Trade, Jobs and Growth in Africa:

An empirical investigation of the export-led jobless growth hypothesis

(Draft)

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Abstract

There have been recent reports that Africa's impressive growth performance in recent years has not generated significant employment opportunities, especially for the youth. It is argued that much of the growth has been driven by exports of natural resources that offer limited potential for job creation. We test the so-called 'export-led jobless growth' hypothesis in this paper. The results suggest that while exports have been an important factor in Africa's recent economic growth, this growth has not been job-creating to a degree needed to tackle unemployment and promote inclusive development in Africa.

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1.   Introduction

The 2000s was a decade of rapid growth in Africa, with average real GDP growth exceeding 5%. Moreover, the continent proved resilient to the financial crisis, with growth declining to 3.1% only, while the effects were more disastrous elsewhere, and picking up in 2010. It is now well established that exports have played a key role in the impressive growth record of African countries during the past decade. Much of the export push was driven by strong demand by Africa's emerging partners for oil and minerals. But even non-oil exporting countries like Ethiopia, Mozambique and Uganda have posted strong growth over several years. Thus, Africa's growth has not been limited to the natural resource-rich countries; the rising prices of agricultural exports, such cocoa, coffee and cotton, have benefited many other countries. Domestic demand growth, fueled by increases in public investment and consumption, has been the main contributor to growth in a number of African economies.

However, the track record on job creation has not been as impressive as Africa's export or growth performance. While exports have increased at an annual average of 18.5% between 2000 and 2007, and real GDP at 5.4%, employment has grown at a low 3% during this period. Moreover, this average masks wide variations at the country level. Except for Algeria and Ethiopia, the rate of job creation has not exceeded 4% annually. On a positive note, however, it appears that female employment has grown faster than male employment, thus reducing the gender imbalance in the labor force.

Many countries have seen unemployment rates rise since their growing economies could not generate enough jobs to absorb the bulging youth. In Mauritius, which has registered an employment growth rate of 1.2% during 2000-2007 despite real GDP growth in excess of 4%, unemployment among older workers has also increased as the clothing industry adjusted to the post-MFA competition.

The rate of job creation has clearly not been sufficient to tackle poverty and achieve inclusive development in Africa. This has led to what one may term an "export-led jobless growth" phenomenon in recent years. This hypothesis received much media attention in 2010 amid the ravaging effects of the financial crisis. South Africa and Kenya, in particular, were targeted.[1] Yet, the specter of jobless growth goes beyond these countries and before 2010.

The hypothesis is rooted in the belief that, while a number of African countries have achieved impressive rates of real GDP growth, such growth was driven largely by commodity exports. Since extractive industries are generally capital-intensive, they may not create many job opportunities – and even fewer for women – as they expand. This may result in export-led

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[1] See, for example, "Kenya's economy returns 2.6% jobless growth", Business Daily, May 21, 2010; and "Jobless growth", The Economist, June 3, 2010.

growth not translating into higher levels of employment. Despite the intellectual appeal of this hypothesis, it has not been put to empirical test in Africa. *The aim of this paper is to contribute to filling this knowledge gap by examining whether exports have driven growth and whether such growth has been job-creating in Africa.*

The next section presents a brief review of the literature. Section 3 looks at trends in exports, GDP growth and employment, focusing on the gender dimension. Section 4 presents an econometric model and discusses the estimation results. The paper concludes with some policy implications.

2.   Literature review in brief

Classical models of trade suggest that openness generates growth-enhancing dynamic benefits, including productivity gains, technology transfer and learning-by-doing. Since these models assume full employment, they predict that trade liberalization would create changes in employment levels across industries, but no change in the aggregate. However, it has been typical of most empirical investigations of the employment effects of trade, especially those based on developing economies, to assume that *unemployment* is the norm. On the whole, these studies have failed to produce conclusive evidence on the link between trade and employment.

An early, comprehensive study of trade reforms in 9 countries found that, in 8 of them, manufacturing employment was higher in the short term following trade liberalization (Papageorgiou et al., 1990).[2] However, this result was challenged by Greenaway (1993) and Collier (1993) on methodological grounds. A more recent World Bank study further confirms the ambiguous effects of trade liberalization on both employment and wages: long-term gains are usually masked by short-term transitional dynamics entailing job losses (Dollar and Collier, 2001). These findings generally conform to theory, which predicts that opening up will lead to job destruction in protected industries in the formal sector but job creation in sectors of comparative advantage. While such 'job churning' is characteristic of trade liberalization episodes in developing countries, its net impact depends on several factors, including the length of the period under analysis, the efficiency of the labor market and the availability of safety nets and incentive schemes that allow workers to reskill themselves for greater employability.

Country case studies also yield mixed evidence. In Mauritius, for example, employment in the manufacturing sector increased steadily through the years following the 1983 trade

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[2] Note that while the literature discusses the employment effects of trade liberalization, these same effects will apply more generally to export growth, whether it comes from sources other than trade liberalization. As we shall see later, export expansion in Africa was induced more by external demand than by domestic policy reforms.

liberalization, largely compensating for job losses in import-competing sectors (Milner and Wright, 1998). In contrast, the trade reforms of the late 1970s and early 1980s in Uruguay seem to have entailed a net decline in employment (Rama, 1994). In the same vein, the rapid growth of apparel exports from Madagascar since 2000 have produced important distributional effects, with relatively skilled workers in urban areas benefiting from the export boom while the unskilled poor failed to capitalize on the emerging employment opportunities (Nicita, 2006).

The idea that labor would benefit largely from export growth is the bed rock upon which trade liberalization is founded. Since production for exports is believed to be more labor-intensive than production for the domestic market, better allocation of resources based on the country's comparative advantage would stimulate both economic growth and job growth as larger outputs necessitate more labor.

Empirically, the broad idea that the export sector might be the driving force behind episodes of high growth masks great differences in results. The amazing benefits created by export-led growth in Asia have triggered high expectations for Africa. However, Africa's experience with the export-led strategy seems to be quite disappointing. Strong economic growth caused by higher exports in capital-intensive extractive sectors does not necessarily create better prospects for the employment-intensive sectors like agriculture. As the African Progress Report 2011 notes:

> "While natural resources extraction has accounted for only about a third of Africa's real GDP growth in the last decade, more than 80% of the continent's export earnings come from primary, unprocessed commodities…with the exception of Egypt, Tunisia and South Africa, where manufacturing and services account for 83% of combined GDP".

The export-led growth may be a necessary but no more a sufficient condition for job creation. Growth in Africa seems to remain jobless and insufficient to alleviate problems of poverty and youth unemployment.

