Structural Impediments to African Growth?

New evidence from real wages in British Africa, 1880-1965

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Abstract

Recent literature on the historical determinants of African poverty emphasizes *structural impediments* to growth, such as adverse geographical conditions, weak institutions and ethnic heterogeneity. The evidence is mainly drawn from cross-country regressions on late 20th century income levels, assuming persistent effects over time. But has African poverty truly been a persistent historical phenomenon? Our study casts doubt on this view by providing new insights into long-term African growth trajectories. To exemplify certain methodological limitations of static econometric tools, we show that the slave trades regressions are not robust for pre-1970s GDP per capita levels, or for pre-1973 and post-1995 growth rates. We push existing African income estimates back in time by calculating urban unskilled real wages in British Africa (1880-1965), adopting Allen's (2001) subsistence basket methodology. We find that real wages were well above subsistence level and rose significantly over time. Moreover, West African and Mauritian real wage levels were considerably higher than those in major Asian cities.

Part of the empirical research has been drawn from the MA-thesis of Marlous van Waijenburg, "*Living Standards in British Africa in a Comparative Perspective, 1880-1945: Is Poverty Destiny?*", March 2010, University of Utrecht. We are grateful to Nathan Nunn, Joel Mokyr, Gareth Austin, Joerg Baten, Morten Jerven, Alexander Moradi, Paul Mosley, Maarten Prak, Jan Pieter Smits, Jan Luiten van Zanden, James Fenske, 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) and the *Historical Patterns of Development and Underdevelopment* (Hi-POD) Conference (Montevideo, December 2010) 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 the slave exports between 1400 and 1900. Albeit emphasizing different origins and channels of causation, all of these studies rest upon the assumption that the effects of adverse geographical or historical characteristics were *persistent* over time, keeping African economies behind ever since they appeared on the scene.[3]

But to what extent do African countries really suffer from such a structural growth disadvantage? Have material living standards in Africa consistently been lower than in other parts of the world? The lack of pre-1950 GDP per capita estimates for SSA complicates straightforward answers to such 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).[4] This provides new insights into long-term African growth trajectories, which places us in a better position to evaluate the path-dependent nature of Africa's proclaimed growth impediments.

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

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[1] In this paper we alternate the terms 'Africa' and 'sub-Saharan Africa'. For international GDP figures and human development indicators see Angus Maddison, *The World Economy: Historical Statistics*, *Oecd Development Centre Studies* (Paris: OECD, 2003)., *World Economy* and Worldbank, "World Development Indicators 2008," (Washington D.C.: The World Bank, 2008)., *World Development Report*.

[2] J.L. Gallup, J.D. Sachs, and A.D. Mellinger, "Geography and Economic Development," *International Regional Science Review* 22, no. 2 (1999)., "Geography"; Jared Diamond, *Guns, Germs and Steel. The Fates of Human Societies* (New York: W.W.Norton & Company, 1997)., *Guns, Germs and Steel*.

[3] Daron Acemoglu, Simon Johnson, and James A. Robinson, "The Colonial Origins of Comparative Development: An Empirical Investigation," *American Economic Review* 91, no. 5 (2001)., "Colonial Origins" and "Reversal of Fortune", claim that extractive colonial institutions have initiated a reversal of fortune in Africa. For the adverse effect of ethnic fractionalization see William Easterly and Ross Levine, "Africa's Growth Tragedy: Politics and Ethnic Divisions " *Quarterly Journal of Economics* 112, no. 4 (1997)., "Africa's Growth Tragedy"; for the effects of the slave trade see N. Nunn, "The Long-Term Effects of Africa's Slave Trades," *Quarterly Journal of Economics* 123, no. 1 (2008)., "Africa's Slave Trade".

[4] The nine British African colonies incorporated in this study are: 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, Northern Rhodesia (Zambia) and Nyasaland (Malawi), and the sugar-island colony Mauritius. This selection is motivated by data availability, data quality and a preference for a geographically dispersed selection.

figures.[5] Economic historians have worked hard in the past decade to make long term real wage series comparable across time and space, and for all major world regions there are now at least some internationally comparable series available.[6] Sub-Saharan Africa has remained the big exception so far, and we accommodate part of this gap.

Our results have implications for the *methodological* debate about African growth analysis as well. 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. 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. 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

[5] Internationally comparable GDP estimates for Africa only cover the period since 1950 and even these series are highly unreliable according to Morten Jerven, "African Economic Growth Reconsidered: Measurement and Performance in East-Central Africa, 1965-1995" (PhD-thesis, London School of Economics and Political Sciences, 2008)., *African Economic Growth Reconsidered.*

[6] The systematic collection of wage and price data goes back to the nineteenth century, but a global perspective has only been developed in the past decade. See for one of the seminal studies Robert C. Allen, "The Great Divergence in European Wages and Prices from the Middle Ages to the First World War," *Explorations in Economic History* 38, no. 4 (2001)., "The Great Divergence"; See for instance for Asia Stephan Broadberry and Bishnupriya Gupta, "The Early Modern Great Divergence: Wages, Prices and Economic Development in Europe and Asia, 1500-1800 " *Economic History Review* 59, no. 1 (2006)., "Early Modern Great Divergence"; Robert C. Allen et al., "Wages, Prices, and Living Standards in China, 1738-1925: In Comparison with Europe, Japan, and India," *Economic History Review* 64, no. S1 (2011)., "wages, prices and living standards"; Se Yan, "Real Wages and Wage Inequality in China, 1860-1936" (University of California, Los Angelos 2008)., "Real Wages"; for the Middle East Şevket Pamuk, "Urban Real Wages around the Eastern Mediterranean in Comparative Perspective, 1100–2000," *Research in Economic History* 23 (2005)., "Urban real wages" and Şevket Pamuk and Suleyman Ozmucur, "Real Wages and Standards of Living in the Ottoman Empire, 1489–1914. 62, Pp. 292–321.," *The Journal of Economic History* 62 (2002)., "Ottoman empire"; for Latin America Jeffrey G. Williamson, "Real Wages, Inequality and Globalization in Latin America before 1940," *Revista de Historia Económica* 17, no. número especial (1999)., "Latin America before 1940" and Rafael Dobado and Hector Garcia, "Neither So Low nor So Short! Wages and Heights in Eighteenth and Early Nineteenth Centuries Colonial Latin America," in *Working paper presented at the workshop "A Comparative Approach to Inequality and Development: Latin America and Europe"* (Madrid: Universidad Carlos III, 2009)., "Neither so low"; and for Europe Jan Luiten van Zanden, "Wages and the Standard of Living in Europe, 1500-1800," *European Review of Economic History* 2 (1999)., "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).

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 role of natural resource abundance and landlocked areas with 'bad neighbors' to explain the interrelatedness of several African poverty traps.[8]

Although proponents of institutional explanations have subordinated the role of geography to the role of history and human decision-making, they 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 slave trading. He establishes a robust negative correlation between slave trade 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 would have deterred social cohesion and reduced the ability to provide for 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 extreme pessimism about Africa's chances to escape poverty in the future. However, linking two moments in time without

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[7] David E. Bloom et al., "Geography, Demography, and Economic Growth in Africa," *Brookings Papers on Economic Activity*, no. 2 (1998). "Geography, Demography", p. 207; Gallup, Sachs, and Mellinger, "Geography and Economic Development." "Geography".

[8] Paul Collier, *The Bottom Billion. Why the Poorest Countries Are Failing and What Can Be Done About It.* (Oxfrod: Oxford University Press, 2008)., *Bottom Billion*, p. 38-63

[9] Acemoglu, Johnson, and Robinson, "The Colonial Origins of Comparative Development: An Empirical Investigation.", p. 1370.

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.

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" Data retrieved from Nunn's website: Maddison 2010, Accessed on 04-02-2011

Notes: The geography controls include xxx; the institutional controls include xxx; the mineral resource controls include xxx; the colonizer fixed effects are dummy variables for the latest colonial power etc.

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 still 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

[10] Gareth Austin, "The 'Reversal of Fortune' Thesis and the Compression of History: Perspectives from African and Comparative Economic History," *Journal of International Development* 20 (2008).

period 1973-1995, which tells us why the regression on GDP per capita in 2000 is so robust, but not for the period 1950-1973 or 1995-2008.[11] After 1995 the estimated relationship turns positive and insignificant; this stands in contrast to the view that slave exports affect *current* economic performance.[12]

These results 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 time before the present. Although Nunn acknowledges that the effects of the slave trades "may have been felt *most* strongly after colonial independence," he still implicitly assumes here that the effects were present to a certain degree in the preceding period as well.[13] 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 later point in time.

Moreover, how can we be sure the variable concerned – whether geographical, institutional or the slaves trades – explains 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 the African economies? With only six decades of GDP per capita estimates for SSA, it is difficult to tell whether the year 2000 or 1960 is more representative for the country's long-run growth trajectory, and thus whether the proposed historical growth impediment had a temporary or a more structural effect on long-term development.

Has Africa indeed been the slowest growing region of the world *since the Industrial Revolution*, as explicitly stated by Bloom and Sachs? If we turn back again to the Maddison data – which Bloom and Sachs also use –, we see that the regional GDP per capita estimate for Africa is higher than for Asia until 1964.[14] Bourguignon and Morrisson observe that, "In

[11] This finding for 1995-2006 has also been shown recently by Maxim Pinkovskiy and Xavier Sala-i-Martin, "African Poverty Is Falling...Much Faster Than You Think!," (2010)., "African Poverty".
[12] See Nunn, "Slave Trades" p. This has also recently been shown by Ibid., "African Poverty is Falling".
[13] Nunn, "Slave Trades." p. 167.
[14] This invokes questions about the reliability of these PPP-adjusted GDP per capita figures. Morten Jerven is highly critical of the quality of African GDP estimates and calls for utmost caution when using these 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. Morten Jerven, "Users and Producers of African Income: Measuring the Progress of African Economies," in *Simons Papers in Security and Development, No. 7/2010* (Vancouver: Simon Fraser Univeristy 2010)., "Users and Producers" and Morten Jerven, "Random Growth in Africa? Lessons from an Evaluation of

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."[15] 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 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 based on strong export-led growth between 1870 and 1914.[16] To which extent the similarities between post-colonial Africa and mid 19th century Latin America outweigh the differences remains open to discussion, but at least it restores the possibility of *historical change* in long term African development.

BRITISH AFRICAN WAGES IN A COMPARATIVE PERSPECTIVE, 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 gaps in historical sources, in particular regarding the unobserved values of production, income or consumption items which were not traded via the market, and hence did not receive a market price. Second, a real wage approach offers a more accurate picture of actual purchasing power of African laborers in isolation of the higher income levels of European settlers and/or Asian migrant workers.

