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Aid, employment, and poverty reduction in Africa

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Abstract: Growth and poverty reduction in Africa are weakly linked. This paper argues that the reason is that Africa has failed to create enough good jobs. Structural transformation—the relative growth of employment in high productivity sectors—has not featured in Africa’s post-1995 growth story. As a result, the region’s fastest growing economies have the least responsiveness of employment to growth. The role of development aid in this context is problematic. Across Africa more aid went to countries with a low employment intensity of growth. The paper proposes a new approach to aid and poverty in Africa, one that focuses on supporting structural change for job creation.

Keywords: aid, employment, growth, poverty, structural change

JEL classification: F35, J32, O14

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Note: Tables and figures are at the end of the paper.

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1 Introduction

Africa has enjoyed 15 years of sustained economic growth. Per capita income for the region as a whole is rising steadily, and regional growth exceeds the global average. Yet, there are worrying signs that this growth has not resulted in robust growth of ‘good’ jobs—those offering higher wages and better working conditions—especially for the young. While many African economies have relatively low unemployment rates, they also have large and growing informal sectors, condemning many of their workers to low wages, lack of job security, and limited opportunities to acquire skills. At the same time there are also concerns that rapid economic growth has not produced equally rapid poverty reduction. Africa has the lowest responsiveness of poverty reduction to economic growth of any of the world’s developing regions.

This paper argues that the employment problem and the poverty problem are in fact symptoms of Africa’s lack of structural change. Despite rapid growth, Africa’s structure of production and employment today is largely similar to that of 20 years ago. Low unemployment co-exists with high levels of working poverty and vulnerable employment. This contrasts sharply with the evolution of economies in Asia and elsewhere that have succeeded in rapid job creation and poverty reduction. In these economies the movement of workers from low-productivity sectors, such as agriculture, into higher productivity manufacturing and services has boosted job growth and poverty reduction.

Official development assistance (ODA)—foreign aid—is partly responsible. Nowhere in the developing world is foreign aid more important to development policy and development budgets than in Africa, and Africa’s development partners have devoted too few resources and too little attention to the critical constraints to more rapid structural change. Donor attention over the last decade has simply not been focused on the strategies and investments needed to boost job growth. To reverse this trend, we propose a new aid strategy focused on jobs, poverty, and structural change.

The paper is structured in the following way. Following this introduction, Section 2 briefly reviews recent evidence on unemployment and informality in Africa. It concludes that for the vast majority of African countries—especially those classified as low-income countries—low unemployment co-exists with very high levels of informal employment. Section 3 summarizes evidence on growth and poverty reduction from country-household surveys, and concludes that the response of poverty reduction to per capita income growth is weak in Africa and lower than elsewhere in the developing world.

Section 4 views growth, employment, and poverty reduction through the lens of structural transformation. We first present evidence that recent economic growth in Africa has not been associated with rapid structural change. We then correlate structural change to poverty reduction using cross-country evidence. Section 5 presents the results of poverty decompositions across three productive sectors—agriculture, industry, and services—to assess the relative contributions of within sector and across sector (structural change) changes in poverty to overall poverty dynamics. While we find, unsurprisingly, that within sector changes in poverty headcounts, especially in agriculture, have had the greatest impact on overall poverty reduction, we also find that in some cases employment shifts from higher to lower productivity sectors have reduced the poverty impact of growth.

Section 6 begins our discussion of aid's role in the employment and poverty story. We conclude that the donor community is partly to blame for Africa's anemic employment and poverty performance. Section 7 lays out our proposed new aid strategy. Addressing the need for good jobs will require re-orienting of aid. First, more aid is needed to boost agricultural productivity. This is to create better jobs where most Africans are already employed. Second, aid for private-sector development needs to focus more on building infrastructure and relevant skills. Third, new thinking by African governments and their development partners will be needed on how to accelerate the growth of high value-added industries. Section 8 concludes.

2 Africa's 'employment problem'

On the face of it sub-Saharan Africa (SSA) does not have a severe 'employment problem'. In 2009 the overall unemployment rate was 6.4 per cent, compared with a global average of 4.7 per cent.¹ The regional unemployment rate has been relatively stable since 2000 and ranks third, behind the Middle East and North Africa, and Europe and Central Asia. This is not because Africa is doing particularly well in creating new jobs. Rather it is because a growing informal sector is absorbing those African workers who cannot find wage employment.

Unemployment is low in the region's low-income countries—falling in the range of 1-5 per cent for countries such as Ethiopia, Ghana, Tanzania, and Uganda—but the informal sector is large (Figure 1). Kenya, Mali, Zambia, and Zimbabwe comprise a middle group of countries with relatively large informal sectors and unemployment rates in the range of 5-15 per cent. Unemployment tends to be high in middle-income African countries. This is particularly true of the southern cone of Africa, where unemployment rates exceed 15 per cent in Botswana, Namibia, and South Africa. Unemployment is also high by international standards in North Africa—especially in Algeria and Tunisia. Although youth constitute about two-fifths of the continent's working age population, they make up three-fifths of the total unemployed. In most countries youth unemployment occurs at a rate more than twice that for adults.

There is a strong negative relationship between the rate of growth and the employment intensity of growth across Africa (Figure 2). The region's fastest growing economies—Ethiopia, Rwanda, Tanzania, and Uganda—also have its lowest elasticities of employment with respect to growth. Slower growing economies—South Africa notable among them—have higher employment elasticities. One possible interpretation of this result is that the sources of growth in the region's more rapidly growing economies have not been in employment-intensive sectors. Rapid growth has created few good jobs, pushing those seeking work into informal self-employment and family labour.

When African workers find a job, it is likely to be of low quality in terms of wages, benefits, and job security. In many African countries, self- and informal employment account for the overwhelming majority of labour-force entrants in both rural and urban areas. With the exceptions of Botswana, Nigeria, and South Africa, less than 20 per cent of African labour-force entrants find wage

¹ Unemployment rates in Africa are likely to be underestimated because the International Labour Organization (ILO) excludes people who were not working, were not actively looking for work, but say they would take a job if one were offered.

employment (AfDB 2012). The ILO estimates that three out of four jobs in SSA can be labelled ‘vulnerable’ due to workers working on their own account or as unpaid family workers. The poor quality of employment in most of SSA is also reflected in the high share of working poor in total employment. In 2011, 81.5 per cent of workers in Africa were classified as working poor, compared to the world average of 39.1 per cent (ILO 2011).

3 Africa’s ‘poverty problem’

There is a vast literature on the relationship between economic growth and poverty reduction (Ravallion and Datt 1991; Chen and Ravallion 2010; Dollar and Kraay 2004). On balance it shows that across countries, over time, the poverty headcount—the proportion of the population falling below a specified poverty threshold—declines as per capita income rises. But, differences among countries (and regions) with respect to the rate at which poverty falls with income growth are substantial and difficult to explain. Asia has experienced spectacular growth and dramatic declines in poverty. In Africa, on the other hand, there is growing concern that the region’s growth since 1995 has not resulted in rapid poverty reduction (Center for African Transformation 2013).

Reliable data on poverty, drawn from large household surveys going back three or four decades, are severely lacking in Africa. These data are essential to understand the dynamics of growth and poverty accurately. The last two decades have witnessed significant progress in compiling household data, as many countries—mainly assisted by the Living Standard Measurement Survey project of the World Bank—have conducted household-budget surveys that give a better picture of the evolution of poverty in Africa. The results paint a disturbing picture. While East Asia and South Asia—regions with the highest share of the poor in the total population in the 1980s—have managed to reduce extreme poverty dramatically over the last three decades, SSA has failed to keep pace. Indeed, poverty headcounts in Africa rose until the middle of the 1990s, reflecting the region’s poor growth performance. More worrisome, however, is the slow decline in poverty headcounts despite the rapid growth in the last decade (Figure 3).

Using comparable household surveys at two points in time, we are able to construct an unbalanced panel of data on the relationship between income growth per capita and poverty reduction for 18 African countries. The results appear in Figure 4. While we find the expected negative correlation between income growth and poverty, the relationship is imprecise and relatively weak, indicating that individual country experiences have varied substantially. Across Africa a one percentage point increase in growth, results on average in a decline in poverty of about 0.95 per cent. This is the lowest income elasticity of poverty to growth of any of the world’s six developing regions (Fosu 2011).

