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Abstract

This paper offers time-series of urban unskilled labor wages and commodity prices in eight British African colonies (1880-1940) and shows that real wages were above subsistence level and rising, especially during the interwar years. Real wages in West Africa and Mauritius were even considerably higher than in some major Asian cities. Our results cast doubt on studies emphasizing the existence of ‘structural impediments’ to African economic growth. We also document an East-West divergence *within* Africa and argue this was caused by variations in colonial land and labor market institutions, challenging the view that African colonial institutions were exclusively extractive.

Keywords: Africa, real wages, Asia, labour market, colonial history, divergence

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

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INTRODUCTION

Sub-Saharan Africa is the poorest region of the world at present. International GDP per capita estimates and various measures of human development such as life-expectancy at birth, adult literacy and infant mortality show a considerable group of African countries ranking at the bottom of a global comparison.¹ In recent years a number of scholars have stressed that African poverty has been persistent over time as a result of specific *structural impediments* to growth. Adverse environmental and geographical conditions such as high tropical disease incidence, poor natural transportation networks and fragile eco-systems are said to have constrained productivity growth in agriculture, destroying the basis for structural change.² It has also been argued that African poverty in the late twentieth century results from bad (pre-)colonial institutions, presuming implicitly or explicitly that the effects of ‘initial conditions’ such as ethnic heterogeneity, extractive colonial institutions or slave trade have kept African economies behind ever since they appeared on the scene.³

But have living standards in sub-Saharan Africa been lower than elsewhere for such a long time already? This question is important because the answer matters for our perception and eventual explanation of Africa’s current economic underdevelopment. We try to tackle part of this question by exploring real wage developments, exploiting urban wage and price data in British colonial statistics. The data start in the late nineteenth century and end around the Second World War, hence covering the major part of effective British rule in Africa. Real wage series offer an alternative to historical national accounts for periods with otherwise limited statistical information and have the advantage of better reflecting the material living standards of ‘ordinary workers’ than per capita GDP estimates.⁴

Economic historians have made much effort in the past decade to make long term real wage series comparable across time and space.⁵ For all major world regions there are now at least a few internationally comparable series available.⁶ Sub Saharan Africa (Africa hereafter), however, has remained the big exception. In this paper, we aim to imbed part of Africa in the global picture through a comparison with pre-industrial South and East Asia. An Asian perspective helps to assess some

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* and Worldbank, *World Development Report*.

² Gallup et al., “Geography”; Diamond, *Guns, Germs and Steel*.

³ Acemoglu et al., “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 Easterly and Levine, “Africa’s Growth Tragedy”; for the effects of the slave trade see Nunn, “Africa’s Slave Trade”.

⁴ Internationally comparable GDP estimates for Africa only cover the period since 1950 and even these series are highly unreliable according to Jerven, *African Economic Growth Reconsidered*.

⁵ 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 Allen, “The Great Divergence”; 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).

⁶ See for instance 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, “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”.

crucial issues in African historiography: did the historical scarcity of labor in Africa, as opposed to labor abundant Asia, translate in comparatively high real wage rates? Or did coercive colonial policies, such as native head taxes, restrictive land market institutions and forced labor, keep wages down to bare-bone subsistence levels by artificially pushing supply above demand? Did purchasing power of native urban unskilled wage workers improve during the colonial era or not? Did wage workers in the better integrated export economies, such as Mauritius and Ghana, benefit from greater economic dynamism through higher wages? These questions gain depth against the backdrop of literature that seeks to explain Africa's 'growth tragedy' in terms of persistent effects of adverse geographical conditions or institutions.

Included are four West African colonies, i.e. The Gambia, Sierra Leone, The Gold Coast (Ghana) and Southern Nigeria, three East African colonies, i.e. Kenya, Uganda 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, broadening the scope of final conclusions. We adopt Allen's method of computing real wages as the amount of 'bare-bones subsistence baskets' that can be bought from an adult male's annual wage income.⁷ The details and limitations of this method will be discussed in next section.

METHOD AND SOURCES

Constructing long run series of African real wages is not straightforward. The allocation of labor in many parts of Africa has long been organized on the basis of tributary labor or communal labor, slavery or pawn labor, without regular wage payments. As Austin has shown for Ghana, free wage labor was not easily accepted and its emergence was crucially influenced by colonial intervention in the labor market.⁸ Besides, a monetary economy, another precondition for labor commodification, was poorly developed in large parts of the region, at least until the early twentieth century. Although different types of commodity monies circulated in West Africa to facilitate internal trade, these were not regularly used for the payment of wages.⁹ And given the primacy of oral communication, pre-colonial numerical data on wages and prices had a comparatively low chance of preservation. These factors, however, changed during the colonial era.¹⁰

An important study by Bowden, Chiripanhura and Mosley on long run poverty in Africa presents a time-series index of real *rural* wages of native workers in four African countries, split up

⁷ Allen, "The Great Divergence" and Allen, *Industrial Revolution*.

⁸ Austin, *Labour, Land and Capital in Ghana*.

⁹ Inikori, "globalization process".