We collected wage and commodity price data for as many British African colonies as possible: The Gambia, Sierra Leone, The Gold Coast (current Ghana), (Southern) Nigeria, Uganda, Kenya, Tanzania, Nyasaland (current Malawi), and Mauritius. We omitted Somalia, Sudan, Bechuanaland and Southern Rhodesia for reasons of data availability and South Africa

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the Growth Evidence on Botswana, Kenya, Tanzania and Zambia, 1965-1995," *Journal of Development Studies* 46, no. 2 (2010)., "Random Growth".

[15] François Bourguignon and Christian Morrisson, "Inequality among World Citizens, 1820-1990," *The American Economic Review* 92, no. 4 (2002)., "Inequality among World Citizens", p 738

[16] Robert H. Bates, John H. Coatsworth, and Jeffrey G. Williamson, "Lost Decades: Postindependence Performance in Latin America and Africa," *The Journal of Economic History* 67, no. 4 (2007)., "Lost Decades".

for analytical reasons.[17] We focused on the incomes of native male urban unskilled wage workers in the private sector for the following reasons.

First, it allows for international comparability since the majority of comparative real wage studies are based on urban unskilled wages. Second, the available price data refer almost exclusively to urban retail prices. Third, the variation in wage levels across ordinary unskilled workers is much smaller than among skilled artisans, such as carpenters, engineers, chauffeurs or administrative employees such as clerks, which reduces the potential error margin in our wage series. We used agricultural and urban skilled wages to assess the reliability of our urban unskilled wage series. It is expected that urban unskilled rates fall somewhere in between the rural unskilled and urban skilled rates, and that these rural-urban and unskilled-skilled ratios remain within reasonable margins.[18] As can be derived from table 2 in the appendix, this was roughly the case for all of the colonies incorporated in this study. 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. Our evidence of annual salaries 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.

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 archive 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-earner's 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

[17] P. de Zwart, "South African Living Standards in Global Perspective, 1835-1910," *Economic History of Developing Regions* 26, no. (forthcoming) (2011).
[18] This would be roughly between 0.5:1 and 1:1 for the rural-urban wage gap, and between 1:1 and 1:4 for the urban unskilled and urban skilled wage gap.

(biased towards the minimum). We have assessed 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.[19]

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. It should also be kept in mind that, especially in the early stages of colonial rule, free wage labor occurred more often in the larger administrative, trade or mining centers. This brings us to another important question. To what extent can we use urban real wages as an indicator of living standards in the rural areas? It is true that parts of the population in the hinterlands were sparsely integrated in the colonial economy, and for these people the size of their harvest, rather than market wages and prices, determined their economic standing.[20] However, wage labor was far from a phenomenon confined to the colonial capital. In contrast, a large and growing number of Africans found wage employment on the various agricultural stations in the colony producing export commodities. With the exception of the more difficult to reach hinterland, we can make the following supposition for those areas where rural wage labor existed. If the wage income of agricultural laborers would have been far above that of subsistence farmers, we can expect that many of the latter would have substituted their mode of occupation to that of the former, and vice versa. As a result, we still capture a large share of the population in an indirect manner. For sake of conciseness though, we will continue to refer to the main capitals in this study, it being: Bathurst (The Gambia), Accra (The Gold Coast), Lagos (Southern Nigeria), Freetown (Sierra Leone), Nairobi (Kenya), Zomba (Nyasaland), Dar es Salaam (Tanganyika), and Kampala (Uganda). Mauritian real wages differ slightly, as they concern unskilled workers on the sugar plantations. We will therefore refer to the entire island.[21]

Our nominal wage series are presented in figure 1a and b. All 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.[22] Three conclusions are important for our overall

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

[20] John Sender and Sheila Smith, *The Development of Capitalism in Africa* (London: Methuen, 1986), : p. 155., *Capitalism in Africa*.

[21] Note that for Mauritius no separate data for unskilled urban workers was available in the blue books. Given the small geographical size of Mauritius and the prevalence of the sugar-plantation sector, labor and consumer markets were better integrated than anywhere else on the African mainland. Rural-urban wage differentials were comparatively limited, if not negligible.

[22] 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 Bas van Leeuwen, *Human Capital and Economic Growth in India, Indonesia and*

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

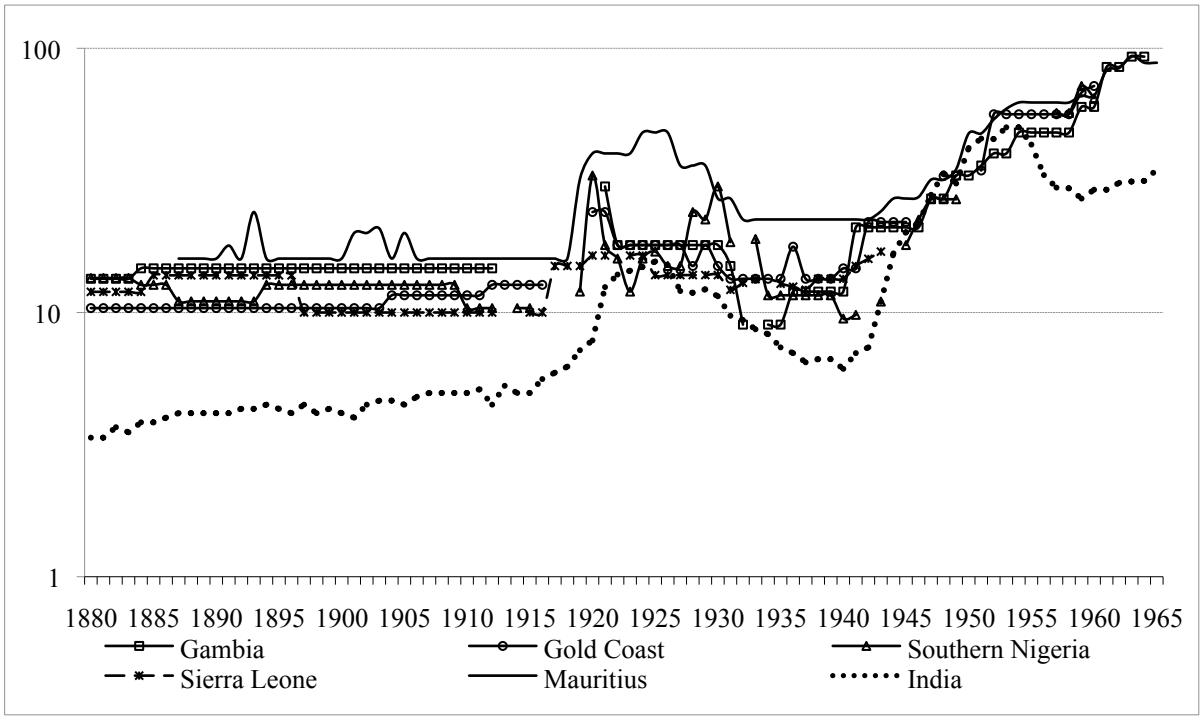
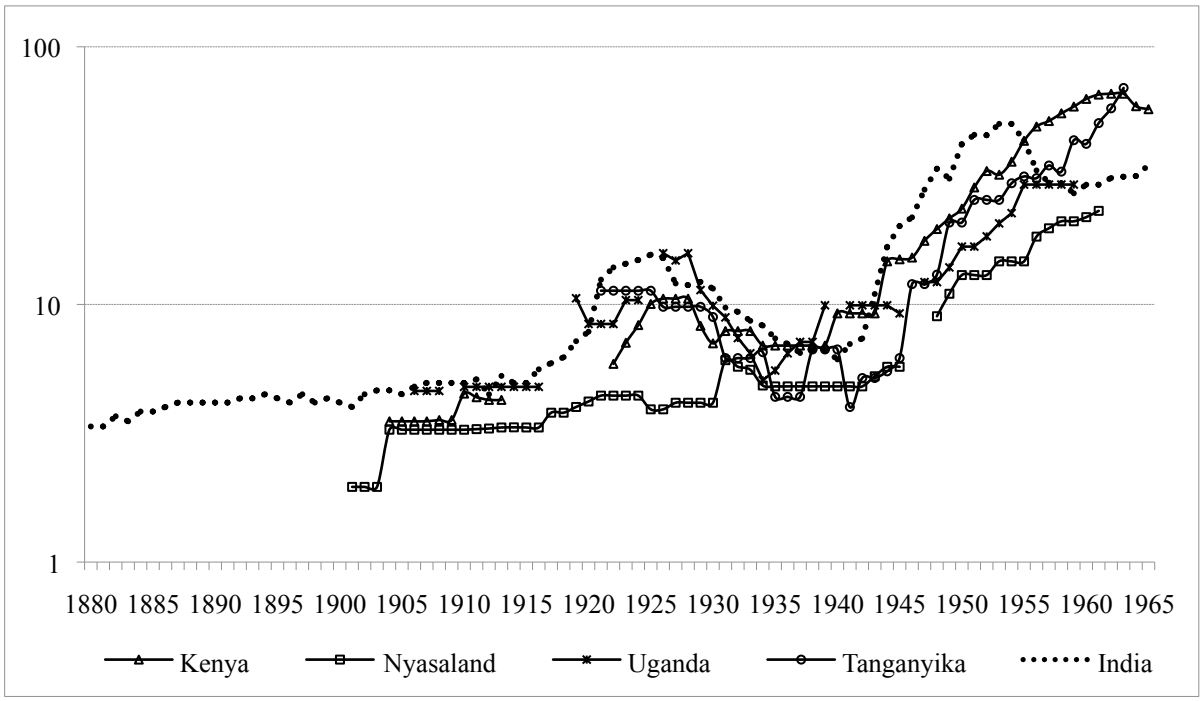


Figure 1b: Nominal wages (in pence per day) of urban unskilled workers in British East Africa, Mauritius and British India, 1880-1965



Sources: See appendix table 1a

Japan. A Quantitative Analysis, 1890-2000 (Utrecht: PhD thesis, Utrecht University, 2007), : pp. 237-242., *Human Capital*. The Japanese wages are converted to British currency using official exchange rates.

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 again higher than in West Africa.

Second, these intra-regional wage gaps were already present at the start of the colonial era and they remained in place until the end of the colonial era (ca. 1960). 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 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. When we place West African nominal wage levels in a broader comparative perspective, including the British West Indies and Asian territories such as Ceylon, Singapore, Malaya and Hong Kong it appears that West African wages were slightly lower than in the Caribbean, but higher than in any of the Asian colonies.[23]

COMMODITY PRICES AND CONSUMPTION PATTERNS

We adopt Allen's concept of the 'bare-bones subsistence basket' to compare prices of key consumption commodities across time and space. Table 2 presents the contents of this basket. A bare-bones subsistence basket keeps an average working family alive, but offers nothing more than that. It includes a minimum amount of daily calories (1,940) and protein (42 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 prices 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

[23] Ewout H.P. Frankema, "Raising Revenue in the British Empire, 1870-1940: How 'Extractive' Were Colonial Taxes?," *Journal of Global History* 5 (2010)., "Raising Revenue".

services. We derived this mark-up rate from years for which we had both retail and wholesale export price data.