4 Growth, structural change, and poverty reduction

Intuitively, Africa’s employment and poverty problems must be linked. It is a cliché in the poverty business that the poor possess a single asset—their labour. The labour market is the primary means by which increases in income in the production side of the economy find their way into increases in household incomes. Our view is that the absence of structural change—the movement of workers from lower to higher productivity employment—in the course of Africa’s recent growth, has significantly slowed the growth of good jobs and the pace of poverty reduction.

4.1 Growth without structural change

Developing economies are characterized by large differences in output per worker across sectors. Those economies that have successfully made the transition from low-income to high-income status typically have experienced significant changes in their economic structure, as factors of production moved from lower productivity to higher productivity uses (Kuznets 1955; Chenery 1986). Africa is the developing region with the most to gain from structural change because it has the greatest differences across sectors in output per worker (Figure 5). There is little evidence, however, that significant structural changes underpinned more rapid growth after 1995 (Go and Page 2008; Arbache and Page 2008, 2009), and the region's recovery from the global economic crisis of 2008–09—like its growth turnaround—was driven primarily by commodity prices and the recovery of domestic demand. In fact, recent research finds that the growth potential inherent in Africa's economic structure is not being fully realized (McMillan and Rodrik 2011; AfDB 2013).

One measure of the region's potential for structural transformation is given by comparing the output and employment structure of a 'typical' low-income African economy with the structure of a 'benchmark' middle-income country (MIC) at the time it achieved middle-income status.² The biggest structural deficit is in manufacturing where the value-added share and the labour share are about half of the benchmark value (Table 1). Despite nearly 20 years of growth, agriculture still represents a large share of the typical African economy, especially in terms of employment, reflecting the dualism that continues to mark the region's economies.

Historically, industry has led structural change. It is a high value-added sector into which labour can flow. The average ratio of labour productivity in manufacturing to agriculture in low-income Africa is 3.8 to 1. Given the very large difference in output per worker between agriculture and industry, and its potential to absorb labour, industrialization presents a significant opportunity for job creating structural change.

Globally, growth in income at early stages of development is associated with very rapid increases of the share of manufacturing in total output (Dinh et al. 2013). Africa's share of manufacturing in gross domestic product (GDP) has remained the same for more than 40 years. In 2010 it was ten per cent, slightly lower than in 1970s (Center for African Transformation 2013). The region's share of manufacturing in GDP is less than one half of the average for all developing countries, and in contrast with developing countries as a whole, it is declining. Manufacturing output per capita is about one-third of the global developing country average (Page 2013). Only four African countries—Madagascar, Mozambique, Lesotho, and the Ivory Coast—have a share of manufacturing in total output that exceeds the predicted value for their level of income. Many of the region's recent growth success stories—Ethiopia, Ghana, Kenya, Tanzania, and Uganda—have manufacturing value-added shares that are well below their predicted values for their level of income (Dinh et al. 2013).

² The following benchmark countries and years were identified: China (2000), India (2007), Indonesia (2004), Korea (1968), Malaysia (1968), Philippines (1976), and Thailand (1987). The simple averages of the sectoral shares of value added and employment for these seven countries in the benchmark year appear in Table 1 as the structural characteristics of the benchmark MIC. Additional description of the assumptions and method may be found in Page (2012).

This pattern of growth without structural change is consistent with what we observe in the employment data. Despite growth, Africa’s high-productivity sectors are failing to generate a sufficient number of jobs to absorb a rapidly growing labour force. The result is that new labour-force entrants are forced into low-productivity informal-sector jobs, self-employment, or family labour, and an increasing share of the labour force is found in low-productivity sectors.

4.2 Structural change and poverty reduction: some stylized facts

The stylized facts of structural change and poverty reduction differ significantly across the world’s regions. In Asia rising output per worker is composed of two strong, complementary components: within sectors productivity is rising, making it possible for firms to offer increases in wages in line with rising output per worker, and at the same time workers are moving from lower productivity to higher productivity employment (MacMillan and Rodrik 2011). In Latin America and Africa, in contrast, while productivity within sectors has been rising, presumably due to technical progress and greater competition, labour has been moving from higher productivity to lower productivity employment.³

If the differences in productivity per worker were small—as they typically are in high-income countries—this perverse pattern of structural change might not matter much for wages and household incomes, but in Africa the productivity differences among sectors are quite large. In economies where the low-productivity sectors—including informality and unemployment—have wages (or self-employed incomes) that are close to or below the poverty line, the movement of workers into lower productivity jobs will tend to offset the positive impact of within sector productivity growth on poverty reduction. Unsurprisingly, East Asia has the highest elasticity of poverty reduction with respect to growth, and Africa the lowest.⁴

In an effort to test the relationship between structural change and poverty reduction more formally, Table 2 reports results of the simple econometric model specified in equation (1):

$$\text{Log } H_{it} = \beta_0 + \beta_1 \log l_{it} + \beta_2 \log i_{it} + \log s_{it} + \log \mu_{it} + \log g_{it} + \epsilon_{it} \quad (1)$$

Equation (1) modifies the standard cross-country econometric model of poverty reduction as a function of per capita income growth and income distribution to test for the impact of structural change on poverty. It specifies that headcount ratio H observed in country (i) in period t is influenced by share of employment in agriculture (l_{it}), services (s_{it}), and industry (i_{it}). We include per capita GDP (μ_{it}) and the Gini (g_{it}) co-efficient as controls. If any of the sectoral share of employment variables is significant, controlling for changes in mean per capita income and changes in the Gini co-efficient, the co-efficient captures the impact of structural change on poverty. To address possible endogeneity of the sectoral shares of employment, per capita income and the Gini

³ There may be some good news on the horizon. Recent work by the African Development Bank using the MacMillan and Rodrik (2011) data finds that between 2000-05, on average, the pattern of structural change in their sample reversed itself. An increasing share of workers in the countries in the Africa sub-sample appear to be moving into higher productivity sectors, resulting in a positive contribution of structural change to productivity growth (AfDB 2013). Unfortunately, the MacMillan and Rodrik data are not fully representative of the region and the time series is short, leaving considerable uncertainty with respect to the generalizability of the results.

⁴ One could complicate this simple labour market story by introducing a ‘bumping’ process in which workers with higher capabilities who are displaced from the high-productivity sectors of the economy displace incumbent workers in less productive sectors or reduce their income from self-employment.

co-efficient the model in (1) is estimated by the generalized method of moments (GMM) using internal instruments (two period lags).

Equation (1) was estimated for the sample of all developing countries and a sub-sample of African countries, controlling for unobserved time-invariant country-specific effects. Table 2 reports the results. The sample of all developing countries helps to confirm our intuition that structural change through industrialization plays an important role in accelerating the pace of poverty reduction. The controls for growth and income distribution are significant, of correct sign and comparable to other cross-country estimates.⁵ Controlling for income growth and income distribution a one per cent increase in industrial employment is associated with a 0.8 per cent reduction in headcount ratio.

The results for the African sub-sample paint an opposite but complementary picture. Controlling for growth of per capita income and income distribution, there is no significant association between industrial employment and poverty, perhaps due to the fact that there is not much variation in the employment variable. The sectoral shares of agriculture and services, however, are significant at the .10 level and indicate that higher relative employment in agriculture and services in Africa is associated with a lower response of poverty to per capita income.

5 Structural change and poverty reduction: decomposing poverty dynamics

While our cross-country regression results are suggestive, they certainly will not persuade the skeptics. In an attempt to strengthen our argument, we present in this section patterns of growth, employment, and poverty reduction for seven African economies in which data from household surveys is available for two periods. These countries are: Egypt (1998 and 2006), Malawi (2004 and 2011), Nigeria (2007 and 2010), Rwanda (2000, 2005, and 2010), South Africa (2000, 2003, and 2006), Tanzania (2001 and 2007), and Uganda (2005 and 2009). We use the household survey data to link changes in the structure of employment to changes in poverty.

