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ECONOMIC GROWTH IN SUB-SAHARAN AFRICA, 1885-2008

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Abstract

Sub-Saharan Africa (SSA) is often absent from discussions of long-run growth owing to the lack of data on aggregate economic performance before 1950. This paper provides estimates of GDP per capita on an annual basis for eight African economies for the period since 1885. Although the growth experienced in most of SSA since the mid-1990s has had historical precedents, there have also been episodes of negative growth or "shrinking", so that long run progress has been limited. Despite some heterogeneity across countries, this must be seen as a disappointing performance for the region as a whole, given the possibilities of catch-up growth, although African performance was not notably worse than other non-western regions before the 1980s. Avoiding episodes of shrinking needs to be given a higher priority in understanding the transition to sustained economic growth.

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Abstract: Sub-Saharan Africa (SSA) is often absent from discussions of long-run growth owing to the lack of data on aggregate economic performance before 1950. This paper provides estimates of GDP per capita on an annual basis for eight African economies for the period since 1885. Although the growth experienced in most of SSA since the mid-1990s has had historical precedents, there have also been episodes of negative growth or "shrinking", so that long run progress has been limited. Despite some heterogeneity across countries, this must be seen as a disappointing performance for the region as a whole, given the possibilities of catch-up growth, although African performance was not notably worse than other non-western regions before the 1980s. Avoiding episodes of shrinking needs to be given a higher priority in understanding the transition to sustained economic growth.

1. INTRODUCTION

The field of African economic history has enjoyed a recent 'renaissance' based on newly digitized sources of data and the application of innovative techniques (Austin and Broadberry 2014; Fourie 2016). This work has shed new light on the patterns of trade, living standards, inequality and institutions of African states over the course of the nineteenth and twentieth centuries, and in some cases for even earlier periods. A number of insights have emerged from this research, particularly about the ways in which Africans responded to changing market conditions and the changing role of state institutions in structuring the interactions of African producers with the global economy. The picture of the region that emerges is not one of ubiquitous stagnation, but rather of frequent but inconsistent periods of economic expansion (Frankema and van Waijenburg 2012; Frankema et al. 2018; Jerven 2010). Largely missing, however, are aggregate estimates of the economic performance of African countries across this period which would allow for more systematic comparisons across both space and time. For most African nations, GDP per capita estimates based on contemporary data are available only for the period after 1950.[1]

     This paper addresses this gap by providing a quantitative overview of economic growth in Sub-Saharan Africa (SSA) over the long twentieth century, encompassing the colonial era as well as the post-independence period. This is done by presenting annual estimates of GDP per capita for a number of countries covering the major regions of southern, west, east and central Africa for the period 1885-2008`. Working carefully with disaggregated data, it is possible to reconstruct the path of economic activity for the eight economies considered here

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[1] Annual estimates of GDP per capita growth during the colonial period have been published by Jerven (2014b) for Ghana while Prados de la Escosura (2012) uses trade data to provide conjectural estimates of GDP per capita levels for all African countries in a number of benchmark years. Our estimates are compared with these data in Appendix 1, section 9.

during the colonial era. These estimates can be linked to postwar data to provide an annual database covering the period 1885-2008. We then use this database to show that although the growth experienced in most of SSA since the mid-1990s does have historical precedents, it is clear that there have also been many episodes of negative growth or "shrinking", so that overall progress has been limited.

The data also show considerable heterogeneity in Africa's growth experience across the different regions of the continent. In southern Africa, although the Cape Colony provided high living standards for a small number of European settlers from the eighteenth century, GDP per capita in South Africa as a whole was no higher than in the richest West African economies as late as 1900. South Africa forged ahead decisively only with industrialization after World War I. Zimbabwe has experienced levels of per capita GDP on a par with the richest West African economies during boom periods, but has also experienced severe growth reversals, most recently since the late 1990s as the rest of SSA has experienced a growth boom. In West Africa, Nigeria and Ghana have experienced several episodes of sustained shrinking, linked to declining prices for exports and political instability, along with episodes of growing. In East Africa, episodes of growing have more than outweighed episodes of shrinking in Kenya and Uganda, although most of the long run gain occurred before World War II. In Central Africa, Zambia experienced a dramatic copper boom between the 1930s and the 1970s, but this was followed by a severe case of shrinking, which allowed Malawi to catch up.

The estimates presented here inevitably have their weaknesses. They are based on partial data, which was collected for purposes far removed from the calculation of national accounts. However, this is the case for all historical national accounting, and it is not clear why we should expect the problems to be any more severe for British colonies in Africa than for

other regions. Furthermore, it should be noted that there is a high degree of continuity between the data sources available during the colonial and early post-colonial periods. And although the postwar African data have at times been severely criticised, alternative indicators such as satellite maps of night lights tend to produce results broadly in line with the patterns of economic activity suggested by the modern GDP per capita data (Jerven, 2013; Henderson et al., 2011).

The paper proceeds as follows. Section 2 describes the approach to the reconstruction of historical national accounts for the economies of South Africa (and earlier the Cape Colony), Zimbabwe (formerly Southern Rhodesia), Ghana (formerly the Gold Coast), Nigeria, Kenya, Uganda, Zambia (formerly Northern Rhodesia), and Malawi (formerly Nyasaland). A data appendix provides further details of this exercise. Section 3 then explores the experience of growth in each of the economies, while section 4 places the experience of SSA in a wider comparative perspective. Section 5 concludes.

2. HISTORICAL NATIONAL ACCOUNTING FOR SUB-SAHARAN AFRICA

Despite its central importance in the modern economic history of most regions, until recently there has been relatively little use of national accounting in the economic history of Africa (Manning 1987: 51). This has had the unfortunate consequence of limiting the extent to which Africa appears in comparative historical work on economic growth and development. However, recent work in African economic history has demonstrated the availability of large amounts of economic data for the colonial era, as well as for the period since independence (Austin and Broadberry 2014). Those data are used here to provide historical national accounts for a number of important Sub-Saharan African economies in the main regions of southern, west, east and central Africa. The estimates of GDP per capita derived in this way can be linked

up to the postwar national accounts developed during the final years of the colonial era and built upon in the years after independence. Details of the reconstruction of national income are provided in Appendix 1 for the colonial period before 1950 and Appendix 2 for the post-1950 period. The basic approach is set out below, providing summary information on the economies analysed and also addressing some of the critiques of African GDP data.

It should be noted that our study covers only countries that were British colonies. This has a number of advantages for a study of economic growth. First, the underlying data were collected on a comparable basis during the colonial period, and the methods adopted during this era continued to influence the statistical offices of the independent states following decolonization. Second, our sample covers a large share of the GDP and population of Sub-Saharan Africa; in 1950, these eight countries accounted for just over 50 per cent of the GDP of the region and just under 40 per cent of the population. Third, with two countries in each of southern, west, east and central Africa, our sample includes a wide geographic spread. However, it also means that there are large parts of the continent that we have not been able to cover, and it is possible that British colonies were on average more affluent than areas colonized by other countries (Burbank and Cooper 2010: 315). We hope that our efforts will inspire further studies to fill in these gaps.

2.1 Historical national accounts for South Africa

South Africa is the only one of the eight countries for which it is possible to draw on existing estimates, produced by Fourie and van Zanden (2013) for the Cape Colony over the period 1701-1910 and for the whole of South Africa from 1910. This GDP per capita series, plotted here in Figure 1, is derived from a number of different sources that have been spliced together. Fourie and van Zanden (2013) use primary sources to estimate both population and nominal

GDP for the period 1701-1793, during which time the Cape Colony served as a victualling station for the Dutch East India Company (VOC)[2]. They use an output approach which distinguishes an agricultural sector, the VOC sector and the rest of the economy. Agricultural output is estimated from data on wheat, wine and meat, taking account also of capital formation in agriculture in the form of livestock, land and vines. Output of the VOC sector consists of wages and salaries of company employees, augmented by income in kind and income from their own trading activities, plus income earned by the VOC from imports and exports to the Cape Colony. Output of the rest of the economy takes account of the slave trade, the sale of wine and other goods to visiting sailors and the population of Cape Town, the value adding activities of bakers and butchers, construction activity and the activities of other craftsmen. Nominal GDP is deflated using a price index constructed by de Zwart (2013).

For the period 1804-1910, estimates of nominal GDP were made by Greyling et al. (2010) from primary material for the British Cape Colony. These were converted to constant price terms by Fourie and van Zanden (2013) using de Zwart's (2013) price index. Although official data for nominal GDP and a consumer price index are available from the Bureau of Census and Statistics for the period from 1910 onwards, they have not been used by Fourie and van Zanden (2013) for the period 1910-1924, since they produce an implausibly large drop in GDP between 1910 and the mid-1920s. An alternative series of real GDP from Schumann (1938) has instead been used for the period 1910-1924, and spliced to the official series for 1924-1946. For the period since 1946, real GDP per capita is taken from South African Reserve Bank (2015).

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[2] Vereenigde Oostindische Compagnie.

2.2 Historical national accounts for the colonial era

For the other seven economies considered here, it has been necessary to reconstruct historical national accounts from primary and secondary sources, detailed in Appendix 1. For the colonial era, GDP has been estimated from the output side, dividing the economy into three main parts covering the export sector, government and the traditional sector.

