Center for Global Economic History

Universiteit Utrecht

CGEH Working Paper Series

Structural Impediments to African Growth? New Evidence from Real Wages in British Africa, 1880-1965

Ewout Frankema, Utrecht University

Marlous van Waijenburg, Northwestern University

December 2011

Working paper no. 24

http://www.cgeh.nl/working-paper-series/

Structural Impediments to African Growth?
New Evidence from Real Wages in British Africa, 1880-1965

Ewout Frankema, Utrecht University

Marlous van Waijenburg, Northwestern University

Abstract

Recent studies on African economic history have emphasized the *structural impediments* to African growth, such as adverse geographical conditions and extractive colonial institutions. The evidence is mainly drawn from cross-country regressions on late 20th century income levels, assuming persistent effects of historical causes over time. But to which extent has African poverty been a persistent phenomenon? Our study sheds light on this question by providing new evidence on long-term African growth-trajectories. We show that slave trade regressions are not robust for pre-1970s GDP per capita levels, or for pre-1973 and post-1995 growth rates. We calculate urban unskilled real wages of African workers in nine British African countries 1880-1965, adopting Allen's (2009) subsistence basket methodology. We find that real wages were above subsistence level, rose significantly over time and were, in major parts of British Africa, considerably higher than real wages in Asian cities up to, at least the 1930s. We explain the intra-African variation in real wage levels by varying colonial institutions concerning land alienation, taxation and immigration.

Keywords: Africa, living standards, real wages, labor market, colonial institutions

JEL Codes: I30, N17, N27, N37, O10

Corresponding author: Ewout Frankema, e.frankema@uu.nl

Acknowledgements: We are grateful to Nathan Nunn, Joel Mokyr, Joachim Voth, Gareth Austin, Richard Freeman, Joerg Baten, Morten Jerven, Alexander Moradi, Paul Mosley, Maarten Prak, Jan Pieter Smits, Jan Luiten van Zanden, James Fenske, Dan Bogart, Bill Summerhill, and the participants of the "African Economic History Workshop" at the London School of Economics and Political Science (London, May 2010), the session "Global Inequality in the Long Run: New Evidence and New Measurement Concepts" at the *21st International Congress of the Historical Sciences* (Amsterdam, August 2010) the *Historical Patterns of Development and Underdevelopment* (Hi-POD) Conference (Montevideo, December 2010), and the session "Institutions in the Developing World" at the *Annual Meeting of the Economic History Association* (Boston, September 2011) for their comments on previous drafts of this paper. We are grateful to the Dutch Science Foundation (NWO) for financial support of the research project: *The Colonial Origins of Inequality: A Comparative Analysis of Fiscal Regimes in Asia, Africa and the New World, 1492-2000*. The usual disclaimer applies.

INTRODUCTION

Sub-Saharan Africa is the poorest region of the world at present. International GDP per capita estimates and other indicators of human development (life-expectancy at birth, adult literacy, infant mortality etc.) show that a disproportionally large group of African countries rank at the bottom of the global comparison.[1] In recent years a number of scholars have stressed that African poverty has been persistent over time because of *structural growth impediments*. Some have emphasized the causal primacy of geographical conditions.[2] Others have attributed African economic failure to pre-colonial state weaknesses, extractive colonial institutions or the intensity of historical slave exports. Albeit emphasizing different origins and channels of causation, these studies rest upon the shared assumption that the effects of adverse geographical or historical conditions *persisted* over time, keeping African economies behind ever since they appeared on the scene.[3]

But to what extent have African countries suffered from structural growth disadvantages? Have material living standards in Africa consistently been lower than in other parts of the world in the past centuries? The lack of pre-1950 African GDP per capita estimates inhibits straightforward answers to such important questions. To check assumptions of persistent poverty against the historical record, we reconstruct and compare real wage levels and trends for nine British African colonies, covering the entire period of colonial rule (ca. 1880-1965). This provides new insights into long-term African growth trajectories and places us in a better position to evaluate the path-dependent nature of Africa's proclaimed historical growth failure.

Real wage series offer an attractive alternative to historical national accounts data for places and periods with scarce statistical information and have the advantage of better reflecting the material living standards of ordinary African workers than per capita GDP estimates. Economic historians have worked hard in the past decade to make historical real wage series comparable across time and space, and for all major world regions there are now at least some internationally comparable series available.[4] Sub-Saharan Africa has remained the big exception so far, and this study accommodates part of this gap.

---

[1] In this paper we alternate the terms 'Africa' and 'sub-Saharan Africa'. For international GDP figures and human development indicators see Maddison, *World Economy*; Worldbank, *World Development Report 2010*.

[2] Gallup et al., "Geography"; Diamond, *Guns.*

[3] Acemoglu et al., "Colonial Origins" claims that extractive colonial institutions have persisted until present; for the long-term effects of the slave trade see Nunn, "Slave Trades"

[4] See for the seminal study Allen, "The Great Divergence"; See for Asia Broadberry and Gupta, "Early Modern Great Divergence"; Allen et al., "wages, prices and living standards"; Yan, "Real Wages"; for the Middle East Pamuk,

Our findings have implications for the *methodological* debate about African growth analysis. The overwhelming majority of recent African growth studies apply some form of cross-country regression analysis, in which a robust correlation is established between proxy variable (X) at some point in the past, and per capita GDP or a governance quality indicator (Y) at present.[5] Whereas proponents of this type of research design have lauded its ability to uncover causal relationships, skeptics have, amongst others, raised concerns about 'compressing' history when jumping over several centuries.[6] Our reconstruction of African living standards scrutinizes the assumed persistence in the cross-country distribution of per capita income levels both within Africa, and between Africa and the rest of the world.

STRUCTURAL IMPEDIMENTS TO AFRICAN GROWTH?

The past decade has witnessed an encouraging increase in the number of studies trying to explain Africa's dismal growth performance in comparison to the rest of the world. Nearly all of the arguments put forward lean on some form of cross-country regression analysis (OLS, TSLS), in which a robust correlation is established between current SSA income levels and an 'Africa-specific' geographical or historical characteristic. Geographical explanations have mainly focused on the barriers to agricultural productivity growth and the difficulties of many land-locked African countries to successfully engage in global trade. To explain why sub-Saharan Africa "*has been the world's poorest and also its most slowly growing region"* since the Industrial Revolution, Bloom and Sachs, and Gallup et al. have discussed the negative effects of tropical diseases (malaria), fragile eco-systems and poor natural transportation networks on productivity growth and economic policy choices.[7] Collier has emphasized the adverse consequences of natural resource abundance and landlocked countries with 'bad neighbors' to explain the interrelatedness of several African poverty traps.[8]

"Urban real wages" and Pamuk and Ozmucur, "Ottoman empire"; for Latin America Williamson, "Latin America before 1940" and Dobado and Garcia, "Neither so low"; and for Europe van Zanden, "Europe, 1500-1800". See for an overview of available wage and price series the databases of the Global Price and Income History Group http://gpih.ucdavis.edu/ (UC Davis) and http://www.iisg.nl/hpw/ (International Institute of Social History, Amsterdam).

[5] See for an extensive survey and appraisal Fenske "Causal History".

[6] See Austin, "Compression of History".

[7] Bloom and Sachs, "Geography, Demography", p. 207; Gallup et al., "Geography".

[8] Collier, *Bottom Billion*, pp. 38-63

Although proponents of institutional explanations have subordinated the role of geography to the role of history and human decision-making, leading scholars of 'the institutionalist school' share a similar perspective on the persistent nature of African growth impediments. Acemoglu et al. have focused on the relationship between extractive colonial institutions and weak property rights systems, explicitly assuming that the effects of colonial institutions have been persistent until today.[9] Nunn has argued, against this view, that the impact of colonialism has been relatively small because of the relative short period of effective European occupation, in contrast to nearly five centuries of pre-colonial slave trading. He establishes a robust negative correlation between slave export intensity and current levels of GDP per capita in African countries. According to Nunn the slave trades had 'long-term effects' on economic development, possibly channeled via weak pre-colonial state formation and ethnic fragmentation, which have deterred social cohesion and reduced the ability of states to provide for growth-enhancing public goods.

These are just a few examples of a large set of studies using cross-country regression techniques to underpin the significance of the correlation between a distant explanatory variable and current income levels, *under the assumption that slow growth has been a persistent feature of African economies*. In fact, if one would put all the 'proven' impediments to African growth together it is hard to escape a feeling of deep pessimism regarding Africa's chances to escape poverty in the future. However, linking two moments in time without reviewing possible changes during the centuries in between, a phenomenon coined by Austin as the 'compression of history', ignores the fact that we still know very little about Africa's comparative growth performance before 1950. And the lack of a longer-term perspective pre-empts a more nuanced view of Africa's growth potential in the future.[10]

To show how this can be problematic for the conclusions drawn from cross-country regression analysis, we replicate Nunn's regressions, which reveal a statistically significant correlation between the intensity of pre-1900 slave exports (X) and late twentieth century GDP per capita levels (Y). We substitute the log GDP per capita figures of the year 2000 by the years 1950, 1960 and 1970, and by the growth rates for the periods 1950-1973, 1973-1995 and 1995-2008, using the same Maddison dataset as Nunn.

[9] Acemoglu et al., "Colonial Origins", p. 1370.
[10] Austin, "Compression of History"

[Table 1]

Table 1, columns 1-3, shows that slave export intensity is highly and significantly (at the 1% level) correlated to GDP per capita in 2000, but not to income levels in 1950 or 1960. In 1970 the effect is significant at the 10% level, but the coefficient is much smaller than in 2000. Column 4 to 6 shows the regression on *growth rates* including initial GDP per capita (*ln*). A regression of slave exports on per capita GDP growth is only statistically significant for the period 1973-1995, which explains why the regression on GDP per capita in 2000 is so robust. However, for the periods 1950-1973 or 1995-2008 the correlation is insignificant and after 1995 the coefficient turns positive. Hence, the claim that Africa's slave trades affect *current* economic performance is multi-interpretable.[11]

The results of this regression analysis do not necessarily refute the argument that the slave trades are important to understand current African poverty, but they do point out that we are missing an important layer of complexity. If 'history matters' for current outcomes, this should presumably be discernable at various points in time before the present. Although Nunn acknowledges that the effects of the slave trades "may have been felt *most* strongly after colonial independence," he implicitly assumes that the effects were present to a certain degree in the preceding period as well.[12] If that is not the case, we at least need to think harder about how and why these effects can lay dormant and then show up again at a later point in time.

How can we be sure that the variables concerned – whether geographical or historical institutional – explain the general pattern of African development, and that its explanatory power is not confined to a rather specific, and perhaps even completely unique era in the *long-term development path* of African economies? With only six decades of GDP per capita estimates, it is hard to tell whether the year 2000 or 1960 is more representative for a country's long-run growth trajectory, and thus whether the proposed historical growth impediment had a temporary or a structural effect on long-term economic development.

Has Africa really been the slowest growing region in the world *since the Industrial Revolution*, as Bloom and Sachs argue? If we turn back again to the Maddison data – which Bloom and Sachs also use –, we see that until 1964, regional GDP per capita estimates for Africa are higher

[11] This finding has also been shown for the 1995-2006 period by Pinkovskiy and Sala-i-Martin, "African Poverty".
[12] Nunn, "Slave Trades" p. 167.

than those for Asia.[13] Bourguignon and Morrisson observe that, "In 1950, only 12 percent of world inhabitants with incomes of less than half the world median income lived in Africa. By 1992, 30% did. Poverty, largely an Asian problem until just after World War II, is fast becoming an African problem."[14] African income levels started to fall behind since the 1960s, and particularly after 1973. But how African income levels compared to the rest of the world before 1950 is something we know preciously little about. This leaves room for different interpretations of long-term African growth, such as the 'lost decades' perspective recently put forward by Bates, Coatsworth and Williamson. These scholars draw an analogy between the half a century of political instability and economic stagnation after decolonization (ca. 1820-1870) in Latin America and post-1960 Africa. In Latin America the 'lost decades' were followed by a 'Golden Age' of export-led growth between 1870 and 1914.[15] To which extent the similarities between post-colonial Africa and mid-nineteenth century Latin America outweigh the differences remains open to discussion, but at least it restores the concept of *historical change* at the heart of long-term African welfare analysis.

WAGE DEVELOPMENTS IN BRITISH AFRICA, 1880-1965

For the study of pre-industrial African economies a real wage approach has two major advantages over a reconstruction of historical national income accounts. First, national income accounting requires much more input of 'constructed data' to accommodate the vast gaps in the historical source material, in particular regarding the unobserved size of total production that was not traded via the market, and hence did not receive a market price. Second, a real wage approach offers a more tangible and accurate picture of actual purchasing power of African laborers in isolation of the significantly higher income levels of European settlers and/or Asian migrant workers.

[13] This invokes questions about the reliability of these PPP-adjusted GDP per capita figures. Morten Jerven calls for utmost caution when using African GDP series as a basis for statistical analysis, and in particular cross-country regressions. He points out that GDP measurement has suffered not only from a lack of capacity at statistical offices (to cover the informal sector), from political incentives to bias estimates upward (to show nice growth rates) or downwards (to remain eligible for international aid) and inaccurate population censuses in response to tax threats (downward bias) or the prospect of subsidies related to village or household size (upward bias). Jerven does not see any evidence, however, for the idea that current GDP estimates are any better than those of some 50 years ago. This also means that the different results we found for the slave trades regressions are unlikely to be the result of 'poorer' GDP statistics for earlier years. Jerven, "Users and Producers" and Jerven, "Random Growth".

[14] Bourguignon and Morrisson, "Inequality among World Citizens", p 738

[15] Bates et al., "Lost Decades".

We collected wage and commodity price data for as many British African colonies as possible: four West African ones, i.e. The Gambia, Sierra Leone, The Gold Coast (Ghana) and Southern Nigeria, four East African ones, i.e. Kenya, Uganda, Tanganyika (Tanzania) and Nyasaland (Malawi), and the island colony Mauritius.[16] Our data collection was guided by the following six concerns. First, we preferred urban wages since the available price data refer largely to urban retail prices. Second, we focused on urban unskilled adult male wages since the majority of international comparative real wage studies are based on this category of workers and, third, because the variation in wage levels across unskilled workers is usually smaller than among skilled artisans, such as carpenters, engineers, chauffeurs or clerks, which reduces the potential error margin in our wage series. Fourth, we made sure that our wage data refer exclusively to African workers, because Europeans and Asians were normally paid higher wages. Fifth, we opted for private sector wages to avoid potential biases in public sector remunerations. In case we had no other choice we used public sector wages to extrapolate or interpolate private market wage series.[17] Sixth, although adult male wages do not equal total household income (which includes the income of women and children as well), we excluded other income sources on purpose to maintain the international comparability and temporal consistency of our real wage series.

We retrieved wage and price data from the colonial blue books, the sessional papers and a wide range of administration reports that are available in the archives of the Colonial Office in London. The use of different sources allowed us to cross-check our wage and price series. The questionnaires that were dispatched by the Colonial Office in London explicitly asked colonial governments to report daily, monthly and/or annual wages *including* payments in kind, such as food rations, housing or clothing. In some cases monetary value and material contents are reported separately. Annual reports from the various colonial labor departments, which become available from the 1920s onwards, offer annual surveys of wage movements and, occasionally, surveys of wage-earners' cost of living. The reported wages refer to adult males. Wages are either reported in terms of minimum and maximum rates, indicating the boundaries of wage dispersion for specific groups of workers, or as an estimated average rate. In case of minimum and maximum wage data we calculated a lognormal distribution of wages (biased towards the minimum). We have assessed

[16] We omitted Somalia, Sudan, Bechuanaland and Southern Rhodesia for reasons of data availability and South Africa for analytical reasons. See for recent work on real wages in South Africa de Zwart, "South Africa"

[17] Our evidence of wages of native Africans working for the colonial administration as porters, cleaners or servants, suggests that public-private sector wage gaps for unskilled native workers were negligible.

the plausibility of this assumption on the basis of years for which a minimum, maximum and average wage rates were available, confirming that the lognormal assumption yields results very close to the stated average.[18]

The wage data usually refer to the rates paid in the capital city, as information from other parts of the colonies was not evenly available for the various British African territories in our study. Although we capture the levels and trends in purchasing power for a much larger part of the population than just the capital city (which we will address more thoroughly in the section on the scope of our results), for the sake of conciseness we will refer to the city the wages apply to. These are: Bathurst (The Gambia), Accra (The Gold Coast), Lagos (Southern Nigeria), Freetown (Sierra Leone), Nairobi (Kenya), Zomba (Nyasaland), Dar es Salaam (Tanganyika), Kampala (Uganda), and Port Louis (Mauritius).