Some basic descriptive statistics are provided in Table 3. Our data only permit us to classify the economy into three broad sectors—agriculture, industry, and services. This is not ideal from the perspective of measuring structural change. While we are generally safe in assuming that agriculture is a low-productivity sector, it would be desirable to separate industry—a traditionally high-productivity sector—into manufacturing and other industrial activities. Services are the most problematic: in Africa high-productivity service sectors, such as financial services and government, are classified along with personal services and other low-productivity activities in the services sector.

Overall, agriculture is the dominant source of employment in the sample, followed by services. In South Africa and Egypt—both middle-income countries—industry plays a larger role in employment. There is evidence of structural change over the period between the first survey and the last. The share of agriculture in employment, on average, has declined from about 47 to 40 per cent. Employment in services increased by five percentage points, and the share of labour employed in industry (manufacturing and non-manufacturing) increased by about 2.5 percentage points. Malawi, Nigeria, Rwanda, South Africa, and Uganda had increases in the share of labour employed in industry. In Malawi and Rwanda, the increase in the share of employment in industry came from

⁵ See for example Fosu (2011).

non-manufacturing sectors, such as mining and construction. In Egypt and Tanzania, there was a decline in the share of employment in industry and a rise in services.

Changes in the poverty-headcount ratio can be decomposed additively across sub-groups such as sectors of employment.⁶ The rate of change in poverty can then be attributed to changes in poverty within each sector (within sector effects), changes in share of employment of each sector (employment shifts), and an interaction term:⁷

$$P_{it} - P_{it-1} = \sum_j^3 (P_{ijt} - P_{ijt-1}) \theta_{ijt} + \sum_{j=1}^3 (\theta_{ijt} - \theta_{ijt-1}) P_{it-1} + \sum_{j=1}^3 (P_{ijt} - P_{ijt-1}) (\theta_{ijt} - \theta_{ijt-1}) \quad (2)$$

Where P_{it} is a measure of headcount ratio in country i ($i=1, \dots, 13$) at period t using the international poverty line of 1.25 per day per adult; θ_{ijt} is share of employment in sector j ($j=1, 2, 3$) in country i at period t ($t=1, 2$). The first term represents the ‘intra-sectoral’ effect—or ‘productivity effect’—within each sector. The second term represents the ‘structural shift’ effect and the last term captures the ‘interaction’ effect. Following the logic of the MacMillan and Rodrik (2011), decomposition of productivity growth into within sector and structural change components, the latter two components of this decomposition are attributed to structural change.

In a growing economy with growth enhancing structural change, we would expect that within sector effects and employment shifts would be complementary to each other, due to rising output per worker within sectors and incremental shifts in the labour force from sectors characterized by lower output per worker to those with higher output per worker. In economies with growth reducing structural change, we would expect within sector reductions in poverty to be offset somewhat by incremental movements of workers (and their households) from higher to lower productivity sectors.

Table 4 presents the poverty decomposition using equation (2) for the sample of countries in Table 3. The first column of the table gives the change in the poverty headcount between the two surveys. Overall poverty fell between the first and last survey. The last three columns report contributions of the within sector-productivity effect and the structural-change effect to the change in the poverty headcount. A negative value indicates that the contribution of a component goes against the direction of the change in poverty.

Within sector-productivity, growth is the major source of poverty reduction. If we take the median of changes in poverty for the 11 waves of surveys in the seven countries, the contribution of changes in labour productivity within sectors was around 70 per cent, while that of structural change was around 18 per cent. The individual country cases reflect a variety of experiences. In Nigeria, Malawi, and Egypt, the within sector and structural-change components worked together to reduce poverty. In Rwanda, the change in poverty between 2005-11 was around -4 percentage points. This decline was due to labour moving out of the less productive into more productive sectors. Output per person within each sector fell during the period. In Tanzania, Uganda, and South Africa structural change worked against poverty reduction. The poverty reducing effect of rising output per person within sectors was offset by the movement of labour from higher to lower productivity sectors.

⁶ See Foster and Shorrocks (1988, 1991).

⁷ Ravallion (1992).

Tanzania and Uganda are cases of relative employment shifts out of industry and services into agriculture. Given agriculture's lower relative productivity, this pattern of structural change was growth reducing: per capita income growth would have been higher had the economy retained its initial structure. In both countries the relationship between average income growth and poverty reduction was relatively weak. The major contributor to reduced poverty was within sector-income growth in agriculture. In Nigeria and Rwanda sectoral shifts in employment played a positive role in accelerating the rate of poverty reduction. Workers in both economies moved out of agriculture into industry and services. In Egypt productivity changes within the service sector appear to explain most of the poverty dynamics.

6 Aid, employment, and poverty

If the primary objective of aid—as embodied in the Millennium Development Goals (MDGs)—is to reduce poverty, the stylized facts that emerge from the preceding sections should be disturbing. Africa is the region of the developing world in which the impact of income growth on poverty is the least. It is also the region where across countries and on average growth has produced too few good jobs. Our econometric work and country-poverty decompositions all point in the same direction: there is an important link between structural change and poverty reduction. For a given rate of income growth, poverty declines less quickly in those countries in which a growing work force fails to find employment in high productivity per worker sectors such as industry. In such cases growth still reduces poverty but at a slower pace.

For most African countries, particularly low-income ones, ODA is an important part of the economy (Figure 6). Of the countries covered in our poverty decompositions, except for Nigeria, ODA's share in GDP was more than ten per cent. In Rwanda ODA played a crucial role in rebuilding the country devastated by the 1994 genocide. Others such as Tanzania, Uganda, and Malawi have received a stable and significant aid inflow over the last two decades. However, we find little evidence that job creation has been a major objective of ODA in Africa.⁸ Figure 7 shows the direct regression of the elasticity of employment on the average flow of aid as a share of GDP in African countries for which data were available in the last decade. Somewhat surprisingly, at least to us, countries that had the lowest elasticity of employment creation with respect to growth, received a larger share of aid to GDP during the last decade. This suggests that aid donors did not reward countries that were successful in promoting employment.⁹

The allocation of aid by sectors of the economy provides a clue as to why this might be the case (Figure 8). Over the same 15-year period that economic growth and donor assistance in Africa have had apparently weak impacts on job creation and poverty reduction, a declining share of donor attention and donor resources has been directed toward investments in structural change. More aid has gone to support social sectors, such as education and health than to any other sector, especially in the last decade. Focus on economic infrastructure and productive sectors has declined steadily, although aid to economic infrastructure gained some momentum after 2005, perhaps as a result of

⁸ We could not find a match in a string search on Google 'Official Development Assistance and employment'.

⁹ It is always possible that the causation ran in the opposite direction: countries that were unsuccessful at generating jobs from growth attracted more aid to assist in job creation. But in view of the absence of any explicit employment objectives of major donors, we do not find this persuasive.

the high profile reports on Africa's growth potential in that year.¹⁰ Agriculture—which as we have seen, is the key driver of poverty reduction, given Africa's current economic structure—saw its share of total official aid in Africa decline from 11 per cent in 1995 to less than four per cent in 2003, before it increased to seven per cent in 2009 (Figure 9).

7 A new role for aid

The policy debate on how best to attain the first MDG of halving global poverty by 2015 has tended to focus on the role of growth in reducing poverty and to a lesser extent on the mitigating influence of income distribution. Even the search for the magic bullet of 'pro-poor growth' has largely concentrated on measures to reduce income inequality. The idea that poverty reduction can be accelerated by moving more workers into good jobs through more rapid structural change has been virtually ignored in the donor dialogue with African countries.

A new approach to aid—one that supports job creating structural change—is urgently needed. A first step is to realize the promises made by both donors and national governments to make major investments to raise agricultural productivity. A second step is to focus greater donor attention on Africa's infrastructure and skills constraints. Finally, because Africa's lack of structural change mainly reflects a failure of its economies to industrialize, aid can assist African governments to master three global drivers of industrial location: task-based exports, agglomerations, and firm capabilities (Page 2012a).

7.1 Back to basics: raising agricultural productivity

Because of the region's slow pace of structural change, the link between income growth and poverty reduction in Africa's low-income economies comes mainly from income growth in agriculture. Laying the basis for accelerated structural change will take time and in the interim achieving more rapid poverty reduction will depend fundamentally on raising productivity in agriculture. This is making better jobs where the majority of Africans already work. Investing in agriculture should be a key objective of the new aid strategy on both efficiency and equity grounds.