The major limitation of a real wage approach is that it measures purchasing power of wages in terms of a fixed commodity basket, without taking into account changes in consumption patterns in response to changes in income, prices or shifting consumer preferences. 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 even greater 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.[24] 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 at least partly accommodate the possibility of commodity substitution we have calculated basket prices of different staple crops whenever our sources granted the opportunity.[25]

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 series. Maize had become a major food crop in Africa during the nineteenth century.[26] 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.

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 the omission of protein rich beans by assuming higher quantities of staple crop consumption, which implies that our series understate real

[24] "Cassava as Livestock Feed in Africa. ", (paper presented at the The IITA/ILCA/University of Ibadan workshop on the potential of cassava as livestock feed in Africa, Ibadan, Nigeria, 1988), James C. McCann, *Maize and Grace. Africa's Encounter with a New World Crop, 1500-2000* (Cambridge MA: Harvard University Press, 2005), : p. 6., *Maize and Grace*.

[25] Robert C. Allen, *The British Industrial Revolution in Global Perspective*, ed. Nigel Goose and Larry Neal, *New Approaches to Economic and Social History* (Cambridge UK: Cambridge University Press, 2009), : p. 37., 'The Great Divergence', Allen, *The British Industrial Revolution in Global Perspective*., *Industrial Revolution,* and Allen et al., "Wages, Prices, and Living Standards in China, 1738-1925: In Comparison with Europe, Japan, and India.", "Wages, prices, and living standards".

[26] McCann, *Maize and Grace. Africa's Encounter with a New World Crop, 1500-2000*., *Maize and Grace*.

purchasing power (probably by some 10 to 20%). 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.

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

			Nutrients per kg		Nutrients per person per day	
	Unit	**Quantity per person per year**	**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 a comparison of this basket with European or Asian subsistence basket see Allen, *Industrial revolution*, pp. 33-42

The basket price series are shown in appendix figure 1b. For Mauritius we show the rice basket, for Kampala the millet basket and for the rest the maize basket price. The most important conclusion is that the intra-regional gaps in basket prices were much smaller than the notable gaps 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, with an average value of 0.5. 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 regional price gaps started to disappear. 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, not by differences in commodity prices.

REAL WAGES IN COMPARATIVE PERSPECTIVE, 1880-1965

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'. Here we focus the discussion on the contrasts between British West and East Africa.

Table 3 shows the real wages in decadal averages. The table demonstrates that, with the notable exception of Zomba, urban male adult wage income sufficed to buy at least one family subsistence basket based per day. The differences in levels and trends across British Africa were remarkably large though. In British West Africa, welfare ratios increased sharply during the colonial period. The most impressive rise occurred in Accra (from 1.3 to 5.1), indicating that the economic dynamics generated by the cocoa export boom spilled over to broad layers in society, including unskilled urban wage-workers and rural workers (whose wages were almost at par during most of the period).

In East Africa welfare ratios improved as well, but at a more modest pace. Most of the rise also occurred at a later point in time; that is, after the Second World War. Before 1940 income levels did fluctuate, but without a clear upward tendency. 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 (2.1) was 91% higher than in East Africa (1.1), while the unweighted average price of a daily family basket for the same period was 36% lower in East Africa (4.3 *d versus* 5.9 *d*). Nominal wage differentials (127%) thus compensated for the price differential and founded the gap in real wages. In the last two decades of British rule (1940-1960) nominal wages in both regions tended to converge, but

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

		British West Africa				British East Africa			
	Port Louis (Mauritius)	**Bathurst** (The Gambia)	**Freetown** (Sierra Leone)	**Accra** (The Gold Coast)	**Lagos** (Southern Nigeria)	**Dar es Salaam** (Tanganyika)	**Zomba** (Nyasaland)	**Nairobi** (Kenya)	**Kampala** (Uganda)
1880s	1.8	2.3	1.5	1.3	1.6	n.a.	n.a.	n.a.	n.a.
1890s	2.8	2.5	1.4	1.4	1.5	n.a.	n.a.	n.a.	n.a.
1900s	2.8	2.5	1.7	1.5	1.6	n.a.	0.5	1.0	1.2
1910s	2.0	n.a.	1.6	1.6	1.7	n.a.	0.7	1.0	1.0
1920s	3.3	3.1	1.3	2.6	1.9	1.9	0.7	1.3	1.5
1930s	3.4	2.9	2.2	3.4	2.1	1.4	1.3	1.4	1.2
1940s	2.4	2.7	2.1	3.1	n.a.	1.1	1.0	1.5	1.5
1950s	3.6	3.0	3.1	4.1	n.a.	1.6	1.3	1.9	1.7
1960-65	4.4	4.9	4.1	5.1	n.a.	2.7	1.4	2.5	n.a.

Sources: see appendix table 1c

prices converged as well, leaving the real wage gap virtually unchanged (and in some individual cases even slightly larger than before).

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 and transport put the purchasing power of initially unchanged wages under strains. The Great Depression of the early 1930s resulted in a real wage increases in most colonies however, as prices fell sharply before wages were readjusted. These effects point to a more general rule: wages were sticky and responded to major price changes. In the long period of price stability up to the First World War wages hardly changed as prices remained fairly stable in the long run. During the interwar years, purchasing power of wage earners was less secure. Inflation, for instance in the early 1920s, caused a decline in real wages in the short run, while deflation lead to a temporary rise in purchasing power of wage workers. This mechanism is not 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 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."[29]

Indisputably, part of the native population experienced economic hardship during the 1930s. Our real wage figures do not tell us to which extent African wage-workers have suffered from the economic crisis through unemployment. 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 significantly improved.

[29] Richard J. Reid, *A History of Modern Africa: 1800 to the Present*, *Concise History of the Modern World* (Malden MA: Wiley-Blackwell, 2009)., *A History of Modern Africa*, p. 225.

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.[30]

After the Second World War the historical mechanism of wage-price responses turned around under pressure of the growing political influence of trade unions, independence movements and changing views on 'the labor question' in metropolitan Britain.[31] During and immediately after the war wages still had been readjusting to war-related inflation, but from the late 1940s onwards wages in all colonies started to rise irrespective of 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 under control during the first half of the 1960s.

In figure 2 we place the real wage series of Accra and Freetown in a global comparative perspective. Scattered evidence from Asian welfare ratio's in the interwar era suggests that wage workers in West Africa and Mauritius were much better off than their counterparts in Beijing, Shanghai, Canton or even Tokyo or Kyoto.[32] A comparison with northwest European series indicates that the rise in West Africa was comparable to developments witnessed in the industrializing countries of the nineteenth-century. The welfare ratios of urban unskilled workers in pre-modern London and Amsterdam (3 to 4) were considerably higher than in late nineteenth century West Africa (1 to 2), but growth rates were comparable. As can be seen in table 4 below, the welfare ratio in Accra increased with an average rate of 1.6% per annum between 1900 and 1940 and 2.6% between 1940 and 1960. In Freetown we record growth rates of 0.8% and 1.5% per annum for the same periods.[33]

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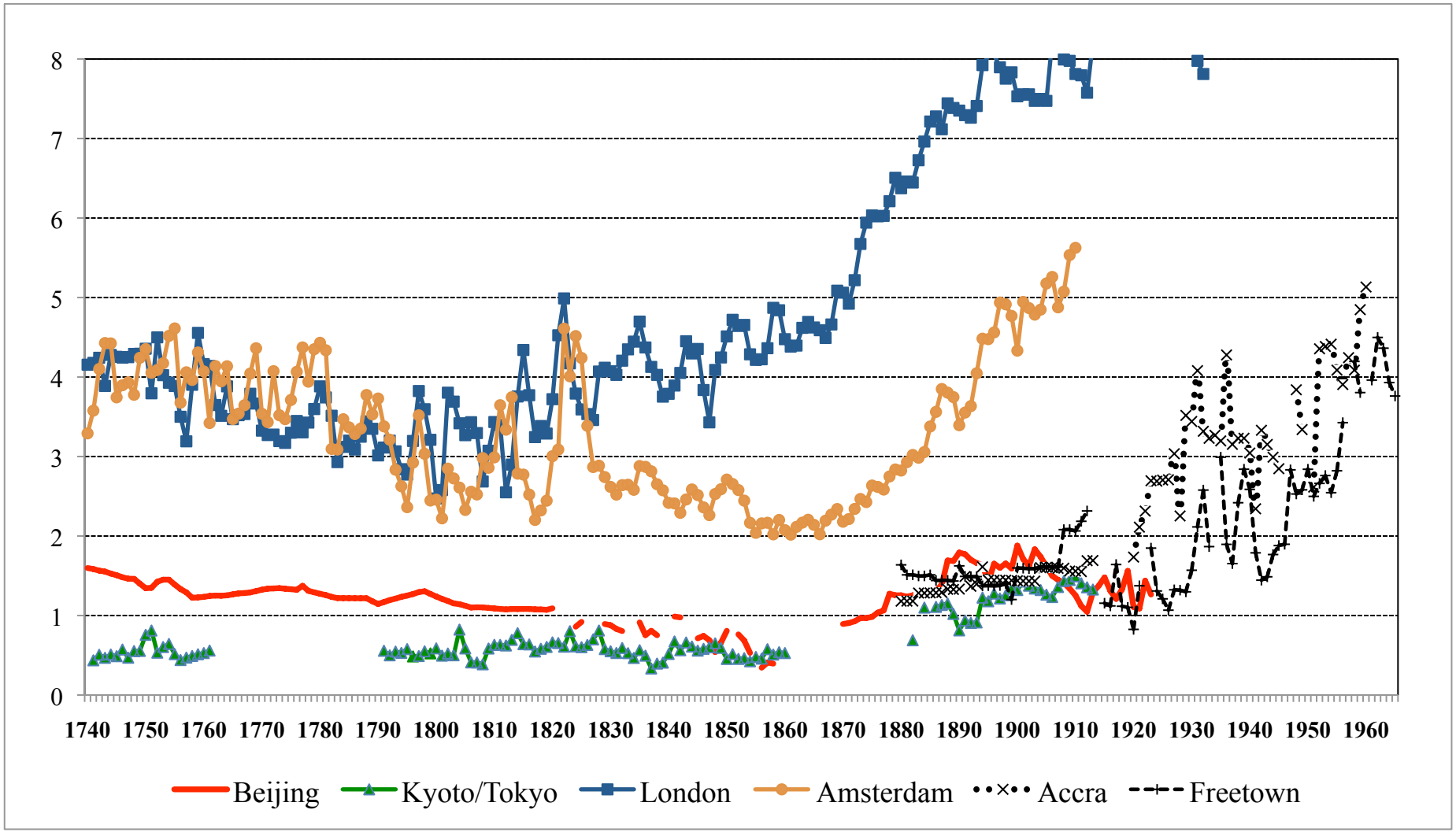
[30] Roderick J. Macdonald, ed., *From Nyasaland to Malawi: Studies in Colonial History* (Nairobi East African Publishing House, 1975)., *Nyasaland*.