2.2.1 The traditional sector

It has been conventional in African national income accounting to assume that outside the modern export sector, there is a large traditional sector, where most people live at bare bones subsistence, eking out a living from the land, producing their own food, clothing and shelter, as well as providing basic services such as security, health and education. Although much of the activity takes place outside the market, the need to pay taxes in cash ensures some contact with the market economy. This sector accounted for a large share of total economic activity in colonial Africa. Traditional sector output is often assumed to grow in line with population, with no improvement in living standards over time, and this view can be seen in the work of Szereszewki (1965), who provided estimates of GDP in Ghana for the benchmark years of 1891, 1901 and 1911 and compared them with 1960. It is also implicit in the work of Deane (1953), who prepared estimates of GDP for Northern Rhodesia (Zambia) and Nyasaland (Malawi) in the 1940s. Furthermore, Deane went on to apply this approach to the estimation of agricultural output in Great Britain during the eighteenth century, thus making it a standard tool of early historical national accounting in Europe, as well as Africa (Deane and Cole 1962). In Europe, however, the assumption of constant per capita consumption over long periods of time has increasingly been challenged, particularly where there are good reasons to believe that there were significant changes in real income (Crafts 1976; Malanima 2011; Álvarez-Nogal and Prados de la Escosura 2013).

Rather than assuming constant per capita consumption, output of the traditional sector can be estimated from data on population and the real wage using an assumed income elasticity to derive demand within the traditional sector. The population data in Table 1 are taken from Frankema and Jerven (2014b), who refine the pathbreaking attempt by Manning (2010) to project backwards from a firm census benchmark in the postwar period, taking account of population growth estimates of countries with similar levels of development, as well as situational modifications informed by region-specific conditions and developments. Frankema and Jerven (2014a) suggest two adjustments to Manning (2010), affecting both the level of the 1950 benchmark and the rate of population growth before 1950. This results in two important modifications of Manning's estimates. First, there is an upwards adjustment of the population level in 1950 by around 10 per cent, derived from an examination of the bias in African censuses before and after 1950. Second, whereas Manning applied a growth rate derived from India as the starting point for African population growth before 1950, together with situational modifications, Frankema and Jerven point to tropical land-abundant economies in Southeast Asia as a more appropriate comparator than India for the tropical regions of Africa.

Presented in absolute terms, the population estimates in Table 1 demonstrate the relative size of each economy at every point in time, as well as the growth of population over time. Population grew quite rapidly at around 1.1 per cent per annum over the period 1870-1950 in the two West African countries of Ghana and Nigeria, with Nigeria remaining Africa's most populous country. Population growth was more modest at an annual rate of 0.6 per cent in the East African economies of Kenya and Uganda, and slower still in the Central African countries of Zambia and Malawi. The most rapid population growth during this period was in South

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Africa, at an annual rate of 1.5 per cent, making South Africa one of the continent's most populous economies. Zimbabwe also shared in this rapid rate of population growth.

The real wage data in Table 2 are derived mainly from Frankema and van Waijenburg (2012). The nominal wages are those of unskilled urban workers, available from the *Blue Books* for the period before World War II and from other official sources for later years.[3] The weights for the items in the price index are based on an adaptation of Allen's (2009) subsistence basket to African circumstances. The cost of the basket is very heavily dependent on the price of grain, so that the real wage computed using this price index is close to a grain wage. For Zimbabwe, Mosley's (1983) composite money wage index has been used. This is based on the money wages of agricultural workers and miners, deflated with a price index that again relies heavily on grain, but combined with import prices for products that featured heavily in the consumption basket of African workers. The real wage trended upwards in all countries, but there was also a high degree of volatility, with alternating periods of positive and negative growth.

These trends in population and real wages are converted into the output of the traditional sector via a demand function. Here, we follow Allen (2000) in starting with the identity:

$$Q = rcN \qquad (1)$$

where Q is real output of the traditional sector, r is the ratio of production to consumption, c is consumption per head and N is population. Real consumption per head is assumed to be a function of the real wage (w/p), assuming a log-linear specification:

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[3] Although Frankema and van Weijenburg also provide data on nominal wages of rural workers, price data are only available for urban areas.

$$\ln c = \propto_0 + \propto_1 \, ln\langle w|p\rangle \qquad\qquad\qquad (2)$$

where α_0 is a constant and α_1 is the income elasticity of demand. Drawing on the evidence from developing countries, a common value for the income elasticity of demand is 0.5 (Deaton and Muellbauer 1980: 15-16, 60-82; Allen, 2000). Allen assumes that traditional consumption is equal to traditional production, an assumption which has also been followed here. Although there were significant exports of food crops, these are accounted for separately in the export sector and it is assumed that imports were consumed outside the traditional sector.

2.2.2 The export sector

The data on production for the export sector are much more abundant than for the traditional sector, where participation in the market was more limited. Table 3 sets out indices of export volumes for each country, constructed with weights for three or four benchmark years. The weights for 1950, based on export value shares, are shown in Table 4 and indicate a high degree of specialization. In West Africa, Ghana focused increasingly on cocoa and gold as the previously dominant exports of palm products and rubber declined, while Nigeria specialized in palm products and groundnuts as well as cocoa. In East Africa, Kenya focused on coffee, tea and sisal, while Uganda specialized in cotton and coffee. In Central Africa, Zambia's key exports were blister copper from the 1920s and electrolytic copper from the 1930s, while Malawi developed a specialization in tobacco and tea. Exports grew very rapidly in all these countries, but the upward trend was stronger in East Africa than in West Africa, and stronger still in Central Africa.

2.2.3 Government

The government sector is measured by nominal government expenditure deflated by Feinstein's (1972) price index for UK public authorities' goods and services, which is often

used in the African economic history literature (Gardner 2012; Jerven 2014b). One rationale for this would be that much of the expenditure was on civil servants, whose salaries were set in London, and stores purchased in Britain. In practice, however, since Feinstein's UK government deflator is highly correlated with the local price indices used to calculate real wages, its use makes little difference to the overall trend. Comparing Table 5 with Table 3, it is clear that in each country, real government expenditure grew very rapidly in line with the growth of the export sector, thus outstripping the growth of the traditional sector by a large margin. Compared with the export sector, however, government was much less volatile than exports, thus acting as a stabilising force. Because the colonial administration tried to maintain budget balance, this indicates the stability of revenue over the international business cycle and difficulties in cutting expenditure during downturns (Gardner 2012).

2.2.4 Economic structure and the path of GDP

To calculate GDP, it is necessary to apply an appropriate weighting scheme to the production series for the traditional sector, the export sector and government.[4] Sectoral value added weights for all the economies considered here, circa 1950, are shown in Table 6, derived from early national accounting sources. In all cases, this involved rearranging information on sub-sectors, relying particularly on distinctions made by early national accounting statisticians between domestic and export agriculture and classifying mining as an export sector.

As noted earlier, the export and government sectors grew much more rapidly than the traditional sector. However, the export and government sectors still accounted for a relatively

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[4] We have estimated Gross Domestic Product rather than Gross National Product. The difference between the two is that GDP is earned by domestic residents, while part of GNP is earned abroad. In the case of African countries, for example, mining profits transferred abroad belong in GDP but are not part of GNP.

small share of GDP by 1950, which means that the trend in aggregate GDP was driven largely by the slower growing traditional sector. However, the much greater volatility of the export sector, which was subject to sharp booms and busts, meant that short run fluctuations in GDP tended to be driven by the export sector.

2.3. National accounts for the post-1950 period

In this paper, we link our new estimates of pre-1950 GDP per capita to the early national accounting series begun in the final years of the colonial period and built on by newly independent governments in the post-colonial period. It has long been common for economists to point to shortcomings in these national accounts produced by African statistical offices (Samuels 1963; Lury 1964). More recently, however, Jerven (2013; 2014a) has argued stridently that the errors are so large that they systematically distort the picture of African growth and cannot be used to support the common perception of poor economic performance in Africa since World War II. Since these data form the basis of the post-1950 GDP per capita estimates used in this study, a consideration of Jerven's arguments is called for.

Our conclusion is that although Jerven is correct to point to the fact that there are some deficiencies in African national accounting data and to call for more resources to be made available to statistical offices, this is more likely to lead to better data for future years than to any radical revision of the past. For the period 1950-2008, economic historians will have to live with the data collected at the time, as new surveys cannot be conducted in the past. The only existing study that provides a consistent set of estimates based on these data and covering the complete period 1950-2008 is that of Maddison (2010). As for other countries around the world, including OECD economies, the creation of Maddison's database for this period involved splicing series produced for short periods with changing base years and frequent

methodological updates. In addition to the annual official national accounts, Maddison made use of periodic studies by economists with local knowledge to provide consistent studies over longer periods.

However, given the possibility that different decisions over when and how to splice series may result in significant cumulated differences in levels of GDP per capita, we decided to go back to the original national accounting sources for the post-1950 period and conduct a cross-check on the Maddison (2010) series. The results are shown in Appendix 2 in Figure A2.1, labelled as "official series" and plotted together with the Maddison (2010) series. In all cases, the two series agree very closely over the long run, and in most cases the agreement is also close even over the short run. There is certainly nothing in the case of these countries, at least, to warrant Jerven's (2014a) suggestion of a major disagreement between Maddison and the official series over the long run growth performance of Sub-Saharan Africa. We therefore decided to use the Maddison (2010) series.