Sixty per cent of Africans remain in agriculture, and in some countries face increasing pressures on cultivable land. Future growth of agricultural output and income will have to rely on more intensive agriculture. Over the past decade improved agricultural technologies have played only a minor role in output growth in many counties. Only a small number of smallholders use drought-resistant varieties or have access to improved seeds. There is substantial room for growth through yield increases, even for traditional crops. Investing in the development and dissemination of new agricultural techniques is crucial. These include adoption of best practices; introduction of new seed varieties, increased use of fertilizer, animal traction, and irrigation. Agricultural innovation systems will need to be reformed to cover the range of activities from development of new, appropriate agricultural technologies to the dissemination of good practice.

Most African countries on the average spend less than 0.7 per cent of agricultural GDP on research (Karugia et al. 2009). Developed countries and some developing economies in other regions spend up to three per cent. The role of private sector in agricultural R&D in Africa is still small,

¹⁰ Report of the Blair Commission (2005); Sachs (2005).

contributing about two per cent of total public and private-research investments. Donor funding comprises a significant proportion of the research budget of African countries. Donor contributions (including World Bank loans) accounted for an average of 35 per cent of funding to major agricultural research agencies in 2000 (IAASTD 2009).

G20's agriculture ministers in their 2011 meeting in Cannes, France, agreed to strengthen agricultural research and innovation, and support results based agricultural research for development. As part of their commitment, they agreed to launch an International Research Initiative for Wheat Improvement (IRIWI) in order to co-ordinate research efforts on wheat for food security. At the continental level, the African Development Bank approved a US\$62.24 million grant package for the implementation of the five-year Support to Agricultural Research for Development of Strategic Crops in Africa (SARD-SC) project. SARD-SC is aimed at enhancing the productivity and income derived from cassava, maize, rice, and wheat—four of the six commodities that African Heads of States, through the CAADP, have defined as strategic crops. These initiatives, while valuable, are still inadequate in terms of the magnitude of the research agenda needed to deal with Africa's multiple agro-climatic zones.

There is also a need to improve rural roads, market access, and irrigation. Rural infrastructure has consistent and strong impacts on the adoption of better practice. Transport costs from the farm gate to primary and secondary markets remain high. The quality of roads matters for productivity: poorer quality roads have increasingly negative impacts on adoption of non-traditional inputs. Irrigation can reduce the impact of droughts and also to help enhance productivity through a stable water supply, but total irrigated area is well below its potential.

One of the critical constraints to agriculture and agro-industry in Africa is inadequate financing, resulting in low agricultural productivity and food insecurity. The overall deficit of agriculture and rural-development investment in Africa has been put at US\$20 to 40 billion annually (Kanu et al. 2012). African government budgetary support to the sector has been far below the ten per cent of the fiscal expenditures pledged in the Maputo declaration of 2003, and there is clearly an expanded role for donors in agriculture. The good news is that donor commitments have been rising since about 2007. The bad news is that they have not yet reached the share of total ODA of the mid-1990s (Figure 9).

7.2 Resetting priorities: private-sector development

Africa needs more private investment in globally competitive industries—broadly defined as agro-processing, manufacturing, and tradable services. Despite recent growth, private investment has remained at about 11 per cent of GDP. This is well below the levels found in East Asia, especially during periods of rapid structural change. And, while there has been a modest increase in foreign direct investment, it has been in mining and minerals. African industry has not been attractive to local or global investors because it has not been judged to be globally competitive.

Foreign aid is partly to blame. Since the 1990s, the private-sector development efforts of aid agencies in Africa have focused on improving the 'investment climate'—the regulatory, institutional, and physical environment within which firms operate. Around one-quarter of official development assistance (ODA), some US\$21 billion per year, currently supports investment-climate improvements. Investment-climate reforms are central to the success of any industrial development strategy: indirect costs make Africa less competitive (Eifert et al. 2005). But, the priorities set by

donors may have done more harm than good. The investment-climate reform agenda has centered on changes in trade, regulatory, and labour market policies. These reforms may be useful, but they are unlikely to relieve the binding constraints to industrial development (Page 2012b). Firm surveys consistently show that lack of infrastructure and skills are responsible for much of the difference in competitiveness between Africa and other parts of the world (Dinh et al. 2013). Yet, donors have paid little attention to Africa's growing infrastructure and skills deficits.

Closing Africa's infrastructure gap will require around US\$93 billion a year, about 15 per cent of the region's GDP (World Bank 2009). It is clearly unrealistic in the current fiscal environment to count on aid to fill the financing gap. New approaches and products are needed. Guarantee instruments could leverage limited donor financing by reducing the perceived risk of private-debt financing for infrastructure. Greater co-operation and co-ordination between the OECD's Development Assistance Committee (DAC) donors and non-traditional donors, like China, can improve the focus and efficiency of resource use. The Infrastructure Consortium for Africa (ICA) at the African Development Bank (AfDB), if properly funded and used, could lead the effort.

Financing an expansion of post-primary education presents at least as daunting a challenge as closing the infrastructure gap. The current funding gap for education across Africa has been estimated to be anywhere between US\$6-29 billion (World Bank 2007). DAC donor commitments to all levels of education in Africa only approach US\$4 billion. Confronted with rising unit costs of primary education and limited prospects of external finance, it is time to replace the primary education MDG with a more broad-based measure of human capital.

7.3 Setting new objectives: exports, clusters, and capabilities

Over the past quarter century developing countries—mainly in Asia—have become the 'world's factory'. Three inter-related drivers of industrial location have largely determined Asia's rise: success in task-based exports, rapid growth of industrial agglomerations, and the ability to attract and transfer firm capabilities (UNIDO 2009; Page 2012a). Aid can help African governments to master these determinants of global competitiveness.

7.3.1 Supporting an export push

For the vast majority of African countries, the export market represents the only option for rapid growth of industry, and trade in tasks is a potential point of entry. Countries such as Vietnam and Cambodia have found it easier to master a single stage of the production process than to develop vertically integrated production. But, success is by no means assured. As Lesotho and Swaziland found when the Multi Fiber Agreement expired, task-trade investors are footloose and continuously seek new locations in response to changing costs and incentives (Edwards and Lawrence 2011).

To succeed Africa will need an 'export push', a focused set of public investments, policy, and institutional reforms that address the critical constraints to exporting. Because new entrants to task based production tend to specialize in the final stages of the value chain, improving trade logistics and deeper regional integration are essential. African countries rank at the bottom of the World Bank Trade Logistics Index, and poor trade logistics performance in coastal countries taxes landlocked neighbours (World Bank 2010).

International support for an export push should consist of aid to improve trade logistics, policies to increase preferential market access, and support for regional integration. Aid for Trade (AfT) Initiative has attracted considerable donor attention. As generously defined by the donors, it comprises about 25 per cent of total development assistance. But donors are not fulfilling the promise made at Hong Kong in 2005 to make aid for trade additional to existing aid budgets. In fact AfT's share in total development assistance has fallen steadily since 1996 (OECD 2010). Africa's export push will not succeed unless the international community keeps its promise of additionality.

A first step for trade policy is to reduce escalating tariffs targeted at higher stage processing of Africa's exports. Here China must play a leading role. A second step is to develop a simple, time-bound system of preferences for Africa's non-traditional exports to high-income countries. A sensible place to begin would be for the European Union and the United States to harmonize their individual preference schemes for Africa, the Economic Partnership Agreements (EPA), and the Africa Growth and Opportunities Act (AGOA).

Africa's development partners have failed to support regional integration, preferring instead to deal with individual countries, not regional organizations. Cross-border projects have been few and slow to implement. The capacity of regional organizations to develop bankable projects, to carry out monitoring and evaluation, and to ensure adequate financial management needs to be strengthened. Donors need to make stronger efforts to harmonize their support to regional organizations and integrate their national aid programmes into their regional strategies (Page 2012b).

7.3.2 Building industrial clusters

Manufacturing and service industries tend to concentrate in clusters. Because of the productivity boost that such industrial agglomerations provide, starting a new industrial location is a form of collective action problem. If a critical mass of firms locates in a new area, they will realize productivity gains, but no single firm has the incentive to move in the absence of others. Africa has few modern industrial clusters, making it both more difficult for existing firms to compete and more difficult to attract new industry.