3.   Analysis of trends in trade, GDO growth and employment

3.1   Trends in African trade

The value of Africa's total trade in goods and services increased steadily at an average annual rate of 20.5% from 2002 to 2008 before it dipped under the weight of the financial crisis. Africa's trade not only reached a peak in 2008, it also crossed the US$ 1 trillion mark for the first time. Recent data, albeit preliminary, suggest that trade rebounded in 2010; yet it remained below the level attained in 2008 (Figure 1).

A distinctive feature of recent trends in trade is that, since 2002, Africa's exports of goods and services have increased faster than its imports. In 2009, when exports plummeted, the decline
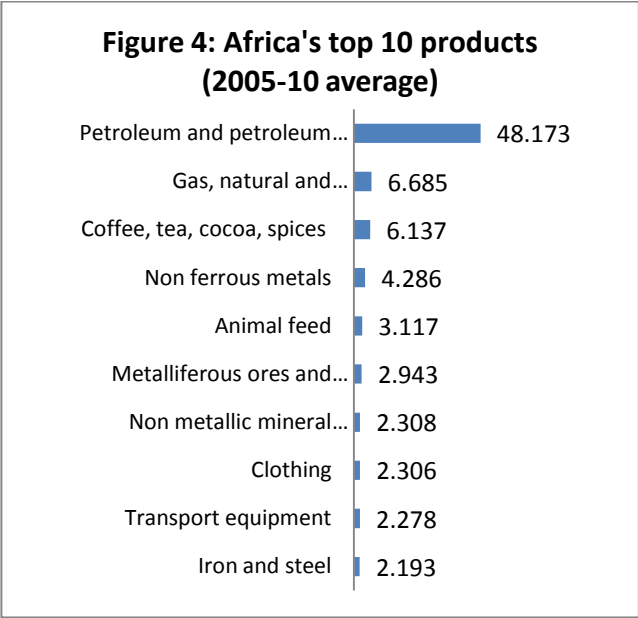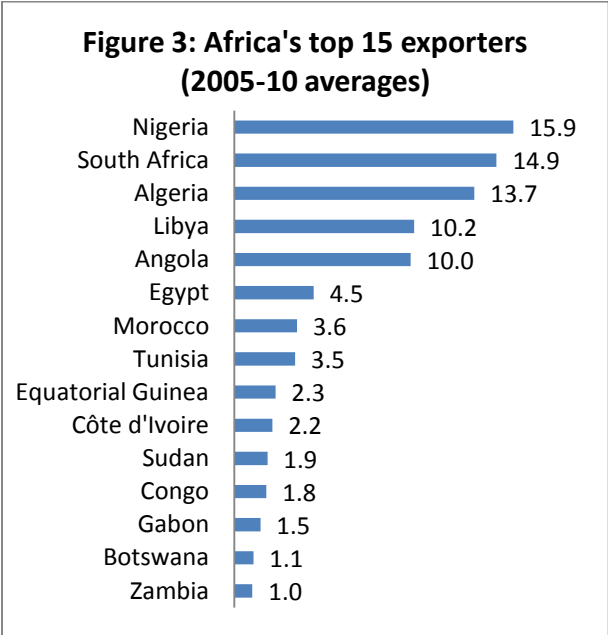
was again larger in magnitude than the corresponding fall in imports, resulting in an aggregate deficit for the first time in the decade. And when exports and imports both picked up in 2010, the surplus – though modest compared to the 2008 figure of US$ 72 billion – returned.

Figure 1: Trends in Africa's total trade, 1990-2010
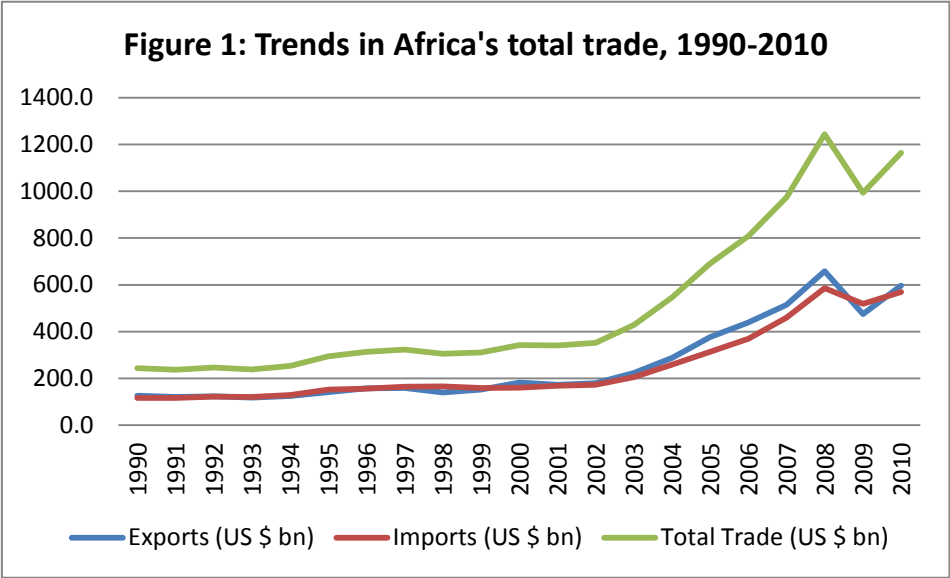
The rapid increase in Africa's trade has raised the continent's share of global trade from 2.2% in 2000 to an average of 3.2% over the past 3 years. While this increase is too small to lift Africa out of its current state of marginalization in world trade, it is nevertheless suggestive of the continent's future potential. In terms of merchandise exports, Africa's share is slightly higher – at an average of 3.35% during 2008-2010 –, confirming Africa's comparative advantage in trade in goods – specifically commodities – rather than in services.
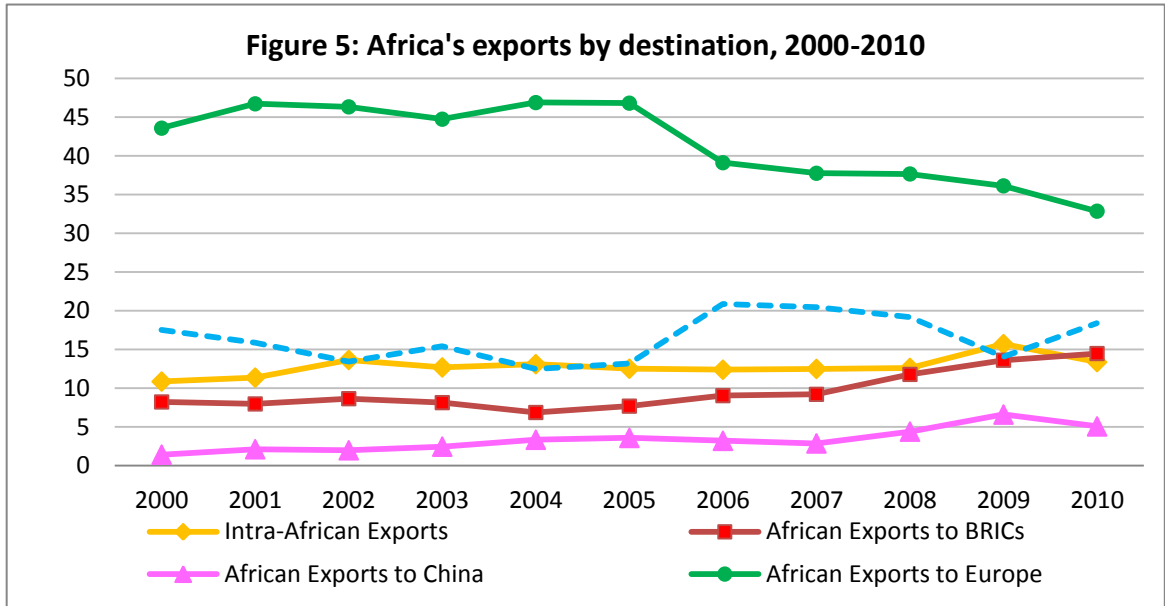
The picture is less rosy, however, when we look beyond aggregates at country- and product-level trade flows. It transpires that a handful of countries and an even smaller set of products dominate Africa's exports. Africa's exports are the least diversified among all regions of the world. Worse, exports have become even more concentrated, as evidenced by the rise in the aggregate concentration ratio from 0.35 in 2000 to 0.48 in 2008. While a few countries – notably, South Africa, Egypt, Morocco and Tunisia – are competitive in a wide range of export products, the oil exporters (Angola, Chad, Sudan, Nigeria, Libya, Republic of Congo, Equatorial Guinea, Gabon and Algeria) and other natural resource-rich countries, such as Zambia (copper) and Botswana (diamonds), remain the least diversified (Figure 2, Appendix). Significantly, 4 of the 5 largest exporters from Africa are oil exporters (accounting for one-half of Africa's merchandise exports during 2005-10), and the other oil and mineral exporters feature prominently among the top 15 (Figure 3). The lack of export diversification is reflected in the