It is worth noting, finally, that some economists have responded to the allegations of an African "statistical tragedy" by suggesting the use of other data to track African economic growth in recent decades (Deverajan 2013). Henderson et al. (2011) suggest using satellite maps of lights at night, but they find that the GDP per capita data neither overstate nor understate economic growth consistently. Although Young (2012) claims that indices of asset ownership from the World Bank's Demographic and Health Survey (DHS) have grown much more rapidly than GDP per capita in African countries in recent years, Harttgen et al. (2013) find no evidence of a recent African growth miracle beyond that which is visible in the GDP per capita data, once account is taken of the weakness of the relationship between growth in assets and growth in income.

3. ECONOMIC GROWTH IN SUB-SAHARAN AFRICA

The estimates of GDP and population from the colonial and post-independence periods can be put together to construct a quantitative analysis of economic growth in Sub-Saharan Africa since 1885. The data are presented in 1990 international dollars in order to facilitate comparisons with historical national accounts for other countries (section 4). Taken together, the figures suggest several stylized facts about the long-run growth of these eight African countries. First, contrary to many early economic histories of Africa which assumed that any economic growth above subsistence resulted from European colonial interventions (see eg McPhee 1926), most of the countries studied here had levels of income above subsistence at the beginning of the colonial period.[5] Second, all eight countries had significant periods of economic growth across the long twentieth century, equal to if not greater than the recent phase of growth which began for many African countries in the mid-1990s. As the figures above show, patterns of growing and shrinking were in most countries tied tightly to foreign trade and the market for exports. The timing and scale of growth in export production varied both between and within countries owing to a range of factors, from local endowments to transport costs and political institutions (Tosh 1980; Frankema et al., 2018). Thirdly, these periods of growth resulted in little long-run improvement in per capita incomes due to equally significant periods of shrinking, which could be related either to shifts in the global economy or internal challenges. A regional approach is adopted here, beginning with southern Africa, which contains the only large Sub-Saharan African economy to have had a relatively high level of GDP per capita throughout the period since 1885, South Africa. South Africa is compared with

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[5] Maddison (2010) worked with a subsistence GDP per capita of $400 in 1990 international prices. This is equivalent to most people living at the World Bank poverty level of $1 per day, with a small rich elite on top.

Zimbabwe and then used as a benchmark in other regional comparisons involving West Africa (Ghana and Nigeria), East Africa (Kenya and Uganda) and Central Africa (Zambia and Malawi).

3.1 Southern Africa

Figure 2 shows the path of GDP per capita in Zimbabwe in comparison with South Africa. In southern Africa, gold was the foundation for the early growth of both South Africa and Zimbabwe. Mashonaland's mines in Zimbabwe had been a source of income for the region for centuries, with exports to the East African coast supporting the rise of one of medieval Africa's largest cities (Iliffe 1995: 101-102; Kea 2015: 258-259). In contrast, the Transvaal mines in what became South Africa were a new discovery in 1886, which, coming after the discovery of diamonds in 1867, provoked a major shift in the GDP per capita of the Cape Colony (Greyling and Verhoef 2015: 10). While the gold mines were not actually located in the Cape Colony, the discovery prompted an influx of capital which constructed one of the densest railway networks on the continent (Herranz-Loncan and Fourie 2018).

In both South Africa and Zimbabwe, gold mining was eventually displaced by other industries. In the case of Zimbabwe, the gold mines were never as productive as those of the Transvaal. Tobacco became the most important export crop produced by settler farms during the interwar period, although it came to dominate gold exports only after World War II (Frankema et al. 2016: 253-256). Owing to the comparatively slow growth of other sectors combined with the stagnation of the mining industry, Zimbabwe fell behind South Africa between 1914 and 1945. In South Africa, the 1920s marked the beginning of a long period of both growth and structural change linked to the rapid growth of the manufacturing sector

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behind tariff barriers, as a deliberate policy aimed at providing employment for poor white workers (Feinstein 2005; 116-121).

Both countries experienced downturns linked to global conditions, as for example during the two World Wars. In South Africa, industrial output and GDP per capita fell during 1931-32, as South Africa remained on the gold standard for fifteen months after Britain's departure from gold in 1931 (Fourie and van Zanden 2013: 490). Other periods of shrinking resulted from internal instability. In Zimbabwe, the breakup of the Central African Federation and the sanctions which followed the Unilateral Declaration of Independence by the Ian Smith government punctuated a period of post-war growth. In South Africa, after a phase of comparatively slow post-war growth, the unravelling of the apartheid system coincided with a phase of absolute shrinking which ended only with the transition to majority rule in 1994. By 2008, South Africa had attained a GDP per capita approaching $5,000 in 1990 international prices. In Zimbabwe the optimism that came with the achievement of independence in 1980 was undermined by a period of economic stagnation until the mid-1990s. As most of SSA boomed from the mid-1990s, Zimbabwe suffered a further period of negative growth as internal conflict worsened under the increasingly autocratic Mugabe regime (Mlambo 2014; Nugent 2004: 291-294). The postwar period has thus seen a widening of the gap between Zimbabwe and South Africa.

3.2 West Africa

Turning to West Africa, Figure 3 indicates that levels of GDP per capita in Nigeria and Ghana were comparable to those of South Africa before World War I. Historically, this region led Sub-Saharan Africa in terms of both trade and commercialization during the nineteenth century and before, with comparatively high levels of population density, substantial centralized states

and an early expansion in cash crop production (Frankema 2015: 277; Law 1995). Cash crops – as well as gold, in the case of Ghana – were also the foundation of further growth in the twentieth century. Havinden and Meredith (1993: 99) note that the value of Nigeria's exports more than tripled over the period 1900-1914. In Nigeria, the extension of the railway network to the north allowed for the expansion of the groundnut industry, which increasingly became one of the country's most important exports (Hogendorn 1978; Salau 2010). Ghana became the world's largest cocoa exporter within 20 years of the crop being first introduced to the region by African entrepreneurs (Austin 2014: 1035).

Cocoa fuelled one of the most successful expansions in export production in Sub-Saharan Africa, but it was not immune to the vulnerabilities associated with dependence on a single crop. Volatility in the cocoa price beginning in World War I caused significant hardship for producers who had invested in cocoa trees during periods of high prices, and was also behind the long-term stagnation in Ghana's GDP per capita which persisted from around 1930 through the 1970s (Austin 1988). During this period, oil production transformed the structure of Nigeria's economy, as well as increasing per capita GDP (Teal 1988: 72).

In both countries, political instability also led to periods of shrinking of varying levels of severity. In Ghana, Kwame Nkrumah's overthrow in a coup in 1966 was followed by a period of political instability. It was not until 1984 that Ghana's economy began to grow again, which it continued to do through the 1990s and 2000s (Nugent 2004: 175-178). Nigeria experienced a short, sharp drop during the Nigerian Civil War (1967-70) which began with the attempted succession of Biafra from the new federation of Nigerai (Achebe 2012: Osaghae 1998: 1-12).

Both Nigeria and Ghana ended up with per capita GDP slightly above $1,500 by 2008. This represented a modest average increase for both economies over the long run at an annual rate of around 0.8 per cent. Relative to South Africa, however, this slow rate of trend growth represented a substantial decline in the comparative position of the region. Splicing the Cape Colony data to the South African data for 1910 and projecting backwards, suggests that South Africa as a whole had not yet forged decisively ahead of Ghana and Nigeria by 1885, on the eve of the gold boom. Also, as a result of the volatility of GDP per capita in all three economies, a clear gap between these West African countries and South Africa only opened up in the mid-1930s. Indeed, both Ghana and Nigeria had slightly higher per capita GDP than South Africa in 1900 during the South African War, while Ghana again came close to South Africa in 1931-1932 during the Great Depression.

3.3 East Africa

Relative to West and Southern Africa, Kenya and Uganda were both very poor in the early years of the twentieth century, as can be seen in Figure 4. East Africa had a long history of engagement with the Indian Ocean trade, which linked enclaves on the coast with rural hinterlands (Alpers 2009). However, large-scale commercialization and expansion of trade occurred later than in West Africa (Frankema et al. 2018: 238). In 1911, GDP per capita measured in 1990 international dollars was $422 in Kenya and $453 in Uganda, above subsistence but not as far as the other regions.

As in much of Sub-Saharan Africa, export growth in Kenya led to an increase in living standards during the interwar period. Uganda, in particular, experienced a massive increase in exports of cotton, the farming of which was often paired with banana production to ensure the efficient utilization of scarce labor (de Haas 2017: 606) . Kenya's exports grew less

dramatically, but comprised a greater diversity of crops, including coffee, tea, maize and sisal. Kenya's economy was also shaped by imperial politics and its position in the regional economy. Kenya formed a customs union with Uganda and, from 1927, Tanganyika as well. From the 1920s Kenyan settlers were pressing for the imposition of protectionist tariffs on lightly processed manufactured goods. These pressures followed some of the same trends as in South Africa, though on a smaller scale. The 1923 Tariff Act helped foster the production of beer, cigarettes, soap, cement and canned fruit and vegetables, which gave Kenya an early lead in the region in terms of manufacturing production (Gardner 2012: 79; van Zwanenberg and King 1975: 125).