¹⁰ In a public call 'to promote the revival of African economic history', a fourth reason may have to do with a general lack of interest in African economic historical research during the past three decades, Hopkins, "New Economic History of Africa".

into two settler colonies (Zimbabwe and Kenya) and two so-called ‘peasant export colonies’ (Uganda and Ghana).¹¹ Their series cover a large part of the colonial period (1914-1959) and even extend until 1996 for Zimbabwe, showing a notable contrast in real wage developments between the settler (modest rise) and non-settler colonies (respectable rise). The main drawback of these index series is that they only offer a temporal trend. The wage and price series we offer differ in temporal and spatial coverage in order to make real wage *levels* comparable across countries.

Our data refer to *urban* wages and *urban* retail prices reported in the annually published colonial blue books. We gathered data from every single blue book available to construct time-series as dense as possible and filled the gaps (notably in the late nineteenth century and around the First World War when because blue books did not appear or the required data was not reported) with interpolation and extrapolation techniques if the base series displayed sufficient carrying weight. Although we show pretty much all that can be obtained from this particular source (i.e. the blue books) for these countries, this does not imply that no alternative sources may exist.

The level of detail in the blue books varies over time and across colonies, mainly depending on the administrative capacities and efforts of the various colonial governments. Especially after World War One, wage and price data have been collected more consistently and with a greater amount of detail than before. Improved statistical data collection went hand in hand with an increasing interest in the cost of living of the working classes in Britain, an interest which spilled-over to the overseas territories. The interwar years witnessed a strong rise of subject expertise, with several new departments in the Colonial Office in London, which had new responsibilities in areas such as education, labor, health care and penal administration.¹² Another reason for data improvement is the growing number of government employees in the colonies (a result of growing government budgets), which raised the number of working hours that could be put into the collection of socio-economic data.¹³

African wages in comparative perspective

Colonial blue books provide wage data for rural labor, unskilled urban labor and skilled urban labor. This study focuses on urban unskilled labor wages for two reasons. First, our price series almost exclusively refer to urban prices. Calculating the purchasing power of rural wages on the basis of urban price levels leads to underestimated real wages. Second, the majority of comparative real wage studies are based on urban unskilled wages. We did collect wage data for agricultural and skilled workers, however, because these can be used to assess the reliability of the urban unskilled wage data (see further on). Obviously, we expect agricultural labor wages to be lower and skilled wages to be higher and that the wage gaps observed remain within certain plausible boundaries.

¹¹ Bowden et al., “Measuring and Explaining”.

¹² Banton, *Administering the Empire, 1801-1968*.

¹³ Frankema, “Raising Revenue” and Frankema, “Colonial taxation”.

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. In some cases the monetary value and the in kind value are reported separately, in most cases they are not. Wages generally refer to adult males, but occasionally also to female or adolescent workers, for instance employed as household servants. 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 assumed a lognormal distribution of wages (a bias towards the minimum) to obtain an average estimate. In cases where we could check the plausibility of this assumption (years for which a minimum, maximum and average wage were available) the lognormal assumption gave results that were very close to the stated average.

Sometimes wage data have been specified into categories of ethnicity, distinguishing between native workers, Europeans and Indians (or Asians), but they mainly refer exclusively to indigenous African workers. Most of the wage data also distinguish between unskilled labor or (semi-)skilled labor by providing separate wage data for the unspecified category of 'day labor', 'wage labor' or 'unskilled laborer' as distinct from specified occupations such as 'carpenter', 'mason' or 'blacksmith'. In case we were only able to obtain rural wages or skilled wages we used information about the rural-urban wage gap and the skill premium in the closest year available to estimate the unskilled wage rate.

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, for instance those of railway construction workers, to extrapolate or interpolate our private market wage series. Most of our evidence, however, suggests that public-private sector wage gaps for unskilled native workers were negligible. Using the reported annual salaries of some occasional native Africans working for the colonial administration (porters, cleaners, servants) we found a remarkably close correspondence between their annual incomes and the annual wages of private sector workers.

It should be kept in mind, however, that the African colonial administrations that collected the data were chronically underequipped. There were no strict guidelines for the collection of wage (and price) data until the 1920s, at least not that we know of. The data were, almost literally, picked up from the street. The wage data mainly refer to the rates paid in the capital city, as information from other parts of the colony was more costly to obtain. Moreover, during most of our period wage labor remained the exception rather than the rule. Only in the larger administrative and trade cities and the major mining and commercial agricultural areas did wage labor become the standard. This implies that real wages cannot simply be taken as an indicator of living standards in the entire colony. In particular the prices of domestically produced agricultural commodities may have had opposite effects on the real wages of city dwellers and the income of farmers in the country side (if they were producing part of their harvest for the market). Besides, some parts of the population in the hinterlands were sparsely integrated in the colonial economy which meant that the size of their harvest, rather than wages and

prices, determined their economic well-being. Urban real wage series refer to a small, albeit increasing, minority of the African working population.¹⁴

Figure 1 shows the nominal wage series for the eight British African colonies, including a nominal wage series for unskilled urban labor in India obtained from van Leeuwen.¹⁵ All wages are stated in British pence per working day. Two observations are important for the discussion of our real wage series later on. First, nominal wage differentials were surprisingly large across British Africa. An urban unskilled worker in the West African cities like Accra or Freetown earned substantially more than in an East African city like Nairobi. In Mauritius the nominal wage levels of rural workers were even much higher.