fact that oil and gas represent some 55% of Africa's exports, with the top 10 products accounting for over 80% of total exports (Figure 4).

Figure 3: Africa's top 15 exporters (2005-10 averages)		Figure 4: Africa's top 10 products (2005-10 average)	
Nigeria	15.9	Petroleum and petroleum…	48.173
South Africa	14.9	Gas, natural and…	6.685
Algeria	13.7	Coffee, tea, cocoa, spices	6.137
Libya	10.2	Non ferrous metals	4.286
Angola	10.0	Animal feed	3.117
Egypt	4.5	Metalliferous ores and…	2.943
Morocco	3.6	Non metallic mineral…	2.308
Tunisia	3.5	Clothing	2.306
Equatorial Guinea	2.3	Transport equipment	2.278
Côte d'Ivoire	2.2	Iron and steel	2.193
Sudan	1.9		
Congo	1.8		
Gabon	1.5		
Botswana	1.1		
Zambia	1.0		

African exports are equally concentrated in terms of markets. Europe remains the dominant destination, but its share has progressively declined since 2005, when the EU27 absorbed close to half of Africa's exports, to 33% in 2010. Much of this loss has been to the credit of Africa's emerging partners. The BRIC's share has more than doubled from 6.9% in 2004 to 14.5% in 2010. In particular, China's share of Africa's total exports has increased over the entire decade from 1.4% in 2000 to 6.6% in 2009, before falling off to 5.1% in 2010. These developments are reflected in a slight decline in the export market concentration index from 0.44 in 2010 to 0.42 in 2010. Currently, the EU and US, combined, account for 55% of exports from Africa. Intra-African exports have oscillated around 12% for much of the past decade, although recent data suggests a slight increase in the share to 14.5% in 2010, down from a peak of 15.7% a year earlier (Figure 5).

Export market concentration is particularly pronounced for some African countries. Fifteen African countries send half or more of their exports to Europe alone (Figure 6, Appendix). These include the small and vulnerable island economies of Sao Tome and Principe, Cape Verde, Mauritius, Seychelles and Comoros, which, additionally, are highly dependent on European tourists, as well as oil exporters like Libya, and more diversified economies like Tunisia. In addition, the US is the main market for oil exports from Chad, Gabon, Angola and Nigeria, and for Lesotho's garments.

Figure 5: Africa's exports by destination, 2000-2010

Legend:
- Intra-African Exports
- African Exports to BRICs
- African Exports to China
- African Exports to Europe

Export growth can be demand-induced when export supply is relatively elastic, or supply-induced, for example, by trade liberalization, which, by reducing the incentive bias against exports, allows resources to flow into the export sector. In the case of Africa, it appears that export growth has been driven more by external demand than by trade liberalization. Examination of average applied tariffs over the period 1998-2009 suggests that these have declined in a significant manner in only a few countries. Mauritius, Botswana, Egypt, Morocco, and, to a lesser extent, Tanzania, Kenya and Nigeria are the most notable across-the-board liberalizers. Ghana, Sudan and Zambia have reduced tariffs on primary products but not on manufactures.

There is evidence that trade liberalization in Mauritius provided impetus to the EPZ sector and caused exports to increase (Ancharaz, 2006). However, recent evidence for most other African countries is lacking, and so it is difficult to determine the extent to which export growth has been policy-driven. On the other hand, the sharp increase in commodity exports from Africa since 2005 does suggest that increased demand from emerging countries like China and India was a key driver of such exports.

3.2 Trends in real GDP growth

The past decade has been a decade of rapid growth in Africa, with real GDP growth averaging 5.2%. Growth has remained consistently above 5% between 2002 and 2008 and while it dipped to 3.1% in 2009, it recovered the following year, edging close to the 5% mark (Figure 7).

Figure 8 (Appendix) depicts Africa's top growing economies, that is, economies that recorded an average growth rate of 5% or more during 2002-2010. It shows a striking association

between commodity exports and growth performance. The three fastest growing economies are all oil exporters. Chad, Sudan, Libya and the Republic of Congo – other major African oil exporters – appear prominently among the top performers. However, Figure 8 also features countries like Ethiopia, Mozambique, Uganda, Tanzania and Rwanda, among others, that do not possess any exportable natural resources. Growth in these economies has been driven by a commodity boom: rising prices of agricultural commodities combined with growing export volumes. Between January 2000 and December 2010, the world prices per kg of cocoa, coffee Arabica and cotton have increased 233%, 123% and 254%, respectively. The prices of coffee Arabica and of cotton have increased most rapidly in the second half of the decade.