However, as in other countries, the path of per capita GDP growth was far from smooth. Uganda suffered a particularly severe growth reversal during the late 1920s and early 1930s as the cotton price declined. Kenya had a less dramatic period of shrinking during the Great Depression, perhaps because of its more diverse export base. Political instability was another source of vulnerability for both economies. After remaining relatively stable during the 1930s and World War II, Kenya's GDP per capita declined sharply during the Mau Mau uprising of the 1950s. After that, it enjoyed relatively steady growth through the 1990s, but suffered setbacks due to disputed elections in the twenty-first century (Cheeseman et al. 2014: 2). Uganda experienced a catastrophic growth reversal during Idi Amin's presidency between 1971 and 1979, though it is worth noting that rural incomes had begun to lag even before Amin came to power, and continued to stagnate in the period of political instability that followed the end of Amin's erratic dictatorship (de Haas 2017: 607). Uganda recovered from the mid-1990s to reach a per capita GDP of just over $1,000 by 2008, more or less on a par with Kenya. Both Kenya and Uganda already lagged a long way behind South Africa on the eve of World War I, and have since fallen further behind.

3.4 Central Africa

Figure 5 plots GDP per capita in Zambia (Northern Rhodesia) and Malawi (Nyasaland) since the early twentieth century. Both countries were even poorer than Kenya and Uganda on the eve of World War I, with per capita GDP in 1913, measured in 1990 international dollars, at $367 in Zambia and $312 in Malawi, right at the level of bare bones subsistence. The two countries differed substantially from one another in the precolonial period. With its comparatively fertile land, and reliable supplies of water and fish, Malawi supported a comparatively dense population in the nineteenth century and previously. However, the beginning of colonial rule also marked the end of a long period of upheaval and instability in the region, from the migration of refugees out of southern Africa to the late but severe impact of the slave trade. Agriculture in the region was also subject to significant fluctuations in rainfall and the level of the lakes (McCracken 2012: 7-9).

From the late 1920s, Zambia diverged from Malawi with the opening of the copper mines that would define its economic future. Copper deposits had long been known in the region, and copper production from the neighbouring region of Katanga in the Belgian Congo grew rapidly from 1912. It was not until technological developments of the 1920s, which allowed for the economical processing of the copper ores in Zambia, that the first copper mine was opened in 1928 (Juif and Frankema 2018: 317). While the industry endured a somewhat shaky start with the collapse in copper prices in the 1930s, which resulted in the temporary closure of some of the newly opened mines, it then experienced a long boom which contributed to a rise in GDP per capita from the 1930s to the 1960s (Gardner 2012).

This growth was highly dependent on the copper price. When Northern Rhodesia became independent Zambia in 1964, copper comprised some 90 per cent of its total export values (Juif and Frankema 2018: 315). In turn, the copper mines were a crucial market for agricultural producers in both Zambia and, before 1964, Zimbabwe. In an effort to gain control over copper revenues, the Zambian government under Kenneth Kaunda nationalized the mines. Unfortunately, the nationalization was followed by a period of sustained shrinking during the 1970s and 1980s as the copper boom faded. This had severe consequences not just for the government treasury but also had spillover effects into other sectors that had come to rely on demand from the mines and their workers (Ferguson 1999: 7-12).

Malawi also experienced a boom during the 1930s, based on tobacco and tea, but the relatively small export sector was unable to overcome the dominant effects of a weak domestic economy. Even after the construction of railway links to the coast, the cost of exporting from Malawi remained high. In the 1930s, one calculation suggested that sending tea to the closest port (Beira in Mozambique) cost four times more than in India (Bolt and Green, 2015: 223). Further, environmental fragility continued to have an economic impact in Malawi, with the drying up of Lake Chilwa in the 1930s (Nagoli et al. 2017). There was renewed growth in Malawi between the 1950s and the 1970s (McCracken 2012: 238). This was followed by less shrinking than in Zambia, so that Malawi had almost caught up with Zambia by 2008. Both economies remained poor, however, with GDP per capita just $750 in Malawi and $850 in Zambia in 2008, measured in 1990 international dollars. Both Zambia and Malawi fell further behind South Africa over the period as a whole, although Zambia did briefly narrow the gap during the 1950s.

4. SUB-SAHARAN AFRICA IN A WIDER COMPARATIVE PERSPECTIVE

So far, the paper has focused on comparisons within Sub-Saharan Africa. However, it is also instructive to examine how the region performed relative to the rest of the world. One natural comparator is the United Kingdom, since all the economies here were British colonies. As a result, the colonial period data were collected on a consistent basis and British accounting methods continued to influence the statistical offices in the post-colonial period. Also, since the United Kingdom was the world's leading economy in the late nineteenth century but was subsequently overtaken by many other Western economies, this does not set too stringent a benchmark against which to measure Sub-Saharan African economic performance over this period. SSA has declined relative to the UK and other western economies since 1885, which can be seen as disappointing given the catching-up possibilities for economies starting at relatively low levels of per capita income. However, our data suggest that for most of this period, African per capita income levels were not systematically lower than in other developing regions such as Asia or Latin America, and it is surely not correct to draw the conclusion that SSA has consistently been the world's poorest region since 1500, as was suggested by Maddison (2001).

4.1 Anglo-African comparisons

Figure 6 charts the level of GDP per capita in three leading African economies as a percentage of the UK level. South Africa succeeded in narrowing the gap with the United Kingdom substantially during the late nineteenth century and in the first half of the twentieth century, increasing its GDP per capita from under 20 per cent of the UK level in the 1880s to over 35 per cent by the 1950s. But the catching-up process then stalled until the 1970s, before going decisively into reverse during the 1980s and 1990s. Although there are signs of a return to catching up in the 2000s, South Africa's level of GDP per capita in 2008 was only just about back to 20 per cent of the UK level, where it had been in the 1880s. The long run comparative

position was even more disappointing in Nigeria and Kenya, where the gap with UK GDP per capita increased substantially over the twentieth century.

4.2 Africa in the world economy

Compared with the United Kingdom and other western economies, African economic performance has clearly been disappointing over the long twentieth century. However, this is also true of most non-western economies, as the world economy was characterised by "divergence big time" for most of this period (Pritchett, 1997). For a more balanced evaluation of African economic performance, it is therefore necessary to also compare African economies with other developing countries. The comparison with India in Figure 7 is quite revealing, because India is one of the world's largest economies, was a British colony until 1947 and has experienced rapid catch-up growth since the 1980s. GDP per capita in India was lower than in South Africa and Ghana in 1885, and although Zambia and Kenya were poorer than India during the early twentieth century, they had both caught up by the post-World War II period and edged ahead until India entered its high-speed growth phase from the 1980s. Even then, India began to pull away from Ghana and Kenya only during the 1990s and had still not caught up with South Africa by 2008. Chinese postwar data are more controversial, but again there is little reason to see China as ahead of Sub-Saharan Africa before the 1980s.

4.2 Growing and shrinking

An important factor behind the disappointing long run economic performance of Sub-Saharan Africa and other non-western economies during the twentieth century has been the continued importance of shrinking or negative economic growth. Not only have African economies typically experienced much higher rates of shrinking when they experience negative economic growth, but they have also tended to shrink more frequently than developed economies such as

the United Kingdom. Here, we apply the analysis of Broadberry and Wallis (2017) to the eight Sub-Saharan African economies and the United Kingdom to shed light on this issue.

Broadberry and Wallis (2017) make use of an identity for establishing the contributions of growing and shrinking to long run economic performance, which can be measured by the rate of change of per capita GDP over a number of years. Economic performance over the long run is the aggregation of short run changes measured annually. Long run economic performance, *g*, is a combination of four factors: first, the frequency with which an economy grows, *f(+)*; second, the rate at which it grows when growing, or the growing rate, *g(+)*; third, the frequency with which an economy shrinks, *f(-);* and fourth, the (negative) rate at which it grows when shrinking, or the shrinking rate *g(-).* Thus:

$$g = \{f(+) \, g(+)\} + \{f(-) \, g(-)\} \qquad\qquad (3)$$

We can use this identity to decompose long run economic performance into shrinking and growing components.

The first point to note in Table 8 is that when African economies have experienced positive growth, they have typically grown faster than the United Kingdom in all periods for which we have continuous data. During 1885-1910 and 1926-1938, all the African economies for which we have data experienced much more rapid growing rates than the United Kingdom. For most African economies this continued to be the case after 1950, with only South Africa experiencing slower average growing than the UK during 1950-1980, and 5 of the 8 African economies experiencing faster growing than the UK during 1980-2008. Second, however, rates of growing and rates of shrinking tended to move together, so that high rates of growing were accompanied by high rates of shrinking and low rates of growing were accompanied by low

rates of shrinking. This meant that although most African economies in most periods grew faster than the United Kingdom, they also shrank more rapidly.

Turning to Table 9, we see a third significant finding: despite having faster rates of growing, most African economies typically experienced positive growth in fewer years than the United Kingdom. Whereas the United Kingdom shrank in just 17 per cent of years in 1926-1938 and 1950-1980, falling to 11 per cent of years between 1980 and 2008, most African economies continued to shrink in a much higher proportion of years throughout the period. As a result, the long run economic performance of most African economies in all years, which can be seen in Table 10, was disappointing across all four sub-periods. This was the case even compared with the United Kingdom, which was far from a stellar performer over this period. The problem was that although the African economies grew at least as rapidly as the United Kingdom when they were growing, they experienced more years of shrinking with higher rates of negative growth. Hence even if the contribution of growing (the frequency of growing multiplied by the rate of growing) was greater than in the United Kingdom, this was typically offset by an even greater contribution of shrinking (the frequency of shrinking multiplied by the rate of shrinking).