Our nominal wage series are presented in figure 1a and b. All of the wage series are stated in British pence per working day. For comparative purposes we include a wage series for unskilled urban workers in British India.[19] Three conclusions are important for our overall argument. First, nominal wage differentials were surprisingly large across British Africa. A male unskilled worker in West African cities such as Accra, Bathurst, Lagos or Freetown would command more than twice the wage of his counterpart in East African cities such as Kampala, Nairobi, Zomba or Dar es Salaam. In Mauritius the nominal wage levels of urban wage workers (but also on the sugar estates) were higher than in West Africa.

[Figure 1a & 1b]

Second, these intra-regional wage gaps were already present at the start of the colonial era and remained in place until independence. Only during the second half of the 1950s did nominal wage levels in Nairobi and Dar es Salaam show convergence to those in the West African capitals. Third, wages in West Africa and Mauritius were considerably higher than those in British India. In East Africa wages remained slightly lower than the Indian wages throughout the interwar era, with the exception of Zomba, where wages remained lower until the end of the period under consideration.

[18] Deviations were in the range of 2-5%.

[19] The Indian wage data are based on a composite and weighted sample of wages paid in a selection of major cities in India, obtained from the *Prices and Wages in India* series published by the British colonial government, elaborated by and presented in van Leeuwen, *Human Capital*. The Indian wages are converted to British currency using official exchange rates.

When we place West African nominal wage levels in a broader comparative perspective, including the British West Indies and the British Asian territories, it appears that West African wages were higher than in any of the British Asian colonies we explored.[20]

COMMODITY PRICES AND CONSUMPTION PATTERNS

We adopt Allen's concept of the 'bare-bones subsistence basket' to compare the purchasing power of wages over time and across countries. Table 2 presents the contents of this basket. It keeps an average working family alive, but offers nothing more than that. It includes a minimum amount of daily calories (1,940) and proteins (43 grams), which barely suffice to replenish a male adult body after a day of physical labor without losing muscular strength in the long run. Colonial blue books, sessional papers and administration reports provide detailed information on retail prices recorded in the major cities of the British colonies which allowed us to construct long-term price series of major staple crops (maize, rice, millet, cassava), meat (beef, mutton), sugar and palm oil or ghee. For imported British manufactured commodities such as cotton cloth, soap and candles we used prices reported in British trade statistics and local wholesale export statistics to extrapolate scattered retail price observations. In case the latter were entirely absent we adopted a mark-up rate of 20% to adjust for additional taxes, transportation costs and retail services. We derived this mark-up rate from years for which we had both retail and wholesale export price data.

Given the large number of staple crops grown in Africa (maize, rice, millet, cassava, yams, sweet potatoes, plantain) the possibility of commodity substitution is an important concern. Historical studies on African consumption patterns stress the large variety of food crops and the common practice of crop rotation, for instance of maize and cassava.[21] Costs of living surveys conducted by the British and dietary tables of people in prisons, hospitals and lunatic asylums indeed reveal considerable variety in dietary habits. In order to accommodate the possibility of commodity substitution we have calculated basket prices of different staple crops whenever our sources granted the opportunity.[22]

Since maize offers more nutritional value per unit of land and labor than any other staple crop, it is not surprising that the maize basket offered the highest caloric value-price ratio in most of our

[20] Frankema, "Raising Revenue".
[21] McCann, *Maize and Grace*.
[22] Allen, 'The Great Divergence', Allen, *Industrial Revolution,* and Allen et al., "Wages, prices, and living standards".

series.[23] Maize had become a major food crop in Africa during the nineteenth century.[24] The crop served as a basis for major dishes like *kenkey*, *fufu* (the Gold Coast, Nigeria), *ugali* (Kenya) or *nzima* (Nyasaland). In some countries, though, there were good alternatives for subsistence consumers. In Mauritius, for example, the per-calorie prices of rice and maize were more or less at par. In Uganda millet and cassava offered a higher nutritional value-price ratio. In Nairobi the millet basket was cheaper until the 1910s.

[Table 2]

Our most important omissions are price series for beans and peas, which were consumed in considerable quantities across the African continent (as well as protein-rich substitutes such as groundnuts, peanuts and pecans). Because beans and peas constituted a cheap source of protein, these crops combined well with high-caloric staple crops such as maize to obtain a balanced diet at low costs. We compensated this omission by assuming higher quantities of staple crop consumption, which probably means that our series slightly understate real purchasing power. A second hiatus in our data set concerns the price series of fuel used for cooking, heating and lighting. Most African households used firewood, charcoal and/or kerosene as the main supply of energy. Candles or lamp oil were generally used for lighting. Despite some scattered price observations for firewood and candles, we were unable to construct solid time-series for these commodities. We used the scattered price information in combination with figures of the average thermal value of firewood and charcoal to calculate the relative weight of these commodities in the overall basket and added this percentage to the total basket price. For firewood/charcoal we add 7.5%, for candles we add 2.5%. A similar strategy compensates for the lack of rental prices. Allen adds 5% to each Western European and Asian subsistence basket and we adopt his estimate.

The basket price series are shown in appendix table 1b. For Mauritius we show the rice basket, for Kampala the millet basket and for the rest the maize basket price. The appendix table shows that the intra-regional variation in basket prices was considerably smaller than the variation in nominal wages. The coefficient of variation for the price baskets of the different colonies fluctuated around a value of 0.2. That for the nominal wage rates was much higher, around 0.5.

[23] Potatoes provide an even higher nutritional and caloric value per unit of land, but soil conditions in most of our colonies were not suitable for their cultivation. See Nunn and Qian, p. 20.
[24] McCann, *Maize and Grace*.

Overall, East African basket prices tended to be ca. 30% lower than in West Africa up to the early 1930s. After the mid-1930s the intra-regional price gaps started to diminish. This implies that the real wage gaps between West and East Africa (to be discussed in the next section) were exclusively driven by nominal wage gaps, and that the real wage gaps would have even been greater if commodity prices would not have compensated for part of the wage gaps.

AFRICAN REAL WAGES IN GLOBAL PERSPECTIVE

To convert nominal wages into real wages we follow Allen's assumptions for Asia: 6 working days a week all year round, gives 26 days a month and 312 days per year. We have labor reports for the interwar and postwar period stating that monthly labor wages were usually based on an average of 25 or 26 working days. Additionally, we have information on the 'average number of hours per week worked without overtime' for each colony. The average working week mainly ranged between 48 and 54 hours, which points to a 6-day working week. In line with Allen we also assume that the average family, including a husband, wife and two to three children, requires three subsistence baskets to survive. We refer to this as the 'family subsistence basket'.[25] The number of such family subsistence baskets that can be obtained from an adult male wage (controlled for non-working days) is referred to as the welfare ratio. A welfare ratio of one is considered to be the absolute subsistence income level.

Table 3 shows our main results. It expresses the welfare ratios in nine major British African cities in decadal averages and in annual average growth rates of the observed period. The table shows that, with the notable exception of Zomba (Nyasaland), urban male adult wage incomes sufficed to buy, at least, one family subsistence basket per day in all the African cities and during the whole period covered by our study. Moreover, in all of the places observed welfare ratios rose over time. The differences in levels and trends across British Africa were remarkably large though. In British West Africa, welfare ratios were roughly twice as high as in British East Africa and this gap persisted from the 1900s until the 1960s. The most impressive rise occurred in Accra (from 1.9

[25] Of course we are aware of the fact that not all African male workers made exactly 312 days a year, let alone that their families would have consisted of a nuclear type with one husband, one wife and two or three children. These assumptions are useful as a basis for the international comparability of the *purchasing power* of wages paid in any particular city around the world. The actual purchasing power of total African household incomes may have been affected by a large range of additional and often changing conditions, such as female and child labor, seasonal unemployment, access to land for subsistence crop produce and will obviously have varied across households.

to 5.0), indicating that the economic dynamics generated by the cocoa export boom spilled over to broad layers in Ghanaian society, including unskilled urban wage workers and rural workers (whose wages were almost at par during most of the period).

[Table 3]

While real wage growth rates were not distinctively higher in West Africa, the development trajectories in both regions differed in one fundamental respect. West Africa started out with considerably higher levels of welfare and maintained this advantage throughout the colonial era. As noted in our discussion of the price baskets above, the real wage divergence across British Africa should be attributed to the persistence of rather large nominal wage differentials. Between 1900 and 1940 the unweighted average real wage level in West Africa (2.7) was almost twice as high as in East Africa (1.4).[26]

Table 3 also indicates that the First and Second World War had a devastating impact on the living standard of urban unskilled wage earners in all British African colonies. Price hikes as a consequence of war rationing schemes and a collapse of international trade placed purchasing power of initially unchanged nominal wages under severe strains. These wage-to price responses were common. Inflation, for instance in the early 1920s, caused a decline in real wages in the short run, while deflation during the Great Depression of the early 1930s lead to a temporary rise in purchasing power of wage workers, as prices fell sharply before wages were readjusted. In the long period of price stability up to the First World War wages hardly changed as prices remained fairly stable. This mechanism has not been taken for granted in mainstream African historiography. In his *History of Modern Africa* Reid argues,

> "The 1930s witnessed a collapse in wages all across the continent, too; wage labor suffered in the mining economy, on white-owned plantations, and in the urban centres, to which Africans increasingly drifted in search of work. […] The impact of declining wages was to some extent offset by a corresponding fall in the cost of living, but this was hardly significant in real terms. In reality, the

[26] The temporary set-back in welfare levels in Sierra Leone and the Gambia is a bit misleading, because the rice basket is actually cheaper in most of the years than the maize basket.

> 1930s was a period of genuine hardship for millions of Africans and large numbers of poor whites, and the fall in living standards was not reversed until the second half of the 1940s."[27]

Indisputably, part of the native population experienced economic hardship during the 1930s. But our figures also suggest that one should be cautious to make sweeping general statements concerning the impact of the depression on living standards in colonial Africa as a whole. Reid is right when he claims that nominal wages declined, but in large parts of British Africa this was a response to the fall of commodity prices, while real wages remained either unchanged or even improved significantly. In Zomba real wages even rose faster in the 1930s than in any other decade of colonial rule. Real wages in Zomba were clearly below the threshold-level before 1930, even when measured in maize, the main staple food in this country. Urban workers in Nyasaland needed additional sources of family income (in money or in kind) in order to survive. Labor reports of Nyasaland indeed indicate that few natives were fully dependent on wage labor, since most families were engaged in subsistence farming and only sold their surplus labor in the low season. Many young native males in Nyasaland decided to migrate long distances to take up the dangerous work in the mining areas of Southern Rhodesia and South Africa, as the alternative at home was to work for wages below subsistence level.[28]

After the Second World War the traditional wage-price response was reversed under pressure of the growing political influence of trade unions, independence movements and changing views on 'the labor question' in metropolitan Britain.[29] During the war wages had been readjusting to war-related inflation, but from the late 1940s onwards wages in all colonies started to rise independently from price changes. Minimum wage legislation, which was introduced in the late 1940s, put a floor under the price of labor. In some cases, such as Freetown, wages rose so fast that they set a wage-price spiral in motion, which was only brought back under control during the first half of the 1960s.

A global comparison of African real wages learns that the improvements in West African living standards were fairly impressive. In figure 2 we place the real wage series of Accra and Freetown in a global comparative perspective. Asian welfare ratios in the period 1880-1930 suggest that wage workers in Beijing, Shanghai, Canton or even Tokyo/Kyoto were significantly worse

[27] Reid, *A History of Modern Africa*, p. 225.
[28] Macdonald, *Nyasaland.*
[29] Cooper, *Decolonization.*

off.[30] A comparison with northwest European series indicates that the welfare growth rate in these British African cities during the first half of the 20th century outpaced the welfare growth rate in the capital city of the leading industrial nation of the nineteenth-century.

[Figure 2]

The welfare ratios of urban unskilled workers in pre-modern London and Amsterdam were obviously higher than in late nineteenth century British Africa. However, the average annual growth rates in Accra between 1880 and 1965 (1.17%) were comparable to the average growth rates in London (1.14%, 1840-1900). Welfare growth rates in some other countries were even higher, although it has to be said that these growth rates were affected by very low starting points. In Mauritius we observed the highest long-term growth rate (1.58%), which suggests that the Mauritian 'Miracle' is not just a post-colonial phenomenon.[31] In sum, we find little evidence that suggests that four generations of African urban wage workers in the colonial period were trapped into persistent poverty. Welfare improvements were certainly not confined to very specific regions in British Africa or brief periods of time (such as 1945-1960). In fact, the whole idea that Africa has been *the poorest and most slowly growing region* since the Industrial Revolution is based on a backward extrapolation of post-1960 growth experiences without a historical empirical foundation.

We proceed by connecting our real wages series to Maddison's post-1950 GDP series to distinguish two 'types' of African long-term growth trajectories: the cases of the Gold Coast (Ghana) and Kenya presented in figures 3a and b. On the left-hand Y-axis we plot the welfare ratio, on the right-hand Y-axis GDP per capita. We scale both Y-axes by assuming a subsistence GDP per capita level of $300 (in 1990 PPP-adjusted US Dollars) equal to a welfare ratio of 1.

[Figure 3a & 3b]

The rapid growth of the Ghanaian export economy has been extensively documented in the literature.[32] Our real wages series corroborate these trends. Cocoa exports started to drive economic

[30] Unfortunately, the available historical series for Asia end around the 1920s/1930s, so we cannot compare trends up to the 1960s. Allen et al., "Wages, prices, and living standards".
[31] See Subramanian and Roy, "Mauritian 'Miracle' ''.
[32] Austin, *Land, Labour and Capital*. See also Jerven, "Comparing colonial and post-colonial output".

growth from the 1910s onwards, were booming in the 1920s and sustained real wage growth rates until the early 1960s. In 1964 Ghana's economy entered into a decade of stagnation and in the decade following 1974 it experienced a dramatic collapse. From the mid-1980s growth has resumed, but the trend line added to the graph suggests that this episode has set Ghana's economy back in time for ca. forty years! What the long-term evidence suggests is that Ghana is among the poorer countries of the world today because of a major interruption in its long-run growth trajectory in the 1970s. However, the case of Ghana shows that an economy vulnerable to major external (world market prices) and internal political ruptures, is not necessarily a slow growing economy.

Kenya's long-term growth trajectory appears very different. A dramatic collapse of the economy did not occur in Kenya. Average long-term growth rates were considerably lower than in Ghana, however. For the sixty-years between 1904 and 1964 the annual average real wage growth rate of 1.44% was respectable (partly due to very low starting levels), but since the late 1970s the economy entered into a long phase of stagnation in which per capita income growth was close to zero. Indeed, from a long-run historical perspective Kenya may qualify as a slow growing economy. This underlines our key point: when crafting explanations of African poverty in a cross-country regression framework it matters at which particular moment in time we take stock of comparative income levels. In the late colonial era real wages levels in the Gold Coast were roughly twice as high as in Kenya (GDP per capita levels were ca. 90% higher in 1960 according to the Maddison data). In the mid-1980s GDP per capita levels were more or less at par. In 2008 Ghana's GDP per capita stood again at 150% of Kenyan levels.

Among the nine African territories included in this study the three other West African countries more or less resemble the pattern observed in Ghana: respectable growth up until the mid-1960s, a sharp collapse during the 1970s and a recovery of growth since the early 1990s. The East African countries reveal a pattern that is more in line with the Kenyan growth trajectory: modest growth until the mid-1960s, slowing down afterwards, but without a major collapse. This is particularly true for Nyasaland and Tanzania. Uganda reveals traces of a West African pattern, with a major collapse and recovery of economic growth in, respectively, the 1970-80s and 1990s-2000s. Mauritius long-term growth trajectory is an outlier in the African context. At the end of the nineteenth century real wages in Mauritius were not higher than what we obtained for British West Africa. However, the post-1950 growth record of Mauritius reveals more resemblances with the

rapidly industrializing East Asian economies such as Taiwan and South Korea than with any of the continental African economies.

THE SCOPE OF OUR RESULTS

Before turning to explanations for the different real wage outcomes in British West and East Africa, we need to pay some attention to the scope of our results. To what extent do the trends in purchasing power of urban unskilled labor represent those of the native African population at large? And how well do our real wage series capture living standard developments over time?

Let us start with the first question. Although we focus on urban unskilled labor wages in this study, we have constructed a full nominal wage series for rural unskilled and urban skilled labor as well. We had a good reason for doing so: these series allow us to assess the reliability of our urban unskilled wage series as we expect the rural-urban and unskilled-skilled wage ratios to move within certain plausible margins. Table 4 suggests that this was the case for all of the colonies incorporated in this study. Rural wages (including payments in kind) ranged roughly between 50 and 100% of urban unskilled wages. The skill-premium ranges mainly between a factor 2 to 4. Table 4 reveals no distinct British African pattern of increasing or decreasing rural-urban wage inequality. The real wage increases observed in the major African cities also appeared in the countryside. This is not surprising, as more Africans started to combine urban and rural jobs during the colonial era (whereby they switched regularly between wage labor and subsistence farming) and previously separated labor markets became increasingly integrated.[33]

Of course, for people living in the hinterlands at a large distance from urban commercial centers it was the size of their harvest or cattle herd, rather than market wages and retail prices, which determined their economic standing. Yet, a large and growing number of Africans found wage employment on the various agricultural stations in the colonies that were producing export commodities. In the Gold Coast workers on the cocoa plantations earned nearly the same wage as their urban counterparts, and might have even been better off if we take into account the generally lower rural price levels and the ability to substitute wage income with yields from a small plot of land. In other words, wage labor and real wage increase were far from a phenomenon confined to the colonial capital cities in British Africa.