Governments can foster agglomerations by concentrating investment in high-quality institutions, social services, and infrastructure in a special economic zone (SEZ). This has been one of the keys to rapid growth of industry and jobs in China and Vietnam. Africa's experience with spatial industrial policy, however, has been largely unsuccessful. A recent review concludes that most African SEZs have failed to reach the levels of physical, institutional, and human capital needed to attract global investors (Farole 2011).

Traditional donors have tended to neglect special economic zones. Indeed, the prevailing wisdom in the World Bank until quite recently was that SEZs were costly, inefficient substitutes for economy-wide reforms in trade policy and regulation. China, on the other hand—building on its own success with spatial industrial policies—has launched a recent initiative to build export-oriented special economic zones in Africa (Brautigam and Xioyang 2011). The DAC donors can learn from the Chinese experience. Investment-climate reforms in the broadest sense of investments in world-class institutions, infrastructure, and skills can be focused initially on SEZs. This is an area where public-private dialogue to identify key bottlenecks, and partnerships to address them, can be particularly effective.

7.3.3 Strengthening firm capabilities

In most industries productivity and quality depend on the tacit knowledge, or working practices of the firm's workforce and management. These 'firm capabilities' are used in the course of production and in developing new products. In a globalized marketplace, firms are competing in capabilities: most often the critical constraints to industrialization are complex, inter-related bodies of knowledge and patterns of behaviour (Sutton 2012). One of Africa's major constraints to more rapid structural change is the absence of capable mid-sized domestically owned firms.¹¹

The process of and building capabilities consists of two phases. The first phase involves bringing a higher level of capability to some firm or group of firms. This is most often a result of Foreign Direct Investment (FDI), but it can take other forms—such as supplier-purchaser relationships—as well. The second phase consists of the spillover of capabilities to other firms within and outside the host industry, mainly through supply-chain relationships. There is a role for aid in each phase. Properly designed investment-climate reforms can have a large payoff by making it easier to attract FDI. Today, the vast majority of Africa's foreign investment promotion efforts fall short of international best practice (Page 2012a). Donors can assist African governments to develop effective foreign investments' promotion agencies. They can also help 'import' global best practices by supporting networks of related manufacturing companies to whom advice on achieving international standards in terms of quality and production is provided (Sutton 2005).

Another promising area for capability-building is management training. The importance of differences in management to differences in productivity across countries has only recently been recognized.¹² Since 2007, the World Bank and the Japan International Co-operation Agency (JICA) have undertaken some pilot projects in which management-training programmes are provided free of charge to small entrepreneurs in Africa. Ex-post evaluations indicate that the training programmes have accelerated the adoption of improved management practices, including through spillovers from the training participants to non-participants (Otsuka and Sonobe 2011).

8 Conclusion

In the last decade, a large number of African countries registered moderately high growth in per capita GDP, buoyed by rising commodity prices, better macroeconomic management, debt reduction, and an increase in the flow of external finance. What is deeply worrying is that the impact in most cases on poverty and employment of this growth has been limited. Our evidence highlights the following stylized facts. First, Africa has the lowest elasticity of poverty reduction with respect to growth of any developing area of the world. Second, despite more rapid growth, Africa is not creating enough good jobs. Third, lack of rapid structural change is largely responsible for Africa's jobs and poverty problem. Africa's failure to create enough high-value per worker jobs has reduced the impact of growth on poverty reduction.

¹¹ In a series of *Enterprise Maps* sponsored by the International Growth Centre, John Sutton has documented the nature and extent of firm capabilities in Ethiopia, Ghana, Mozambique, Tanzania, and Zambia. Of the 50 leading firms in each economy, only about 25 per cent are owned and managed by domestic investors. See for example Sutton and Kellow (2010).

¹² Recent research on the role of management in developing country industry documents the large variations in productivity and management practices across firms, even within narrowly defined industrial sectors. See for example Bloom and Van Reenen (2010).

ODA is partly responsible. In the last few decades most African governments have received ODA to the tune of around ten per cent of GDP; in some cases it has been much higher. The bulk of this aid was spent to support social infrastructure, such as education and health. It did little to contribute to structural change and job creation. In fact we find that aid, disproportionately, went to countries with a low-intensity of employment with respect to growth.

There is scope to reverse this trend. If donors are serious about reducing poverty, they need a new aid strategy to help create good jobs through structural change. This paper proposed three areas of action for such a strategy. The first is to make meaningful investments in agricultural productivity and complementary infrastructure. The second is re-orienting private-sector development initiatives to focus more on infrastructure and skills. Finally, new thinking by African governments and their development partners is needed on ways to create more good jobs through pushing non-traditional exports, supporting the formation of industrial clusters, and strengthening firm capabilities.

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Table 1: Africa's economic structure, 2005

	Share of sector in GDP					Share of sector in labour force					Relative labour productivity			
	AGR	IND	MFG	SER		AGR	IND	MFG	SER		AGR	IND	MFG	SER
Benchmark middle-income country	21.7	12.2	21.9	44.2		45.2	6.6	11.6	36.6		0.48	1.85	1.89	1.21
Africa low-income average	27.8	11.8	11.1	49.3		63.1	5.1	6.6	25.2		0.44	2.31	1.68	1.96
Africa middle-income average	4.8	10.9	17.1	67.2		8.6	11.9	16.8	62.7		0.56	0.92	1.02	1.07
Africa resource-rich average	17.8	29.6	8.3	44.3		45.4	4.8	6.5	43.4		0.39	6.17	1.28	1.02

Notes: Africa low-income sample: Ethiopia (ETH), Malawi (MWI), Ghana (GHA), Kenya (KEN), Madagascar (MAD), Mozambique (MOZ), Senegal (SEN), and Tanzania (TZA); Africa middle-income sample: Mozambique (MOS), South Africa (ZAF); Africa resource-rich economies: Botswana (BOT), Lesotho (LES), Nigeria (NGA), Namibia (NMB), and South Africa (ZAF).

Sources: Author's calculations using McMillan and Rodrik (2011) and World Bank WDI (2012) databases.

Table 2: Two-step GMM estimate of the relationship between poverty and sectoral shares of employment

Dependent variable (Log headcount ratio)	All developing countries		Africa sample	
	Coefficient	z	Coefficient	z
Log share of labour in agriculture	0.05	0.19	1.23*	1.95
Log share of labour in industry	-0.79**	-2.87	-0.29	-0.37
Log share of labour services	-0.61	-0.58	1.29*	1.94
Log consumption	-0.30**	-2.44	-1.12**	-2.14
Log gini co-efficient	2.52***	6.34	2.77***	4.61
_Constant	-0.94	-0.34	-10.54	-2.08
Sargan's statistic (over-identification test)		0.8492		0.3464
Number of observations		328		58

***significant at 1%; ** significant at 5%; *significant at 10%.

Source: Author's estimates based on data indicated in the text.

Table 3: Share of employment between two household surveys for selected African countries

Country	year 1	year2	Employment share survey 1			Employment share survey 2		
			Agriculture	Industry	Service	Agriculture	Industry	Service
Nigeria	2007	2010	49.58	6.80	29.70	44.19	11.46	25.55
Rwanda	2000	2005	86.23	1.58	12.19	74.83	2.14	23.02
Rwanda ⁺	2005	2011	74.83	2.14	23.02	52.44	4.68	42.65
Malawi ⁺	2004	2011	78.00	1.76	20.24	75.00	5.88	19.12
Egypt	1998	2006	10.28	29.45	60.27	8.17	28.79	63.04
Egypt	1988	1998	14.58	31.38	54.04	10.28	29.45	60.27
Uganda	2005	2009	61.23	7.73	23.91	61.96	11.78	19.43
Tanzania	2001	2007	76.10	2.12	10.47	82.26	1.21	6.99
South Africa	2000	2003	22.2	20.2	57.06	17.82	20.5	61.52
South Africa	2003	2006	17.82	20.5	61.52	11.42	24.23	64.29
South Africa	2000	2006	22.2	20.2	57.06	11.42	24.23	64.29
Average			47.37	14.49	35.54	39.84	17.18	40.15
Median			49.58	10.02	29.70	44.19	20.50	42.65

Note: +For 2011, workers in construction and utilities included under 'industry'.