[31] Frederick Cooper, *Decolonization and African Society. The Labor Question in French and British Africa*, ed. N Chazan, et al., *African Studies Series* (Cambridge UK: Cambridge University Press, 1996)., *Decolonization.*

[32] 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 in China, 1738-1925: In Comparison with Europe, Japan, and India." "Wages, prices, and living standards".

[33] Growth rates have been computed on the basis of years that are representative for the period concerned.

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



Sources: see appendix table 1c

In Amsterdam real wages increased on average with 0.87% per year between 1860 and 1910. In London, where real wage rises started much earlier and from a higher initial level, the average growth rate was with ca. 0.5% per annum considerably lower than in British West Africa.

Table 4: Average annual growth rates British African real wages for beginning colonial period-1940 and 1940 until end of colonial rule.

	average annual growth rate until 1940	average annual growth rate 1940-1965
Gambia	0.7%	2.7%
Sierra Leone	0.8%	1.5%
Gold Coast	1.6%	2.6%
Southern Nigeria	0.5%	0.4%
Uganda	0.7%	1.0%
Kenya	0.5%	1.3%
Tanganyika	1.0%	2.9%
Nyasaland	2.1%	0.2%
Mauritius	1.1%	1.5%

Sources: See appendix table 1c

TRAJECTORIES OF GROWTH AND STAGNATION

We proceed by connecting our real wages series to Maddison's post-1950 GDP series to assess long run trajectories of growth and stagnation. We take the cases of the Gold Coast (Ghana) and Kenya in figures 3a and b, respectively, as an illustration of two fundamentally different trajectories of growth. 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) and set this equal to a welfare ratio of 1. Whether this establishes a good connection between the real wage and GDP per capita series mainly depends on the position of urban unskilled wage workers in the overall personal income distribution. We will discuss this relationship in more detail in the next section. Here we focus on the differences in the long run trajectories of growth that appear from the Ghana-Kenya comparison.

The rapid growth of the Ghanaian export economy has been extensively documented in the literature.[34] Our real wages series corroborate these trends. Cocoa exports started to drive economic growth from the 1910s onwards and were booming in the 1920s. The long term real wage growth rate of 0.8% per annum over the eighty years between 1880 and 1960 is higher than the long term per capita GDP growth rate of the 12 Western European countries (0.67%) and the US (0.74%) between 1820 and 2008. From 1964 onwards its economy entered into a decade of stagnation and in the decade following 1974 it experienced a dramatic collapse. Yet, from a long run perspective this is a temporary interruption. From the mid-1980s growth has resumed again at an annual average pace of 0.98%. Ghana cannot count as a slow growing economy, but has been proven to be extremely vulnerable to major external (world market prices) and internal (political instability) shocks. Ghana is among the poorer countries of the world today because of a major interruption in its long run growth trajectory.

Kenya's long-term trajectory of economic growth is different. A dramatic collapse of the economy as in Ghana did not occur in Kenya. Average growth rates were considerably lower, however. For the sixty-years between 1904 and 1964 the annual average real wage growth rate of 0.60% was still respectable, 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 appears to be a fairly slow growing economy.

This comparison underlines our major point: when crafting explanations of African poverty in a cross-country context 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 comparable, Kenyan levels even slightly higher. In 2008 Ghana's GDP per capita again stood at 150% of Kenyan levels. In other words, growth trajectories within Africa differ substantially, but these differences are shrouded in static comparisons.

From 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 show a pattern that is much more in line with the Kenyan

[34] Gareth Austin, "Labour and Land in Ghana, 1874-1939: A Shifting Ratio and an Institutional Revolution," *Australian Economic History Review* 47, no. 1 (2007)., *Land, Labour and Capital*. See also Jerven, "Comparing colonial and post-colonial output".

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

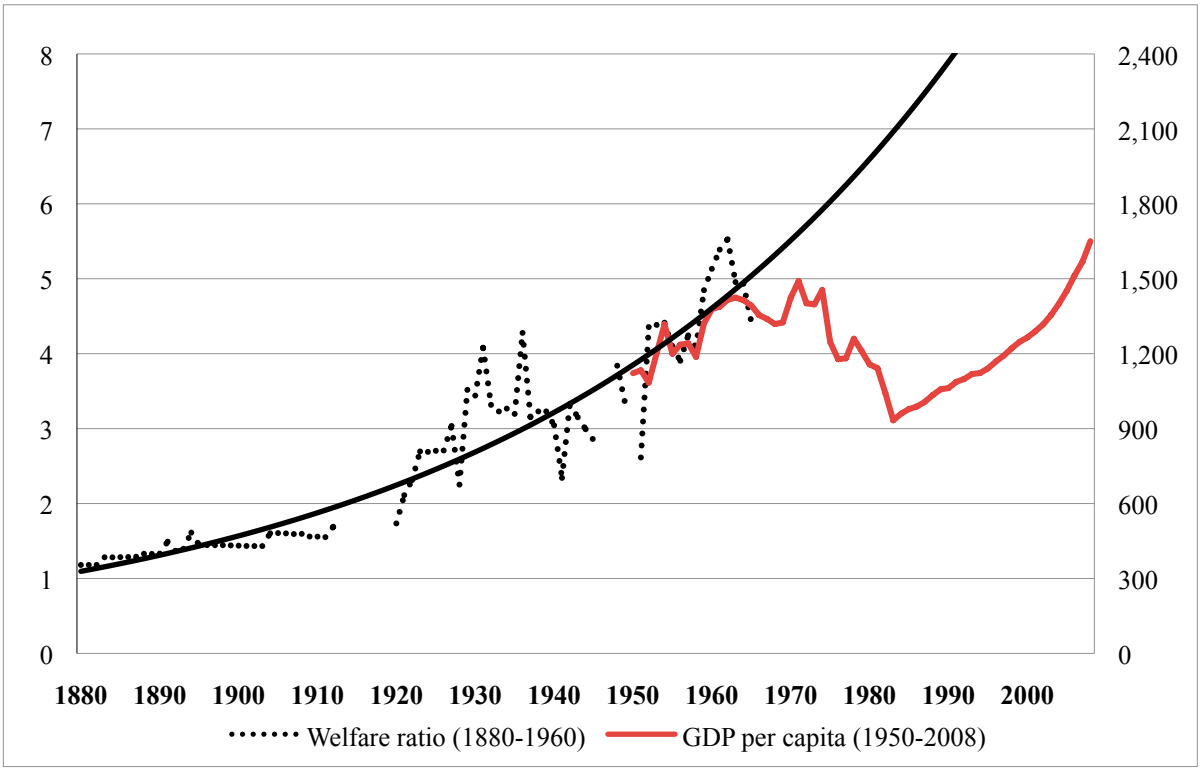
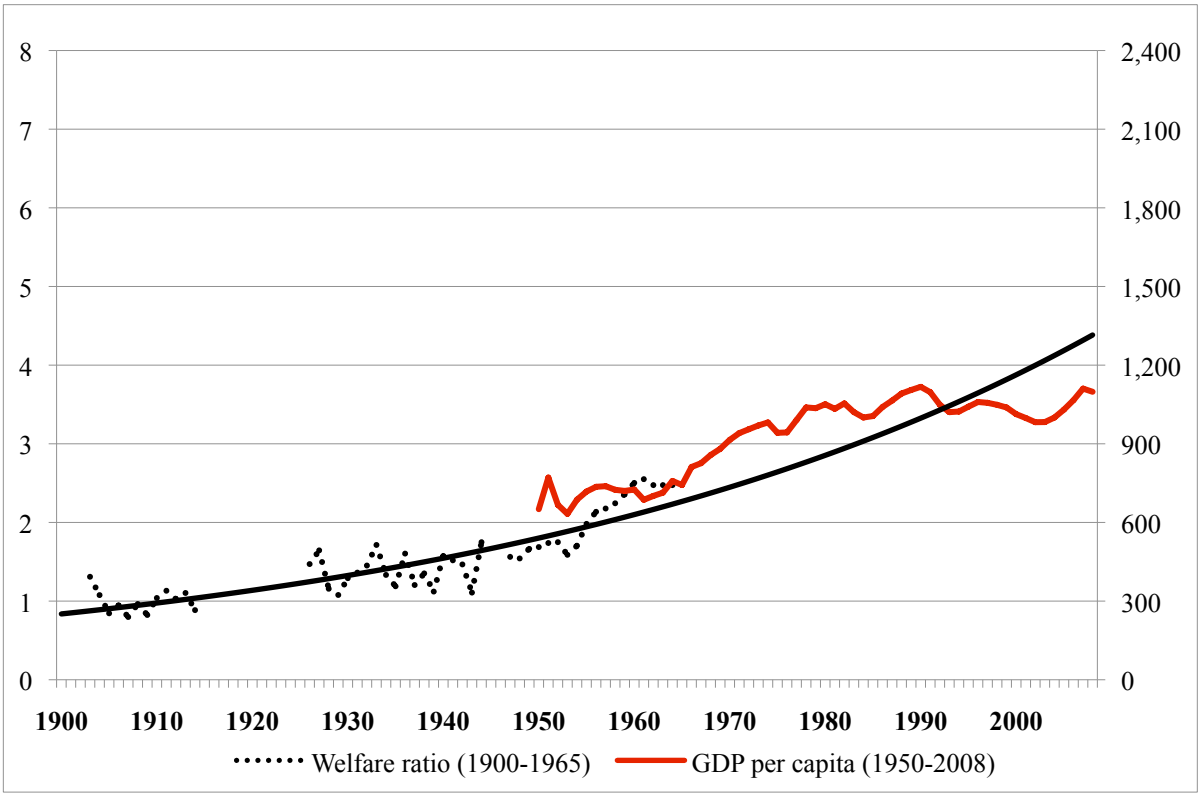


Figure 3b: Kenya welfare ratio (Y-axis 1) and GDP per capita (Y-axis 2), 1900-2008



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

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 the sugar-island colony was already much richer than any of the British African mainland colonies, with the possible exception of South Africa. 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 IMPACT OF COLONIAL INSITUTIONS

If we consider wages as a proper reflection of a particular African factor endowment structure we can pursue a straightforward economic explanation for the comparatively high real wages in West Africa. High land-labor ratios, especially in comparison to large parts of East, South and South East Asia, lifted wages above subsistence level in the wake of the abolition of domestic slavery and the increasing demand for labor by incipient colonial export sectors. Land abundance kept relative prices for basic agricultural commodities low as the food supply could be increased in response to demographic growth and structural change without declining marginal productivity. Johnson shows that even in relatively heavy populated areas such as Kumasi, the Ashante capital, the available resources of land were not exhaustively used to feed the city in the early twentieth century.[35] Austin mentions a few exceptions, but he agrees that land was abundant virtually everywhere, while labor and capital remained comparatively scarce throughout the twentieth century.

