CEPII Working Paper 99-07. Also available at <http://www.oecd.org/dev/pub/tp1a.htm> and <http://www.cepii.fr/DOCW.HTM>
- Berthélemy, J.C. and L. Söderling (1999b), Trade and Development: An European View on African Issues Paper prepared for the workshop on "Regionalism and a Post-Lomé Trade Regime: Implications for Southern Africa", Institut for Global Dialogue, Johannesburg.
- Berthélemy, J.C. and Varoudakis, A. (1996), "Financial Development Policies and Growth", OECD, Development Centre Study (Long-Term Growth Series), Paris.
- Berthélemy, J.C. and A. Vourc'h (1994), « Debt Relief and Growth », OECD, Development Centre Study, Paris.
- Berthélemy, J.C. and A. Vourc'h (1996), « Growth in Senegal. A Lost Opportunity ? », OECD, Development Centre Study (Long-Term Growth Series), Paris.
- Bigsten, A. and Kayizzi-Mugerwa, S. (1999), "Is Uganda an Emerging Economy?", mimeo, OECD Development Centre, Paris.
- Coe, D.T. and A.W. Hoffmaister, "North-South Trade: Is Africa Unusual?", IMF Working Paper WP/98/94.
- Johansson, H. and L. Nilsson (1997), "Export Processing Zones as Catalysts", *World Development*, Vol. 25, No 12, 2115-2128.
- Lucas, R E (1993), "Making a Miracle" *Econometrica*, vol. 61 n°2, 251-272.
- Nehru, V., Swanson E. and Dubey, A. (1993) "A New Database on Human Capital Stock: Sources, Methodology and Results", PR Working Papers, International Economics Department, World Bank, Washington D.C.

Rodrik, D.(1998), “Trade Policy and Economic Performance in Sub-Saharan Africa”, NBER Working Paper No 6562.