Figure 7: Africa Real GDP growth and Merchandise export growth, 2000-2010 (%)
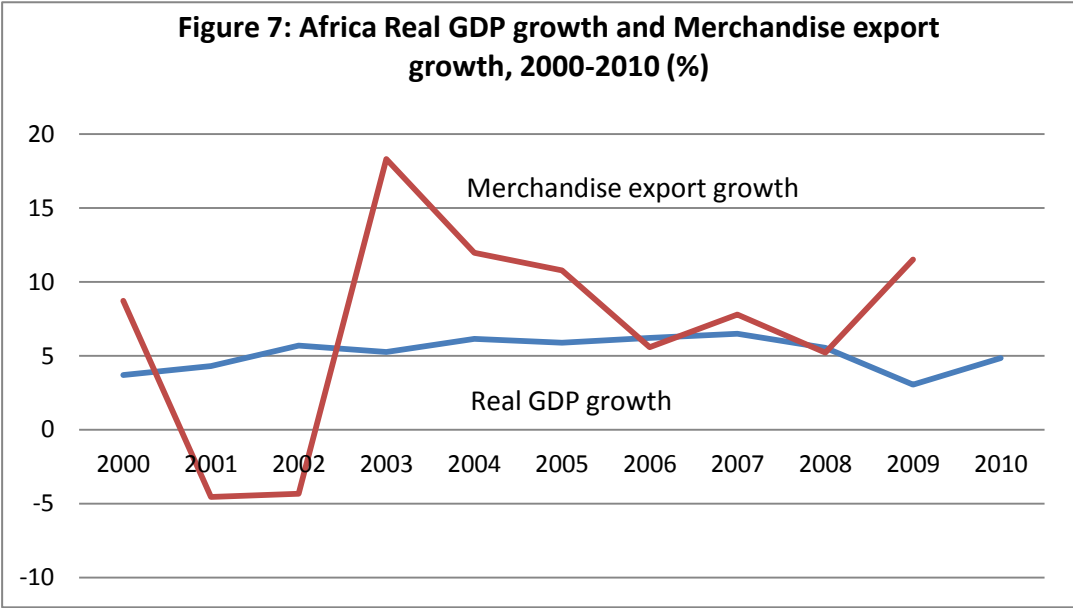
From Figure 7, the association between export growth and economic growth is not clear. To gauge this association accurately, we calculate the correlation between real GDP growth and the growth rate of merchandise exports for a selected group of countries for the period 2000-2009. The correlation coefficients are reported in Table 1.

We note that, for Africa as a whole, export growth and economic growth are positively correlated, with a correlation coefficient of 0.393, which is significant at the 1% level. This is true also of the North Africa and SSA regions, although for SSA, the association is weaker both in magnitude and significance. Across countries, we find a positive correlation for 22 of the 28 countries for which the data allowed this computation. The correlation coefficient is statistically significant in 15 of the 22 cases, of which 11 at the 1% level. In the 6 cases where we find a negative coefficient, this is significant in only one case – Zambia.

The correlation analysis provides some evidence in support of the export-led growth hypothesis in Africa. In particular, for the three major oil exporters in our sample – Angola, Gabon and Nigeria –, and to a smaller extent, for Cameroon and Egypt, export growth is strongly correlated with real GDP growth, the correlation hitting 0.9 for Angola. However, the results also confirm that agricultural exporters, such as Mozambique, have witnessed export-led growth. In the case of Zimbabwe, although the correlation is positive and strong, it is arguably so in a perverse manner: negative export growth has been associated with negative GDP growth over much of the past decade.

Table 1: Correlation between real GDP growth and growth rate of merchandise exports

Country/region	Correlation coefficient	t-stat	Significance
Africa	*0.393*	*1.111*	*NS*
North Africa	*0.395*	*1.214*	*NS*
SSA	*0.251*	*0.734*	*NS*
Algeria	0.010	0.029	*NS*
Angola	0.902	5.904	***
Botswana	0.794	3.688	***
Cameroon	0.620	2.237	**
Cote d'Ivoire	0.358	1.086	NS
Egypt	0.493	1.603	*
Ethiopia	0.228	0.662	NS
Gabon	0.458	1.459	*
Ghana	0.212	0.615	NS
Guinea-Bissau	0.011	0.030	NS
Kenya	0.153	0.438	NS
Lesotho	-0.109	-0.309	NS
Madagascar	0.648	2.407	**
Malawi	-0.101	-0.287	NS
Mauritius	0.120	0.341	NS
Morocco	-0.194	-0.559	NS
Mozambique	0.484	1.564	*
Namibia	-0.011	-0.032	NS
Nigeria	0.625	2.263	**
Rwanda	0.160	0.459	NS
Senegal	0.021	0.059	NS
Seychelles	0.207	0.599	NS
Sierra Leone	-0.097	-0.275	NS
South Africa	0.072	0.204	NS
Tunisia	0.663	2.503	**
Uganda	0.085	0.240	NS
Zambia	-0.295	-0.874	NS
Zimbabwe	0.894	5.630	***

The analysis, however, reveals some unexpected results. First, in both Madagascar and Lesotho, clothing exports make up a significant share of total merchandise exports. Yet, the two countries have exhibited very different patterns of growth. It appears that Lesotho failed to capitalize on the strong export performance in the early 2000s when exports expanded at an average rate of 36% annually between 2001 and 2004 while political turmoil in Madagascar around the same period squeezed both exports and growth.

Second, the east African nations of Kenya, Rwanda and Uganda have posted stellar economic performances alongside rapid export growth over much of the period under analysis. Yet, the correlation between export growth and GDP growth is weak and statistically insignificant in all three cases, meaning that there are more important drivers of economic growth in these countries than export growth. Growth accounting shows that domestic demand – both investment and private consumption, the latter driven in part by rising prices of major export items, such as coffee Arabica – has contributed increasingly to GDP growth in recent years.

Third, Mauritius was a good example of export-led growth for the rest of Africa in the 1990s when its 'economic miracle' was led by EPZ growth. However, in the 2000s, this engine of growth seems to have petered out, partly as new growth poles – mainly in the services sector – emerged. As a result of economic diversification, Mauritius has been able to weather external shocks transmitted through the trade channel. For example, while real merchandise exports contracted by 9.3% in 2007, GDP growth actually increased – to 5.5% from 3.9% the previous year. Thus, diversification that increases the domestic contribution to growth will naturally dilute the association between export growth and GDP growth.