[Figure 1]

The second observation is that wages in West African cities were considerably higher than in India. In Kenya and Nyasaland the wages remained a little bit lower throughout the colonial period until the late 1930s and in Uganda (Kampala) they were more or less similar. When we place West African nominal wage levels in a broader colonial perspective, including the British West Indies and (South) East Asian territories such as Ceylon, Singapore, Malaya and Hong Kong it appears that West African wages are just slightly lower than in the Caribbean, but higher than in any of the mentioned British Asian colonies.¹⁶ These nominal wage gaps point to an important question regarding the differences between West and East Africa: was labor so much more productive in the West or was it scarcer there? Or did supply-demand relations differ because of significant differences in colonial labor market institutions?

African consumption patterns and commodity prices

We used average annual retail prices recorded in the blue books for one or a number of major cities in the colony, including the capital cities Bathurst (Gambia), Freetown (Sierra Leone), Lagos (Nigeria), Accra (Gold Coast), Kampala (Uganda), Nairobi (Kenya), Zomba (Nyasaland) and Port Louis (Mauritius). For imported commodities such as cotton cloth, soap and candles we used international trade statistics or wholesale price information with a mark-up rate of 20% to adjust for additional taxes, transportation costs and retail profits. A mark-up rate of 20% can be regarded as a fairly high estimate and, therefore, leading to a conservative estimate of purchasing power.¹⁷ Further details on wage and price series for individual colonies can be found in the appendix.

¹⁴ Sender and Smith, *Capitalism in Africa*.

¹⁵ 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*.

¹⁶ Frankema, "Raising Revenue".

¹⁷ Gallup et al., "Geography".

Constructing the consumption baskets we adopted Allen's concept of the 'bare-bones subsistence basket'. This basket suffices to keep an average working family alive, but offers nothing more than that. Table 1 illustrates the contents of an Indian basket based on rice as the main staple food. This basket provides a minimum amount of daily calories per male adult family member (1.920) as well as a minimum amount of grams of protein (46 grams), just sufficient to replenish the body after a day of physical labor without losing muscular strength in the long term. It also includes some non-food items such as cotton cloth, soap, candles, lamp oil, kerosine and coal which are essential for human maintenance.

[Table 1]

Table 2 presents the basket we use for the African countries, but we should first pay some attention to the limitations of our approach. The constructed commodity baskets are used to measure purchasing power of wages in constant terms. In reality consumption patterns change in response to changes in wages, prices or shifting preferences. These changes cannot be taken into account in a fixed basket. Especially the consumption of carbohydrate-rich staple crops matters, as they provide ca. 90% of the total assumed caloric intake. Some flexibility in the composition of the basket will therefore improve the representativeness of the analysis. For the case of India Allen constructed a basket on rice and another on millet, with different quantities reflecting different caloric and protein value (millet contains more protein, but less calories per unit of weight).¹⁸

Table 2 shows that the British African basket also allows for differences in staple food consumption. This is of crucial importance as the number of common staple crops in Africa is exceptionally large. Africans may for instance eat rice, maize, millet, cassava (manioc), yams, (sweet) potatoes or plantain. 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.¹⁹ We retrieved information on local consumption patterns from combining costs of living studies of ordinary laborers and dietary tables of people in prisons and lunatic asylums published in the colonial blue books.

[Table 2]

For most colonies we have price series for rice, maize, cassava, millet and sweet potatoes. Maize became the dominant food crop in large parts of South and East Africa during the nineteenth and twentieth centuries, but also in West Africa the crop had entered into traditional consumption patterns, serving as a basis for major dishes like *kenkey* or *fufu*. Because maize offers greater nutritional value per unit of land and labor than any other staple crop, it is not surprising that the maize basket turns out

¹⁸ Allen, *Industrial Revolution*.

¹⁹ McCann, *Maize and Grace*.

to be the cheapest basket we find in the majority of the selected countries.²⁰ We cannot exclude the possibility, however, that there were still cheaper alternatives and crop combinations available for which we failed to obtain price data. Our most important omissions are yam and plantain price series.

We made a few more amendments with respect to the Asian basket. First, although beans and peas were consumed in considerable quantities across the African continent (as well as close substitutes like groundnuts, peanuts and pecans), we were unable to retrieve solid price series for these commodities. We stepped up the quantity of the staple crop consumed to compensate for the caloric value and protein content. It is important to note that this hiatus leads to an underestimation of purchasing power, as domestically produced beans were a cheap source of protein, which lowered the required intake of staple crops.

Second, the consumption of butter is uncommon in large parts of Africa. Especially in tropical Africa domestically produced palm oil was preferred over the imported (salted) butter consumed by Europeans. Ghee was and still is consumed in large portions, especially in East Africa. We have ghee and/or palm oil for each colony, and only in years for which we do not have such prices we have based our price basket on a fixed percentage. We assumed that the required quantities of palm oil in liters were equal to those of ghee in kilograms.