[33] See Cooper, *Decolonization*, p. 46

[Table 4]

The skill-premiums presented in the right-hand part of table 4 are mainly based on the wages of skilled construction workers such as carpenters, masons and plumbers. The skill-premiums ranged roughly from 200 to 400% of an unskilled urban wage, which is comparatively high. In the major Latin American and Asian cities, for instance, skill-premiums in the building industry ranged between 150 and 200% of the unskilled wage in the 1930s.[34] Skilled labor was relatively scarce in most parts of colonial Africa and this is confirmed by countless colonial reports complaining about the lack of skilled African workers. Skilled workers thus witnessed considerable improvements in living standards during the colonial era. During the interwar period a high-skilled African carpenter in West Africa could easily afford up to 10 family subsistence baskets a day.

On the second question, there exists mostly qualitative evidence from cost of living surveys that underlines the rise in living standards in both urban and rural areas. The consumption pattern of a subsistence income earner typically contains no alcohol, barely any meat, and is primarily based on the most economical carbohydrate-rich staple crop. Real wage increases presumably lead to a near immediate substitution of the 'inferior' staple crop for a more luxury variant, such as oats or barley for wheat, or maize for rice. For a subsistence ratio of, say, 3 we would thus expect to see greater variation and higher quality products in the diet. A 1936 survey of what an average native working-class family in Lagos consumed on a monthly basis lists a selection of 14 most important products. As expected for a welfare ratio well above subsistence, the most economical staple crop, maize, does not dominate the diet.[35] Two other things stand out as well. First, the actual consumption basket includes a fair amount of fruit and vegetables (oranges, coconuts, okra and onions), which are nutritional 'luxury goods'. Second, monthly meat consumption was much higher than needed for pure subsistence. If we would convert the amounts of meat and fish listed in the survey into daily protein portions, it appears that ordinary working class families were able to

[34] Frankema, "Wage Inequality".

[35] We created multiple real wages series to explore possible patterns of staple-crop substitution. On a price per calorie basis, maize offered the cheapest alternative for most years, although in Nigeria the per-calorie price of maize remained close to that of cassava. The household list includes cassava and yams as main staples.

consume at least 2-3 times as much protein than the amount provided for in a bare-bones subsistence basket (43 grams).[36]

Occasional reports on the rations provided in lunatic asylums and prisons show similar dietary patterns, albeit slightly lower in daily proteins, suggesting that, overall, the consumption pattern described above was an acceptable minimum standard. The transition to rice consumption and production in the 1920s in and around Kumasi, the center of the booming cocoa industry in Asante, also suggests that our real wage series are accurately picking up historical changes in living standards. The welfare ratio for a maize basket in Accra rose from 1.7 in 1920 to 3.5 in 1929, while for the rice basket the ratio increased from 0.5 in 1920 (still too expensive) to 1.5 in 1929 (feasible). It is no coincidence that, exactly in this decade, food consumption and production in Kumasi shifted towards rice as well.[37] Cost-of-living surveys in Sierra Leone and The Gambia suggest that a similar shift from maize to rice occurred in these colonies as well, where rice is even considerably cheaper than maize during the 1920s.

VARYING COLONIAL INSITUTIONS

In view of the space constraints of this study, we offer an exploratory explanation for the observed persistence of the intra-African (East-West) real wage gap. We cannot do justice to all the individual cases involved and focus our discussion on the overall argument as summarized by the labor market graph in figure 4.

[Figure 4]

If we consider wages as a proper reflection of a particular African factor endowment structure there is a straightforward economic explanation for the comparatively high real wages in West Africa. High land-labor ratios, especially in comparison to large parts of Asia where population densities were much higher, lifted wages above subsistence level in the colonial era. Following the gradual abolition of domestic slavery and the increasing demand for urban labor, the outward shift

[36] The basket lists 5 chickens, 8 dozens of eggs, 2 dozens of dried fish and 40 pounds of beef. We have taken a lower bound estimate here for the weight of the chicken and that of the dried fish (probably cod), it being 3 pounds for the chicken, and 1 pound for the dried fish. See colonial blue book Nigeria, 1936.
[37] See Austin, *Labour, Land and Capital*, pp. 54-55

of the demand curve from D_1 to D_2 put upward pressure on real wage levels. Land abundance kept relative prices for agricultural commodities low. Food production could be increased in response to demographic growth and structural change without declining marginal productivity. Indeed, Johnson shows that in relatively heavy populated areas such as Kumasi, the Asante capital, the available resources of land were not exhaustively used to feed the city in the early twentieth century.[38] Austin agrees with this view, arguing that land was abundant virtually everywhere, while labor and capital remained comparatively scarce during the colonial era.

The rising demand for labor in African cities is uncontested. How unreliable colonial population census data may be, all census reports indicate that urban populations grew faster than total populations. The West African commercial centers drew large flows of economic migrants year after year. In Bathurst (1911-1951) and Freetown (1921-1931) the urban population grew at an average annual percent of 2.36% and 2.45% respectively, versus 1.56% for Gambia and 1.38% for Sierra Leone as a whole.[39] In Zomba, where urban real wages only started to rise in the course of the 1930s, population grew at an average annual rate of 2.49% for the period 1925-1940, whereas the colony at large grew with 1.51%. For Nairobi (1925-1945) we even obtained a growth rate of 6.41% versus 1.95% for Kenya at large (excluding European settlers). By the early 1930s, nearly 60% of Lagos' inhabitants had been born elsewhere. Most of these migrants were adult males in their twenties and thirties, who were drawn to the opportunities of earning higher wages in the city.[40] In the Gold Coast, where population growth rates for both Accra and the colony at large exceeded 3% per annum (1911-1931), the rapidly expanding cacao industry attracted a constant flux of migrant workers from neighboring colonies, such as French Upper Volta.[41] An estimated number of 289,217 foreign African residents were living in the Gold Coast in 1931, constituting about 10% of the total population size.[42]

Why did the rapidly rising demand for unskilled labor in Kenya not translate into comparable real wage levels as in Ghana? Year after year the Kenyan colonial government reports state

[38] Johnson, "Elephants"
[39] For Lagos (1931-1941) the population growth rate was 2.89% versus 0.54% for Nigeria as a whole; for Accra (1911-1931) 3.19% and 3.29% for the Gold Coast (which reflects the booming cocoa industry); for Port Louis (1911-1945) 1.05% and 0.62% for Mauritius (the island's rapid phase of economic expansion had already taken place before 1900).
[40] Nigeria, *Annual Report on the Social and Economic Progress of the People of Nigeria*, 1938, p. 17
[41] Wrigley, "Aspects" pp. 127-8
[42] Part of the immigrants also came from the provinces of Northern Nigeria. Annual Report on the Social and Economic Progress of the People of the Gold Coast, 1931-1932, "Migration," p. 9.

complaints about the problem of labor scarcity.[43] Kenya received more European settlers in proportion to the indigenous population than any of the British West African colonies. Its per capita value of trade was much larger than in Sierra Leone, Nigeria or Uganda.[44] Per capita fiscal revenue was almost three times as large as in Sierra Leone, Nigeria or Uganda during the interwar period and comparable to Gold Coast levels. Besides, the Kenyan government received by far the largest share of non-fiscal revenue of all colonies in the comparison, which testifies to the large role of the colonial government as an investor in the domestic economy.[45] GDP estimates show no evidence that Kenya was any poorer than Sierra Leone or Gambia. Why were wages not lifted further above subsistence level to reduce labor scarcity?

Our explanation is that differences in colonial institutions affected the labor supply in fundamentally different ways. In West Africa labor shortages were, to a larger degree, resolved by free market mechanisms: wage increases induced an expansion of the wage labor supply along S_1, from l_1 to l_2. In East Africa government interventions suppressed the rise of wages by deliberate policies to shift the labor supply curve to the right, to S_2 or even further to S_3, depending on the cumulative effect of labor market interventions. The nature of these interventions have been extensively discussed by Bowden et al., in order to explain a notable contrast in agricultural wage developments between the settler colonies of Kenya and Zimbabwe (modest rise) and the peasant export colonies of Ghana and Uganda.[46] Although their real wage series differ from ours in important respects, we take up their discussion of differences in land tenure regimes as an integral part of our explanation.[47] We add a discussion of differences in tax policies (which Bowden et al. tend to overlook) to explain the differences in labor market conditions between Uganda and Ghana. Finally, we briefly pay attention to the role of Asian migrants in East Africa, a factor that was virtually absent in West Africa.

[43] East Africa Protectorate, *Native Labour Commission, 1912-13*.
[44] For Uganda this claim is based on the years before the custom union with Kenya, but the figures leave little doubt: in 1912 the per capita value of exports and imports is 1,6£ in Kenya versus 0.2£ in Uganda, *Statistical Abstract for the British Overseas Dominions and Protectorates 1905-1919*, no. 55.
[45] Frankema, "Raising Revenue".
[46] Bowden et al., "Measuring and Explaining".
[47] The major differences are that their series is an index-series, based on rural wages without controlling for payments in kind. They do not produce any level-estimates: real wages are only comparable over time, not across countries. The index-series is based on decadal point estimates, rather than annual observations.

Land tenure policy

Distinctively different land policies existed within British Africa. After several early attempts to reform indigenous land tenure regimes in West Africa, the British endorsed the indigenous land tenure regimes in all of their non-settler colonies.[48] This basically meant that land remained in African hands and that informal communal land rights were respected. Bowden et al. argue that the indigenous land tenure systems produced a more equitable distribution of income based on small-holder profits and comparatively high rates of market wages. In settler colonies, in contrast, the British pursued an active policy of land alienation. In Kenya ca. 7% of the agricultural land was transferred to European farmers. This may seem a modest share compared to the 49% in Southern Rhodesia and 87% in South Africa, but the alienated lands in the Kenyan Rift valley were widely considered to be the 'high-potential' areas.[49] The native Kikuyu were pushed of their land into specially allocated 'reserve lands' and forbidden to own land in what became known as the White Highlands.

The owners of livestock among the Kikuyu, who needed grazing lands for their cattle, were the first who had to give up their traditional way of life. The reserves were unfit for large herds and the livestock farmers had little other choice than to lease land from European farmers to herd their cattle or re-enter the Highlands as contract workers. The vast scale of European farms (over 5,000 acre on average in 1905) suggests that the reallocation of land through large concessions was not primarily motivated by maximizing productive efficiency, but rather by deliberate attempts to change the production relationships between settlers and natives.[50] Part of the displaced Kikuyu, for example, turned to the labor market in the largest cities such as Mombasa and Nairobi. From this perspective, it is thus not surprising to find that the native population in Nairobi grew at an average annual rate of 6.41% between 1925 and 1945 (versus a 1.95% for Kenya at large). Such native reserves were never introduced in the peasant export economies of West Africa or in Uganda.

Tax policy

With respect to tax policy, Uganda had more in common with Kenya than with the West African colonies. In West Africa and Mauritius the largest share of fiscal revenue was derived from custom duties. In East Africa direct native taxes formed the largest single revenue item in the government

[48] Austin, *Labor, Land and Capital*; Austin, "Compression of History".
[49] Bowden et al., "Measuring and explaining"; Frankema, "colonial roots"
[50] Bates, *Miracle*, pp. 18-24

budget. These direct taxes consisted of a flat rate per (male) adult, household head or native dwelling (hut, house or yard tax). The rates could vary considerably per tribe, community, region or county to spread the tax burden according to varying income-earning capacity. In some occasions, such as in Tanganyika, a 'plural wives tax' was levied to raise additional revenue from wealthier households. The literature provides various arguments for the imposition of direct native taxation. One argument is that the annual flows of international trade were too small to provide a solid foundation for colonial government finance.[51] Taxing trade was definitely the cheapest way of collecting revenue, but when trade flows were too small, head or poll taxes were the only feasible alternative for enlarging government revenue in a relatively short amount of time. Income or land taxes required an elaborate system of assessment, which would have been more costly and time-consuming to develop.

The most cited reason for the introduction of direct taxes however, is that it forced native Africans to supply part of their labor to the market, raising the overall labor supply and reducing the upward pressure on wages as a result of labor scarcity.[52] Yet, the early attempts to impose head, hut or poll taxes in West Africa were rather unsuccessful. In the Gold Coast native direct taxes were considered but never implemented. In Nigeria and the Gambia a direct native tax was introduced only during the interwar years and was not targeted at large segments of the population, only at the wealthier parts. In Sierra Leone the introduction of a hut tax in the protectorate areas provoked violent resistance (the Hut Tax War 1898-99). The head tax system that was eventually adopted proved rather ineffective. Only in the 1930s the colonial administration increased its efforts to raise the amount of hut tax revenue. Custom revenues had declined sharply during the depression years and balancing the budget became problematic. But in this case hut taxes were not motivated by labor market policies, as taxpayers were permitted to settle their tax bill in kind. This undermined any possible attempt at labor market regulation.[53] There are no signs that the absence of direct taxation hampered the development of a market economy in the Gold Coast or in Southern Nigeria. It is highly plausible however, that it explains part of the nominal wage gap between West and East African cities.[54]

[51] Frankema, "Colonial taxation".
[52] Young, *African Colonial State*; Mamdani, *Citizen and Subject*; Bush and Maltby, "Taxation".
[53] Frankema, "Colonial taxation".
[54] McPhee, *Economic Revolution* ; Hopkins, *West Africa* ; Austin, "Labor and land".

Figure 5 expresses the fiscal burden of the official native direct tax rate as the amount of days that had to be worked by an urban unskilled wage earner for the benchmark years 1911, 1925 and 1937. The figure shows that East Africans had to work a much larger amount of days to meet the direct tax burden, despite the fact that their annual incomes were considerably lower than in West Africa. Together with commercial agriculture, wage earnings formed the major sources of cash income.

[Figure 5]

Government revenue accounts enable us to calculate the upper-bound labor supply effect of direct native taxation. In Uganda £591,395 were collected from native poll taxes in 1938. With an annual wage income of £9.30 one would need 64 thousand full-time jobs to cover this sum. If every wage worker would spend the estimated 7.8% of his wage income on the native poll tax, 788 thousand full-time jobs would be required, which constitutes more than half of the estimated adult male labor force of 1.4 million. For Nyasaland, Tanganyika and Kenya comparable figures can be obtained. In West Africa direct taxes were too low (or even absent) to have a significant impact.

Asian migrant workers

A third major distinction between East and West Africa was the geographical proximity of a vast reserve supply of unskilled and skilled labor on the Indian subcontinent. Indian labor migrants to East Africa accommodated a substantial part of the labor demand, working in urban services, establishing small-scale commercial and industrial enterprises and occupying a large share of the higher skilled jobs offered by private as well as public employers of European and Indian origin. In the population census of 1931 in Kenya 57,133 Asians are counted on a native population of 3.025 million, which is 1.9%. If we take into consideration that most of the Asians immigrants were adult laborers (very few children) settling in the larger cities and that Kenyan urban wage workers will probably not have exceeded 5% of the total population, it becomes clear that the presence of Asian immigrant labor was a significant factor in the urban labor market.

Wage differentials in Kenya between carpenters of native African, Indian and European origin offer a good impression of labor market segmentation. Around 1908 a Swahili carpenter was reported to earn 8 to 16 pence per working day. An Indian carpenter would make circa 36 pence (3

shillings) and a European carpenter, depending on his skills and experience, 48 to 80 pence.[55] African-Asian differences in skills and social status placed a ceiling on the opportunities for social mobility of native Africans. How different was the situation in Ghana, where native African carpenters, without the competition from Asian immigrants, earned between 24 and 36 pence per day. The largest numbers of Asians were indeed attracted to Kenya, but in Uganda (ca. 15,000) and Tanganyika (ca. 33,000) Asian migrant workers also formed a notable minority.