This has important implications for understanding the transition to sustained economic growth, which has still not been achieved securely in much of Sub-Saharan Africa. First, the pattern of growing and shrinking in African economies in the long twentieth century has much in common with the experience of European economies in the pre-modern period, when growing and shrinking occurred in roughly equal proportions of years and average rates of both growing and shrinking were often of the order of 5 to 10 per cent per annum (Broadberry and Wallis 2017). Second, only in the nineteenth century did the frequency of growing in Europe

rise to about two-thirds of years, and only after World War II to around 85 per cent. Third, prosperity came about in Europe without an increase in the rate of growing. Rather, the increase in the frequency of growing, or reduction in the frequency of shrinking, was accompanied by a sharp fall in the rate of growing, but accompanied by an even bigger fall in the rate of shrinking. Perhaps long run performance in Africa would be improved with a shift of priority towards reducing the rate and frequency of shrinking rather than to increasing the rate of growing.

5. CONCLUSIONS

This paper has shown that, despite doubts expressed about the quality of African data which have hindered such research in the past, it is possible to construct GDP per capita for countries in all major regions of the continent, based on primary sources, dating back to the nineteenth century. The method proposed here could also be extended to other African countries, using colonial data for French, Belgian, Portuguese and German colonies, to build a more comprehensive picture of African economic performance across the colonial and post-independence periods. This allows African countries to be compared not only to each other but to others around the world.

The construction of GDP per capita series for eight African countries across the long twentieth century overturns some existing hypotheses in African economic history while giving others a stronger empirical foundation. For example, they show that South Africa's exceptional position within the Sub-Saharan region is of relatively recent making. Despite high living standards for a small group of European settlers in the Cape Colony from the eighteenth century, it was not until well into the twentieth century that South Africa as a whole overtook coastal West Africa. They also illustrate how close the relationship between export growth and

economic growth has been for many countries dating back to the late nineteenth century. This could have both positive and negative consequences: rising prices and demand for African commodities could lead to periods of relatively rapid growth, but this growth was vulnerable to changing global conditions, as both Ghana and Zambia learned to their cost.

Periods of stagnation or shrinking were also exacerbated by political instability. The South African War (1899-1902), the Mau Mau rebellion of the 1950s, and the Nigerian Civil War (1967-1970) all coincided with sharp declines in the level of GDP per capita. Though levels often recovered relatively rapidly after these declines, these were years in which these economies were not growing, and this limited the overall increase in levels of per capita income across this period.

These data allow for the contextualization of the recent period of growth which began for most countries in the middle of the 1990s. They show that the growth experienced during the past two decades is not unprecedented in African history. Rather, most countries have experienced similar periods of rapid growth before. To know whether this growth provides a path to convergence, however, requires understanding the extent to which there are still risks of the shrinking which has undermined economic progress in the past. Assessing those risks is beyond the scope of this paper, and there remain debates about whether the changes undergone by many African economies during this period are sufficient to shift towards a path of sustained growth (Frankema and van Waijenburg 2018; Harchaoui and Ungor 2018). A longer term perspective also suggests that reducing sources of such risk should perhaps be a greater focus for policy-makers and aid agencies, rather than increasing the rate of growth during boom periods (see, e.g, African Development Bank 2019).

TABLE 1: Population of African countries, 1870-1950 (millions)

	S. Africa	Zimbabwe	Ghana	Nigeria	Kenya	Uganda	Zambia	Malawi
1870	3.7	0.8	2.2	14.7	3.8	3.2	1.6	2.1
1880	4.1	0.9	2.4	15.5	4,1	3,4	1.6	2.1
1890	4.5	1.0	2.6	16.5	4.3	3.5	1.7	2.1
1900	5.0	1.1	2.8	17.4	4.1	3.5	1.7	2.0
1910	5.9	1.3	3.1	19.1	3.8	3.2	1.6	1.9
1920	6.8	1.5	3.3	20.9	3.7	3.2	1.5	1.8
1930	8.4	1.9	3.8	24.5	4.4	3.8	1.8	2.1
1940	10.3	2.3	4.4	28.4	5.1	4.3	2.0	2.4
1950	12.4	2.7	5.2	34.0	6.1	5.2	2.4	2.9

Sources: Frankema and Jerven (2014b).

TABLE 2: Real wage in African countries, 1885-1950 (1950=100)

	Zimbabwe	Ghana	Nigeria	Kenya	Uganda	Malawi
1885		65.7	72.2			
1911	98.0	78.7	84.9	67.1	74.6	68.3
1926	57.8	90.9	74.5	99.6	120.1	72.0
1929	70.5	118.0	66.4	74.0	86.4	82.2
1933	72.5	108.3	59.0	116.3	65.7	153.4
1938	80.4	108.4	87.8	94.8	78.0	145.3
1943	73.5	105.8	47.6	76.7	108.9	
1950	100.0	100.0	100.0	100.0	100.0	100.0

Sources: Derived from Frankema and van Waijenburg (2012); Mosley (1983).

TABLE 3: Export volumes in African countries, 1885-1950 (1950=100)

	Zimbabwe	Ghana	Nigeria	Kenya	Uganda	Zambia	Malawi
1885		6.0	2.1				
1911	32.3	19.3	19.7	12.5	3.6	0.04	8.3
1926	37.5	73.0	51.5	69.9	40.2	2.6	31.0
1929	46.1	74.6	62.3	68.6	45.3	5.5	33.2
1933	40.7	75.1	59.9	105.8	67.2	41.4	37.3
1938	65.0	98.2	73.5	132.7	96.5	71.8	73.3
1943	62.9	73.5	77.9	92.4	45.8	77.6	78.0
1950	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Sources: Derived from *Blue Books* and *Trade Reports* for each country, listed in Appendix 1.

TABLE 4: 1950 weights of key products in national export volume indicators (%)

	Zimbabwe	Ghana	Nigeria	Kenya	Uganda	Zambia	Malawi
Cocoa		86.0	25.4				
Gold	21.0	13.7					
Palm products		0.25	38.4				
Rubber		0.05	3.8				0.1
Groundnuts			20.4				
Tin			8.0				
Cotton			4.0		70.5		7.3
Coffee				37.2	29.5		
Tea				14.2			35.1
Pyrethrum				3.5			
Sisal				42.4			
Maize				0.7			
Wool				2.0			
Blister copper						68.5	
Electrolytic copper						20.8	
Chrome	5.4						
Asbestos	17.0						
Tobacco	56.6					2.2	57.5
Lead						2.9	
Zinc						5.6	
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Sources: Derived from *Blue Books* and *Trade Reports* for each country, listed in Appendix 1.

TABLE 5: Real government expenditure in African countries, 1885-1950 (1950=100)

	Zimbabwe	Ghana	Nigeria	Kenya	Uganda	Zambia	Malawi
1885		2.6	0.5				
1911	18.9	21.5	31.2	23.0	13.2	6.6	12.2
1926	23.4	59.1	49.5	38.3	32.1	8.5	17.6
1929	30.7	44.0	41.5	56.2	40.2	10.5	22.9
1933	31.6	28.2	34.8	54.5	34.3	15.8	31.6
1938	42.0	40.0	44.3	60.8	49.5	26.3	44.2
1943	41.8	35.3	45.3	74.9	36.9	34.6	33.6
1950	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Sources: Derived from nominal government expenditure reported in *Blue Books* for each country, listed in Appendix 1, deflated by the UK price index for government expenditure from Feinstein (1972).

TABLE 6: Economic structure of African countries, circa 1950 (% of value added)

	Zimbabwe	Ghana	Nigeria	Kenya	Uganda	Zambia	Malawi
Traditional sector	64.6	67.8	78.6	71.5	74.2	54.6	81.2
Export sector	28.1	21.5	12.3	20.0	23.3	37.7	9.0
Government	7.3	10.7	9.0	8.5	2.5	7.7	9.8
GDP	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Sources: Derived from national accounting sources for each country, listed in Appendix 1.

TABLE 7: Average annual rates of GDP growth in African countries, 1966-1995

	Official series	Maddison	PWT	WDI
Botswana	11.5	10.9	9.8	11.2
Kenya	5.2	4.7	5.0	5.3
Tanzania	3.7	3.2	3.4	n.a.
Zambia	0.9	1.1	1.6	0.9

Source: derived from Jerven (2014a: 50-51).

TABLE 8: Average rate of change of per capita income in growing years and shrinking years in Africa and the United Kingdom, 1885-2008 (% per annum)

		1885-1910	1926-1938	1950-1980	1980-2008
South Africa					
	Growing	10.49	7.92	2.37	2.15
	Shrinking	-11.06	-4.37	-0.89	-2.53
Zimbabwe					
	Growing		3.41	4.50	4.26
	Shrinking		-3.29	-2.86	-4.70
Ghana					
	Growing	2.69	7.33	4.08	2.28
	Shrinking	-1.69	-6.55	-4.44	-7.17
Nigeria					
	Growing	3.59		5.28	3.33
	Shrinking	-5.36		-6.20	-3.73
Kenya					
	Growing		11.89	3.73	1.93
	Shrinking		-9.95	-4.28	-1.89
Uganda					
	Growing		5.28	3.09	3.32
	Shrinking		-5.55	-3.85	-3.95
Zambia					
	Growing		5.59	5.70	3.08
	Shrinking		-1.40	-4.23	-4.73
Malawi					
	Growing		4.42	3.75	3.88
	Shrinking		-2.67	-2.83	-4.49
UK					
	Growing	2.54	3.07	2.67	2.56
	Shrinking	-1.69	-3.43	-0.88	-1.09

Sources: Derived from Appendix 1 and Maddison (2010).