3.3   Trends in employment

Our analysis of employment in Africa has been most constrained by data limitations. Data on aggregate employment, by sector and by sex come primarily from ILO's Key Indicators of Labor Market. For a number of countries, such data is not available for a sufficiently long period and for more recent years. Across countries, the database is punctuated by gaps and inconsistencies. Combining data from different sources does not help since the data often do not match. The following analysis is subject to this caveat.

Figure 9 shows the evolution of Africa-wide employment by sex between 1991 and 2007. Total employment has increased at an annual average of 3% over the period. Although the widening of the area between the curves in recent years might suggest that more jobs have gone to men than to women, our calculations actually show that female employment increased faster (3.2% p.a. on average) than male employment (2.8% p.a. on average) over the period under

consideration. Moreover, in recent years (2000-07), female employment has increased even faster while the rate of job creation for men has slowed. These trends imply that the gender balance improved over the period. Indeed, the male-female employment ratio has steadily declined from an average of 1.55 during 1991-1995 to 1.52 over 1996-2001 to 1.48 in 2003-2007.

Figure 9: Evolution of total employment in Africa, 1991-2007
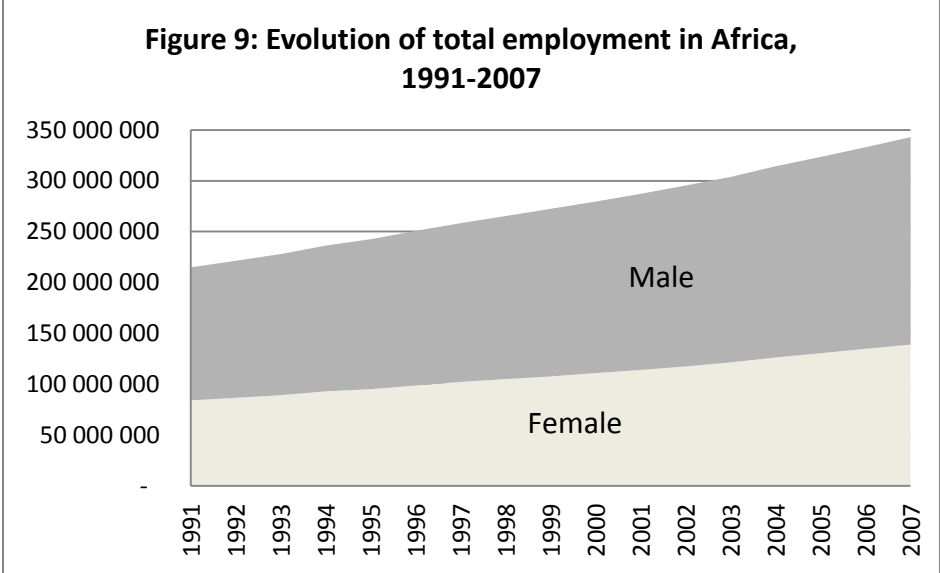
Analysis of average employment growth by country shows that Algeria, Liberia, Ethiopia and Burundi have each registered employment growth in excess of 4% per annum over the period 2000-07 (Figure 10, Appendix). Of these, only Algeria is a major oil exporter; yet, four other oil exporters (Chad, Angola, Equatorial Guinea, and Libya) figure in the top 15, suggesting that extractive industries do have the potential to create jobs. This is true also of predominantly agriculture-based economies, such as Ethiopia. At the other extreme, some of Africa's most dynamic economies of a former era, including Mauritius, Namibia and Botswana, have witnessed very low rates of job creation.

We calculate Africa-wide weighted averages of employment shares by sector and by sex for a recent year by averaging across selected countries for which data is available and using sector-specific employment levels as weights. The results are summarized in Table 2. They confirm that the agriculture sector is the largest employer of women, absorbing about 57% of the female labor force. Indeed, this sector employs more women than men, yielding a favorable gender ratio. The services sector employs about one-third of female workers and presents an almost perfect gender balance. In industry, and especially in manufacturing, women are present in very small numbers. Although this sector also employs the smallest proportion of men across all sectors, it is nevertheless the most gender-biased sector. There are on average

twice as many men employed in industry than women. While labor-intensive manufacturing tends to be female labor-intensive, the industrial sector in most African countries is dominated by resource extraction, which provides little scope for the employment of women.

Table 2: Distribution of employment shares across sectors and sex (recent years)*				
Sector's share in total employment	Total	Male	Female	Male:Female ratio
Agriculture	0.516	0.480	0.567	0.847
Industry	0.121	0.156	0.074	2.106
Of which manufacturing	*0.075*	*0.080*	*0.067*	*1.200*
Services	0.349	0.352	0.345	1.022

For individual countries for which sector and gender-specific data are available for two points in time (typically 2000 and 2008), we examine how sectoral employment shares and the gender ratio have changed over the period. The results vary from country to country. On the whole, however, we find that an improvement in the gender balance in the agriculture sector has been associated with a deterioration in that of services, and vice versa.

Our analysis of gender balance in total employment reveals some striking facts: First, countries, such as Mozambique, Tanzania, Malawi and Uganda, which are mainly agricultural producers, top the list of gender parity. Conversely, the North African countries – Egypt, Libya, Morocco, Tunisia, Sudan and Algeria, for known cultural reasons, have the most skewed gender distribution of the work force (Table 3). Second, there appears to be some form of convergence in the process of achieving gender-based equality in employment. The bigger the initial gender bias, the greater is the potential for improvement. This is evident in the fact that the North African countries top the list of countries that achieved the biggest reductions in the male-female employment ratio between 1991-1995 and 2003-2007 (Table 4).

The fact that agriculture-based economies are more likely to achieve gender balance in employment is a cause for concern for at least two reasons. First, as agriculture declines during the normal course of economic development, women will find it harder to find gainful employment unless other female labor-intensive sectors, such as services, emerge. If agriculture gives way to industrial development based on oil and minerals, which is likely to be the case in Ghana and Uganda, where significant oil deposits have been discovered and will soon be exploited, then female employment may suffer. Second, while agriculture does provide

jobs to women, women flock to this sector as a last-resort employer, resulting in excess labor supply and depressed wages.

| Table 3: The best and worst in gender balance in employment			
(Ratios of male to female employment averaged over 2000-07)			
Mozambique	0.77	Egypt, Arab Rep.	3.77
Rwanda	0.88	Libya	3.54
Burundi	0.91	Morocco	3.00
Sierra Leone	0.93	Tunisia	2.89
Tanzania	1.02	Sudan	2.48
Malawi	1.03	Algeria	2.35
Lesotho	1.04	Cote d'Ivoire	2.27
Ghana	1.04	Niger	2.08
Chad	1.06	Mauritius	2.04
Swaziland	1.07	Equatorial Guinea	1.97
Uganda	1.07	Nigeria	1.82
Madagascar	1.08	Mali	1.64
Mauritania	1.09	Togo	1.59
Burkina Faso	1.10	Guinea-Bissau	1.58
Guinea	1.11	Congo, Dem. Rep.	1.56