However simple and appealing, such an economic explanation overlooks the lessons of the intra-African comparison: why did labor scarcity not translate into identical real wage levels in Kenya, where demand for unskilled labor by European settlers rose rapidly during the interwar years as well? Or in Uganda, where the peasant export sector grew rapidly following the arrival of the British?

This puzzle again highlights the East-West contrast: real wages in West Africa rose beyond levels we would expect on the basis of late-colonial per capita GDP figures, while in East Africa they tended to be lower than expected. Figure 3 underlines our contention that

[35] M. Johnson, "Elephants for Want of Towns " in *African Historical Demography Ii*, ed. C. Fyfe and D. MacMaster (1981)., “Elephants”

Kenyan native wage workers were in a less favorable position relative to the average income level (GDP per capita) than wage workers in Ghana. In the latter country there is an almost perfect match between both income series, whereas in Kenya wages were clearly lower during the 1950s and probably some decades before. When we fix the scales of real wages and GDP per capita at a welfare ratio 1 = PPP$300 (in 1990 prices) for all colonies under consideration, the following pattern emerges: in Freetown (Sierra Leone) and Bathurst (Gambia) welfare ratios were substantially higher than GDP per capita estimates. In Nyasaland (Zomba) and Tanganyika (Dar es Salaam) there is a good fit between the recorded welfare ratio and GDP per capita series in the 1950s. In Uganda the welfare ratio is lower than expected. In Mauritius real wages were far lower than expected: the welfare ratio equivalent of a GDP per capita $PPP 2,575 is 8.6. With an average welfare ratio of 3.6 in the 1950s wage workers in Mauritius captured less than half of the expected amount.

For Mauritius the answer may in fact be a purely economic one: sugar estate owners were able to attract huge numbers of Indian indentured laborers to carry out the work on the sugar plantations and in the related urban service and industrial sectors (transport, construction etc.). The capital-intensive nature of sugar production produced significant capital rents pocketed by the plantation owners and British government officials. The relatively backward position of wage workers in the personal income distribution is something we would expect in a specific resource-based economy with open access to the endless supply of low-skilled labor from British India.

In Kenya, however, labor market conditions were different. For Kenya in particular, we have an endless number of government reports stating complaints about the problem of labor scarcity. 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.[36] 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.[37] GDP estimates show no evidence that Kenya was any poorer than Sierra Leone, Gambia or Nigeria. Why were wages not lifted further above subsistence level to raise the supply of labor?

[36] 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.
[37] Frankema, "Raising Revenue".

Bowden et al. have argued that the specific nature of labor market institutions in African settler economies confined the rise of real wages. They present an index-series of real agricultural wages in two settler colonies (Zimbabwe and Kenya) and two peasant export colonies (Uganda and Ghana), showing a notable contrast in real wage developments between the settler (modest rise) and non-settler colonies (respectable rise).[38] Although their real wage series differ from ours in several respects it is worth paying attention to their discussion of land tenure regimes, which forms an important part of their explanation.[39] We continue with an analysis of fiscal policy, which we argue is important to understand the differences in nominal and real wage levels between Uganda and Ghana as well, and which Bowden et al. tend to overlook.

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 the non-settler colonies.[40] This basically meant that land remained in African hands at any significant scale and that informal communal land rights were widely respected. Bowden et al. argue that the indigenous land tenure systems produced a more equitable distribution of income based on small-holders profits and comparatively high rates of market wages. In settler colonies 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.[41] 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.

[38] Sue Bowden, Blessing Chiripanhura, and Paul Mosley, "Measuring and Explaining Poverty in Six African Countries: A Long-Period Approach," *Journal of International Development* 20, no. 8 (2008): : pp. 1074-1079., "Measuring and Explaining".

[39] 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.

[40] Gareth Austin, *Labour, Land and Capital in Ghana: From Slavery to Free Labour in Asante, 1807–1956*, *Rochester Studies in African History and the Diaspora* (New York: University of Rochester Press, 2005)., *Labor, Land and Capital*; Austin, "The 'Reversal of Fortune' Thesis and the Compression of History: Perspectives from African and Comparative Economic History.", "Compression of History".

[41] Bowden, Chiripanhura, and Mosley, "Measuring and Explaining Poverty in Six African Countries: A Long-Period Approach.", "Measuring and explaining"; Ewout H.P. Frankema, "The Colonial Roots of Land Inequality: Geography, Factor Endowments or Institutions?," *Economic History Review* 63, no. 2 (2010)., "colonial roots"

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 or government revenue, but rather by deliberate attempts to change the production relationships between settlers and natives.[42] Part of the displaced Kikuyu turned to the labor market in the largest cities such as Mombasa and Nairobi.

Native reserves were never introduced in the peasant export economies of West Africa or Uganda. Rural or urban labor had to be attracted by competitive wage rates, which offered sufficient compensation for the loss of alternative productive activities in the village. The absence of government intervention in the land market allowed the forces of labor demand and labor supply to operate under less regulated market conditions.

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 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.[43] 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.

[42] Robert H. Bates, *Beyond the Miracle of the Market. The Political Economy of Agrarian Development in Kenya* (New York: Cambridge University Press, 2005)., *Miracle*, pp. 18-24

[43] Frankema, "Colonial taxation".

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.[44] 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 tax payers were permitted to settle their tax bill in kind. This undermined any possible attempt at labor market regulation.[45] 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.[46]

Figure 4 expresses the fiscal burden of the official native head, hut or poll tax rate as the amount of days that had to be worked for an urban unskilled wage income for the benchmark years 1911, 1925 and 1937. East Africans had to work a much larger amount of days to meet the direct tax burden, despite the fact that their real wages were considerably lower than in West Africa. We don't know exactly which amount of the total direct tax revenue was paid out of wage earnings, but it must have been one of the two major sources. Cash income derived from commercial agriculture catering for the domestic or international market was the other source.

Government revenue accounts allow us to calculate the upper-bound labor supply effect of direct native taxation. Dividing the total amount of direct tax revenue by the annual wage income of an urban adult male worker, gives the hypothetical number of year-round

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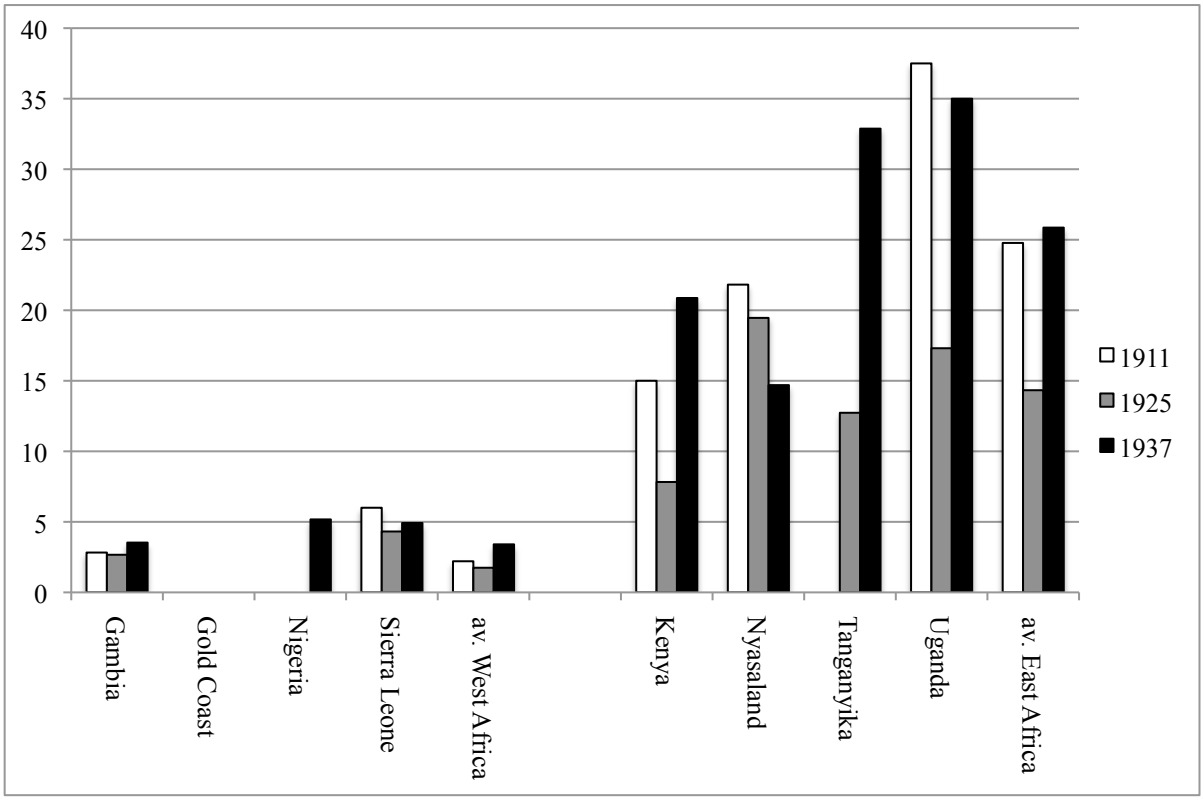
[44] Crawford Young, *The African Colonial State in Comparative Perspective* (New Haven: Yale University Press, 1994)., *African Colonial State*; Mahmood Mamdani, *Citizen and Subject. Contemporary Africa and the Legacy of Late Colonialism*, *Princeton Studies in Culture/Power/History* (Princeton, NJ: Princeton University Press, 1996)., *Citizen and Subject*; Barbara Bush and Josephine Maltby, "Taxation in West Africa; Transforming the Colonial Subject into The "Governable Person"," *Critical Perspectives on Accounting* 15 (2004)., "Taxation".

[45] Frankema, "Colonial taxation".

[46] Allen McPhee, *The Economic Revolution in British West Africa* (1926)., *Economic Revolution* ; Anthony G. Hopkins, *An Economic History of West Africa* (London: Longman, 1973)., *West Africa* ; Austin, "Labour and Land in Ghana, 1874-1939: A Shifting Ratio and an Institutional Revolution.", "Labor and land".

wage jobs needed to bring up the total sum of direct taxes. 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.

Figure 4: Per capita tax pressure expressed as amount 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".

Asian migrant workers

Our final argument emphasizes labor market conditions that are not directly related to specific colonial institutions, but rather to the geographical proximity of a vast reserve supply of unskilled and skilled labor on the Indian subcontinent. The entrance of Indian workers into the East African and Mauritian labor market was facilitated by the fact that they were part of the same British Empire. 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 is easy to see 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 an 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. The wage gap between Indian and European carpenters was smaller than between the African and Indian carpenters.[47] 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 would earn between 24 and 36 pence per day, without any competition from Asian immigrants whatsoever. The largest numbers of Asians were indeed attracted to the Kenyan settler colony, but in Uganda (ca. 15,000) and Tanganyika (ca. 33,000) Asian migrant workers also formed a visible minority.