Varying labour regimes

The arguments discussed above are by no means exhaustive. In fact, there are good reasons to believe that labour regimes in West and East Africa differed in many other respects. Let us mention three other factors. First, there has been wide variation in the incidence and coercive nature of formal and informal forced labour policies. Africans who were 'recruited' for the army or for major public works (roads, railways), could receive a wage for work that they were not conducting at free will. To which extent these forced labour regimes differed across British Africa (and changed over time) is something that requires much deeper study than we can offer here.[56] A second aspect is that the conditions of labour contracts (duration, income security, specific clauses and monitoring regimes etc.) have differed quite extensively, not only between West and East Africa, but also within these regions. To which extent these differences have affected wage level warrants further research as well. Finally, we would like to know to which degree employers (such as the Cocoa farmers in Ghana or the European settler farmers in Kenya) were able to act collectively in order to reduce price competition for scarce labor resources. Several colonial reports from Kenya have suggested that Europeans were bent on keeping wages low not only because of labor cost concerns, but also because it would tie African wage workers to their European employers for a longer period of time. However, such policies only function under some form of coordination that punishes employers who raise wages in order to relieve their individual production constraints. This is also an issue that requires far deeper exploration than we can offer here.

[55] *Colonial Blue Book of the East African Protectorate*, 1907-1908.
[56] See Cooper, *Decolonization*, Chapter 4.

CONCLUSION

This study has shown that the annual wages earned by native unskilled male adult workers in the major urban centers of British Africa sufficed to sustain a nuclear household at subsistence level for the entire colonial period, with the exception of pre-1930 Nyasaland. Real wages increased during the colonial era in all of the countries we studied, albeit experiencing a temporary setback in the First and Second World War and their immediate aftermath. Real wages rises during the interwar period and post-war period compensated for these losses. In the 1930s real wages continued to rise in most cases, as prices tended to decline faster than nominal wages.

A global comparison has shown that welfare levels in West Africa and Mauritius were surprisingly high. Compared to major East Asian cities, material living standards of West African urban dwellers were two to three times as high. From a historical point of view, real wage growth rates were respectable during the colonial era as well: they outpaced the growth rate of real wages of unskilled workers in London during the nineteenth century. In East Africa the increase in real wages mainly occurred during the postwar period and pre-war levels were more in line with Asian levels. The contrast in real wages between British East and West Africa was remarkably persistent. Nominal wage gaps were entirely responsible for this gap, as price levels tended to be ca. 30% higher in West Africa until the 1930s.

The recorded differences in long-run growth trajectories call for a reinterpretation of the path-dependence nature of African economic development. The inter-temporal variation in income levels is too big to assume persistent long-term effects of slave exports or extractive colonial institutions. In West African countries current GDP levels have been deeply affected by the economic crises of the 1970s and 1980s. In most of the East African countries current GDP levels seem to be consistent with a more prolonged trajectory of slow welfare growth. Future research in African economic history should concentrate more than it has done hitherto on charting and explaining differences in long-term growth trajectories. It should also aim for a deeper understanding of the determinants of the real wage divergence across British Africa and explore how these relate to other parts of colonial Africa. A better grasp of the long-term picture of economic development will help us to assess the possibilities of future growth and the extent to which specific historical or geographical conditions have cast a temporary, or a structural, effect on long-term African welfare development.

References

Acemoglu, D., Johnson, S., Robinson, J. A., 2001. The Colonial Origins of Comparative Development: An Empirical Investigation. American Economic Review 91, 1369-1401.

Allen, R. C., 2001. The Great Divergence in European Wages and Prices from the Middle Ages to the First World War. Explorations in Economic History 38, 411-447.

Allen, R. C., 2009. The British Industrial Revolution in Global Perspective. Cambridge University Press, Cambridge UK

Allen, R. C., Bassino, J.-P., Moll-Murata, C., Ma, D., van Zanden, J. L., 2011. Wages, prices, and living standards in China, 1738-1925: in comparison with Europe, Japan, and India. Economic History Review 64, 8-38.

Austin, G., 2005. Labour, Land and Capital in Ghana: From Slavery to Free Labour in Asante, 1807–1956. University of Rochester Press, New York

Austin, G., 2007. Labour and Land in Ghana, 1874-1939: A Shifting Ratio and an Institutional Revolution. Australian Economic History Review 47, 95-120.

Austin, G., 2008. The 'Reversal of Fortune' Thesis and the Compression of History: Perspectives from African and Comparative Economic History. Journal of International Development 20, 996-1027.

Bates, R. H., 2005. Beyond the Miracle of the Market. The Political Economy of Agrarian Development in Kenya. Cambridge University Press, New York

Bates, R. H., Coatsworth, J. H., Williamson, J. G., 2007. Lost Decades: Postindependence Performance in Latin America and Africa. The Journal of Economic History 67, 917-943.

Bloom, D. E., Sachs, J. D., 1998. Geography, Demography, and Economic Growth in Africa. Brookings Papers on Economic Activity 207-295.

Bourguignon, F., Morrisson, C., 2002. Inequality among World Citizens, 1820-1990. The American Economic Review 92, 727-744.

Bowden, S., Chiripanhura, B., Mosley, P., 2008. Measuring and Explaining Poverty in Six African Countries: A long-period approach. Journal of International Development 20, 1049-1079.

Broadberry, S., Gupta, B., 2006. The Early Modern Great Divergence: Wages, Prices and Economic Development in Europe and Asia, 1500-1800 Economic History Review 59, 2-31.

Bush, B., Maltby, J., 2004. Taxation in West Africa; transforming the colonial subject into the "governable person". Critical Perspectives on Accounting 15, 5-34.

Collier, P., 2008. The Bottom Billion. Why the Poorest Countries Are Failing and What Can Be Done About it. Oxford University Press, Oxford

Cooper, F., 1996. Decolonization and African Society. The labor question in French and British Africa. Cambridge University Press, Cambridge UK

de Zwart, P., 2011. South African Living Standards in Global Perspective, 1835-1910. Economic History of Developing Regions 26, 48-73.

Diamond, J., 1997. Guns, Germs and Steel. The Fates of Human Societies. W.W.Norton & Company, New York

Dobado, R., Garcia, H., 2009. Neither so low nor so short! Wages and Heights in Eighteenth and Early Nineteenth Centuries Colonial Latin America. Working paper presented at the workshop "A Comparative Approach to Inequality and Development: Latin America and Europe"

Fenske, J., E., 2010. The Causal History of Africa: A Response to Hopkins. Economic History of Developing Regions 25, 177-212.

Frankema, E. H. P., 2010. The Colonial Roots of Land Inequality: Geography, Factor Endowments or Institutions? Economic History Review 63, 418-451.

Frankema, E. H. P., 2010. Raising Revenue in the British Empire, 1870-1940: How 'extractive' were colonial taxes? Journal of Global History 5, 447-477.

Frankema, E. H. P., 2011. Industrial Wage Inequality in Latin America in Global Perspective, 1900-2000. Studies in Comparative International Development (forthcoming)

Gallup, J. L., Sachs, J. D., Mellinger, A. D., 1999. Geography and Economic Development. International Regional Science Review 22, 179-232.

Hopkins, A. G., 1973. An Economic History of West Africa. Longman, London

Jerven, M., 2010. Random Growth in Africa? Lessons from an Evaluation of the Growth Evidence on Botswana, Kenya, Tanzania and Zambia, 1965-1995. Journal of Development Studies 46, 274-294.

Jerven, M., 2010. Users and Producers of African Income: Measuring the Progress of African Economies. Simons Papers in Security and Development, No. 7/2010

Johnson, M., 1981. Elephants for want of towns in: Fyfe, C. and MacMaster, D. (Eds.), African historical demography II, 315-30.

Macdonald, R. J., 1975. From Nyasaland to Malawi: Studies in Colonial History. East African Publishing House, Nairobi

Maddison, A., 2003. The World Economy: Historical Statistics. OECD, Paris

Mamdani, M., 1996. Citizen and Subject. Contemporary Africa and the Legacy of Late Colonialism. Princeton University Press, Princeton, NJ

McCann, J. C., 2005. Maize and Grace. Africa's Encounter with a New World Crop, 1500-2000. Harvard University Press, Cambridge MA

McPhee, A., 1926. The Economic Revolution in British West Africa.
Nunn, N., 2008. The Long-Term Effects of Africa's Slave Trades. Quarterly Journal of Economics 123, 139-176.

Nunn, N., Qian, N., 2011. The Potato's Contribution to Population and Urbanization: Evidence from a Historical Experiment. Quarterly Journal of Economics 126, 593-650.

Pamuk, Ş., 2005. Urban real wages around the eastern Mediterranean in comparative perspective, 1100–2000. Research in Economic History 23, 213-232.

Pamuk, Ş., Ozmucur, S., 2002. Real wages and standards of living in the Ottoman empire, 1489–1914. 62, pp. 292–321. The Journal of Economic History 62, 292-321.

Pinkovskiy, M., Sala-i-Martin, X., 2010. African Poverty is Falling...Much Faster than You Think!

Reid, R. J., 2009. A History of Modern Africa: 1800 to the present. Wiley-Blackwell, Malden MA

Subramanian, A., Roy, D., 2003. Who Can Explain the Mauritian Miracle? Meade, Romer, Sachs, or Rodrik? in: Rodrik, D. (Eds.), In Search of Prosperity. Analytic Narratives on Economic Growth, Princeton University Press, Princeton, 205-243.

van Leeuwen, B., 2007. Human capital and economic growth in India, Indonesia and Japan. A quantitative analysis, 1890-2000. PhD thesis, Utrecht University, Utrecht

van Zanden, J. L., 1999. Wages and the standard of living in Europe, 1500-1800. European Review of Economic History 2, 175-197.

Williamson, J. G., 1999. Real Wages, Inequality and Globalization in Latin America before 1940. Revista de Historia Económica 17, 101-142.

Worldbank, 2009. World Development Report 2010: Development and Climate Change World Bank, Washington D.C.

Wrigley, C. C., 1990. Aspects of Economic History. in: Roberts, A. (Eds.), The Colonial Moment in Africa. Essays on the Movement of Minds and Materials, 1900-1940, Cambridge University Press, Cambridge, 77-139.

Yan, S., 2008. Real Wages and Wage Inequality in China, 1860-1936. Ph.D Thesis in Economics University of California, Los Angelos City

Young, C., 1994. The African Colonial State in Comparative Perspective. Yale University Press, New Haven

Table 1: Relationship between slave exports and income levels and income growth

Dependent variable	ln per capita GDP				annual average per capita GDP growth		
	2000	1970	1960	1950	1950-1973	1973-1995	1995-2008
ln (slave exports/area)	**-0.103*** **	**-0.055***	**-0.034**	**-0.041**	**-0.051**	**-0.104****	**0.078**
	(0.034)	**(0.029)**	**(0.029)**	**(0.030)**	**(0.033)**	**(0.047)**	**(0.065)**
initial GDP per capita (ln)					-0.476**	-0.449	0.198
					(0.190)	(0.288)	(0.264)
geography controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
institutional controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
mineral resource controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
colonizer fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number obs.	52	52	52	52	52	52	52
R^2	.77	.68	.62	.61	.71	.68	.67

Sources: Nunn, "Slave trades"; Maddison 2010, Accessed on 04-02-2011

Notes: The geography controls include distance from equator, longitude, lowest monthly rainfall, average maximum humidity, average minimum temperature and proximity to the ocean (natural log of coastline/land area); the institutional controls include percentage of population that is Islamic and fixed effects (dummies) for French legal origin, North African countries and islands; the mineral resource controls include the natural log of the annual average per capita production 1970-2000 of gold, oil and diamonds; the colonizer fixed effects are dummy variables for the latest colonial power, incl. Britain, France, Spain, Portugal, Belgium, Italy, the UN and a dummy for countries never colonized. The coefficient and significance level of the slave trade variable clearly rises after 1970, with values of -0.089*** in 1980 and -0.092*** in 1990.

Table 2: African subsistence basket based on the annual consumption of one adult male

	Unit	Quantity per person per year	Nutrients per kg		Nutrients per person per day	
			Calories	Protein (gr.)	Calories	Protein (gr.)
Maize	kg	185	3,600	80	1,825	41
Meat	kg	3	2,500	200	21	2
Palmoil/Ghee	liter/kg	3	8,840	0	73	0
Sugar	kg	2	3,750	0	21	0
Cotton	meter	3				
Soap	kg	1.3				
Kerosine	liter	1.3				
Candles	kg	1.3				
Firewood/charcoal	BTU	2 MBTU				
Total					**1,939**	**43**

Note: for comparisons of this basket with a European or Asian subsistence basket see Allen, *Industrial revolution*, pp. 33-42

Table 3: Welfare ratio's and welfare growth rates of unskilled African wage workers in major British African cities, 1880-1965

	British West Africa				British East Africa				
	Gambia (Bathurst)	Gold Coast (Accra)	Sierra Leone (Freetown)	S. Nigeria (Lagos)	Kenya (Nairobi)	Nyasaland (Zomba)	Tanganyika (Dar es Salaam)	Uganda (Kampala)	**Mauritius** (Port Louis)
1880s	2.5	1.9	1.5	2.0	n.a.	n.a.	n.a.	n.a.	1.4
1890s	2.7	2.2	1.7	2.8	n.a.	n.a.	n.a.	n.a.	2.1
1900s	2.8	2.4	1.9	3.0	1.0	0.6	n.a.	1.2	2.2
1910s	n.a.	n.a.	1.4	2.2	1.1	0.7	n.a.	1.0	1.8
1920s	1.6	2.6	1.2	1.9	1.5	0.7	1.9	1.5	3.3
1930s	2.4	3.4	1.8	2.2	1.4	1.2	1.4	1.2	3.4
1940s	2.0	3.1	1.6	1.8	1.5	1.0	1.1	1.5	2.5
1950s	2.6	4.1	2.4	n.a.	1.8	1.3	1.6	1.7	3.7
1960s	4.3	5.1	3.0	n.a.	2.3	1.4	2.7	n.a.	4.5
	Annual average real wage growth								
Years	1880-1964	1880-1960	1880-1965	1880-1939	1904-1965	1904-1961	1921-1963	1906-1959	1887-1961
%	0.96	1.17	0.85	0.55	1.44	1.42	0.83	1.07	1.58

Sources: see appendix table 1c.
Notes: Annual average growth rates were computed by using the average values of the first and last 3 years of the mentioned period to reduce the impact of coincidental outliers.

Table 4: Average unskilled rural-urban wage ratio and urban skilled-unskilled wage ratio in British Africa during the pre-1914 years, the 1920s, 1930s, 1940s and 1950s

	Rural-urban wage ratio					Skilled-unskilled wage ratio				
	pre-1914	**1920s**	**1930s**	**1940s**	**1950s**	**pre-1914**	**1920s**	**1930s**	**1940s**	**1950s**
Gambia	0.89	0.95	0.79	0.87	n.a.	2.61	3.30	2.76	2.8	2.37
Sierra Leone	0.80	0.82	0.73	0.72	0.91	3.35	3.35	2.36	2.59	1.77
Gold Coast	0.94	1.02	0.97	0.89	1.03	2.02	3.01	3.55	2.52	2.45
S. Nigeria	0.88	0.57	0.69	0.70	0.71	3.09	3.14	3.28	2.59	2.30
Uganda	0.49	0.56	0.51	0.76	0.88	n.a.	2.23	n.a.	3.54	2.59
Kenya	0.89	0.77	0.75	0.52	0.67	3.20	n.a.	n.a.	2.68	2.35
Tanganyika	n.a.	0.59	0.68	0.80	n.a.	n.a.	2.27	3.45	4.90	n.a.
Nyasaland	0.69	0.82	0.77	n.a.	0.81	4.24	2.67	n.a.	n.a.	2.42
Mauritius	0.78	0.81	0.57	1.17	1.13	n.a.	1.42	1.54	2.15	2.27

Sources: Rural unskilled and urban skilled wage data have been taken from the same colonial blue books, sessional papers and government gazettes as used for urban unskilled wages.