Table 4: Best achievers in gender disparity reduction in employment (% change in in the 2003-2007 average male-female ratio relative to the average for 1991-1995)	
Libya	-30.6279
Algeria	-28.0421
Tunisia	-19.5511
Sudan	-19.2081
Chad	-13.3625
Ethiopia	-13.325
Mali	-12.7316
Botswana	-12.4963
Egypt, Arab Rep.	-12.1132
Lesotho	-10.9014
Cape Verde	-10.0546
South Africa	-9.03687
Mauritania	-7.41132
Morocco	-6.42612
Nigeria	-6.04122

4. Empirical Analysis

Our empirical strategy in investigating the "export-led jobless growth" hypothesis is based on a two-step relationship between exports and jobs as shown in Figure 11. We need, first, to determine whether exports in Africa have boosted growth, and then examine if such growth has been job-creating.

Figure 11: The export-led jobless growth hypothesis
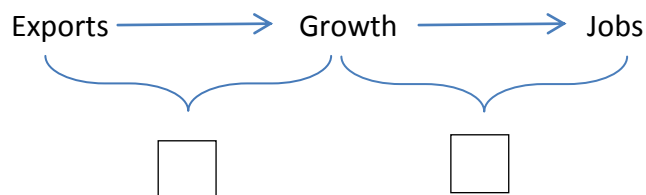
Model

We capture the first step of the relationship by postulating an exports-augmented growth equation:

[1] $$GR = \beta_0 + \beta_1 INV + \beta_2 EDUC + \beta_3 GCON + \beta_4 XG + \beta_5 GPPPC_0,$$

where *GR* is the real GDP growth rate, *INV* is the share of domestic investment in GDP; *EDUC* is a measure of educational attainment[3]; *GCON* is the share of government consumption expenditure in GDP; *XG* is merchandise export growth; and $GDPPC_0$ = GDP per capita in some base period. Equation [1] is a parsimonious specification of the growth function used in the empirical literature – see, for example, Balassa (1978), Ram (1985), Sachs and Warner (1995) or the survey by Blecker (2000). Parsimony is imposed by the data limitations in Africa. The term $GDPPC_0$ is meant to control for conditional convergence.

The second step of the relationship is motivated by the demand for labor by a competitive firm:

[2] *L = L(w, r, Y),*

where *L* is labor, *w* is wages, *r* is the rental rate and *Y* is output. By extending this equation to the macroeconomic level, differentiating and re-arranging and suppressing the rental term, we have

[3] $$\frac{\Delta L}{L} = \gamma_0 + \gamma_1 \left[\frac{\Delta w}{w}\right] + \gamma_2 \left[\frac{\Delta Y}{Y}\right],$$

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[3] We use the gross primary school enrolment ratio to proxy for educational attainment.

where Δ denotes change. We assume that the rate of increase of wages can be proxied by the inflation rate, *INFL*, and rewrite [2] as

[4] $$EMPLGR = \gamma_0 + \gamma_1 INFL + \gamma_2 GR$$

Correlation analysis

Before proceeding to estimation, we undertake a correlation analysis of the key variables. Table 5 summarizes the results. All the correlation coefficients are positive and statistically significant at conventional levels.[4] The correlation between exports and GDP growth, in particular, is strong and highly significant. These results constitute evidence, in advance of the results of our econometric analysis, in support of the view that export growth in Africa has spurred growth and that this growth has been job-creating.

Table 5: Correlation between average growth rates of employment, exports and real GDP across countries

	Correlation coefficient	t-stat	Significance
Corr (employment growth, export growth)	0.185	1.274	*
Corr(employment growth, GDP growth)	0.268	1.887	**
Corr(export growth, GDP growth)	0.663	6.008	***

***, ** and * denote statistical significance at the 1%, 5% and 10%, respectively.

Estimation results

Equations [1] and [4] constitute a recursive system, which we estimate using the fixed-effects IV method on unbalanced panel data for 47 countries spanning the period 2000-07. The results with bootstrapped (robust) standard errors are reported below:

EMPLGR = 2.515 − 0.0005 *INFL* + 0.036 *GR*
(0.278)　　(0.035)　　　(0.016)**
R-sq. within = 0.007, no. of observations = 280, no. of groups = 47

The results show that real GDP growth has a significant positive effect on job creation. However, this effect is rather small: a 1 percentage-point increase in real GDP growth appears

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[4] The correlation between export growth and employment growth is marginally significant at the 10% level.

to cause employment to increase by 0.036 percentage points. The effect of inflation on employment is negative but not statistically significant.

We also, independently, estimate the growth equation (equation [1]) to obtain direct evidence on the export-led growth hypothesis. The results are reported in Table 6.

Table 6: Regression Results of growth equation

Dependent variable: Real GDP growth (g)			
Variable	*Coefficient*	*z-stat*	*Significance*
INV	0.214	1.90	**
EDUC	0.041	1.38	NS
GCON	-0.140	-1.50	Sig. at 15%
XG	0.058	3.95	***
Time	-0.093	-0.08	NS
R-sq (within) = 0.229 **No. of observations = 327** **No. of groups = 47**			

The results generally conform to a priori expectations. Investment has a significant positive effect on growth while government consumption appears to exert a weak, negative effect. Our indicator of educational attainment shows up with a positive sign but is statistically insignificant. The variable of key interest, *XG*, however, is positive and strongly significant, confirming the export-led growth hypothesis for Africa during the sample period 2000-07. The results suggest that a 1 percentage point increase in the growth rate of merchandise exports adds about 0.06 percentage points to real GDP growth. This estimate sounds reasonable.

5.   Conclusion and Policy implications

We set out in this paper to investigate empirically for Africa the so-called export-led jobless growth hypothesis, that is, the hypothesis that growth spurred by exports might not have generated jobs on a scale large enough to reduce unemployment. We noted that the media as well as casual empiricism suggest that this might be the case in Africa.

Our empirical model confirms that Africa's growth over the period 2000-07 has been export-led and that this growth has been job-creating. However, the response of employment growth to GDP growth is very small. Our estimates suggest that a 1 percentage point increase in real GDP growth causes employment to grow by 0.036 percentage points. This means that real GDP must grow by about 28% to induce a 1% increase in employment. Despite the spectacular growth

performance of some countries, such growth rates are very difficult to achieve, and impossible to sustain. Hence, the evidence at hand is not too far from confirming that Africa's growth, on the whole, has not benefited jobs.