Third, most of the energy used by African households for cooking and heating was derived from firewood or charcoal. Despite some scattered price observations for these commodities, we were not able to construct solid time-series. The thermal value of firewood and charcoal depends to a large extent on the specific type of wood, which makes it particularly hard to estimate the required quantities. We chose to use the import prices of coal as a shadow price instead. The idea is that if imported coal would have been more cost-efficient, Africans would have shifted towards the consumption of coal. What evidence we have, however, shows that charcoal was considerably cheaper than coal in terms of thermal energy output, but this must have depended largely on the relative proximity of trees and bushes, which differed from place to place.

Finally, we follow Allen's assumptions for computing Asian annual wage income, which is based on 6 working days a week all year round. This gives 26 days a month and 312 days per annum. We have some reports showing both the annual and daily wage suggesting that the number of working days exceeded 300. Additionally, for nearly each colony we have some information on the 'average number of hours per week worked without overtime'. The average working week ranged between 45 and 54 hours, which also suggests a 6-day workweek. But most important, with the assumption of 312 working days per year we maintain comparability with the Asian series. 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. Since rents for housing are excluded, Allen adds 5% to each single subsistence basket to compensate for this. We also do this, although there are reasons to believe that

²⁰ McCann, *Maize and Grace*.

housing was comparatively cheap in African cities, given the relative abundance of land. Again, we want to make sure that our assumptions are, if anything, on the conservative side.

LEVELS AND TRENDS, 1880-1940

We proceed with our main results. The value of one adult male's annual wage is expressed as the daily number of family subsistence baskets it purchases, the so-called 'subsistence ratio' or 'welfare ratio'. Table 3 presents the decadal averages for each country (city) based on various commodity baskets. With the notable exception of Nyasaland urban wages in British Africa seem to have offered sufficient purchasing power for family subsistence in almost the entire colonial period up to 1940, that is, wage levels sufficed to buy at least one basket of at least one particular staple crop. The differences in levels and trends across British Africa were remarkably large, however. In the Gold Coast the subsistence ratios fluctuated between 2.5 and 3.8 and in Southern Nigeria between 2.0 and 3.3. In Kenya, on the other hand, subsistence ratios fluctuated between 1.1 and 1.9 and in Uganda between 1.0 and 2.7.

[Table 3]

Real wages in Nyasaland were clearly below the threshold-level for most of the period, even when measured in maize, the main staple food in this country. This means that additional sources of family income (in money or in kind) were necessary in order to survive. It is therefore not surprising that many 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 far below subsistence level.²¹

In the Gambia the real wage levels based on a rice basket appear lower than in the Gold Coast, roughly between one and two, but we have reasons to be cautious. The few maize price observations we obtained suggest that a maize basket was much cheaper. The same goes for Sierra Leone, where maize and rice baskets fluctuate between 0.9 and 2.5, but a couple of millet price observations suggest that there existed cheaper alternatives. Table 4 supports this idea, showing the average decadal price levels of a family subsistence basket based on the cheapest available staple crop. The table shows that price levels in the Gambia and Sierra Leone were much higher than in the other countries, but these price differences disappear with a millet basket for Sierra Leone and a maize basket for Gambia (see table 3). These examples reveal the possible extent of underestimation of our real wage series as a result of the lack of adequate price information.

²¹ Macdonald, *Nyasaland*.

[Table 4]

Table 4 also yields another interesting observation, however. The great differences in real wage levels between East and West Africa are not the result of major price differences. In the 1920s and 1930s the prices of a maize subsistence basket in Zomba are pretty much at par with Accra and lower than in Southern Nigeria. Also in Nairobi and Kampala the prices do not seem to have been structurally higher. This means that differences in nominal wages (see figure 1) explain most if not all of the variation in real wages *within* British Africa. This is important, because it helps us to focus on possible explanations further on.

The East-West division also occurs when we focus on trends instead of levels. In all West African countries we can distinguish a moderate or even strong rise in real wage levels, often continuing during the depression of the 1930s. In Uganda real wage levels rose during the 1920s, but the increase was not sustained during the 1930s. Also in Kenya the trend appears flat, or even slightly declining. In Nyasaland people seem to have been better off during the 1930s, although it should be recalled that the levels remained lower than anywhere else. A discussion of potential explanations of the East-West divergence will be postponed to a later section, but we would like to point out here that the observed differences in real wage trends during the interwar years are not taken for granted in the mainstream African historiography. A good illustration can be found in Reid's *History of Modern Africa*,

“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.”²²

Indisputably, part of the native population experienced economic hardship, especially during the early 1930s. Our real wage figures do not tell us, for instance, to which extent African wage-workers have suffered from the economic crisis through unemployment. But our figures also suggest that we should be very 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 West Africa the decline was in most cases more than compensated for by the fall of prices of primary commodities. In a courageous attempt to estimate GDP trends in colonial Africa Jan

²² Reid, *A History of Modern Africa*, p. 225.