Figure 1a: Nominal wages of urban unskilled workers in British West Africa and British India, in pence per day, 1880-1965

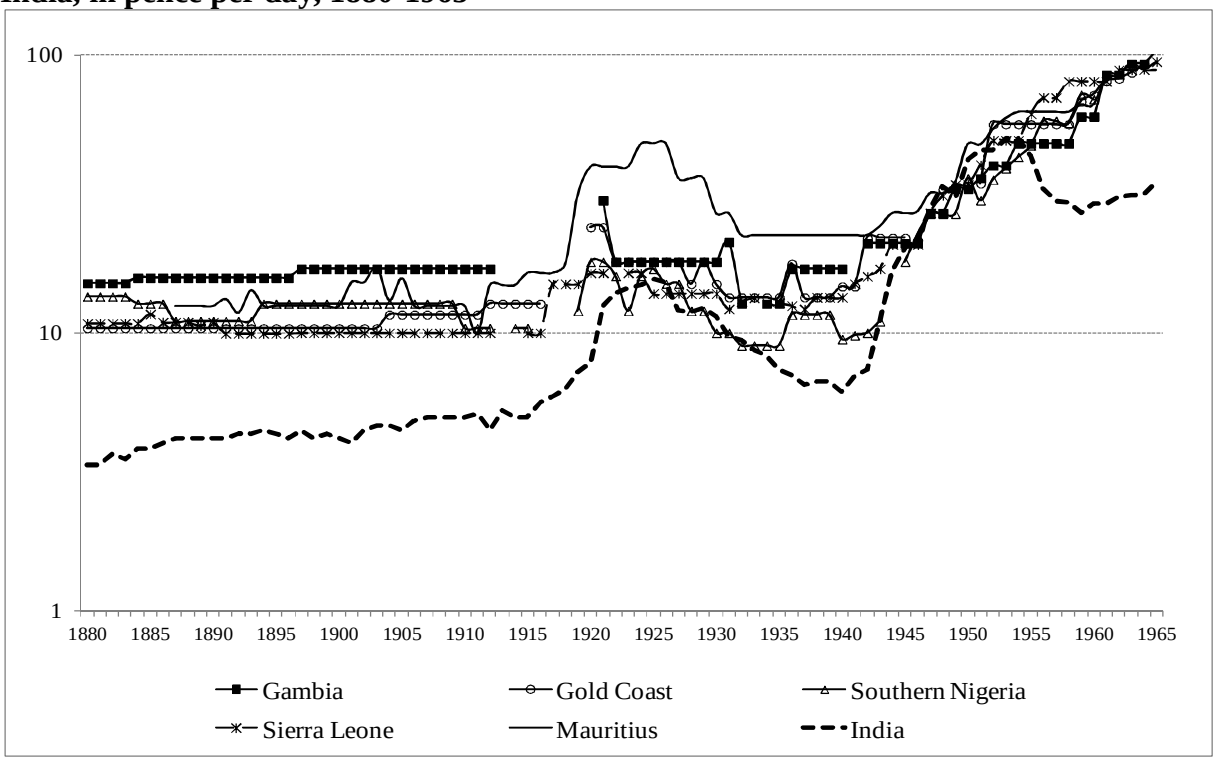
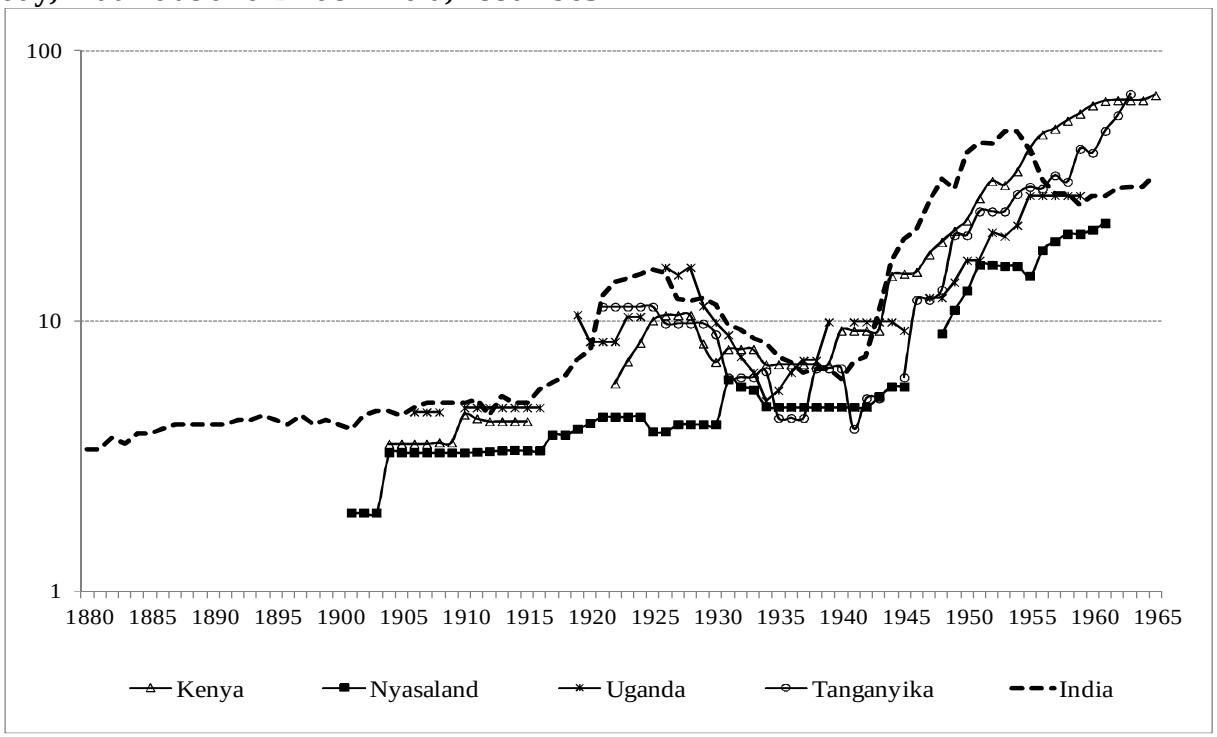
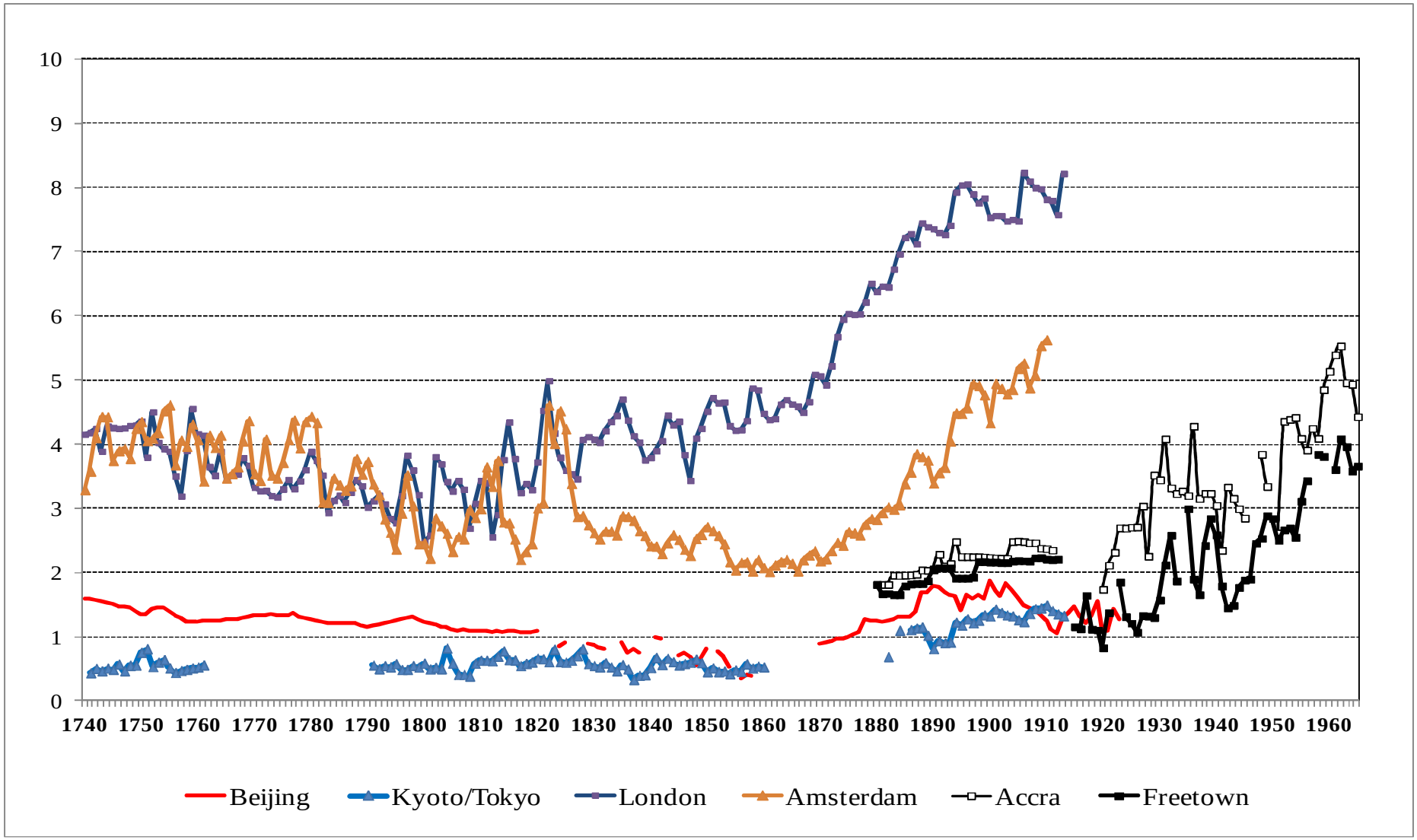


Figure 1b: Nominal wages of urban unskilled workers in British East Africa, in pence per day, Mauritius and British India, 1880-1965



Sources: See appendix table 1a

Figure 2: Welfare ratio in Accra and Freetown in global perspective, 1740-1965



Sources: see appendix table 1c.

Figure 3a: Gold Coast welfare ratio (Y-axis 1) and Ghana GDP per capita (Y-axis 2), 1880-2008

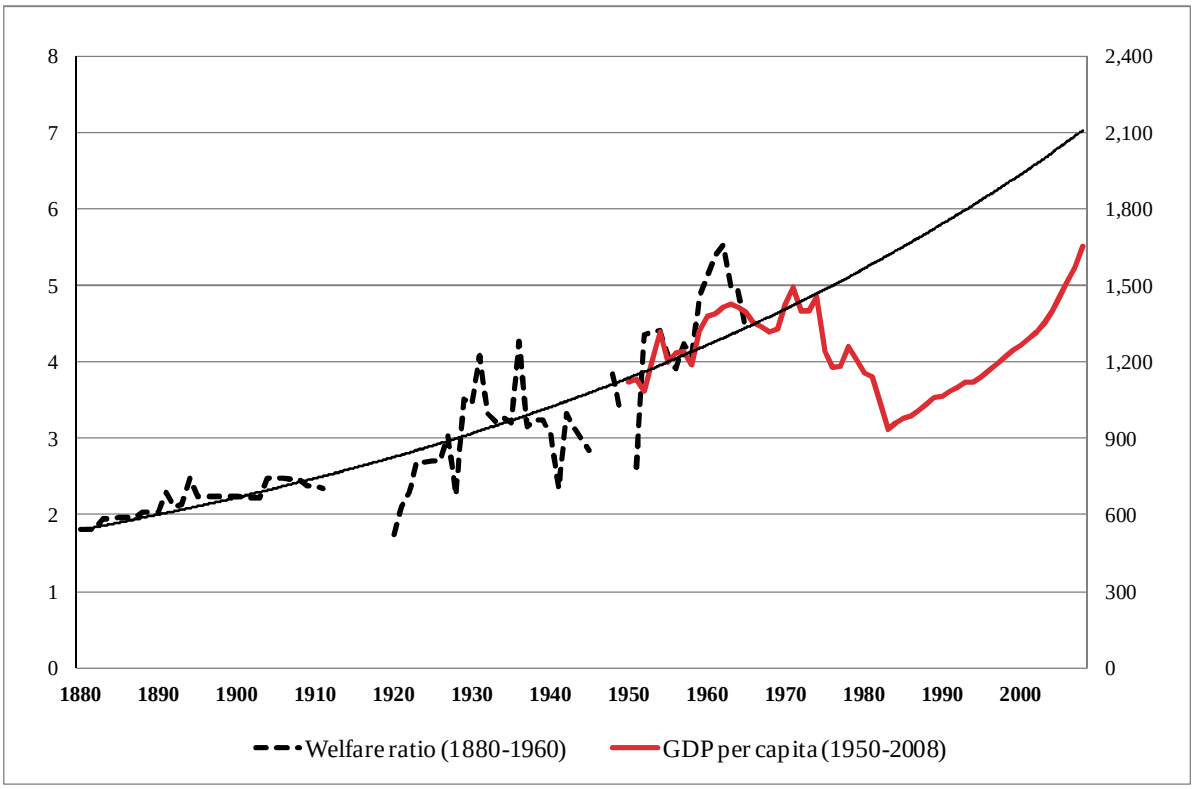
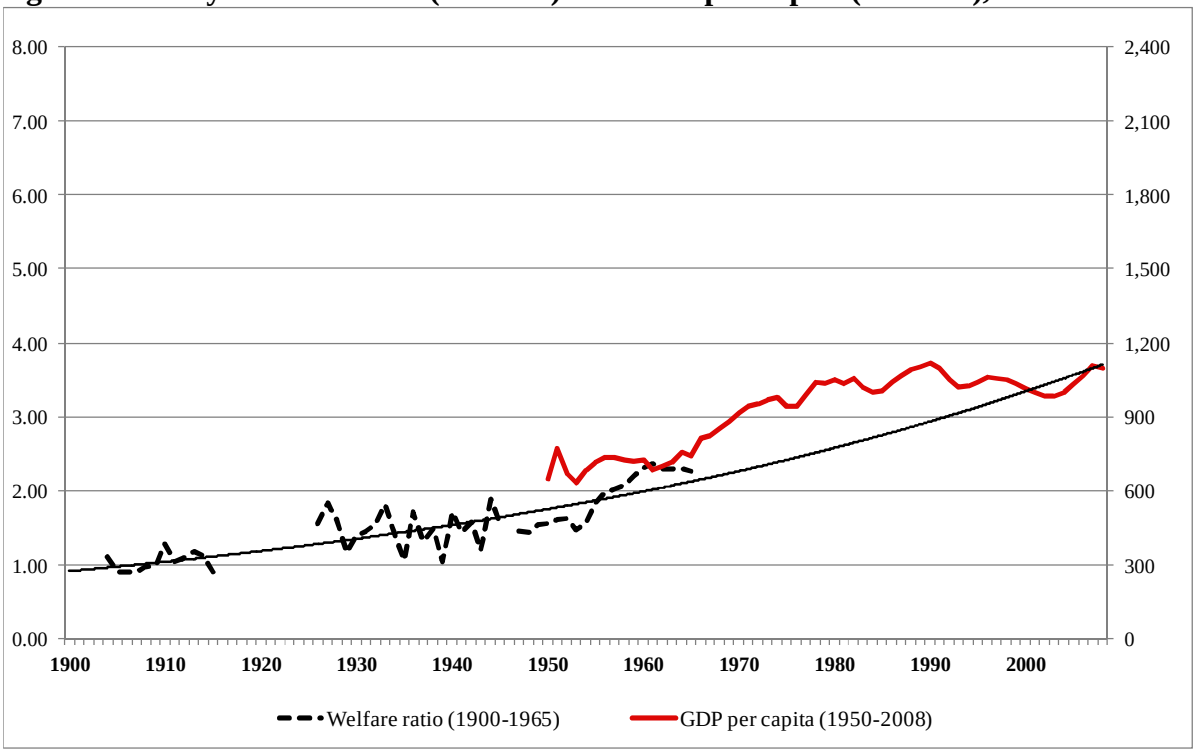


Figure 3b: Kenya welfare ratio (Y-axis 1) and GDP per capita (Y-axis 2), 1900-2008



Source: Maddison 2011 for GDP series; real wage series reported in this paper (appendix 1c).