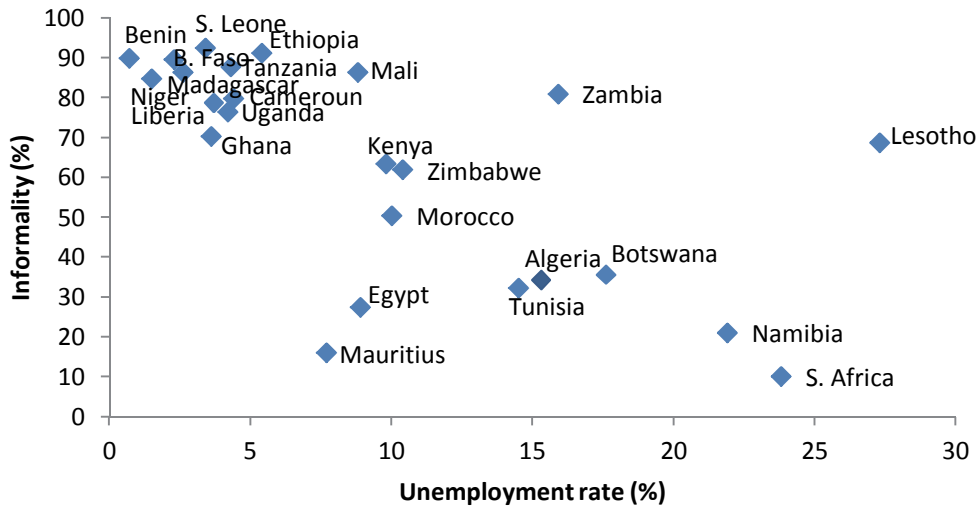
Source: Author's calculations using AfDB (2013) household survey data set.

Table 4: Decomposition of changes in poverty

	Change in headcount (percentage points)	Due to productivity (%)	Due to movement of labour (%)	Interaction effect (%)
Nigeria (2007–10)	-7.28	46.33	50.61	4.35
Rwanda (2000–05)	-1.87	-20.57	257.57	-136.41
Rwanda (2005–11)	-3.89	-58.23	110.77	49.35
Malawi (2004–11)	-2.13	39.46	61.62	26.17
Egypt (1988–98)	-0.67	68.76	15.29	-2.62
Egypt (1998–2006)	-1.73	83.40	5.91	5.62
Uganda (2005–09)	-16.64	76.02	-5.89	8.72
Tanzania (2001–07)	-10.92	67.97	-20.88	2.84
South Africa (2000–03)	-3.15	108.92	-4.41	-6.93
South Africa (2003–06)	-2.88	102.83	-4.07	1.09
South Africa (2000–06)	-6.03	104.69	-1.37	-4.65
Mean	-4.84	44.68	59.26	-8.96
Median	-3.15	67.97	15.29	2.84

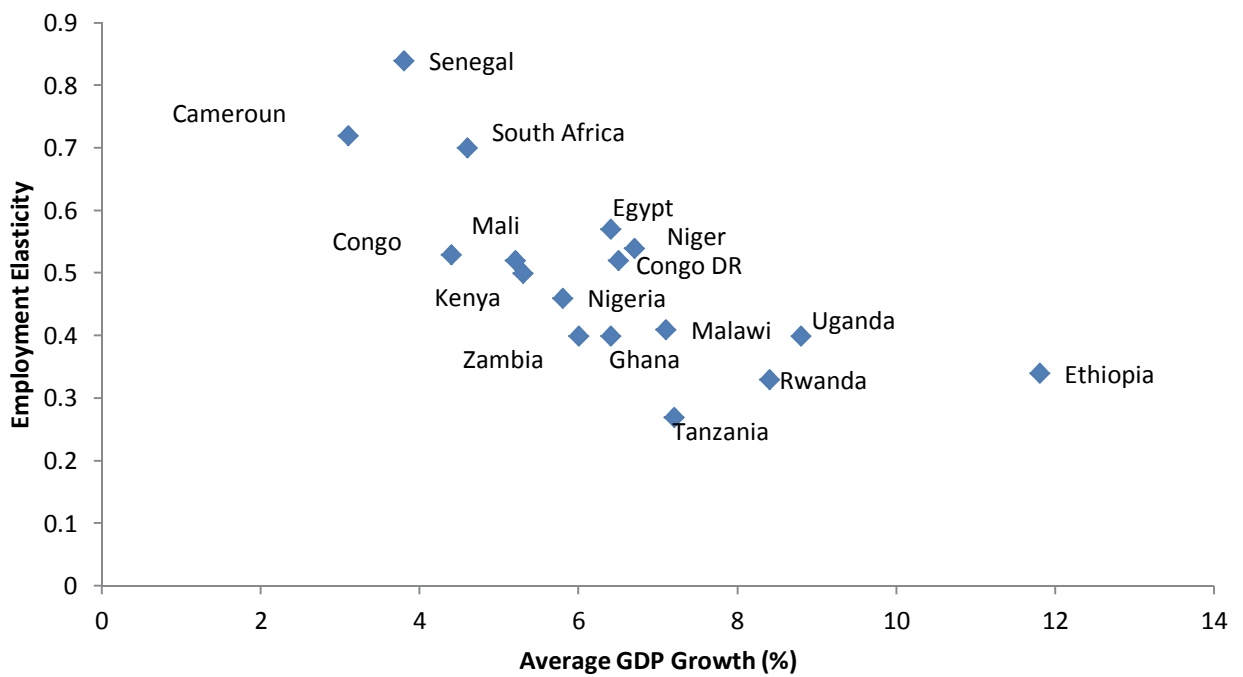
Source: Author's calculations using AfDB (2013) household survey dataset.

Figure 1: Unemployment and informality in Africa



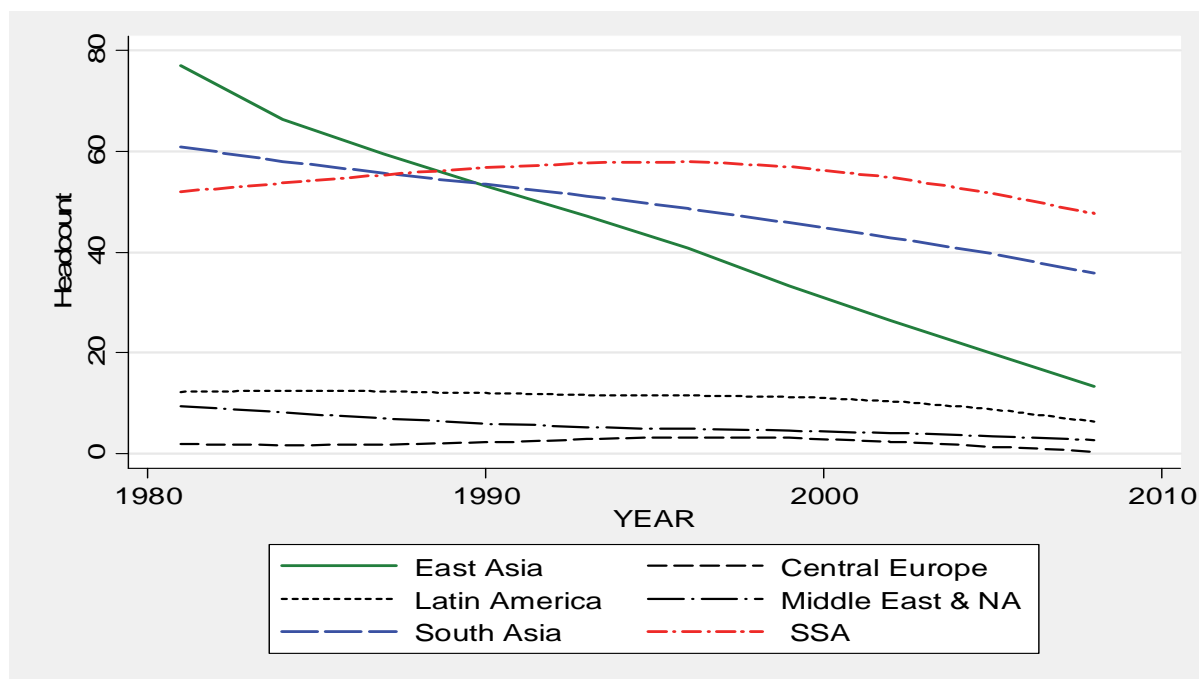
Source: AfDB (2012).