TABLE 9: Frequency of growing and shrinking of GDP per capita in Africa and the United Kingdom, 1885-2008

|		1885-1910	1926-1938	1950-1980	1980-2008
South Africa					
	Growing	0.64	0.58	0.83	0.61
	Shrinking	0.36	0.42	0.17	0.39
Zimbabwe					
	Growing		0.75	0.67	0.32
	Shrinking		0.25	0.33	0.68
Ghana					
	Growing	0.56	0.50	0.53	0.89
	Shrinking	0.44	0.50	0.47	0.11
Nigeria					
	Growing	0.68		0.70	0.61
	Shrinking	0.32		0.30	0.39
Kenya					
	Growing		0.50	0.73	0.54
	Shrinking		0.50	0.27	0.46
Uganda					
	Growing		0.50	0.47	0.82
	Shrinking		0.50	0.53	0.18
Zambia					
	Growing		0.75	0.53	0.57
	Shrinking		0.25	0.47	0.43
Malawi					
	Growing		0.83	0.77	0.61
	Shrinking		0.17	0.23	0.39
UK					
	Growing	0.64	0.83	0.83	0.89
	Shrinking	0.36	0.17	0.17	0.11

Sources: Derived from Appendix 1 and Maddison (2010).

TABLE 10: Contributions of growing (frequency*rate) and shrinking (frequency*rate) to long run economic performance (average rate of change of per capita income in all years) in Africa and the United Kingdom, 1885-2008

|		1885-1910	1926-1938	1950-1980	1980-2008
South Africa	All years	2.73	2.80	1.83	0.31
	Growing	6.71	4.62	1.98	1.31
	Shrinking	-3.98	-1.82	-0.15	-0.99
Zimbabwe	All years		1.74	2.05	-1.82
	Growing		2.56	3.00	1.37
	Shrinking		-0.82	-0.95	-3.19
Ghana	All years	0.76	0.39	0.10	1.27
	Growing	1.51	3.66	2.17	2.04
	Shrinking	-0.74	-3.28	-2.07	-0.77
Nigeria	All years	0.72		1.83	0.55
	Growing	2.44		3.69	2.02
	Shrinking	-1.72		-1.86	-1.46
Kenya	All years		0.97	1.60	0.16
	Growing		5.94	2.74	1.04
	Shrinking		-4.97	-1.14	-0.88
Uganda	All years		-0.14	-0.61	2.02
	Growing		2.64	1.44	2.73
	Shrinking		-2.78	-2.05	-0.70
Zambia	All years		3.84	1.07	-0.27
	Growing		4.19	3.04	1.76
	Shrinking		-0.35	-1.97	-2.03
Malawi	All years		3.24	2.22	0.59
	Growing		3.68	2.88	2.36
	Shrinking		-0.45	-0.66	-1.76
UK	All years	1.02	1.99	2.07	2.17
	Growing	1.63	2.56	2.22	2.29
	Shrinking	-0.61	-0.57	-0.15	-0.12

Sources: Derived from Appendix 1 and Maddison (2010).

FIGURE 1: Per capita GDP in Cape Colony, 1701-1910 and South Africa, 1910-2008 (1990 international dollars, log scale)
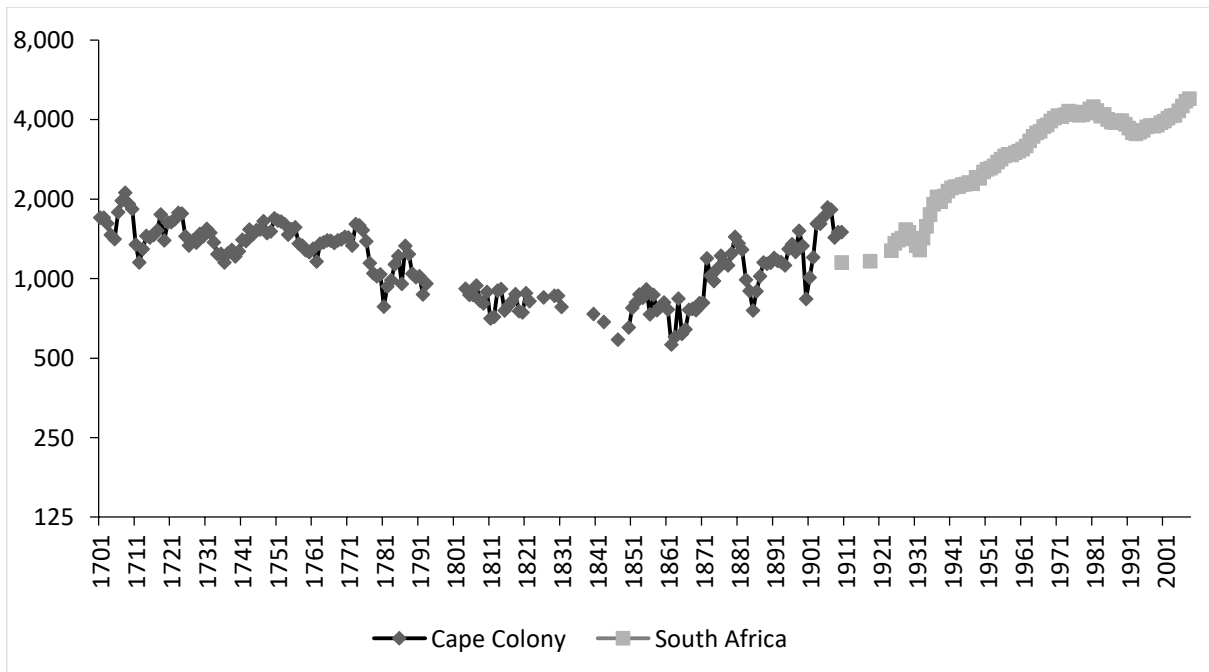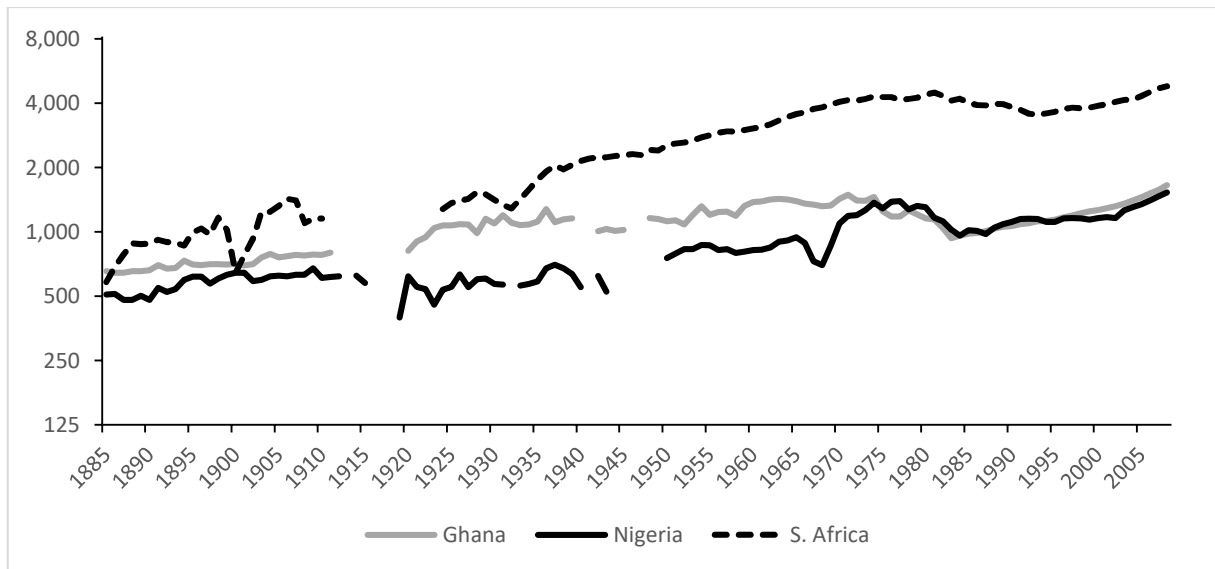

Source: Fourie and van Zanden (2013).