Pieter Smits shows that the 1930s, on the whole, witnessed a respectable rate of growth in per capita GDP. Our real wage series are in line with his findings for at least a significant part of the region and we do not find evidence for a substantial decline in East Africa either.²³

Only for Mauritius we find evidence that the collapse of global markets (the world sugar market in particular) adversely affected living standards of wage-workers. While the unskilled workers' subsistence ratio had risen to levels around four during the 1920s, it collapsed to rates below two during the depression years. Interestingly, the purchasing power of skilled labor wages remained unchanged. The skilled-unskilled wage differential had almost been resolved during the First World War and remained relatively moderate in the early 1920s, but rose to unprecedented proportions during the early 1930s. The comparatively deep impact of the depression on the Mauritian economy is not surprising, as Mauritius was much stronger integrated in the global economy than any of the mainland colonies included in this study: In 1930 the total area under cane sugar cultivation contracted with 8%; the export quantity of sugar with 51%, and export value with 59%. Frankema shows that government spending programs suffered badly from a steep reduction in tax revenue, where mainland African colonies managed to consolidate or expand their budgets.²⁴

The full time-series graph of Uganda in figure 2 serves to illustrate the potential importance of staple crop substitution. In terms of cassava, one of Uganda's primary staple crops, real wages increased during the colonial era, but were plagued by heavy price fluctuations. The big spikes in cassava prices in the years 1930-32 and 1938-40 reflect the harvest failures caused by the cassava mosaic virus disease, which took on endemic forms in parts of East and Central Africa since the virus was first discovered in the late nineteenth century.²⁵ These harvest failures turned millet and sweet potatoes into more attractive substitutes, although that could not prevent a decline in real income levels in the late 1930s.

[Figure 2]

Finally, it is worth asking to which extent these wages reflect the income levels of broader segments of the population? Table 5 presents rural-urban and unskilled-skilled wage ratios for the pre-1914 years, the 1920s and the 1930s. The rural wages refer to the lognormal average of wages paid in agriculture, including payments in kind. The skilled wages refer to skilled construction workers such as carpenters, bricklayers and blacksmiths.

[Table 5]

²³ Smits, "Economic Growth".

²⁴ Frankema, "Colonial taxation".

²⁵ Legg and Tresh, "Cassava mosaic virus disease".

Table 5 shows that agricultural wage workers would roughly earn between half to one time the urban unskilled wage. These nominal wage ratios give an impression of the maximum size of the real wage gap, as food prices in the countryside were probably lower than in the capital city. Nevertheless, these figures make clear that the relatively high subsistence ratio recorded for the Gold Coast also applied to agricultural wage workers, as nominal wage differentials were negligible. But also in the other British West African countries the subsistence ratio remains above one when equating rural wages with urban retail prices. Uganda and Kenya would end up below the threshold level, however, and Nyasaland even far below. For Mauritius we were already using agricultural wages, but given the size of the island, we believe the rural-urban wage gaps must have been negligible. Skilled wage workers such as carpenters on the other hand, could reach levels of purchasing power between seven to ten baskets in Accra, Lagos or Mauritius. This is comparable to the purchasing power of unskilled workers in Amsterdam or London in the first decades of the twentieth century.²⁶

BRITISH AFRICA IN ASIAN PERSPECTIVE

How did British Africa compare to pre-industrial Asia? Most of the historical real wage series for Asia extend into the early twentieth century, which means that there is a brief period of overlap with the African series. Figures 3 and 4 compare the subsistence ratios in the major cities in British Africa with the long run series of Beijing, Suzhou/Shanghai, Canton and Kyoto/Tokyo starting in 1740.

[Figure 3 and 4]

The graphs leave little doubt that real wage levels in late nineteenth century West Africa were considerably higher than in East Asia. For Accra and Southern Nigeria subsistence ratios were even 2 to 3 times as high. Other existing series for Bengal and South India, which we did not include here for reasons of graphical clarity, display a comparable gap between South Asia and West Africa.²⁷ The wages of unskilled plantation workers in Mauritius were also clearly higher than in Asia. It shows that Mauritius was a relatively prosperous island at the turn of the twentieth century, both from an African and Asian perspective. The comparison with East Africa is different. Subsistence ratios in Nairobi were more or less equal to the long term levels in Asia. In Kampala real wages fluctuated considerably, but were on the whole a bit higher. The real wage levels in Nyasaland up to 1930 remained very low. Although the rise in real wages in Zomba during the 1930s was not impressive

²⁶ Allen et al., “wages, prices and living standards”

²⁷ Allen et al., “Wages, prices and living standards”; Allen, *Industrial Revolution*; Roy, “Early Modern Bengal”; Broadberry and Gupta, “Great Divergence”.

from a British African perspective, it was from a long run Asian perspective certainly not negligible.

Our finding that real wage levels in the majority of the African colonies appear comparatively high from a global historical perspective is important for African historiography. While many African countries at present belong to the poorest countries in the world, the real wage developments cast doubt on the idea that they were poorer during the first half of the twentieth century. But if adverse geographical conditions in Africa have hampered African economic development why were real wages in West Africa up to 1940 (at least) than so high in comparison to South and East Asia?