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 maintain a nuclear household (two adults, three children) at a bare bones subsistence level during 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. During the First and Second World War and its immediate aftermath most African wage workers colonies experienced a decline in real wages. The increasing trend in real wages during the interwar period and post-war period compensated for these losses. In the majority of cases the real wage rise continued during the 1930s, as prices tended to decline more than nominal wages.

[47] *Colonial Blue Book of the East African Protectorate*, 1907-1908.

A global comparison has shown that welfare ratios 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. Growth rates of real wages during the colonial era were also respectable from a historical point of view: they outpaced the growth rate of real wages of unskilled workers in London during the nineteenth century and were comparable to growth rates in Amsterdam during the years 1860-1910. In East Africa the increase in real wages was mainly confined to the postwar period and pre-war levels were more in line with Asian levels. The contrast in real wages between British East-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 path dependence in African economic history. 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 are the result of a more prolonged trajectory of slow growth. The correlation-coefficient between pre-1900 slave exports and income levels for our nine-country sample varies accordingly. Taking the log of GDP per capita in 2000 the correlation appears very strong (r = -0.75), taking the log of the average welfare ratio in the 1930s the correlation appears virtually non-existent (r = -0.07).

Future research efforts on African economic history should do much more to chart and explain differences in long-term growth trajectories. We 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 run picture of economic development will help us to assess the possibilities of future growth and the extent to which specific historical growth impediments have cast a temporary or a more structural effect on long-term development. The analysis of the historical causes of current African poverty should leave the stage of isolating a single explanatory variable by controlling for everything that may interfere with it. Phases of growth and stagnation are driven by the changing interaction of historical forces with contemporary developments.

Appendix table 1a: Nominal wages in main cities of respectively: The Gambia, The Gold Coast, Southern Nigeria, Sierra Leone, Kenya, Nyasaland, Tanganyika, Uganda and Mauritius.

	Bat-hurst	Accra	Lagos	Free-town	Nairobi	Zomba	Dar es Salaam	Kam-pala	Port Louis	Coeff. Var.
1880	13.4	10.4	13.5	9.8	n.a.	n.a.	n.a.	n.a.	n.a.	
1881	13.4	10.4	13.5	9.8	n.a.	n.a.	n.a.	n.a.	n.a.	
1882	13.4	10.4	13.5	9.8	n.a.	n.a.	n.a.	n.a.	n.a.	
1883	13.4	10.4	13.5	9.8	n.a.	n.a.	n.a.	n.a.	n.a.	
1884	14.7	10.4	12.7	9.8	n.a.	n.a.	n.a.	n.a.	n.a.	
1885	14.7	10.4	12.7	9.9	n.a.	n.a.	n.a.	n.a.	n.a.	
1886	14.7	10.4	12.7	8.6	n.a.	n.a.	n.a.	n.a.	n.a.	
1887	14.7	10.4	11.0	8.6	n.a.	n.a.	n.a.	n.a.	1.0	
1888	14.7	10.4	11.0	8.6	n.a.	n.a.	n.a.	n.a.	1.0	
1889	14.7	10.4	11.0	8.1	n.a.	n.a.	n.a.	n.a.	1.0	
1890	14.7	10.4	11.0	8.6	n.a.	n.a.	n.a.	n.a.	1.0	
1891	14.7	10.4	11.0	7.2	n.a.	n.a.	n.a.	n.a.	1.1	
1892	14.7	10.4	11.0	7.2	n.a.	n.a.	n.a.	n.a.	1.0	
1893	14.7	10.4	11.0	7.2	n.a.	n.a.	n.a.	n.a.	1.5	
1894	14.7	10.4	12.7	7.2	n.a.	n.a.	n.a.	n.a.	1.0	
1895	14.7	10.4	12.7	7.2	n.a.	n.a.	n.a.	n.a.	1.0	
1896	14.7	10.4	12.7	7.2	n.a.	n.a.	n.a.	n.a.	1.0	
1897	14.7	10.4	12.7	7.2	n.a.	n.a.	n.a.	n.a.	1.0	
1898	14.7	10.4	12.7	6.5	n.a.	n.a.	n.a.	n.a.	1.0	
1899	14.7	10.4	12.7	5.5	n.a.	n.a.	n.a.	n.a.	1.0	
1900	14.7	10.4	12.7	7.4	n.a.	n.a.	n.a.	n.a.	1.0	
1901	14.7	10.4	12.7	7.4	n.a.	2.0	n.a.	n.a.	1.3	
1902	14.7	10.4	12.7	7.4	n.a.	2.0	n.a.	n.a.	1.3	
1903	14.7	10.4	12.7	7.4	3.5	2.0	n.a.	n.a.	1.3	
1904	14.7	11.6	12.7	7.4	3.5	3.3	n.a.	n.a.	1.0	
1905	14.7	11.6	12.7	7.4	3.5	3.3	n.a.	n.a.	1.3	
1906	14.7	11.6	12.7	7.4	3.5	3.3	n.a.	4.6	1.0	*0.6*
1907	14.7	11.6	12.7	7.4	3.5	3.3	n.a.	4.6	1.0	*0.6*
1908	14.7	11.6	12.7	9.3	3.6	3.3	n.a.	4.6	1.0	*0.6*
1909	14.7	11.6	12.7	9.3	3.6	3.3	n.a.	n.a.	1.0	
1910	14.7	11.6	10.4	9.3	4.5	3.3	n.a.	4.8	1.0	*0.5*
1911	14.7	11.6	10.4	9.9	4.4	3.3	n.a.	4.8	1.0	*0.5*
1912	14.7	12.7	10.4	10.5	4.3	3.3	n.a.	4.8	1.0	*0.5*
1913	n.a.	12.7	n.a.	n.a.	4.3	3.3	n.a.	4.8	1.0	
1914	n.a.	12.7	10.4	n.a.	4.3	3.3	n.a.	4.8	1.0	
1915	n.a.	12.7	10.4	10.0	4.3	3.3	n.a.	4.8	1.0	
1916	n.a.	12.7	n.a.	10.0	n.a.	3.3	n.a.	4.8	1.0	
1917	n.a.	n.a.	n.a.	15.0	n.a.	3.8	n.a.	n.a.	1.0	
1918	n.a.	n.a.	n.a.	15.0	n.a.	3.8	n.a.	n.a.	1.0	
1919	n.a.	n.a.	12.0	15.0	n.a.	4.0	n.a.	10.6	2.0	
1920	40.0	24.0	18.0	16.4	n.a.	4.2	n.a.	8.4	2.5	

1921	30.0	24.0	18.0	16.4	n.a.	4.4	11.3	8.4	2.5	*0.6*
1922	18.0	18.0	16.0	n.a.	5.9	4.4	11.3	8.4	2.5	*0.5*
1923	18.0	18.0	12.0	16.4	7.1	4.4	11.3	10.4	2.5	0.4
1924	18.0	18.0	16.0	16.4	8.3	4.4	11.3	10.4	2.0	0.4
1925	18.0	18.0	17.0	13.9	10.0	3.9	11.3	n.a.	2.0	*0.4*
1926	18.0	18.0	15.0	13.9	10.5	3.9	9.8	15.8	2.0	0.4
1927	18.0	18.0	15.0	13.9	10.5	4.2	9.8	14.8	2.0	0.4
1928	18.0	15.0	12.0	13.9	10.5	4.2	9.8	15.8	2.0	0.3
1929	18.0	18.0	12.0	13.9	8.3	4.2	9.8	11.4	2.0	0.4
1930	18.0	15.0	10.0	13.9	7.1	4.2	8.9	9.9	1.5	0.4
1931	15.0	13.4	10.0	12.2	7.9	6.1	6.2	8.9	1.5	0.3
1932	9.0	13.4	9.0	13.0	7.9	5.7	6.2	7.4	1.3	0.3
1933	n.a.	13.4	9.0	13.4	7.9	5.6	6.2	6.5	1.3	*0.4*
1934	9.0	13.4	9.0	n.a.	6.9	4.8	6.5	5.1	1.3	*0.4*
1935	9.0	13.4	9.0	12.8	6.9	4.8	4.4	5.5	1.3	0.4
1936	12.0	17.7	11.6	12.5	6.9	4.8	4.4	6.5	1.3	0.5
1937	12.0	13.4	11.6	12.2	6.9	4.8	4.4	7.2	1.3	0.4
1938	12.0	13.4	11.6	13.4	6.9	4.8	6.7	7.2	1.3	0.4
1939	12.0	13.4	11.6	13.4	6.9	4.8	6.7	9.9	1.3	0.3
1940	12.0	14.7	9.5	13.4	9.2	4.8	6.7	n.a.	1.3	*0.4*
1941	n.a.	14.7	9.8	15.0	9.2	4.8	4.0	9.9	1.3	*0.4*
1942	21.0	22.0	10.0	16.0	9.2	4.8	5.2	9.9	1.3	0.5
1943	21.0	22.0	11.0	17.0	9.2	5.3	5.2	9.9	1.3	0.5
1944	21.0	22.0	n.a.	20.8	14.7	5.7	n.a.	9.9	1.5	
1945	21.0	22.0	18.0	20.8	15.0	5.7	6.2	9.2	1.5	0.5
1946	21.0	n.a.	22.4	20.8	15.2	n.a.	12.0	n.a.	1.5	
1947	27.0	n.a.	26.8	31.2	17.7	n.a.	12.0	12.2	1.8	
1948	27.0	32.9	26.8	31.2	19.6	9.0	13.1	12.2	1.8	0.4
1949	33.0	32.9	26.8	30.6	21.6	11.0	20.8	13.9	1.9	0.4
1950	33.0	n.a.	29.5	34.2	23.5	13.0	20.8	16.8	2.6	*0.3*
1951	36.0	34.5	32.4	40.2	28.4	13.0	25.5	16.8	2.6	0.3
1952	40.0	56.3	35.6	49.3	32.9	13.0	25.5	18.4	3.0	0.4
1953	40.0	56.3	39.1	50.6	31.9	14.7	25.5	20.6	3.3	0.4
1954	48.0	56.3	42.9	49.3	35.8	14.7	29.5	22.6	3.5	0.4
1955	48.0	56.3	47.2	55.7	43.2	14.7	31.4	29.2	3.5	0.4
1956	48.0	56.3	51.8	70.4	49.0	18.3	30.9	29.2	3.5	0.4
1957	48.0	56.3	56.9	n.a.	51.5	19.7	34.6	29.2	3.5	*0.3*
1958	48.0	56.3	56.9	87.8	55.2	21.0	32.8	29.2	3.5	0.4
1959	60.0	68.0	72.0	80.4	58.6	21.0	43.4	29.2	3.7	0.4
1960	60.0	72.0	69.3	n.a.	62.8	21.8	42.0	n.a.	3.7	
1961	85.0	n.a.	n.a.	88.4	65.2	23.1	50.6	n.a.	4.6	
1962	85.0	n.a.	n.a.	97.3	65.7	n.a.	57.7	n.a.	4.7	
1963	93.0	n.a.	n.a.	97.3	65.7	n.a.	69.2	n.a.	5.2	
1964	93.0	n.a.	n.a.	97.3	65.7	n.a.	n.a.	n.a.	4.9	
1965	n.a.	n.a.	n.a.	97.3	68.4	n.a.	n.a.	n.a.	4.9	

Notes: coefficients of variation in Italics means that only for one colony there is no observation. Detailed description of specific categories used in wage series can be requested (not included here as it would take up too much space).