FIGURE 2: Per capita GDP in Southern Africa, 1885-2008 (1990 international dollars, log scale)
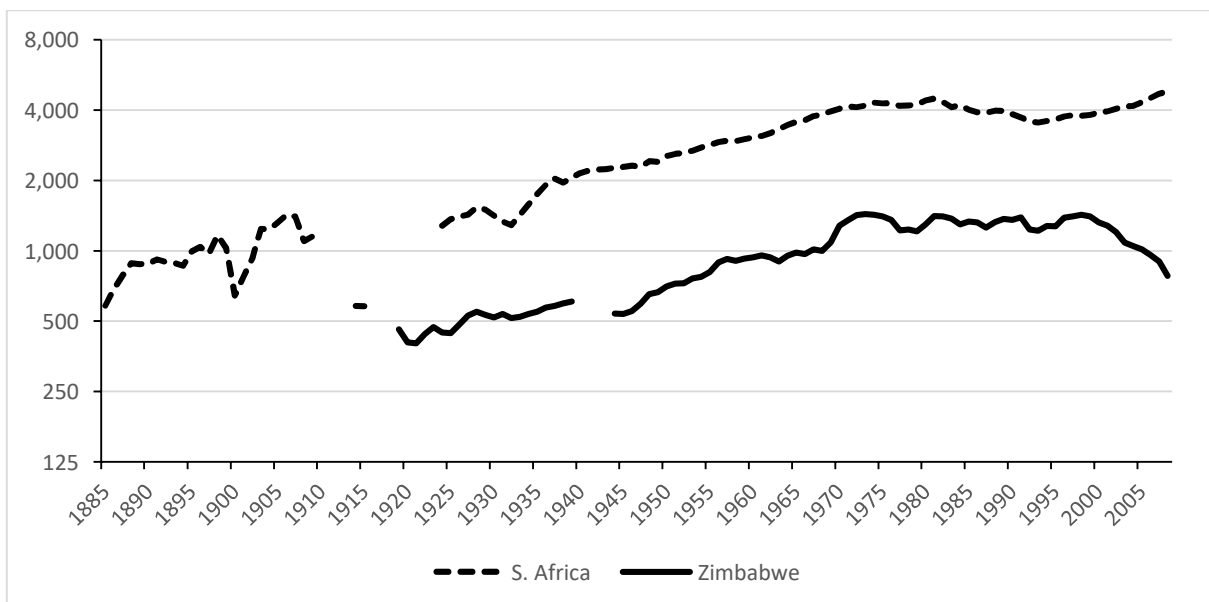
Sources: See Appendices 1 and 2.

FIGURE 3: Per capita GDP in West Africa compared with South Africa, 1885-2008 (1990 international dollars, log scale)
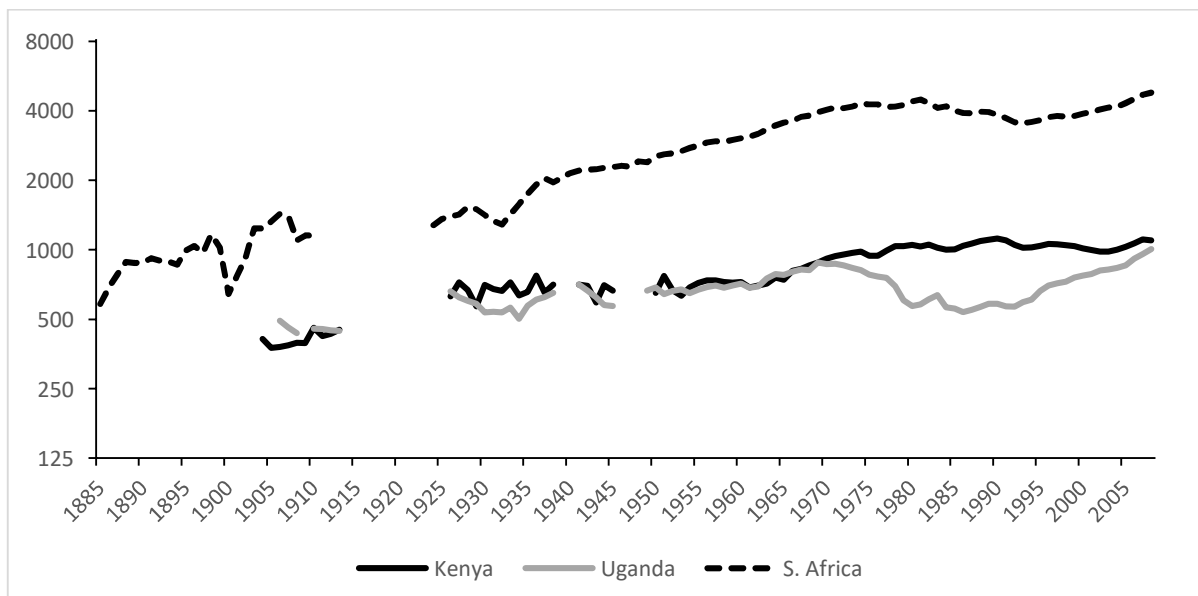

Sources: See Appendices 1 and 2.

FIGURE 4: Per capita GDP in East Africa compared with South Africa, 1885-2008 (1990 international dollars, log scale)

Sources: See Appendices 1 and 2.

FIGURE 5: Per capita GDP in Central Africa compared with South Africa, 1885-2008 (1990 international dollars, log scale)
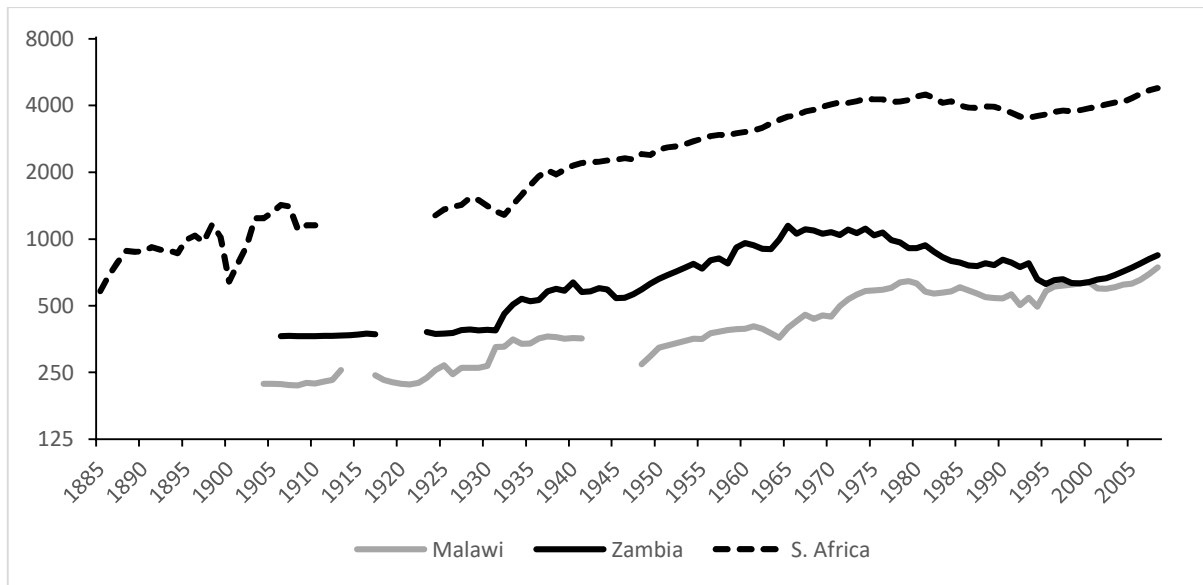
Sources: See Appendices 1 and 2.

FIGURE 6: GDP per capita in leading African economies as a percentage of the UK level
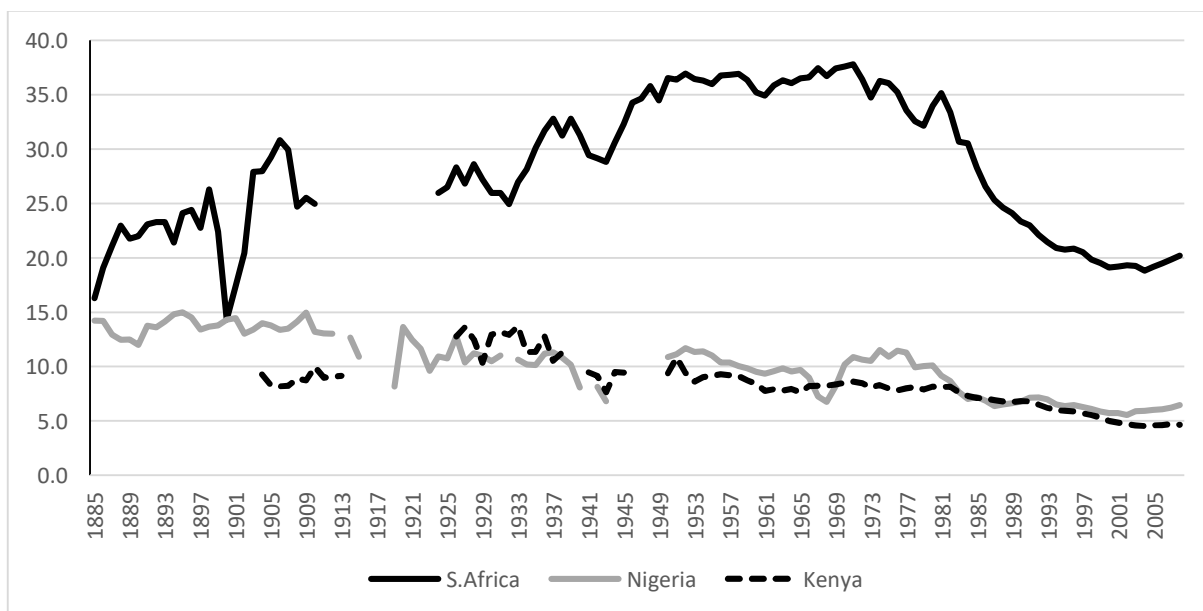
Sources: See Appendices 1 and 2.