Along the way, we uncovered a number of stylized facts about trade, growth and employment in Africa. On trade, we noted that, despite the rapid increase in Africa's exports, especially since 2005, the continent continues to remain largely marginalized in world trade. Moreover, the export boom from Africa is largely a natural-resource phenomenon, driven by exports of oil and minerals to countries like China, India and Brazil, which have made rapid inroads into the continent. In spite of these new emerging markets, however, exports are highly concentrated on the European market.

Our analysis of Africa's growth performance confirms the association between commodity exports and GDP growth. The major oil-exporting countries figure prominently in the league of the fastest growing economies over the past decade. We do not find any evidence that exports have been propelled by policy reforms, such as trade liberalization. Indeed, few countries have achieved a degree of trade liberalization conducive to export growth. As is well known, growth of exports from Africa has been stimulated mainly by rapidly increasing external demand for Africa's commodities, especially in the emerging economies.

Total employment increased at an annual average of 2.96% during 1991-2007. When broken down by sub-periods, we find that employment increased at 3% during 1991-1999 but slowed down slightly to 2.9% in 2000-07. This is a notable finding since one would expect the more rapid growth of recent years to spur faster growth in job creation. It goes to strengthen the evidence we have assembled in support of the jobless growth hypothesis. On a positive note, we find that recent employment growth has been favorable to women, contributing to reduce the gender disparity from an average of 1.55 during 1991-95 to 1.48 in 2003-2007. Unfortunately, this positive news is diluted by the observation that most of Africa's women are employed in the agriculture sector, which provides low wages and poor prospects for welfare improvement.

These findings have important policy implications. By reminding policymakers that the relationship between jobs and growth is not automatic, they serve to refocus attention on job creation rather than GDP growth per se. Our estimates suggest that the services sector holds considerable potential both for job creation and for achieving gender balance. This sector is emerging as a key driver of growth in Africa. Its job creation potential will therefore have to be fully harnessed.

The manufacturing sector – especially apparel-based EPZs in Mauritius, Madagascar, Lesotho, South Africa and Kenya – has witnessed major upheavals following the end of the MFA and the

subsequent rise of China and other competitors. Yet, this sector is female-labor intensive, and may provide better wages than agriculture to semi-skilled women. Other manufacturing activities, such as food processing, also present significant scope for employment. These sectors should receive greater policy attention within a strategy of industrial diversification.

6.   References [To be completed]

Appendix
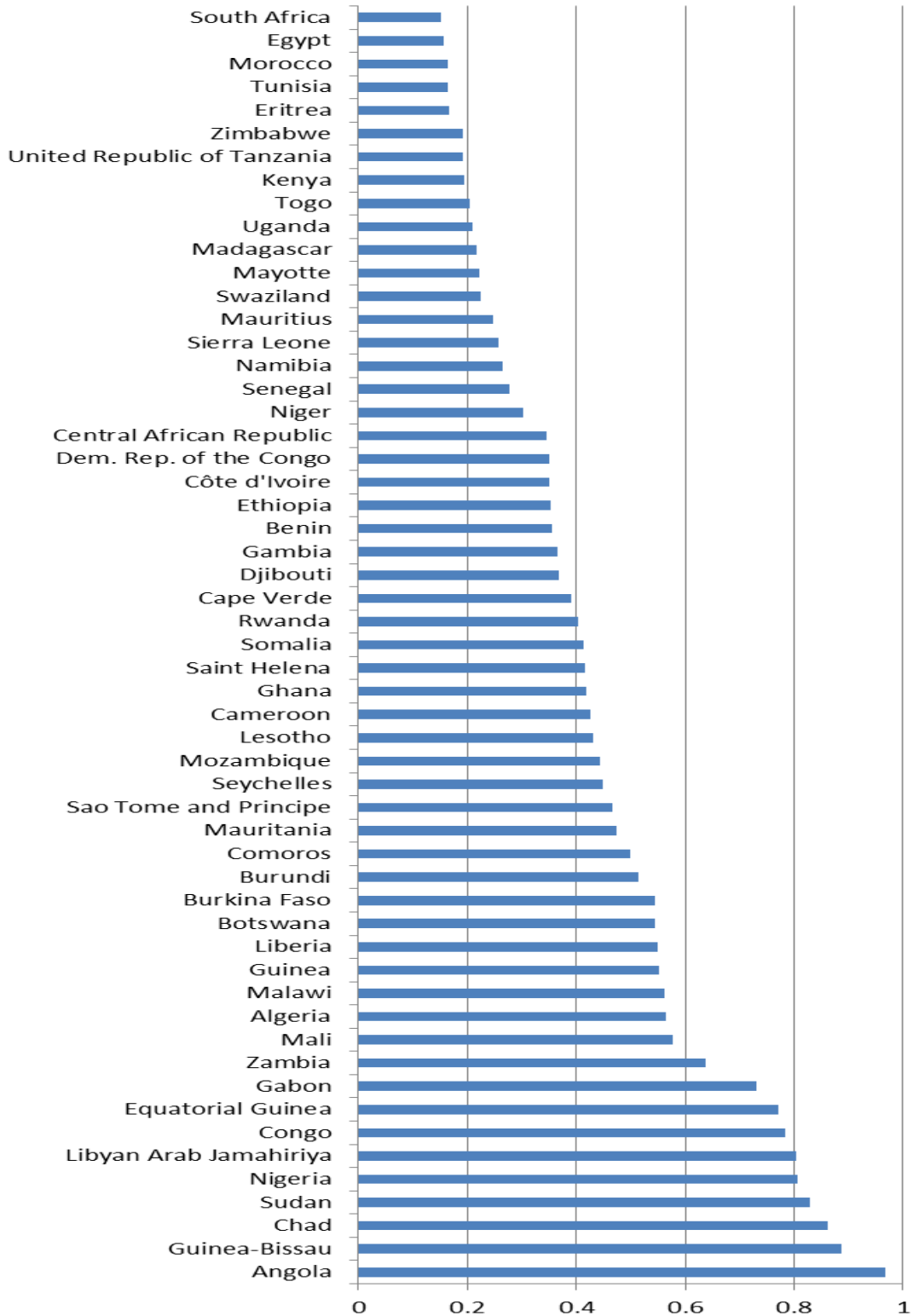

Figure 2: Export Concentration Index (average over 2008-10)