Appendix table 1b: Prices subsistence baskets in main cities of respectively: The Gambia, The Gold Coast, Southern Nigeria, Sierra Leone, Kenya, Nyasaland, Tanganyika, Uganda and Mauritius.

	Bat-hurst	Accra	Lagos	Free-town	Nairobi	Zomba	Dar es Salaam	Kam-pala	Port Louis	Coeff. Var.
1880	735.7	915.6	822.8	622.4	n.a.	n.a.	n.a.	n.a.	n.a.	
1881	735.3	915.1	818.9	674.1	n.a.	n.a.	n.a.	n.a.	n.a.	
1882	727.1	914.6	818.9	673.7	n.a.	n.a.	n.a.	n.a.	n.a.	
1883	726.0	842.4	814.3	680.3	n.a.	n.a.	n.a.	n.a.	n.a.	
1884	611.0	842.8	811.1	680.1	n.a.	n.a.	n.a.	n.a.	n.a.	
1885	610.1	841.2	807.2	679.3	n.a.	n.a.	n.a.	n.a.	n.a.	
1886	600.3	840.2	803.3	623.6	n.a.	n.a.	n.a.	n.a.	n.a.	
1887	586.4	837.3	795.6	622.6	n.a.	n.a.	n.a.	n.a.	51.1	
1888	586.8	812.5	795.6	623.0	n.a.	n.a.	n.a.	n.a.	57.3	
1889	585.9	813.8	831.1	590.4	n.a.	n.a.	n.a.	n.a.	66.4	
1890	586.6	811.1	795.6	552.9	n.a.	n.a.	n.a.	n.a.	51.1	
1891	590.6	724.8	795.6	498.7	n.a.	n.a.	n.a.	n.a.	36.3	
1892	589.8	790.2	794.5	499.7	n.a.	n.a.	n.a.	n.a.	36.9	
1893	637.3	773.8	795.0	499.5	n.a.	n.a.	n.a.	n.a.	42.5	
1894	636.1	670.4	839.9	541.6	n.a.	n.a.	n.a.	n.a.	40.8	
1895	611.1	748.0	836.1	540.8	n.a.	n.a.	n.a.	n.a.	36.1	
1896	609.5	747.8	837.1	542.0	n.a.	n.a.	n.a.	n.a.	35.0	
1897	609.5	748.5	1045.8	540.4	n.a.	n.a.	n.a.	n.a.	45.8	
1898	609.3	748.5	1042.8	479.2	n.a.	n.a.	n.a.	n.a.	41.2	
1899	610.7	749.7	887.8	479.5	n.a.	n.a.	n.a.	n.a.	37.2	
1900	610.9	751.7	889.2	480.5	n.a.	n.a.	n.a.	n.a.	42.3	
1901	611.0	753.7	896.1	481.5	n.a.	539.5	n.a.	n.a.	42.4	
1902	609.8	754.3	897.4	483.3	n.a.	538.0	n.a.	n.a.	42.1	
1903	610.4	754.2	888.8	483.2	279.6	537.6	n.a.	n.a.	36.6	
1904	612.1	754.0	845.5	477.4	339.9	537.2	n.a.	n.a.	35.5	
1905	n.a.	752.5	822.8	476.6	433.2	537.2	n.a.	n.a.	34.9	
1906	n.a.	754.4	779.5	477.0	387.1	540.2	n.a.	359.2	41.9	
1907	n.a.	758.5	793.0	477.6	458.6	552.8	n.a.	418.3	48.6	
1908	n.a.	757.2	795.4	467.2	384.4	545.8	n.a.	472.8	45.5	
1909	n.a.	774.8	710.0	467.0	449.4	532.8	n.a.	424.2	42.7	
1910	n.a.	775.3	699.0	470.9	450.7	533.6	n.a.	526.4	43.6	
1911	n.a.	778.6	700.3	472.2	400.9	531.4	n.a.	487.6	42.6	
1912	n.a.	783.2	698.8	471.6	432.0	536.7	n.a.	524.7	42.8	
1913	n.a.	782.3	n.a.	n.a.	401.5	455.4	n.a.	520.9	n.a.	
1914	n.a.	n.a.	427.7	n.a.	500.4	n.a.	n.a.	542.4	54.3	
1915	n.a.	n.a.	478.9	900.4	456.7	462.8	n.a.	537.2	63.4	
1916	n.a.	n.a.	n.a.	927.8	n.a.	n.a.	n.a.	541.1	45.1	
1917	n.a.	n.a.	n.a.	950.3	n.a.	553.5	n.a.	549.3	75.9	
1918	n.a.	n.a.	n.a.	1396.9	n.a.	643.9	n.a.	764.2	93.5	

1919	n.a.	n.a.	1446.3	1414.6	n.a.	625.1	n.a.	1034.7	84.4	
1920	1500.4	1438.7	755.4	2069.0	n.a.	720.7	n.a.	1098.7	94.9	
1921	1257.8	1181.9	977.0	1243.5	n.a.	764.8	804.0	1087.8	89.8	*0.2*
1922	710.7	809.2	948.1	n.a.	n.a.	750.5	518.3	642.7	89.3	
1923	509.5	694.6	1063.6	924.7	n.a.	659.3	460.9	545.8	84.7	*0.3*
1924	470.2	696.0	1014.1	1305.8	n.a.	621.1	520.4	555.5	81.2	*0.4*
1925	612.9	692.4	1069.7	1191.1	n.a.	515.7	594.3	553.6	53.1	*0.4*
1926	588.8	691.3	676.6	1350.1	744.2	621.3	611.7	894.7	53.0	0.3
1927	608.1	616.8	909.5	1088.7	665.4	591.8	561.7	886.0	53.3	0.3
1928	606.2	692.6	608.5	1092.2	946.0	589.3	534.8	1026.7	53.3	0.3
1929	594.1	532.3	606.8	1110.1	796.6	582.7	621.9	894.8	65.9	0.3
1930	433.7	453.4	579.1	918.1	568.6	582.0	507.2	832.2	54.0	0.3
1931	450.4	342.0	571.6	599.4	601.8	511.1	401.1	822.1	45.3	0.3
1932	408.4	420.6	n.a.	522.6	564.5	496.6	396.2	726.0	41.1	*0.2*
1933	n.a.	432.2	513.5	744.9	478.4	401.8	469.2	669.1	37.6	*0.2*
1934	380.2	427.1	496.0	n.a.	540.2	399.0	576.2	709.8	38.7	*0.2*
1935	423.4	436.5	496.3	446.6	605.7	401.2	412.3	495.7	38.3	0.1
1936	417.9	431.5	501.5	687.1	448.8	362.5	413.4	582.0	37.6	0.2
1937	489.4	442.6	483.6	766.6	597.7	366.7	418.5	621.6	36.9	0.2
1938	407.3	432.1	479.0	576.9	532.4	364.2	444.6	623.7	36.3	0.2
1939	532.1	432.1	517.5	491.3	642.1	364.2	459.1	593.8	36.6	0.2
1940	436.4	502.1	585.1	539.4	609.8	371.4	393.5	n.a.	48.4	*0.2*
1941	n.a.	652.5	585.9	872.3	632.2	371.4	521.0	628.3	n.a.	*0.2*
1942	599.0	687.1	466.1	1149.6	654.7	n.a.	602.9	612.3	84.8	*0.3*
1943	796.2	726.0	774.8	1188.9	866.3	n.a.	1239.2	619.6	50.4	*0.3*
1944	801.4	764.9	n.a.	1223.3	874.0	n.a.	n.a.	808.2	56.7	
1945	772.5	803.7	931.4	1149.6	911.0	n.a.	902.7	873.7	64.8	*0.1*
1946	979.0	855.6	1112.5	1139.8	n.a.	n.a.	842.9	n.a.	69.4	
1947	1186.5	872.9	1234.9	1144.7	1175.0	n.a.	948.5	n.a.	71.3	
1948	1356.8	890.2	1370.7	1282.2	1322.7	1478.9	1134.0	n.a.	77.8	*0.2*
1949	1378.1	1023.7	1521.4	1233.1	1348.4	1489.7	1317.7	1068.9	79.7	0.1
1950	1298.3	1175.0	1688.7	1252.8	1451.1	n.a.	1372.8	1140.2	80.4	*0.1*
1951	1661.8	1370.9	1874.4	1675.3	1701.5	n.a.	1751.2	1282.7	90.8	*0.1*
1952	1817.6	1344.1	2080.6	1925.8	1958.4	n.a.	1812.6	1282.7	96.0	*0.2*
1953	1687.8	1335.2	2376.1	1906.2	2086.8	1549.2	1838.7	2213.0	98.5	0.2
1954	1601.2	1326.3	2451.7	2014.2	2184.5	1549.2	2066.4	1860.6	96.6	0.2
1955	1514.6	1432.5	2574.6	2053.5	2264.4	1374.7	1978.8	1536.4	95.3	0.2
1956	1428.1	1498.8	2777.7	2135.7	2388.7	1230.9	1961.3	1508.2	97.3	0.3
1957	1510.3	1379.4	2829.6	2320.5	2459.8	1295.8	2083.9	1409.6	95.3	0.3
1958	1592.5	1432.5	2853.3	2176.8	2557.4	1321.1	2136.4	1437.8	96.0	0.3
1959	1648.8	1459.0	2947.7	2197.3	2583.0	1662.9	2136.4	1437.8	95.3	0.3
1960	1687.8	1459.0	3136.7	2176.8	2608.6	1662.9	2118.9	n.a.	96.6	*0.3*
1961	1726.7	n.a.	3335.1	2320.5	2659.7	1619.6	2118.9	n.a.	97.3	
1962	1791.6	n.a.	3509.9	2250.9	2762.0	1619.6	2136.4	n.a.	n.a.	
1963	1843.5	n.a.	3415.4	2320.5	2762.0	n.a.	2083.9	n.a.	n.a.	
1964	1791.6	n.a.	3443.8	2575.8	2762.0	n.a.	n.a.	n.a.	n.a.	
1965	n.a.	n.a.	3590.2	2691.8	2915.5	n.a.	n.a.	n.a.	n.a.	