Figure 4: The impact of colonial institutions on the supply of wage labour and real wage rates

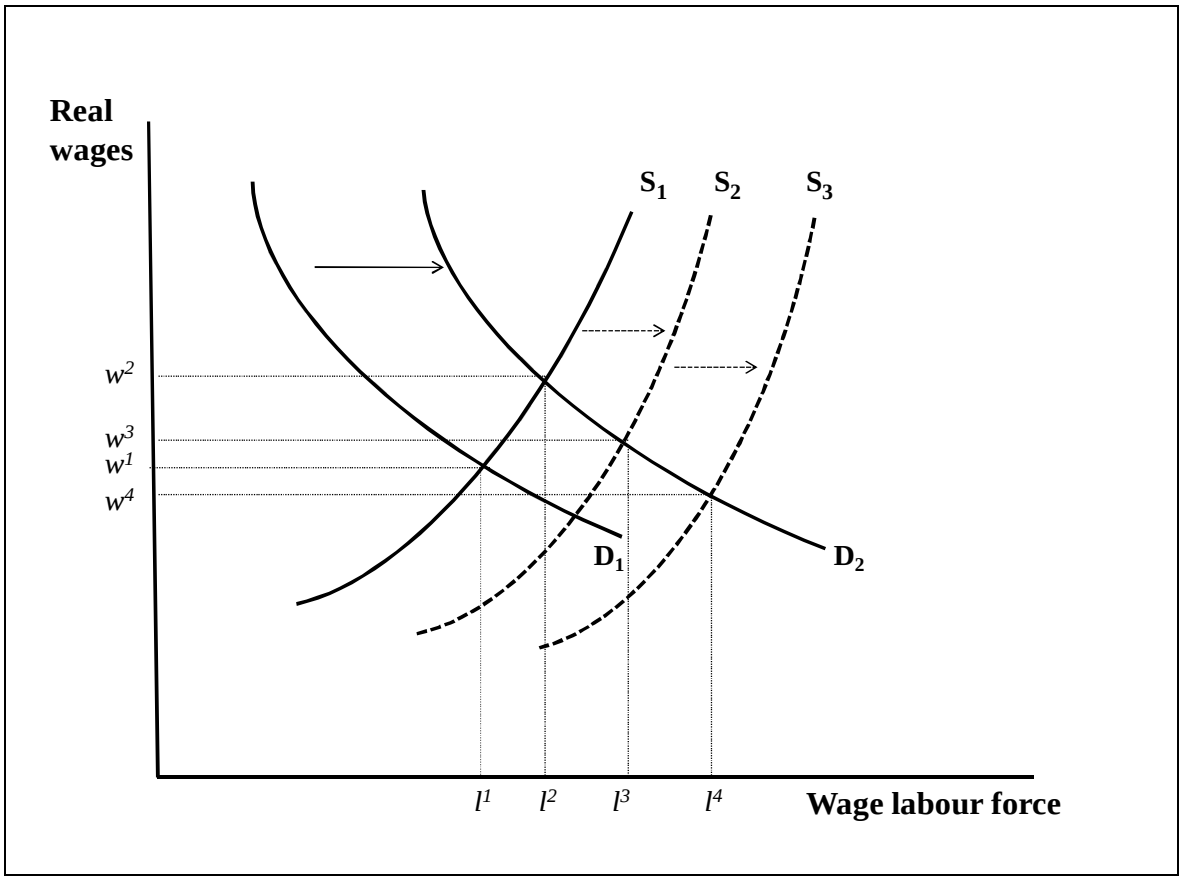
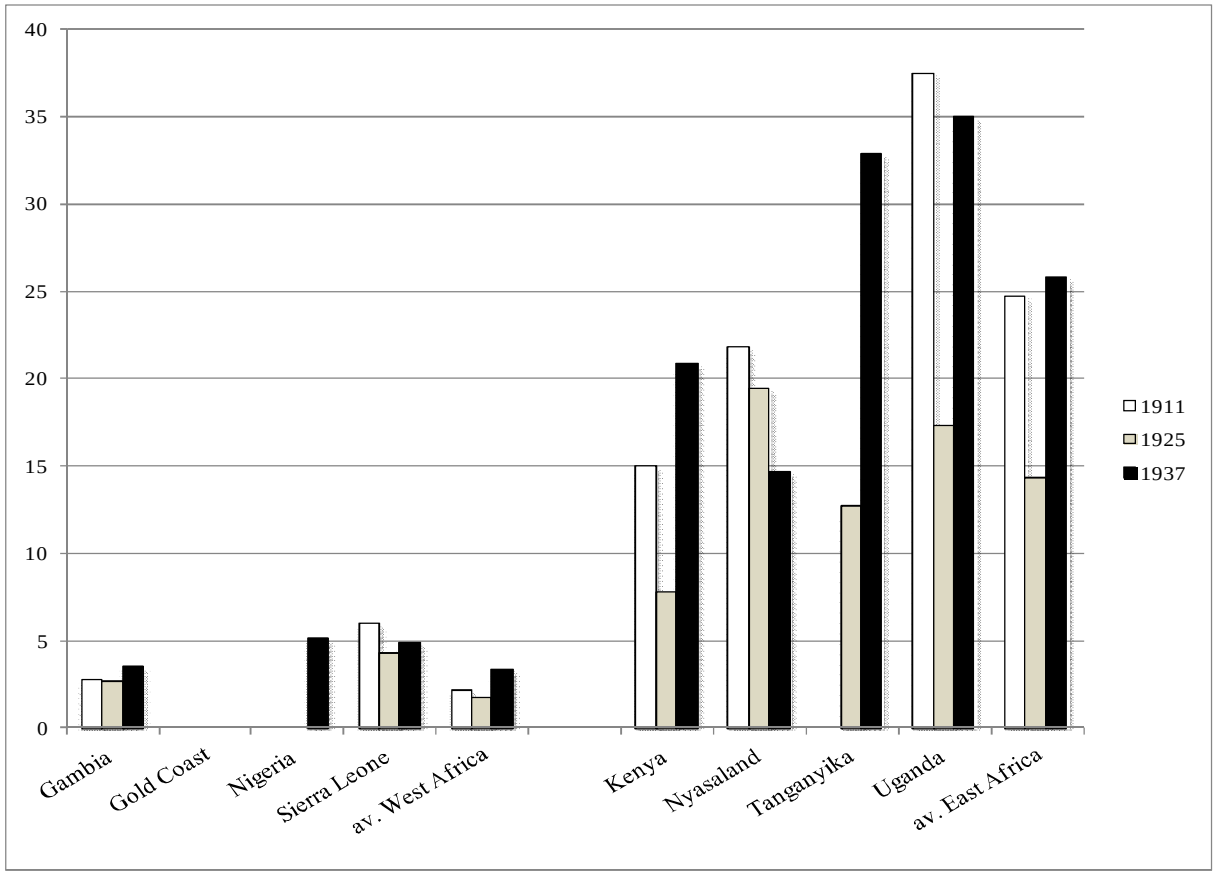


Figure 5: Per capita tax pressure expressed as the number of working days required to meet annual direct taxation obligation



Sources: Tax rates are taken from the same bluebooks as listed in the appendix. See for more information on the comparative impact of colonial taxes in British Africa Frankema, "Raising Revenue".

Appendix table 1a: Nominal wage rates of urban unskilled labor in British Africa, 1880-1965 (pence per day)

	Gambia	Gold Coast	Sierra Leone	Southern Nigeria	Kenya	Nyasaland	Tanganyika	Uganda	Mauritius	*CoVar*
1880	15.1	10.4	10.8	13.5						
1881	15.1	10.4	10.8	13.5						
1882	15.1	10.4	10.8	13.5						
1883	15.1	10.4	10.8	13.5						
1884	15.8	10.4	10.8	12.7						
1885	15.8	10.4	11.7	12.7						
1886	15.8	10.4	10.9	12.7						
1887	15.8	10.4	10.9	11.0					12.5	
1888	15.8	10.4	10.9	11.0					12.5	
1889	15.8	10.4	10.6	11.0					12.5	
1890	15.8	10.4	10.9	11.0					12.5	
1891	15.8	10.4	9.9	11.0					13.3	
1892	15.8	10.4	9.9	11.0					11.8	
1893	15.8	10.4	9.9	11.0					14.3	
1894	15.8	10.4	9.9	12.7					12.5	
1895	15.8	10.4	9.9	12.7					12.5	
1896	15.8	10.4	9.9	12.7					12.5	
1897	17.0	10.4	10.0	12.7					12.5	
1898	17.0	10.4	10.0	12.7					12.5	
1899	17.0	10.4	10.0	12.7					12.5	
1900	17.0	10.4	10.0	12.7					12.5	
1901	17.0	10.4	10.0	12.7		2.0			15.2	
1902	17.0	10.4	10.0	12.7		2.0			15.2	
1903	17.0	10.4	10.0	12.7		2.0			17.3	
1904	17.0	11.6	10.0	12.7	3.5	3.3			13.1	
1905	17.0	11.6	10.0	12.7	3.5	3.3			15.7	
1906	17.0	11.6	10.0	12.7	3.5	3.3		4.6	12.5	*0.6*
1907	17.0	11.6	10.0	12.7	3.5	3.3		4.6	12.5	*0.6*
1908	17.0	11.6	10.0	12.7	3.6	3.3		4.6	12.5	*0.6*
1909	17.0	11.6	10.0	12.7	3.6	3.3			12.5	
1910	17.0	11.6	10.0	10.4	4.5	3.3		4.8	12.5	*0.6*
1911	17.0	11.6	10.0	10.4	4.4	3.3		4.8	10.0	*0.6*
1912	17.0	12.7	10.0	10.4	4.3	3.3		4.8	14.9	*0.6*
1913		12.7			4.3	3.3		4.8	14.9	
1914		12.7		10.4	4.3	3.3		4.8	14.9	
1915		12.7	10.0	10.4	4.3	3.3		4.8	16.5	
1916		12.7	10.0			3.3		4.8	16.5	
1917			15.0			3.8			16.5	
1918			15.0			3.8			17.7	
1919			15.0	12.0		4.0		10.6	31.5	
1920		24.0	16.4	18.0		4.2		8.4	39.6	
1921	30.0	24.0	16.4	18.0		4.4	11.3	8.4	39.6	*0.6*
1922	18.0	18.0		16.0	5.9	4.4	11.3	8.4	39.6	*0.5*

1923	18.0	18.0	16.4	12.0	7.1	4.4	11.3	10.4	39.6	*0.4*
1924	18.0	18.0	16.4	16.0	8.3	4.4	11.3	10.4	47.7	*0.4*
1925	18.0	18.0	13.9	17.0	10.0	3.9	11.3		48.0	*0.4*
1926	18.0	18.0	13.9	15.0	10.5	3.9	9.8	15.8	48.0	*0.4*
1927	18.0	18.0	13.9	15.0	10.5	4.2	9.8	14.8	36.0	*0.4*
1928	18.0	15.0	13.9	12.0	10.5	4.2	9.8	15.8	36.0	*0.3*
1929	18.0	18.0	13.9	12.0	8.3	4.2	9.8	11.4	36.0	*0.4*
1930	18.0	15.0	13.9	10.0	7.1	4.2	8.9	9.9	27.0	*0.4*
1931	21.2	13.4	12.2	10.0	7.9	6.1	6.2	8.9	27.0	*0.5*
1932	12.7	13.4	13.0	9.0	7.9	5.7	6.2	7.4	22.5	*0.3*
1933		13.4	13.4	9.0	7.9	5.6	6.2	6.5	22.5	*0.4*
1934	12.7	13.4		9.0	6.9	4.8	6.5	5.1	22.5	*0.4*
1935	12.7	13.4	12.8	9.0	6.9	4.8	4.4	5.5	22.5	*0.4*
1936	17.0	17.7	12.5	11.6	6.9	4.8	4.4	6.5	22.5	*0.5*
1937	17.0	13.4	12.2	11.6	6.9	4.8	4.4	7.2	22.5	*0.5*
1938	17.0	13.4	13.4	11.6	6.9	4.8	6.7	7.2	22.5	*0.4*
1939	17.0	13.4	13.4	11.6	6.9	4.8	6.7	9.9	22.5	*0.4*
1940	17.0	14.7	13.4	9.5	9.2	4.8	6.7		22.5	*0.4*
1941		14.7	15.0	9.8	9.2	4.8	4.0	9.9	22.5	*0.4*
1942	21.0	22.0	16.0	10.0	9.2	4.8	5.2	9.9	22.5	*0.5*
1943	21.0	22.0	17.0	11.0	9.2	5.3	5.2	9.9	24.1	*0.5*
1944	21.0	22.0	20.8		14.7	5.7		9.9	27.0	
1945	21.0	22.0	20.8	18.0	15.0	5.7	6.2	9.2	27.0	*0.5*
1946	21.0		20.8	22.4	15.2		12.0		27.4	
1947	27.0		27.0	26.8	17.7		12.0	12.2	31.8	
1948	27.0	32.9	31.2	26.8	19.6	9.0	13.1	12.2	31.8	*0.4*
1949	33.0	32.9	34.2	26.8	21.6	11.0	20.8	13.9	34.9	*0.4*
1950	33.0		34.2	36.0	23.5	13.0	20.8	16.8	47.6	*0.4*
1951	36.0	34.5	40.2	30.0	28.4	16.1	25.5	16.8	47.6	*0.3*
1952	40.0	56.3	49.3	35.6	32.9	16.1	25.5	21.3	53.8	*0.4*
1953	40.0	56.3	49.3	39.1	31.9	16.0	25.5	20.6	59.0	*0.4*
1954	48.0	56.3	49.3	42.9	35.8	16.0	29.5	22.6	62.4	*0.4*
1955	48.0	56.3	61.3	47.2	43.2	14.7	31.4	29.2	62.4	*0.4*
1956	48.0	56.3	70.4	58.0	49.0	18.3	30.9	29.2	62.4	*0.4*
1957	48.0	56.3	70.4	58.0	51.5	19.7	34.6	29.2	62.4	*0.4*
1958	48.0	56.3	80.4	56.9	55.2	21.0	32.8	29.2	62.4	*0.4*
1959	60.0	68.0	80.4	72.0	58.6	21.0	43.4	29.2	66.1	*0.4*
1960	60.0	72.0	80.4	69.3	62.8	21.8	42.0		66.1	
1961	85.0	80.6	80.4		65.2	23.1	50.6		82.5	
1962	85.0	82.1	88.4		65.7		57.7		84.2	
1963	93.0	86.4	88.4		65.7		69.2		93.5	
1964	93.0	92.2	88.7		65.7				88.2	
1965		103.7	94.7		68.4				88.2	

Appendix table 1b: Prices of annual family subsistence basket in British Africa, 1880-1965 (pence per year)

	Gambia	Gold Coast	Sierra Leone	Southern Nigeria	Kenya	Nyasaland	Tanganyika	Uganda	Mauritius	*CoVar*
1880	748.9	596.7	722.0	755.0						
1881	748.4	596.3	785.7	751.1						
1882	740.2	595.9	785.3	751.1						
1883	739.1	552.7	791.9	704.7						
1884	621.6	553.1	791.6	601.2						
1885	620.7	551.7	790.8	597.3						
1886	611.0	550.8	724.7	593.4						
1887	596.7	548.3	723.8	585.6					821.8	
1888	597.1	530.6	724.1	585.6					922.3	
1889	596.3	531.7	687.5	531.5					1068.4	
1890	597.0	529.4	642.1	585.6					821.8	
1891	600.9	473.2	577.8	452.2					584.4	
1892	600.2	515.0	578.9	490.7					593.6	
1893	647.6	505.7	578.7	467.0					683.3	
1894	646.5	435.8	629.1	444.6					656.7	
1895	621.5	481.1	628.3	420.3					581.3	
1896	619.9	481.0	629.4	421.4					563.1	
1897	619.9	481.5	627.9	487.0					737.5	
1898	619.7	481.5	554.3	434.7					663.3	
1899	621.1	482.6	554.5	401.7					597.9	
1900	621.3	484.3	555.5	403.2					682.1	
1901	621.4	486.0	556.5	410.1					682.7	
1902	620.2	486.6	558.3	505.2					678.6	
1903	620.8	487.6	558.2	496.1					588.7	
1904	622.4	487.0	552.4	460.9	328.8	558.9			568.9	
1905		485.7	551.6	450.3	400.9	559.5			559.7	
1906		487.3	552.1	464.5	403.0	562.5		342.5	675.2	
1907		491.0	552.7	455.4	402.2	577.8		396.0	782.6	
1908		491.0	542.2	457.7	379.4	570.8		446.8	731.9	
1909		508.2	542.0	404.3	373.4	552.5			688.2	
1910		509.9	545.9	413.7	362.4	553.2		430.1	701.4	
1911		514.9	547.3	414.9	431.6	551.0		436.6	684.3	
1912			546.6	413.4	406.1	556.3		452.6	689.0	
1913					376.2	448.1		460.9		
1914				419.0	391.3			494.5	875.3	
1915			1051.2	492.6	492.0	455.6		537.2	1023.4	
1916			1078.6					541.1	718.6	
1917			1101.1			546.3			1219.8	
1918			1623.1			636.7			1494.4	
1919			1640.8	1463.5		699.4		1034.7	1335.2	
1920		1438.7	1607.7	765.3		770.5		1098.7	1507.6	
1921	1277.9	1181.9	1364.1	983.5		829.7	804.0	1087.8	1433.7	*0.2*
1922	1124.0	809.2		949.9		828.4	518.3	642.7	1410.1	