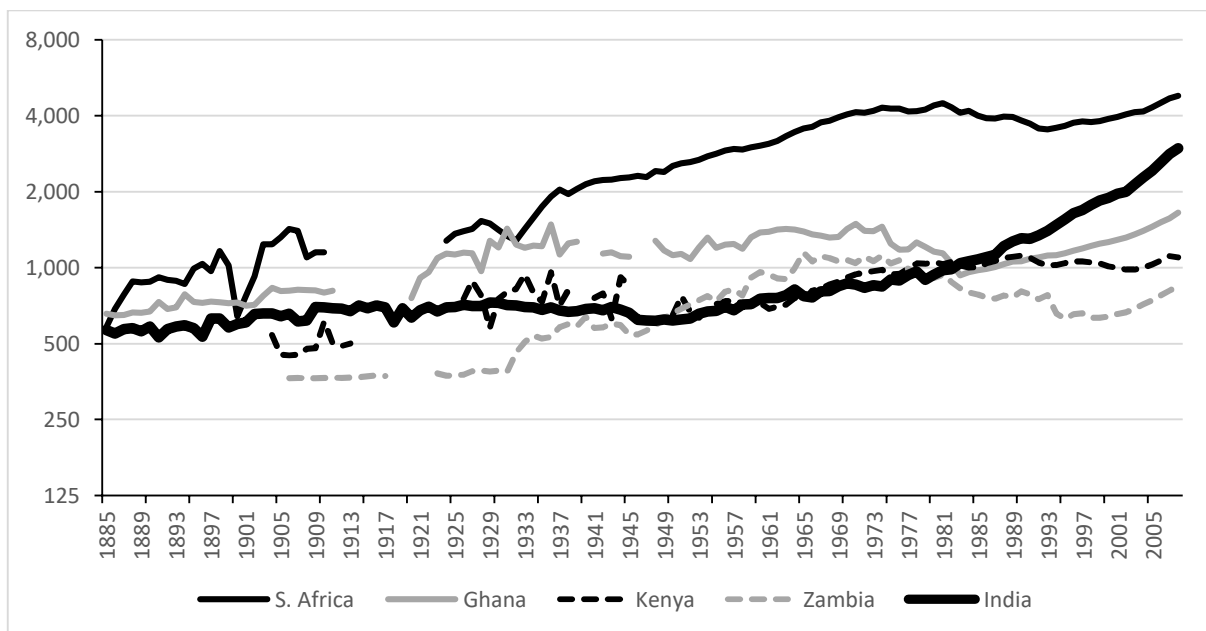**FIGURE 7: GDP per capita in African economies and India (1990 international dollars)**

Sources: See Appendices 1 and 2 for African economies; India from Maddison (2010).

APPENDIX 3: ANNUAL GDP PER CAPITA IN SUB-SAHARAN AFRICA, 1885-2008 (1990 international dollars)

	S Africa	Zimbabwe	Ghana	Nigeria	Kenya	Uganda	Zambia	Malawi
1885	582		654	508				
1886	687		644	512				
1887	784		644	480				
1888	884		655	480				
1889	875		654	503				
1890	881		661	480				
1891	918		698	546				
1892	895		672	523				
1893	887		678	539				
1894	862		732	596				
1895	993		704	617				
1896	1,037		698	617				
1897	970		706	572				
1898	1,164		706	605				
1899	1,022		703	629				
1900	642		707	643				
1901	774		696	643				
1902	924		706	589				
1903	1,238		759	595				
1904	1,238		788	620	409			272
1905	1,321		759	623	375			271
1906	1,426		770	619	378	493	365	271
1907	1,400		780	631	384	460	366	267
1908	1,099		773	629	395	434	365	267
1909	1,151		782	675	394		365	274
1910	1,151		781	609	460	454	365	272
1911			798	615	422	453	366	277
1912				620	431	447	366	281
1913					450	444	367	312
1914		578		624			368	
1915				576			371	309
1916							374	
1917							372	297
1918	1,163							281
1919		460		396				275
1920		404	815	620				270
1921		401	900	553				268
1922		438	944	540				271
1923		470	1,041	456			381	287
1924	1,278	446	1,072	537			373	311
1925	1,362	443	1,072	552			374	326
1926	1,398	482	1,085	631	629	661	377	296
1927	1,425	527	1,082	551	724	622	389	317

APPENDIX 3: ANNUAL GDP PER CAPITA IN SUB-SAHARAN AFRICA, 1885-2008 (1990 international dollars)

	S Africa	Zimbabwe	Ghana	Nigeria	Kenya	Uganda	Zambia	Malawi
1928	1,533	548	987	600	670	601	391	317
1929	1,497	530	1,151	604	569	585	387	317
1930	1,413	516	1,094	569	704	535	390	322
1931	1,335	535	1,195	565	676	540	388	395
1932	1,284	514	1,100		664	535	461	395
1933	1,423	520	1,075	560	723	562	507	429
1934	1,577	536	1,083	570	635	503	538	408
1935	1,747	547	1,115	587	658	574	524	408
1936	1,912	571	1,276	674	772	608	532	430
1937	2,038	580	1,111	702	654	624	582	436
1938	1,956	594	1,142	676	707	650	597	434
1939	2,053	606	1,156	635			584	429
1940	2,145			551			638	431
1941	2,202				708	707	576	430
1942	2,226		1,006	620	698	665	580	
1943	2,232		1,031	526	591	622	600	
1944	2,265	537	1,011		702	577	593	
1945	2,278	536	1,022		666	572	542	
1946	2,311	551					543	
1947	2,288	592					564	
1948	2,414	650	1,158				592	323
1949	2,396	662	1,147			665	628	352
1950	2,535	701	1,122	753	651	687	661	324
1951	2,591	722	1,134	792	771	642	688	332
1952	2,619	724	1,084	830	667	664	715	339
1953	2,675	760	1,202	831	633	675	743	347
1954	2,763	772	1,317	867	687	648	772	355
1955	2,830	808	1,200	865	718	672	736	354
1956	2,914	892	1,236	821	736	690	803	376
1957	2,951	924	1,241	830	738	700	817	383
1958	2,939	906	1,187	797	725	685	776	388
1959	2,995	925	1,321	808	720	700	915	393
1960	3,042	938	1,378	820	726	713	960	394
1961	3,092	956	1,388	824	686	686	938	404
1962	3,179	939	1,416	846	701	694	905	393
1963	3,321	901	1,424	899	714	751	902	376
1964	3,450	953	1,414	910	758	785	996	359
1965	3,559	984	1,393	944	743	779	1,147	397
1966	3,615	967	1,354	887	812	803	1,056	426
1967	3,760	1,015	1,339	728	826	822	1,107	455
1968	3,819	999	1,318	699	857	818	1,092	437
1969	3,946	1,086	1,325	861	881	881	1,056	453
1970	4,045	1,282	1,424	1,094	915	867	1,073	447

APPENDIX 3: ANNUAL GDP PER CAPITA IN SUB-SAHARAN AFRICA, 1885-2008 (1990 international dollars)

	S Africa	Zimbabwe	Ghana	Nigeria	Kenya	Uganda	Zambia	Malawi
1971	4,135	1,353	1,491	1,188	941	869	1,042	498
1972	4,109	1,423	1,402	1,197	956	856	1,105	534
1973	4,175	1,432	1,397	1,262	970	835	1,062	562
1974	4,299	1,427	1,455	1,367	981	817	1,114	582
1975	4,271	1,402	1,247	1,287	942	780	1,041	586
1976	4,267	1,357	1,178	1,385	943	765	1,071	591
1977	4,155	1,221	1,181	1,393	991	757	990	603
1978	4,174	1,232	1,260	1,272	1,039	697	967	637
1979	4,232	1,211	1,210	1,320	1,036	606	910	646
1980	4,390	1,295	1,157	1,305	1,051	572	911	630
1981	4,481	1,407	1,142	1,164	1,033	579	936	580
1982	4,323	1,405	1,042	1,119	1,054	610	877	567
1983	4,112	1,374	933	1,023	1,021	636	828	573
1984	4,186	1,297	960	958	1,000	563	796	580
1985	4,007	1,335	978	1,017	1,006	556	784	606
1986	3,912	1,322	988	1,010	1,040	538	762	587
1987	3,897	1,257	1,007	976	1,065	550	755	568
1988	3,964	1,326	1,034	1,046	1,092	566	777	547
1989	3,956	1,368	1,057	1,085	1,105	583	762	542
1990	3,834	1,355	1,062	1,112	1,117	585	806	540
1991	3,716	1,391	1,087	1,149	1,097	570	783	564
1992	3,566	1,233	1,099	1,150	1,049	567	749	504
1993	3,534	1,220	1,119	1,146	1,021	593	779	543
1994	3,584	1,278	1,122	1,111	1,023	609	658	496
1995	3,646	1,272	1,141	1,113	1,042	663	627	582
1996	3,752	1,385	1,168	1,156	1,059	701	653	611
1997	3,801	1,403	1,192	1,161	1,056	716	660	618
1998	3,777	1,427	1,221	1,154	1,049	728	633	622
1999	3,808	1,401	1,247	1,139	1,038	759	632	631
2000	3,890	1,320	1,265	1,161	1,013	773	640	639
2001	3,950	1,279	1,289	1,170	998	787	656	599
2002	4,048	1,203	1,317	1,161	982	815	665	597
2003	4,130	1,082	1,354	1,258	983	823	689	607
2004	4,156	1,048	1,400	1,305	1,000	835	715	623
2005	4,316	1,015	1,452	1,346	1,030	856	742	628
2006	4,503	958	1,514	1,400	1,066	916	776	655
2007	4,689	900	1,568	1,468	1,110	958	812	694
2008	4,793	779	1,650	1,524	1,098	1,008	845	744

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