Figure 2: Employment intensity and growth in selected African countries



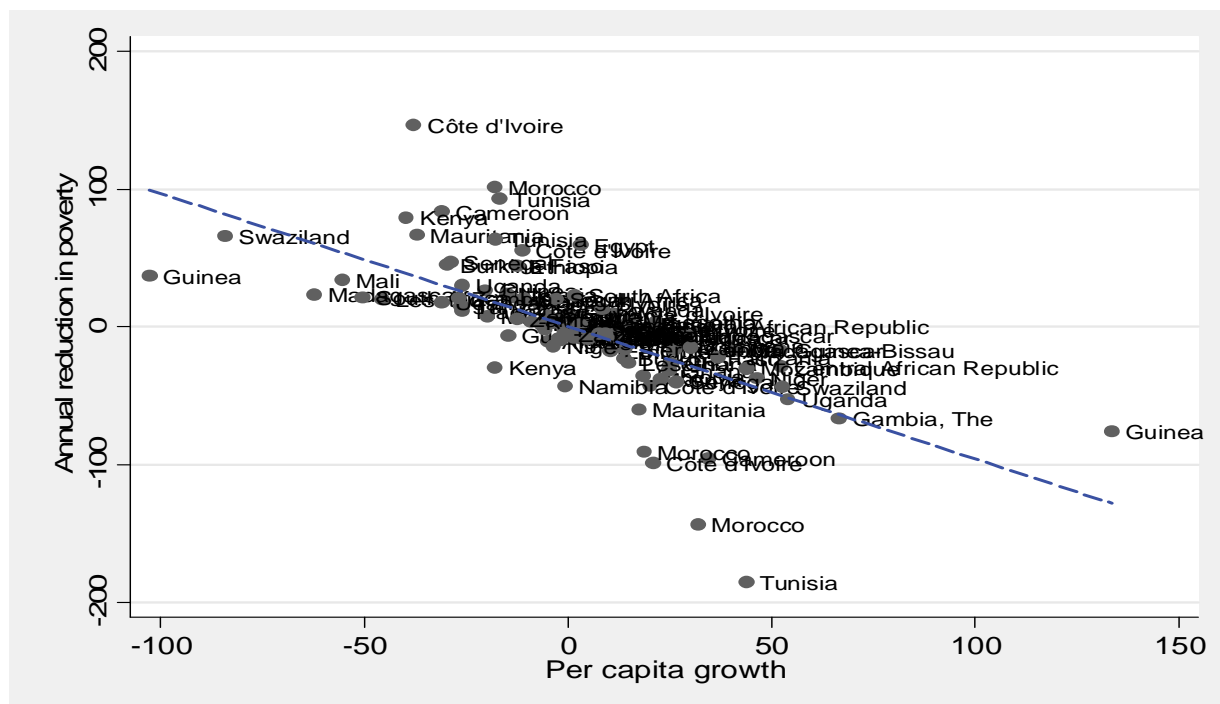
Source: AfDB (2012).

Figure 3: Evolution of extreme poverty in the developing world



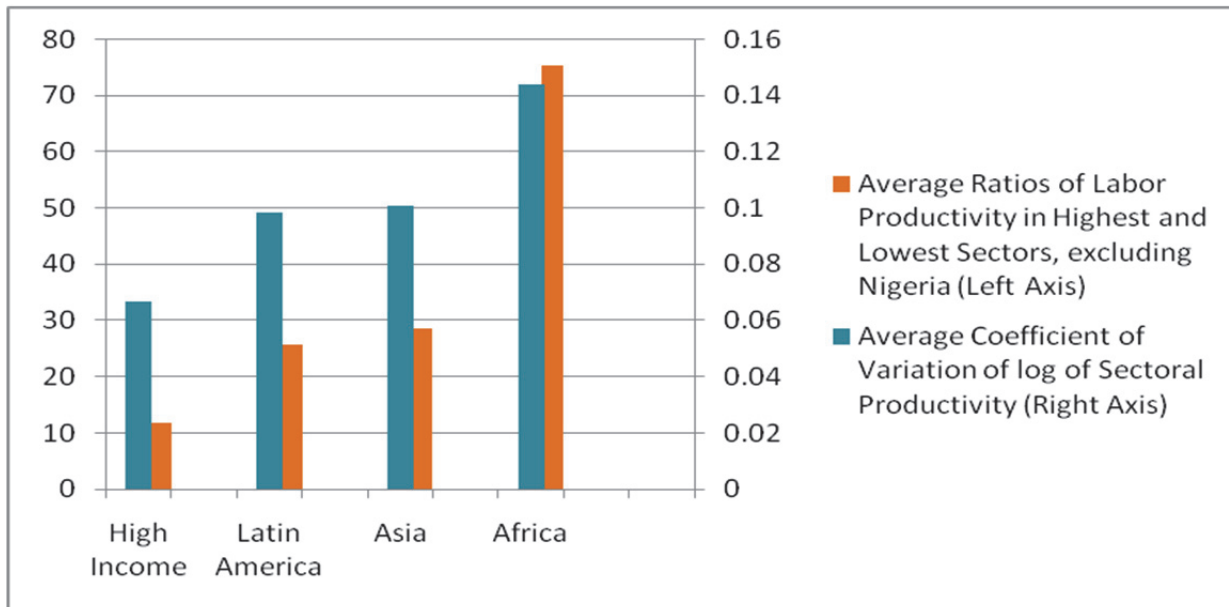
Source: Author's calculations using World Bank (2013b) Povcal data base.

Figure 4: Poverty reduction and growth in African countries



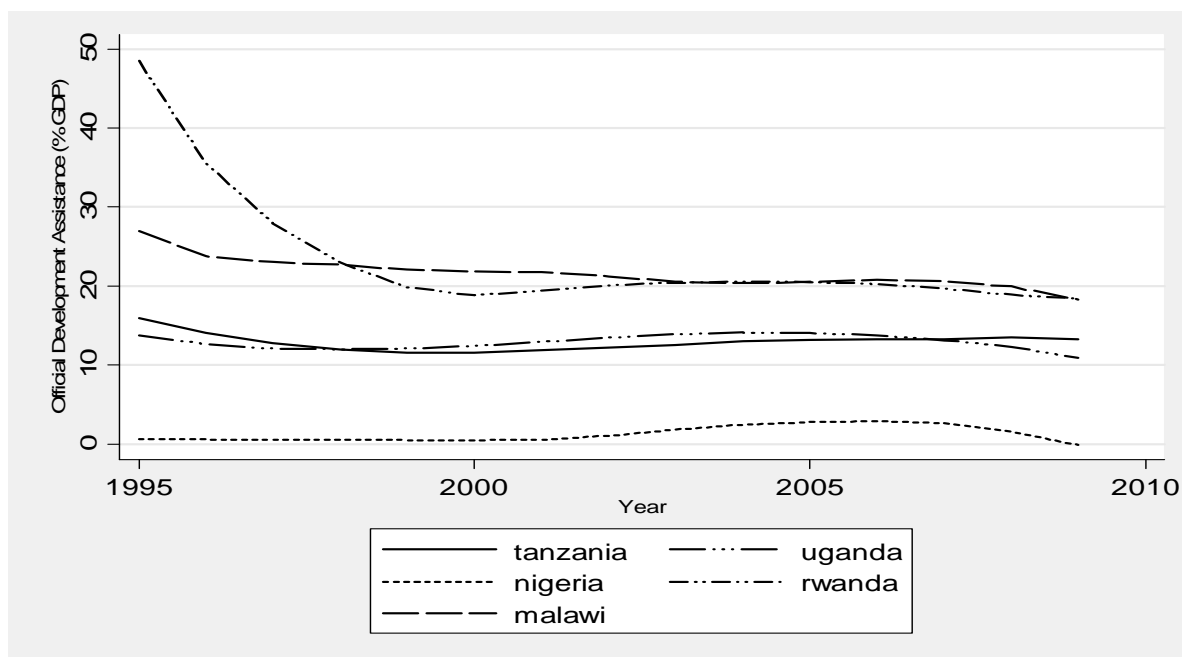
Source: Author's estimates using World Bank (2013b) Povcal data base.