Appendix table 1c: Subsistence ratios (real wages) in main cities of respectively: The Gambia, The Gold Coast, Southern Nigeria, Sierra Leone, Kenya, Nyasaland, Tanganyika, Uganda and Mauritius.

	Bat-hurst	Accra	Lagos	Free-town	Nairobi	Zomba	Dar es Salaam	Kam-pala	Port Louis
1880	1.9	1.2	1.7	1.6	n.a.	n.a.	n.a.	n.a.	n.a.
1881	1.9	1.2	1.7	1.5	n.a.	n.a.	n.a.	n.a.	n.a.
1882	1.9	1.2	1.7	1.5	n.a.	n.a.	n.a.	n.a.	n.a.
1883	1.9	1.3	1.7	1.5	n.a.	n.a.	n.a.	n.a.	n.a.
1884	2.5	1.3	1.6	1.5	n.a.	n.a.	n.a.	n.a.	n.a.
1885	2.5	1.3	1.6	1.5	n.a.	n.a.	n.a.	n.a.	n.a.
1886	2.5	1.3	1.6	1.4	n.a.	n.a.	n.a.	n.a.	n.a.
1887	2.6	1.3	1.4	1.4	n.a.	n.a.	n.a.	n.a.	2.0
1888	2.6	1.3	1.4	1.4	n.a.	n.a.	n.a.	n.a.	1.8
1889	2.6	1.3	1.4	1.4	n.a.	n.a.	n.a.	n.a.	1.6
1890	2.6	1.3	1.4	1.6	n.a.	n.a.	n.a.	n.a.	2.0
1891	2.6	1.5	1.4	1.5	n.a.	n.a.	n.a.	n.a.	3.2
1892	2.6	1.4	1.4	1.5	n.a.	n.a.	n.a.	n.a.	2.8
1893	2.4	1.4	1.4	1.5	n.a.	n.a.	n.a.	n.a.	3.7
1894	2.4	1.6	1.6	1.4	n.a.	n.a.	n.a.	n.a.	2.5
1895	2.5	1.4	1.6	1.4	n.a.	n.a.	n.a.	n.a.	2.9
1896	2.5	1.4	1.6	1.4	n.a.	n.a.	n.a.	n.a.	3.0
1897	2.5	1.4	1.3	1.4	n.a.	n.a.	n.a.	n.a.	2.3
1898	2.5	1.4	1.3	1.4	n.a.	n.a.	n.a.	n.a.	2.5
1899	2.5	1.4	1.5	1.2	n.a.	n.a.	n.a.	n.a.	2.8
1900	2.5	1.4	1.5	1.6	n.a.	n.a.	n.a.	n.a.	2.5
1901	2.5	1.4	1.5	1.6	n.a.	0.4	n.a.	n.a.	3.1
1902	2.5	1.4	1.5	1.6	n.a.	0.4	n.a.	n.a.	3.1
1903	2.5	1.4	1.5	1.6	1.3	0.4	n.a.	n.a.	3.7
1904	2.5	1.6	1.6	1.6	1.1	0.6	n.a.	n.a.	2.9
1905	n.a.	1.6	1.6	1.6	0.8	0.6	n.a.	n.a.	3.7
1906	n.a.	1.6	1.7	1.6	0.9	0.6	n.a.	1.3	2.5
1907	n.a.	1.6	1.7	1.6	0.8	0.6	n.a.	1.1	2.1
1908	n.a.	1.6	1.7	2.1	1.0	0.6	n.a.	1.0	2.3
1909	n.a.	1.6	1.9	2.1	0.8	0.6	n.a.	n.a.	2.4
1910	n.a.	1.6	1.5	2.1	1.0	0.6	n.a.	0.9	2.4
1911	n.a.	1.6	1.5	2.2	1.1	0.6	n.a.	1.0	2.4
1912	n.a.	1.7	1.5	2.3	1.0	0.6	n.a.	0.9	2.4
1913	n.a.	1.7	n.a.	n.a.	1.1	0.8	n.a.	1.0	n.a.
1914	n.a.	n.a.	2.5	n.a.	0.9	n.a.	n.a.	0.9	1.9
1915	n.a.	n.a.	2.3	1.2	1.0	0.7	n.a.	0.9	1.6
1916	n.a.	n.a.	n.a.	1.1	n.a.	n.a.	n.a.	0.9	2.3
1917	n.a.	n.a.	n.a.	1.6	n.a.	0.7	n.a.	n.a.	1.4
1918	n.a.	n.a.	n.a.	1.1	n.a.	0.6	n.a.	n.a.	1.1
1919	n.a.	n.a.	0.9	1.1	n.a.	0.7	n.a.	1.1	2.5
1920	2.8	1.7	2.5	0.8	n.a.	0.6	n.a.	0.8	2.7
1921	2.5	2.1	1.9	1.4	n.a.	0.6	1.5	0.8	2.9
1922	2.6	2.3	1.8	n.a.	n.a.	0.6	2.3	1.4	2.9

1923	3.7	2.7	1.2	1.8	n.a.	0.7	2.6	2.0	3.1
1924	4.0	2.7	1.6	1.3	n.a.	0.7	2.3	1.9	2.6
1925	3.1	2.7	1.7	1.2	n.a.	0.8	2.0	n.a.	3.9
1926	3.2	2.7	2.3	1.1	1.5	0.7	1.7	1.8	3.9
1927	3.1	3.0	1.7	1.3	1.6	0.7	1.8	1.7	3.9
1928	3.1	2.3	2.1	1.3	1.2	0.7	1.9	1.6	3.9
1929	3.2	3.5	2.1	1.3	1.1	0.7	1.6	1.3	3.2
1930	4.3	3.4	1.8	1.6	1.3	0.7	1.8	1.2	2.9
1931	3.5	4.1	1.8	2.1	1.4	1.2	1.6	1.1	3.4
1932	2.3	3.3	n.a.	2.6	1.5	1.2	1.6	1.1	3.2
1933	n.a.	3.2	1.8	1.9	1.7	1.4	1.4	1.0	3.5
1934	2.5	3.3	1.9	n.a.	1.3	1.3	1.2	0.7	3.4
1935	2.2	3.2	1.9	3.0	1.2	1.2	1.1	1.2	3.4
1936	3.0	4.3	2.4	1.9	1.6	1.4	1.1	1.2	3.5
1937	2.5	3.2	2.5	1.7	1.2	1.4	1.1	1.2	3.5
1938	3.1	3.2	2.5	2.4	1.4	1.4	1.6	1.2	3.6
1939	2.3	3.2	2.3	2.8	1.1	1.4	1.5	1.7	3.5
1940	2.9	3.0	1.7	2.6	1.6	1.3	1.8	n.a.	2.7
1941	n.a.	2.3	1.7	1.8	1.5	1.3	0.8	1.6	n.a.
1942	3.6	3.3	2.2	1.4	1.5	n.a.	0.9	1.7	1.5
1943	2.7	3.2	1.5	1.5	1.1	n.a.	0.4	1.7	2.8
1944	2.7	3.0	n.a.	1.8	1.7	n.a.	n.a.	1.3	2.7
1945	2.8	2.8	2.0	1.9	1.7	n.a.	0.7	1.1	2.4
1946	2.2	n.a.	2.1	1.9	n.a.	n.a.	1.5	n.a.	2.3
1947	2.4	n.a.	2.3	2.8	1.6	n.a.	1.3	n.a.	2.6
1948	2.1	3.8	2.0	2.5	1.5	0.6	1.2	n.a.	2.4
1949	2.5	3.3	1.8	2.6	1.7	0.7	1.6	1.4	2.5
1950	2.6	n.a.	1.8	2.8	1.7	n.a.	1.6	1.5	3.4
1951	2.3	2.6	1.8	2.5	1.7	n.a.	1.5	1.4	3.0
1952	2.3	4.4	1.8	2.7	1.7	n.a.	1.5	1.5	3.2
1953	2.5	4.4	1.7	2.8	1.6	0.9	1.4	1.0	3.5
1954	3.1	4.4	1.8	2.5	1.7	0.9	1.5	1.3	3.7
1955	3.3	4.1	1.9	2.8	2.0	1.1	1.6	2.0	3.8
1956	3.5	3.9	1.9	3.4	2.1	1.5	1.6	2.0	3.7
1957	3.3	4.2	2.1	n.a.	2.2	1.5	1.7	2.2	3.8
1958	3.1	4.1	2.1	4.2	2.2	1.6	1.6	2.1	3.8
1959	3.8	4.8	2.5	3.8	2.4	1.3	2.1	2.1	4.0
1960	3.7	5.1	2.3	n.a.	2.5	1.3	2.1	n.a.	4.0
1961	5.1	n.a.	n.a.	4.0	2.6	1.4	2.5	n.a.	4.9
1962	4.9	n.a.	n.a.	4.5	2.5	n.a.	2.8	n.a.	n.a.
1963	5.2	n.a.	n.a.	4.4	2.5	n.a.	3.5	n.a.	n.a.
1964	5.4	n.a.	n.a.	3.9	2.5	n.a.	n.a.	n.a.	n.a.
1965	n.a.	n.a.	n.a.	3.8	2.4	n.a.	n.a.	n.a.	n.a.

Appendix table 2: Average unskilled rural-urban and urban skilled-unskilled wage ratio pre-1914, the 1920s and the 1930s

	Rural-urban wage ratio					Skilled-unskilled wage ratio				
	pre-1914	**1920s**	**1930s**	**1940s**	**1950s**	**pre-1914**	**1920s**	**1930s**	**1940s**	**1950s**
Gambia	0.86	0.81	0.75	n.a.	n.a.	2.50	3.34	4.40	2.83	2.42
Sierra Leone	0.70	0.83	0.72	0.79	0.88	2.95	2.94	2.36	2.77	1.92
Gold Coast	0.92	1.02	0.94	0.79	0.96	2.49	3.01	3.43	2.28	2.37
S. Nigeria	n.a.	0.53	0.63	0.61	0.70	3.90	2.78	2.71	2.42	2.69
Uganda	0.48	0.56	0.51	0.64	n.a.	n.a.	n.a.	n.a.	2.27	2.25
Kenya	1.06	0.91	0.75	0.56	0.69	n.a.	n.a.	n.a.	n.a.	2.55
Tanganyika	n.a.	0.51	0.63	0.54	0.53	n.a.	2.60	2.89	4.36	2.06
Nyasaland	0.69	0.82	0.69	n.a.	0.82	n.a.	3.61	2.50	2.81	1.93
Mauritius	n.a.	n.a.	n.a.	n.a.	n.a.	2.34	1.76	1.58	1.92	1.23

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