1923	1066.6	694.6	1108.2	1070.2		727.8	460.9	545.8	1364.6	*0.3*
1924	1286.2	696.0	1304.5	1021.9		622.7	520.4	555.5	1960.8	*0.4*
1925	1484.5	692.4	1482.7	1077.2		496.1	594.3		1270.5	
1926	1399.1	691.3	1395.5	682.4	701.3	623.5	611.7	894.7	1268.2	*0.4*
1927	1295.3	616.8	1296.4	917.3	598.2	587.5	561.7	886.0	956.8	*0.4*
1928	1298.6	692.6	1300.0	614.1	675.7	584.4	534.8	1026.7	959.7	*0.4*
1929	1286.5	532.3	1317.9	612.4	740.2	579.4	621.9	894.8	1185.2	*0.4*
1930	987.2	453.4	982.6	583.2	527.3	578.1	507.2	832.2	971.8	*0.3*
1931	663.5	342.0	671.4	576.2	565.1	536.2	401.1	822.1	810.1	*0.3*
1932	741.2	420.6	758.8		531.0	518.9	396.2	726.0	738.6	*0.3*
1933		432.2	843.7	516.9	449.9	416.8	469.2	669.1	668.6	*0.3*
1934	657.7	427.1		499.4	500.5	414.0	576.2	709.8	691.3	*0.2*
1935	495.9	436.5	522.8	499.1	675.0	416.5	412.3	495.7	682.3	*0.2*
1936	698.3	431.5	736.5	471.2	420.9	377.5	413.4	582.0	669.1	*0.3*
1937	914.6	442.6	940.0	453.3	544.6	381.7	418.5	621.6	657.0	*0.4*
1938	750.4	432.1	766.4	448.7	484.4	379.2	444.6	623.7	649.4	*0.3*
1939	598.0	432.1	613.1	522.8	691.1	378.0	459.1	593.8	646.8	*0.2*
1940	751.5	502.1	782.9	590.9	560.8	378.0	393.5		861.4	*0.3*
1941		652.5	1138.4	582.9	667.3	378.0	521.0	628.3		*0.4*
1942	1297.7	687.1	1434.6	472.4	605.8		602.9	612.3	1517.0	*0.5*
1943	998.7	726.0	1483.6	782.6	798.5		1239.2	619.6	889.4	*0.3*
1944	1136.2	764.9	1526.6		808.5			808.2	1001.4	
1945	1112.3	803.7	1434.6		982.0		902.7	873.7	1144.4	*0.2*
1946	1100.4		1422.3				842.9		1224.5	
1947	1333.6		1428.5		1264.8		948.5		1258.9	
1948	1524.9	890.2	1600.1		1423.8	1552.8	1134.0		1373.3	*0.2*
1949	1548.9	1023.7	1538.8		1451.4	1564.2	1317.7	1068.9	1407.6	*0.2*
1950	1459.2		1563.3		1562.0		1372.8	1140.2	1419.1	*0.1*
1951	1867.7	1370.9	2090.6		1831.5		1751.2	1282.7	1602.2	*0.2*
1952	2042.8	1344.1	2403.3		2108.0		1812.6	1282.7	1693.7	*0.2*
1953	1896.9	1335.2	2378.7		2246.2	1626.7	1838.7	2213.0	1739.5	*0.2*
1954	1799.6	1326.3	2513.6		2351.4	1626.7	2066.4	1860.6	1705.2	*0.2*
1955	1702.4	1432.5	2562.7		2437.4	1443.5	1978.8	1536.4	1682.3	*0.3*
1956	1605.1	1498.8	2665.2		2571.2	1292.5	1961.3	1508.2	1716.6	*0.3*
1957	1697.5	1379.4			2647.7	1360.6	2083.9	1409.6	1682.3	*0.3*
1958	1789.9	1432.5	2716.4		2752.8	1387.2	2136.4	1437.8	1693.7	*0.3*
1959	1853.1	1459.0	2742.0		2780.4	1746.0	2136.4	1437.8	1682.3	*0.3*
1960	1896.9	1459.0			2807.9	1746.0	2118.9		1705.2	*0.3*
1961	1940.7	1556.4	2895.8		2862.9	1700.5	2118.9		1716.6	
1962	2013.6	1544.6	2808.9		2973.1		2136.4			
1963	2072.0	1813.4	2895.8		2973.1		2083.9			
1964	2013.6	1943.3	3214.3		2973.1					
1965		2436.6	3359.1		3138.2					

Appendix table 1c: Welfare ratios in British Africa, 1880-1965

	Gambia	Gold Coast	Sierra Leone	Southern Nigeria	Kenya	Nyasaland	Tanganyika	Uganda	Mauritius
1880	2.1	1.8	1.6	1.9					
1881	2.1	1.8	1.4	1.9					
1882	2.1	1.8	1.4	1.9					
1883	2.1	2.0	1.4	2.0					
1884	2.6	2.0	1.4	2.2					
1885	2.6	2.0	1.5	2.2					
1886	2.7	2.0	1.6	2.2					
1887	2.8	2.0	1.6	2.0					1.6
1888	2.8	2.0	1.6	2.0					1.4
1889	2.8	2.0	1.6	2.2					1.2
1890	2.8	2.0	1.8	2.0					1.6
1891	2.7	2.3	1.8	2.5					2.4
1892	2.7	2.1	1.8	2.3					2.1
1893	2.5	2.1	1.8	2.5					2.2
1894	2.5	2.5	1.6	3.0					2.0
1895	2.6	2.2	1.6	3.1					2.2
1896	2.6	2.2	1.6	3.1					2.3
1897	2.8	2.2	1.7	2.7					1.8
1898	2.8	2.2	1.9	3.0					2.0
1899	2.8	2.2	1.9	3.3					2.2
1900	2.8	2.2	1.9	3.3					1.9
1901	2.8	2.2	1.9	3.2					2.3
1902	2.8	2.2	1.9	2.6					2.3
1903	2.8	2.2	1.9	2.7					3.0
1904	2.8	2.5	1.9	2.9	1.1	0.6			2.4
1905		2.5	1.9	2.9	0.9	0.6			2.9
1906		2.5	1.9	2.8	0.9	0.6		1.4	1.9
1907		2.5	1.9	2.9	0.9	0.6		1.2	1.7
1908		2.5	1.9	2.9	1.0	0.6		1.1	1.8
1909		2.4	1.9	3.3	1.0	0.6			1.9
1910		2.4	1.9	2.6	1.3	0.6		1.2	1.9
1911		2.3	1.9	2.6	1.1	0.6		1.1	1.5
1912			1.9	2.6	1.1	0.6		1.1	2.2
1913					1.2	0.8		1.1	
1914				2.6	1.1			1.0	1.8
1915			1.0	2.2	0.9	0.8		0.9	1.7
1916			1.0					0.9	2.4
1917			1.4			0.7			1.4
1918			1.0			0.6			1.2
1919			1.0	0.9		0.6		1.1	2.5
1920		1.7	1.1	2.4		0.6		0.8	2.7
1921	2.4	2.1	1.3	1.9		0.6	1.5	0.8	2.9

1922	1.7	2.3		1.8		0.6	2.3	1.4	2.9
1923	1.8	2.7	1.5	1.2		0.6	2.6	2.0	3.0
1924	1.5	2.7	1.3	1.6		0.7	2.3	1.9	2.5
1925	1.3	2.7	1.0	1.6		0.8	2.0		3.9
1926	1.3	2.7	1.0	2.3	1.6	0.7	1.7	1.8	3.9
1927	1.4	3.0	1.1	1.7	1.8	0.7	1.8	1.7	3.9
1928	1.4	2.3	1.1	2.0	1.6	0.7	1.9	1.6	3.9
1929	1.5	3.5	1.1	2.0	1.2	0.7	1.6	1.3	3.2
1930	1.9	3.4	1.5	1.8	1.4	0.7	1.8	1.2	2.9
1931	3.3	4.1	1.9	1.8	1.5	1.2	1.6	1.1	3.5
1932	1.8	3.3	1.8		1.5	1.1	1.6	1.1	3.2
1933		3.2	1.6	1.8	1.8	1.4	1.4	1.0	3.5
1934	2.0	3.3		1.9	1.4	1.2	1.2	0.7	3.4
1935	2.7	3.2	2.6	1.9	1.1	1.2	1.1	1.2	3.4
1936	2.5	4.3	1.8	2.6	1.7	1.3	1.1	1.2	3.5
1937	1.9	3.2	1.3	2.7	1.3	1.3	1.1	1.2	3.6
1938	2.4	3.2	1.8	2.7	1.5	1.3	1.6	1.2	3.6
1939	3.0	3.2	2.3	2.3	1.0	1.3	1.5	1.7	3.6
1940	2.3	3.0	1.8	1.7	1.7	1.3	1.8		2.7
1941		2.3	1.4	1.7	1.4	1.3	0.8	1.6	
1942	1.7	3.3	1.2	2.2	1.6		0.9	1.7	1.5
1943	2.2	3.2	1.2	1.5	1.2		0.4	1.7	2.8
1944	1.9	3.0	1.4		1.9			1.3	2.8
1945	2.0	2.8	1.5		1.6		0.7	1.1	2.5
1946	2.0		1.5				1.5		2.3
1947	2.1		2.0		1.5		1.3		2.6
1948	1.8	3.8	2.0		1.4	0.6	1.2		2.4
1949	2.2	3.3	2.3		1.5	0.7	1.6	1.4	2.6
1950	2.4		2.3		1.6		1.6	1.5	3.5
1951	2.0	2.6	2.0		1.6		1.5	1.4	3.1
1952	2.0	4.4	2.1		1.6		1.5	1.7	3.3
1953	2.2	4.4	2.2		1.5	1.0	1.4	1.0	3.5
1954	2.8	4.4	2.0		1.6	1.0	1.5	1.3	3.8
1955	2.9	4.1	2.5		1.8	1.1	1.6	2.0	3.9
1956	3.1	3.9	2.7		2.0	1.5	1.6	2.0	3.8
1957	2.9	4.2	2.5		2.0	1.5	1.7	2.2	3.9
1958	2.8	4.1	3.1		2.1	1.6	1.6	2.1	3.8
1959	3.4	4.8	3.0		2.2	1.3	2.1	2.1	4.1
1960	3.3	5.1	3.1		2.3	1.3	2.1		4.0
1961	4.6	5.4	2.9		2.4	1.4	2.5		5.0
1962	4.4	5.5	3.3		2.3		2.8		
1963	4.7	5.0	3.2		2.3		3.5		
1964	4.8	4.9	2.9		2.3				
1965		4.4	2.9		2.3				

Appendix table 1d: Sources and methods used to construct wage and price series

The codes CO and DO respectively refer to the archives of the Colonial Office and Dominion Office in the British National Archive (TNA, London); The abbreviation BB refers to Blue Book, SP to Sessional Papers and TS to Trade Statistics.

Gold Coast, Accra

Wage data:
For 1880-1942 from the *Blue Book for the Gold Coast Colony, 1880-1946* (CO100/30-96); for 1943-1960 from the *Sessional Papers and Administration Reports, various editions 1940-1965* (CO98/78-101 and DO138/4-14); for 1961-1965 the 'manufacturing wage index' for Ghana from Mitchell, 2007, p. 141.

Urban unskilled wages: 1880-99 'trades - hammock men (in town); 1900-16 'trades – labourers' (rate for hammock men 1900-2 is the same as for labourers); 1920-4 'trade and manufacture – local labourers'; 1925-37 'government, railways – labourers'; 1938-41 'government public works' (government wages railways 1938 were the same as public works); 1942-45 'unskilled workers, incl. wartime bonus'; 1948-1960 'construction labourers, non-artisan'; 1961-1965 'manufacturing wage index Ghana'.

Rural unskilled wages: 1880-1884 'preadial'; 1900-1916 'local labourers' (urban and rural wages are the same, as indicated by Blue Book 1920); 1920-1924 'agriculture'; 1925-1930 'agricultural stations'; 1931-1935 'agriculture – government employment'; 1937-1945 'agriculture'; 1948 'agriculture, timber'; 1949-1951 'agriculture – unskilled labour'; 1951-1958 'agriculture – farm labourers'.

Urban skilled wages: 1880-1899 'trades'; 1900-1924 'carpenters and masons'; 1925-1951 'government – carpenters and masons' (or blacksmiths, 1949); 1952-1958 'manufacturing – artisan or tradesmen'.

Price data:
For 1880-1940 from the *Blue Book for the Gold Coast Colony, 1880-1946* (TNA CO100/30-96); For 1941-1965 the official colonial CPI (1939=100) from the *Sessional Papers and Administration Reports, various editions 1940-1965* (TNA CO98/78-101 and DO138/4-14). Additional price information taken from the *Annual Statement of the Trade of the United Kingdom with Foreign Countries and British Possessions, various editions 1880-1940*.

Wheat: from retail price reports BB.
Rice: from retail price reports BB.
Maize: from retail price reports BB; for 1880-1931 extrapolated using combined rice and wheat prices BB ($R^2 = 0.65$).
Meat: beef prices from retail price reports BB.
Sugar: from retail price reports BB.

Palm oil: from retail price reports BB; for 1880-1929 and 1939-1940 extrapolated using the weighted price trend of other food items.
Cotton: from TS with a mark-up rate of 20%; for 1939-1940 extrapolated using the weighted price trend of other non-food items.
Soap: from retail price reports BB; for 1886-1919 extrapolated using trend in import prices from TS; for 1880-1885 extrapolated using the weighted price trend of other non-food items.
Kerosine: from retail price reports BB; for 1880-1919 extrapolated using the weighted price trend of other non-food items.

The total price of the subsistence basket is raised with 15%, comprising 5% for housing, 7.5% for fuel and 2.5% for lighting.

Sierra Leone, Freetown

Wage data:
For 1880-1943 from the *Blue Book of Sierra Leone, 1880-1945* (CO272/57-122); for 1944-1965 from the *Sessional Papers and Administration Reports, various editions 1903-1965* (CO270/77-104).

Urban unskilled wages: 1880-96 based on a log-normal average of rural wages and the skill-adjusted category 'trades'; 1897-1911 'trades – blacksmiths' extrapolated backwards using 1915 as benchmark for the labourers-blacksmiths wage ratio (the rate for blacksmiths did not change between 1897-1911); 1915-9 'trades – labourers (Freetown)'; 1920-4 'trade and manufacture – porter or carrier'; 1925-43 'government, railways – locomotive labourers and cleaners'; 1944-8 'unskilled labourers, colony'; 1949-1965 'unskilled railways, colony area'

Unskilled rural labour: 1880-4 'preadial'; 1885-1919 'farm labourers' incl. a bushel of rice (average between 'near towns or villages' and 'more rural places'); 1926-43 'agriculture'; 1946-7 'unskilled labour, other areas'; 1949-65 'unskilled railways, other areas' (the latter two categories were based on the assumption that the wage from a rural farm labourer did not deviate much from that of an unskilled railway labourer in the rural areas)

Urban skilled labour: 1880-96 'trades'; 1897-1924 'blacksmiths' (1920-4 minimum rate doubled on the basis of previous years); 1925-30 'government railways – carpenters and painters'; 1931-40 'government railways – painters'; 1941-8 'artisans'; 1949-65 'skilled railways, colony area'.

Price data:
For 1880-1941 from the *Blue Book of Sierra Leone, 1880-1945* (CO272/57-122); For 1942-1965 the official colonial CPI (1939=100) from the *Sessional Papers and Administration Reports, various editions between 1903-1965* (CO270/77-104). Additional price information taken from the *Annual Statement of the Trade of the United Kingdom with Foreign Countries and British Possessions, various editions 1880-1940*.

Wheat: from retail price reports BB.

Rice: from retail price reports BB.
Maize: from wholesale price reports BB, with a mark-up rate of 20%; for 1880-1912 extrapolated using combined rice and wheat prices BB ($R^2 = 0.71$).
Meat: beef prices from retail price reports BB.
Sugar: from retail price reports BB.
Palm oil: from retail price reports BB; for 1880-1916 extrapolated using the weighted price trend of other food items.
Cotton: from TS with a mark-up rate of 20%; for 1939-1943 extrapolated using the weighted price trend of other non-food items.
Soap: from retail price reports BB; for 1906-1919 extrapolated using trend in import prices from TS; for 1880-1885 extrapolated using the weighted price trend of other non-food items.
Kerosine: from retail price reports BB; for 1880-1919 extrapolated using the weighted price trend of other non-food items.

The total price of the subsistence basket is raised with 15%, comprising 5% for housing, 7.5% for fuel and 2.5% for lighting.

Southern Nigeria, Lagos (mainly)

Wage data:
For 1880-1903 from the *Blue book for the Colony of Lagos, 1880-1905* (CO151/18-43); for 1904-1912 from the *Blue book for the Protectorate of Southern Nigeria, 1900-1913* (CO473/1-16); for 1913-27 and 1936-43 from the *Blue Book for the Colony and Protectorate of Nigeria, 1913-1945* (CO660/1-35); for 1928-35 and 1945-1960 from the *Sessional Papers and Administration Reports, various editions 1912-1965* (CO657/40-157).

Urban unskilled wages: 1880-93 extrapolated backwards from 1894 using the trend in rural unskilled wages; 1894-1903 'trades Lagos – canoemen' (these pre-1904 series were downward adjusted using the wage rates found in a larger selection of cities and towns in Southern Nigeria after 1903); 1904-24 'trades Southern Nigeria – labourers and carriers'; 1926-7 'manufactures, building – unskilled'; 1928-35 'casual labour, Lagos'; 1936-54 'construction labourers'; 1950 'Port of Lagos, labourer'; 1956-9 'government, unskilled labour'; 1960 'labourer, minimum daily wage'.