Figure 5: Differences in labour productivity among sectors



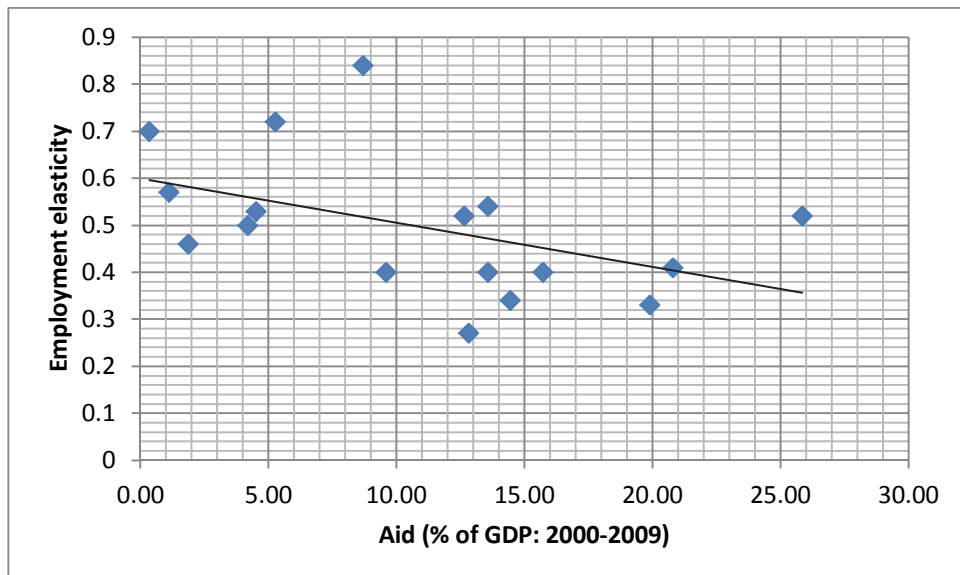
Source: Author's calculations based on McMillan and Rodrik (2011).

Figure 6: ODA flows to selected countries in Africa as a share of GDP



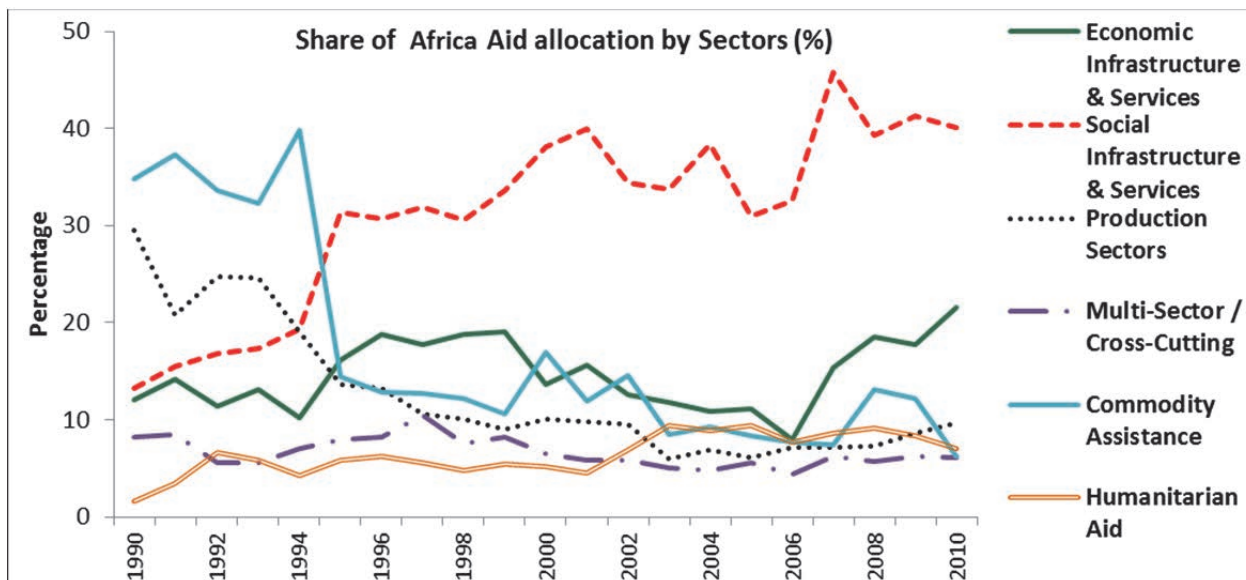
Source: Author's computations based on data provided in OECD-DAC Credit Reporting System (2013) online database.

Figure 7: aid and employment elasticity in selected African countries



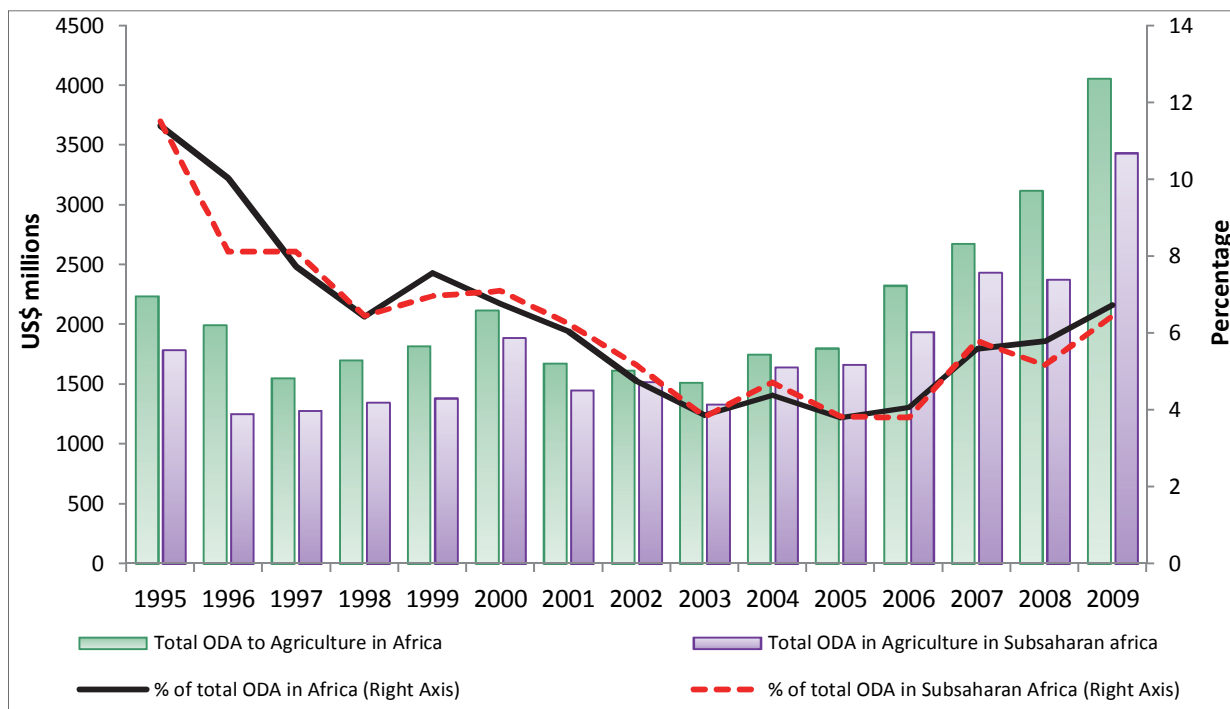
Source: Author's calculations using AfDB (2012) employment data and OECD-DAC CRS (2013) online database.

Figure 8: Share of Africa aid allocation by sectors



Source: Author's calculations using OECD-DAC CRS (2013) online database.

Figure 9: ODA to agriculture (commitments, constant US\$2009 millions)



Source: Author's computations based on data provided in OECD-DAC Credit Reporting System (2013) online database