Acemoglu et al. have argued that African underdevelopment should primarily be seen in the light of its peculiar colonial legacy.²⁸ European powers bequeathed their African colonies with extractive institutions which have persisted into the post-colonial era up to present. Because Europeans hardly settled in Africa there were no politically powerful parties that could press for the implementation of so-called ‘developmental institutions’. Without showing much evidence, Acemoglu et al. even claim that Africa experienced a ‘reversal of fortune’ during the colonial era.²⁹ Our results are difficult to reconcile with their line of argumentation. The increase of real wages during the colonial era was not negligible, while Acemoglu et al. predict a deteriorating trend.

Moreover, we find that in Kenya, the only African colony *with* substantial European settlement included in this study, real wage levels were comparatively low and did not improve before 1940. Bowden et al. arrive at a similar conclusion: it seems that *within* Africa (or at least British Africa) settlement and development were inversely related.³⁰ West Africa offered the worst thinkable disease environment for European settlement. These conditions were, to some extent at least, a blessing in disguise. They helped the indigenous peoples to keep the colonial power at arm’s length. In the next section we will argue that a lack of extractive institutions (i.e. capitation taxes and land alienation programs) form part of the explanation for the East-West divergence.

THE EAST-WEST DIVERGENCE IN BRITISH AFRICA

Virtually all explanations that have been put forward in the literature to explain the historical development of labor market institutions in sub-Saharan Africa, start with the observation that Africa’s factor endowment structure is characterized by high land-labor ratios. In line with the Domar-Nieboer thesis linking high land-labor ratios to the prevalence of coercive labor market institutions, the scarcity of labor in Africa has been widely accepted as part of the explanation as to why indigenous slavery

²⁸ Acemoglu et al., “Colonial Origins”.

²⁹ Acemoglu et al., “Reversal of Fortune”.

³⁰ Bowden et al., “Measuring and explaining”.

was so widespread until the early twentieth century.³¹ 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. Although Austin mentions a few exceptions, he agrees that land was virtually everywhere abundant, while labor and capital comparatively scarce throughout the pre-colonial, colonial and post-colonial eras.

It is tempting to interpret the comparatively high real wages levels in West Africa as a reflection of its factor endowments structure, certainly when contrasted with parts of East and South Asia. Land abundance also induced relatively low prices for basic agricultural commodities as their supply could be raised without much effort in response to demographic changes. Although this provides us with a clean and simple starting point for explaining high wages in West Africa, it also throws up a new problem: why did comparable endowment structures in East Africa not translate into identical economic mechanisms with comparable results in terms of wage levels? Measures of population density per unit of agricultural land show that land-labor ratios were not lower in East than in West Africa.³²

Part of the explanation has to do with differences in colonial economic dynamics. The Nyasaland protectorate was one of the most isolated territories in the British Empire. Per capita government revenue was lower than almost anywhere else as Frankema has shown in a sample of 33 British colonies in the first half of the twentieth century.³³ Exports per capita were just a fraction of those of Mauritius or the Gold Coast colony and differences in infrastructural investments and administrative manpower were enormous.³⁴ No doubt the demand for labor, and even more important, the increase in the demand for labor during the colonial era, was much higher in Accra than in Zomba. All this is just to say that a convincing explanation should include demand side conditions.

Having said this, low real wages in Kenya can certainly not be explained by low demand for labor. 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.³⁵ 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 investor in the domestic

³¹ See amongst others Nieboer, *Slavery*; Domar, *Slavery or Serfdom*; Hopkins, *West Africa*; Austin, "Resources, techniques"; Lovejoy, *Transformations in Slavery*; Illife, *Africans*

³² Fenske, "Land abundance".

³³ Frankema, "Raising Revenue" and "Colonial taxation".

³⁴ Around one-eighth of Gold Coast's and one-twentieth of Mauritius' per capita trade value in the 1920s and 1930s. The number of government employees on the pay roll of respective colonial administrations differed from 47 per 10,000 inhabitants in Mauritius, to 19 in the Gold Coast and just 1.4 in Nyasaland, see Frankema, "Colonial taxation".

³⁵ 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.

economy.³⁶ Although we do not have national income estimates, there is no evidence that Kenya was, from a macro-economic point of view, any poorer than, say, Sierra Leone. Low real wages in Kenya should therefore primarily be considered as a distributive outcome, determined by specific colonial institutions, rather than market forces of demand and supply.

Indeed, the differences in colonial institutional development within British Africa were vast. Take the fiscal institutions, for instance. Contrary to West Africa and Mauritius, the largest share of fiscal revenue in Nyasaland, Uganda and Kenya came from native head taxes. Literature provides various complementary arguments for the imposition of direct native taxes. One argument is that the annual flows of international trade were too small to provide a solid foundation for colonial government finance.³⁷ Taxing trade was definitely the cheapest way of collecting revenue, but head taxes were pretty much the only feasible second-best alternative for enlarging government revenue in relatively short time. Income or land taxes required an elaborate system of assessment, which would have taken a long time (and a lot of money) to develop.