Rural unskilled wages: 1880-1903 'preadial, Lagos'; 1911-5 'preadial, Southern Nigeria'; 1919-40 'agriculture'; 1948-54 'plantations'; 1956-9 'agriculture'.

Urban skilled wages: 1880-93 'trades, Lagos'; 1894-1903 'carpenters, Lagos'; 1904-25 'carpenters, Southern Nigeria'; 1926-47 'government, artisans'; 1948-54 'carpenters'; 1956-9 'forestry, skilled'.

Price data:
For 1880-1903 from the *Blue book for the Colony of Lagos, 1880-1905* (CO151/18-43); for 1904-1912 from the *Blue book for the Protectorate of Southern Nigeria, 1900-1913* (CO473/1-16); For 1913-1943 from the *Blue Book for the Colony and Protectorate of Nigeria, 1913-1945* (CO660/1-

35). Additional price information taken from the *Annual Statement of the Trade of the United Kingdom with Foreign Countries and British Possessions, various editions 1880-1940*.

Wheat: from retail price reports BB.
Rice: from retail price reports BB.
Maize: from retail price reports BB; for 1880-1915 and 1940-43 extrapolated using combined wheat and rice prices ($R^2 = 0.67$).
Cassava: from retail price reports BB; for 1903-43 extrapolated using wheat prices ($R^2 = 0.88$).
Meat: beef prices from retail price reports BB.
Sugar: from retail price reports BB; for 1894-1943 extrapolated using the weighted price trend of other food items.
Palm oil: from retail price reports BB; for 1880-1929 and 1939-43 extrapolated using the weighted price trend of other food items.
Cotton: import prices from TS with a mark-up rate of 20%; for 1880-90 and 1940-43 extrapolated using the weighted price trend of other non-food items.
Soap: from retail price reports BB; for 1891-1919 extrapolated using trend in import prices from TS; for 1880-90 and 1941-43 extrapolated using the weighted price trend of other non-food items.
Kerosine: from retail price reports BB; for 1880-1919 and 1941-43 extrapolated using weighted price trend of other non-food items.

The total price of the subsistence basket is raised with 15%, comprising 5% for housing, 7.5% for fuel and 2.5% for lighting.

The Gambia

Wage data:
For 1880-1943 from the *Blue Book for the Colony of The Gambia, 1880-1945* (CO 90/54-119); for 1944-1964 from the *Sessional Papers and Administration Reports, various editions 1886-1964* (CO 89/25-45).

Urban unskilled wages: 1897-1912 'trades – labourers'; pre-1897 based on a log-normal distribution between rural wages and the skill-adjusted category 'trades'; 1921-4 'trades and government/manufacture – labourers'; 1925-6 'other, industrial – building' (wage level vis-à-vis 1924 unaltered); 1927-44 'government' (goverment wages were equal to industrial wages in 1925-6); 1944-1946 'unskilled manual labour'; 1947-1960 'unskilled labourer'; 1961-1964 'port worker'.

Rural unskilled wages: 1880-1912 'preadial'; 1924-1964 'agriculture'.

Urban skilled wages: 1880-1912 'trades – carpenters'; 1921-1924 'Masons'; 1928-1944 'government' (lognormal of 2 times minimum and maximum); 1945-1964 'Artisans'.

Price data:
For 1880-1943 from the *Blue Book for the Colony of The Gambia, 1880-1945* (CO 90/54-119); for 1942-1964 the official colonial CPI (1939=100) from the *Sessional Papers and Administration*

Reports, various editions between 1886-1964 (CO 89/25-45). Additional price information taken from the *Annual Statement of the Trade of the United Kingdom with Foreign Countries and British Possessions, various editions 1880-1940*.

Wheat: from retail price reports BB.
Rice: from retail price reports BB.
Maize: for 1920-1943 the maize prices from Freetown; for 1880-1904 extrapolated using combined rice and wheat prices ($R^2 = 0.45$).
Meat: beef prices from retail price reports BB.
Sugar: from retail price reports BB.
Palm oil: from retail price reports BB; for 1880-1927 extrapolated using the weighted price trend of other food items.
Cotton: import prices from TS with a mark-up rate of 20%; for 1939-45 extrapolated using the weighted price trend of other non-food items.
Soap: from retail price reports BB; for 1906-1920 extrapolated using trend in import prices from TS; for 1880-1905 extrapolated using the weighted price trend of other non-food items.
Kerosine: from retail price reports BB; for 1880-1921 extrapolated using the weighted price trend of other non-food items.

The total price of the subsistence basket is raised with 15%, comprising 5% for housing, 7.5% for fuel and 2.5% for lighting.

Kenya, Nairobi

Wage data:
For 1904-1912 the *Blue Book of the British East Africa Protectorate, 1901-1916* (CO 543/1-15); for 1926-1943 the *Blue Book for the Colony and Protectorate of Kenya, 1925-1946* (CO543/16-36); For 1913-15 and 1944-1965 the *Sessional Papers and Administration Reports, various editions between 1903-1965* (CO544/1-111).

Urban unskilled wages: 1904-12 extrapolated backwards from 1913 using the trend in rural unskilled wages; 1913-15 'native unskilled urban labour'; 1926-44 'government, railways – unskilled'; 1944-5 'casual labour in town'; 1946-9 'Nairobi, unskilled labour'; 1950-2 'Shop and store workers, unskilled'; 1953 'urban unskilled workers'; 1954-61 'Nairobi, minimum wage'; 1962-5 'unskilled construction worker'.

Rural unskilled wages: 1904-12 'farm labourers' (lognormal of non-coastal and coastal rates); 1926-44 'agriculture'; 1953-5 'agriculture, non-resident labour'.

Urban skilled wages: 1904-9 'trades – carpenters, Swahili'; 1947-9 'artisans'; 1950-2 'carpenters'; 1955 'Nairobi, skilled labour'.

Price data:

For 1904-1915 the *Blue Book of the British East Africa Protectorate, 1901-1916* (CO 543/1-15); for 1926-1945 the *Blue Book for the Colony and Protectorate of Kenya, 1925-1946* (CO543/16-36); for 1947-1965 official African retail CPI from the *Sessional Papers and Administration Reports, various editions 1903-1965* (CO544/1-111). Additional price information taken from the *Annual Statement of the Trade of the United Kingdom with Foreign Countries and British Possessions, various editions 1880-1940*.

Wheat: from retail price reports BB.
Rice: from retail price reports BB.
Maize: from wholesale price reports BB with a mark-up rate of 20%.
Meat: beef prices from retail price reports BB.
Sugar: from retail price reports BB.
Ghee: from retail price reports BB; for 1903-15 and 1926-31 extrapolated using butter prices.
Cotton: import prices from TS with a mark-up rate of 20%; for 1939-45 extrapolated using the weighted price trend of other non-food items.
Soap: from retail price reports BB; for 1910-1926 extrapolated using trend in import prices from TS; for 1903-09 extrapolated using the weighted price trend of other non-food items.
Kerosine: from retail price reports BB; for 1903-15 extrapolated using the weighted price trend of other non-food items.

The total price of the subsistence basket is raised with 15%, comprising 5% for housing, 7.5% for fuel and 2.5% for lighting.

Nyasaland, Zomba

Wage data:
For 1901-1942 the *Blue Book of Nyasaland Protectorate, 1897-1941* (CO452/5-45); for 1943-1961 the *Sessional Papers and Administration Reports, various editions 1907-1964* (CO626/1-43).

Urban unskilled wages: 1902-9 ‘trades, natives – according to skill’, downwards adjusted for skill-premium; 1910-1920 interpolated series based on rural wage observations; 1921-4 ‘trade and manufacture – carpenters’, downwards adjusted for skill-premium; 1925-30 ‘industrial – unskilled’; 1931-42 ‘government, public works’; 1943-5 ‘ordinary wage labour in towns’; 1948 ‘government public works, labourer’; 1949-52 ‘unskilled construction worker’; 1953-4 ‘industry, unskilled’; 1955-9 ‘brickmaker, southern province’; 1960 ‘government, casual labour’; 1961 ‘census, bottom of income pyramid’.

Rural unskilled wages: 1904-9 ‘preadial, average various areas’; 1914-5 ‘ordinary labour’; 1921-30 ‘agriculture’; 1931-4 ‘unskilled labour, Northern Provinces’; 1937-55 ‘agriculture’; 1956-7 ‘tobacco, minimum category unskilled and semi-skilled’; 1958-60 ‘minimum wage all other areas not townships’.

Urban skilled wages: 1904-09 ‘trades natives, according to skill’ (maximum value); 1921-24 ‘trades, carpenters’; 1925-30 ‘industrial skilled’ (weighted average private sector and government); 1950-54 ‘skilled construction worker’.

Price data:
For 1901-1941 the *Blue Book of Nyasaland Protectorate, 1897-1941* (CO452/5-45); for 1943-1961 the *Sessional Papers and Administration Reports, various editions 1907-1964* (CO626/1-43). Additional price information taken from the *Annual Statement of the Trade of the United Kingdom with Foreign Countries and British Possessions, various editions 1880-1940*.

Wheat: from retail price reports BB.
Rice: from retail price reports BB.
Maize: based on export prices BB; for 1901-17 and 1940-41 extrapolated using combined rice and wheat prices ($R^2 = 0.70$).
Meat: Mutton prices from retail price reports BB; for 1901-12 extrapolated using the weighted price trend of other food items.
Sugar: from retail price reports BB.
Ghee: from retail price reports BB.
Cotton: import prices from TS with a mark-up rate of 20%; for 1901-04 and 1939-41 extrapolated using the weighted price trend of other non-food items.
Soap: from retail price reports BB; for 1910-1920 extrapolated using trend in import prices from TS; for 1901-09 extrapolated using the weighted price trend of other non-food items.
Kerosine: from retail price reports BB; for 1901-20 extrapolated using the weighted price trend of other non-food items.

The total price of the subsistence basket is raised with 15%, comprising 5% for housing, 7.5% for fuel and 2.5% for lighting.

Tanganyika, Dar Es Salaam

Wage data:
For 1921-1947 from the *Tanganyika Territory Blue Book, 1921-1948* (CO726/1-30); for 1948-1963 from the *Sessional Papers and Administration Reports, various editions 1918-1963* (CO736/1-62).

Urban unskilled wages: 1921-25 ‘native porters and unskilled labour’ (coast); 1926-55 ‘unskilled construction workers’; 1956-60 ‘manufacturing’; 1961-3 ‘unskilled labour’.

Rural unskilled wages: 1921-5 ‘agriculture, central area’; 1926-48 ‘agriculture, all areas’; 1949-51 ‘groundnuts’; 1952-3 ‘government, district’; 1954-5 ‘coffee’; 1956 ‘agriculture’.

Urban skilled wages: 1921-5 ‘native carpenters’; 1926-40 ‘skilled construction worker’; 1941-8 ‘carpenters, African’.

Price data:

For 1921-1947 from the *Tanganyika Territory Blue Book, 1921-1948* (CO726/1-30); for 1948-1963 official African retail CPI from the *Sessional Papers and Administration Reports, various editions 1918-1963* (CO736/1-62). Additional price information taken from the *Annual Statement of the Trade of the United Kingdom with Foreign Countries and British Possessions, various editions 1880-1940*.

Wheat: from retail price reports BB.
Rice: from retail price reports BB; for 1923-32 based on export prices BB.
Maize: from retail price reports BB; for 1921-2 extrapolated using rice prices ($R^2 = 0.19$); for 1923-1931 based on export prices BB.
Millet: from retail price reports BB; for 1921-2 extrapolated using rice prices ($R^2 = 0.19$); for 1923-1931 based on export prices BB.
Meat: beef prices from retail price reports BB.
Sugar: from retail price reports BB.
Meat: beef prices from retail price reports BB.
Sugar: from retail price reports BB.
Ghee: from retail price reports BB; for 1921-31 extrapolated using butter prices BB.
Cotton: inserted Kenyan import prices with a mark-up rate of 20%; for 1946-47 extrapolated using the weighted price trend of other non-food items.
Soap: from retail price reports BB; for 1906-19 and 1938-45 extrapolated using the weighted price trend of other non-food items.
Kerosine: from retail price reports BB; for 1906-19 and 1938-45 extrapolated using the weighted price trend of other non-food items.

The total price of the subsistence basket is raised with 15%, comprising 5% for housing, 7.5% for fuel and 2.5% for lighting.

Uganda

Wage data:
For 1906-1945 the *Blue Book of the Uganda Protectorate, 1901-1945* (CO613/1-45); for 1947-1959 the *Sessional Papers and Administration Reports, various editions 1925-1961* (CO685/1-61).

Urban unskilled wages: 1906-19 'trades, Buganda – native carpenters, masons and blacksmiths' (1909-19 corrected for skill-premium); 1920-22 'trade and manufacture – unskilled'; 1923-4 'trade and manufacture Kampala – unskilled'; 1925-45 'industrial', average between minimum and maximum values manufacture and building, and adjusted upwards to reflect the wage rate in Kampala; 1947-53 'unskilled labourers, various industries, Kampala'; 1954-59 'unskilled labourers, construction, Kampala'.

Rural unskilled wages: 1906-19 'Preadial, Buganda'; 1920-41 'agriculture, unskilled'; 1947 'plantations, African unskilled'; 1949-58 'agriculture, sisal and cotton, unskilled'.

Urban skilled wages: 1920-4 ‘skilled, Kampala’; 1947 ‘blacksmiths and carpenters’ (average); 1949-51 ‘artisan or carpenters, construction’; 1954-6 ‘bricklayers’; 1957-8 ‘carpenters’.

Price data:
For 1906-1945 the *Blue Book of the Uganda Protectorate, 1901-1945* (CO613/1-45); for 1947-1959 the official African retail CPI from the *Sessional Papers and Administration Reports, various editions 1925-1961* (CO685/1-61). Additional price information taken from the *Annual Statement of the Trade of the United Kingdom with Foreign Countries and British Possessions, various editions 1880-1940*.

Wheat: from retail price reports BB.
Rice: from retail price reports BB; for 1923-32 based on export prices BB.
Millet: from retail price reports BB; 1906-09 from wholesale price reports BB with a mark-up rate of 20%; 1910-4 linear interpolation.
Cassava: from retail price reports BB; for 1906-24 extrapolated using the weighted price trend of other food items.
Meat: beef prices from retail price reports BB.
Sugar: from retail price reports BB.
Ghee: from retail price reports BB; for 1906-10 and 1912-14 extrapolated using butter prices BB.
Cotton: inserted Kenyan import prices with a mark-up rate of 20%; for 1939-45 extrapolated using the weighted price trend of other non-food items.

Mauritius

Wage data:
For 1887-1942 the *Blue Book for the Colony of Mauritius, 1880-1947* (CO172/114-172); for 1943-1965 the *Sessional Papers and Administration Reports, various editions 1879-1965* (CO170/104-410).

Unskilled urban wages: 1887-1924 lognormal minimum value of ‘trades’ and unskilled labour on sugar plantations; 1925-42 ‘manufacturing’; 1943-65 ‘construction worker, unskilled’.

Unskilled rural wages: 1887-1918 ‘preadial’; 1919-43 ‘agriculture’; 1944-59 ‘daily sugar field labourers, unskilled’ (including cost of living allowance).

Skilled urban wages: 1919-43 ‘industrial, artisans’; 1948-50 ‘artisans, semi-skilled and skilled; 1952 ‘building, carpenters, grade I’; 1953-5 ‘building, carpenters, foremen’; 1957-9 ‘building, foremen, general’.

Price data:
For 1887-1942 the *Blue Book for the Colony of Mauritius, 1880-1947* (CO172/114-172); for 1943-1965 the official CPI for manual labour from the *Sessional Papers and Administration Reports, various editions 1879-1965* (CO170/104-410). Additional price information taken from the *Annual*

Statement of the Trade of the United Kingdom with Foreign Countries and British Possessions, various editions 1880-1940.

Wheat: from retail price reports BB.
Rice: from retail price reports BB; for 1887-1891 extrapolated using trend in import prices from TS.
Maize: only for 1911-19 from retail price reports BB.
Meat: beef prices from retail price reports BB.
Sugar: from retail price reports BB; for 1920-38 based on export prices BB; for 1939-42 extrapolated using the weighted price trend of other food items.
Butter: from retail price reports BB; for 1887-1891 extrapolated using the weighted price trend of other food items.
Cotton: import prices from TS with a mark-up rate of 20%; for 1887-98 and 1939-42 extrapolated using the weighted price trend of other non-food items.
Soap: from retail price reports BB; for 1887-98 and 1939-42 extrapolated using the weighted price trend of other non-food items.
Lamp-oil: import prices from TS with a mark-up rate of 20%; for 1887-1919 extrapolated using the weighted price trend of other non-food items.

The total price of the subsistence basket is raised with 15%, comprising 5% for housing, 7.5% for fuel and 2.5% for lighting.