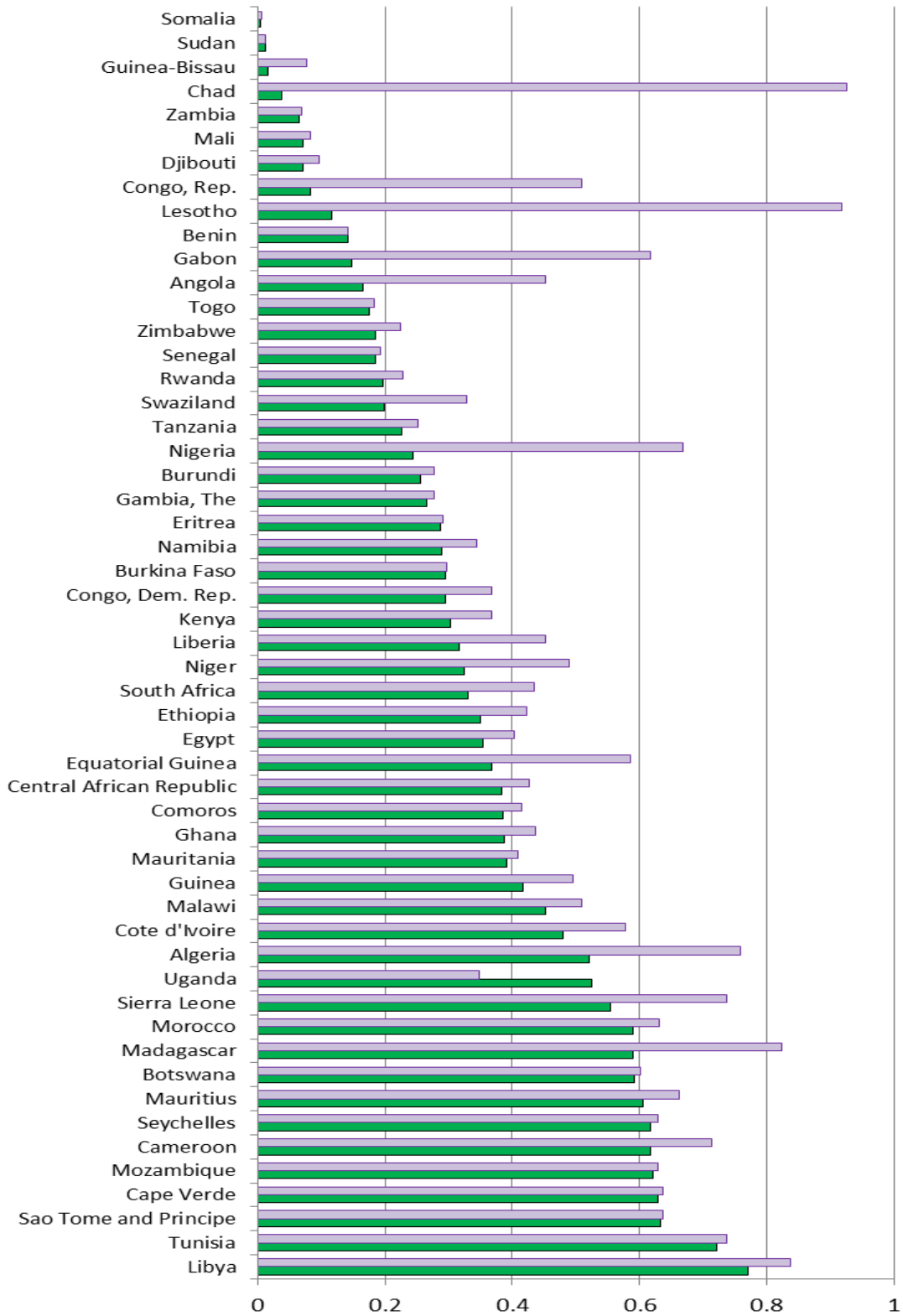Figure 6: Share of EU and EU+US in Africa's exports (2008)

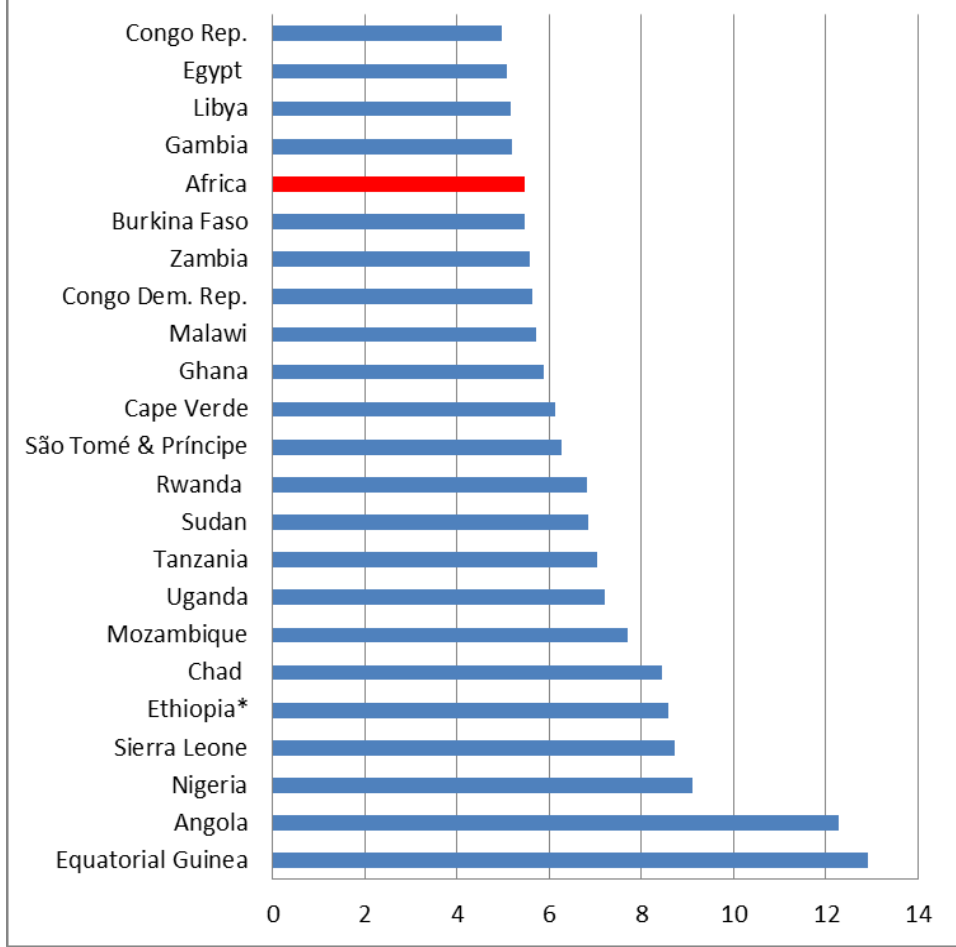**Figure 8: Africa's top growing economies, 2002-2010 average (%)**

Figure 10: Employment growth by country, average over 2000-07 (%)