But the most cited reason for the introduction of a capitation tax is that it enforces an unwilling native population to supply their labor to the market, thereby largely reducing employers' wage costs.³⁸ For whatever reason, the imposition of head taxes in West Africa was much less successful than in East Africa. In the Gold Coast native direct taxes were not introduced at all. In Sierra Leone the introduction of a hut tax immediately led to violent resistance (the Hut Tax War 1898-99). The head tax system proved much less efficient in terms of the per capita amounts collected, compared to the system in Nyasaland.³⁹ And in Nigeria and the Gambia a direct native tax was only hesitantly introduced during the interwar years, but this was well after the rise of real wages. In West Africa the lion's share of fiscal revenue came from import duties, a less 'visible' type of taxation, although not necessarily less disruptive from an economic point of view. But in large parts of British West Africa head taxes were also not needed to develop a (thriving) market economy.⁴⁰

To which extent did colonial taxes affect wage workers' purchasing power? Obviously, when using retail price data all of the indirect taxes such as import tariffs, excises, commercial fees or other consumer or producer taxes have already been integrated in the commodity prices. But this is not the case for direct taxes. Table 6 presents the official native hut, poll or head tax rate as share of total annual income and shows their impact on the subsistence ratio for the benchmark year 1937-38. The differences between East and West Africa are clearly visible. East Africans had to reserve a larger proportion of their cash income for the payment of direct taxes, despite the fact that their real incomes were clearly lower than in West Africa. With real wages close to bare-bones subsistence level a 4 to 8% loss of income must have been perceived as a heavy burden.

³⁶ Frankema, "Raising Revenue".

³⁷ Frankema, "Colonial taxation".

³⁸ Young, *African Colonial State*; Mamdani, *Citizen and Subject*; Bush and Maltby, "Taxation".

³⁹ Frankema, "Colonial taxation".

⁴⁰ McPhee, *Economic Revolution*; Hopkins, *West Africa*; Austin, "Labor and land".

[Table 6]

Fiscal policy differences may thus have determined part of the divergence in material living standards, although farmers could specialize by producing and selling (part of) their produce at local market or shift to the production of commercial export crops to earn cash. And in various parts of the Empire people were also allowed to pay their taxes in kind, which took away the incentive for wage labor altogether.

Differences in land market institutions take the argument further. As noted by Austin in several studies, the British endorsed the indigenous land tenure regimes in West Africa after initial attempts to reform them in line with their ideas about the capitalist mode of production.⁴¹ Bowden and Mosley argue that these indigenous land tenure systems, which were also left intact in Uganda, produced a more equitable distribution of income based on the small-holders profits of developing peasant export economies. In Kenya ca. 7% of the agricultural land became reserved for large scale European farms. This may seem a modest share, certainly compared to the 49% in Southern Rhodesia and 87% in South Africa, but these lands were not coincidentally considered to be the ‘high-potential areas’.⁴² Native farmers were pushed off their land and were forced to become wage slaves. Bowden et al. show that in the European controlled settler colonies such as Kenya, Southern Rhodesia and South Africa rural wages were kept close to minimum levels.⁴³ Systematic programs of land alienation did not occur in Uganda.

What set Kenya apart from the other British African colonies is the combination of two typical features of a European controlled settler economy which were clearly guided by extractive and redistributive motives: i.e. a fiscal regime placing a high burden on the shoulders of the indigenous people and a land tenure regime that was tailored to the needs of large scale European farmers. The comparatively low levels of real wages as well as the absence of a clear increasing tendency as could be observed in West Africa, may therefore point out that deliberate labor coercion was successful in Kenya, that is, from a policy maker’s point of view.

Our last argument emphasizes an East-West difference in labor market conditions, which is not primarily related to region specific colonial institutions: the geographical proximity of an enormous reserve supply of labor on the Indian subcontinent, whose entrance into the East African and Mauritian labor market was only further facilitated by the fact that they became part of the same British empire during the late nineteenth century (early nineteenth century in the case of Mauritius). Indian migrants to East Africa, either indentured or on their own account, accommodated a substantial part of the labor demand, working in urban services, establishing small-scale commercial and

⁴¹ Austin, *Labor, Land and Capital*; Austin, “Compression of History”.

⁴² Bowden et al., “Measuring and explaining”; Frankema, “colonial roots”

⁴³ Bowden et al., “Measuring and explaining”.

industrial enterprises and occupying a large share of the more skill-intensive jobs offered by private as well as public employers of European and Indian origin.

Wage differentials in Kenya between carpenters of native African, Indian and European origin offer an impression of the extent of labor market segmentation. Around 1908 a Swahili carpenter was reported to earn a daily wage of 8 to 16 pence, an Indian carpenter circa 36 pence (3 shillings) and a European carpenter would, depending on his skills and experience, earn 48 to 80 pence. Indeed, the wage gap between the Indian and European carpenters was considerably smaller than between the Swahili and Indian carpenters.⁴⁴

Ethnic differences in skills and social status placed a ceiling on the opportunities for social mobility of the native Africans. How different was the situation in Ghana, where native Africans such as the Ashante, seized the developing opportunities of commercial profits and were rather successful in protecting their economic interests against the encroachments of a foreign occupying power.⁴⁵ The market for wage labor developed rapidly in the twentieth century along with the decline of the deep-rooted institutions of slavery and labor pawning. There is little evidence that the commodification of labor constrained the development of the booming cocoa sector. But in Ghana Africans were employing Africans and, in view of their profit margins, were able and willing to pay respectable wages.

CONCLUSION

With the exception of Nyasaland, we have shown that the wages of native unskilled male adult workers in the main urban centers of British Africa sufficed to maintain a nuclear household (two adults, two to three children) at a bare bones subsistence level during the colonial period up to the Second World War. Real wages were considerably higher in West Africa than in East Africa. Real wages also revealed a tendency to rise in the long run, especially in West Africa. During the First World War and its immediate aftermath most colonies experienced a decline in real wages, but the increasing trend during the interwar period compensated these losses. In many cases, again mainly in West Africa, the rise of real wages also continued during the 1930s, as prices tended to decline more rapidly than nominal wages. This goes against the conventional idea that the 1930s were a period of widespread and virtually inescapable hardship. A historical and spatial comparison reveals that subsistence ratios in West Africa and Mauritius were high, perhaps even surprisingly high, as compared to a number of East and South Asian cities. In East Africa real wages tended to be more in line with Asian levels.

⁴⁴ *Colonial Blue Book of the East African Protectorate, 1907-1908.*

⁴⁵ Austin, *Labor, Land and Capital.*

We have been emphasizing throughout the paper that the demonstrated intra-regional divergence is important because it calls for a reinterpretation of the claims of recent studies about the persistently negative impact of colonial institutions or complicated geographical circumstances. Our wage series challenge the idea that colonial institutions in Africa were uniform, exclusively extractive and persistent. The variation in income levels is too big to generalize the impact of adverse geographies or perverse colonial institutions. We argue that further studies should focus on the differences, not the similarities, of colonial labor market institutions in order to explain the remarkable divergence of real wages under British colonial rule in Africa.

We should also make a few sobering remarks about the scope of our conclusions. First of all, real wage estimates do not tell us everything about the development of living standards. We have tried to measure and compare the purchasing power of wages. The concept of living standard is broader than that and includes the freedom for personal development in many immaterial aspects of life such as health, education, political representation and the respect for social and personal identities: important issues that lie beyond the scope of this study.

Second, it should be kept in mind that our study has focused on a small minority of the African workforce. For many subsistence farmers who took no part in the growing market economy, the quality of the harvest has been the key determinant of their real income, irrespective of movements in wages and prices. On the other hand, we have presented some evidence that rural and urban nominal wages tended to move together, which means that there is a good chance that the trends (not the levels) we have observed for urban labor are a good proxy for rural income development.

Third, there are clear limitations to the wage and price data we have exploited in this study. We failed to include protein rich beans and peas and staple crops like yam, plantain and in the cases of the Gambia and Sierra Leone also solid series for millet and maize respectively. By consequence, our series are likely to offer an underestimation of real purchasing power in some areas. In this regard it is important to stress that without these limitations our main conclusions about the East-West divergence and the relative high income levels in West Africa would almost certainly have become stronger, not weaker.

Appendix 1: Summary description of sources and methods used to construct wage and price series

Almost all wage and price data have been derived from the colonial blue books cited below. Prices of cotton, coal and candles were derived from trade statistics published by the Board of Trade in *Statistical Tables relating to the Colonial and Other Possessions of the United Kingdom, 1880-1912* and the *Annual statement of the overseas trade of the United Kingdom, 1880-1945*.

Gambia:

Urban wages: 1897-1912 ‘trades – laborers’; pre-1897 has been based upon the years 1897-1912, as the category ‘laborers’ was not yet available, but other categories present for these years did not change with respect to the levels of the subsequent period; 1921-4 ‘trades and government/manufacture – laborers’; 1925-6 ‘other, industrial – building’ (wage level vis-a-vis 1924 unaltered); 1927-44 ‘government’ (government wages were equal to industrial wages in 1925-6); 1945 ‘other industrial – laborers’.

Source: Blue Book for the Colony of The Gambia, 1880-1945

Gold Coast:

Urban wages: 1880-82 lower bound ‘trades’; 1883-99 ‘trades - hammock men (in town); 1900-16 ‘trades - laborers’; 1920-4 ‘trade and manufacture – local laborers’; 1925-45 ‘government, railways – laborers’

Prices: maize prices 1880-99 and 1920-31 were extrapolated on the basis of rice prices ($R^2 = 0.65$)

Source: Blue Book for the Gold Coast Colony, 1880-1946

Sierra Leone:

Urban wages: 1880-96 ‘trades’, corrected for skill-premium; 1897-1911 ‘trades – blacksmiths’, corrected for skill-premium; 1915-9 ‘trades – laborers (Freetown)’; 1920-4 ‘trade and manufacture – porter of carrier’; 1925-43 ‘government, railways – locomotive laborers and cleaners’

Prices: maize prices 1880-1912, 1920, 1924, 1926, 1928, 1930, 1936, and 1938 were extrapolated on the basis of rice prices ($R^2 = 0.71$)

Source: Blue Book of Sierra Leone, 1880-1943

Southern Nigeria:

Urban wages: 1880-93 ‘trades Lagos’, corrected for skill-premium; 1894-1903 ‘trades Lagos – canoemen’ (these pre-1904 series were downward adjusted on the basis of the levels found in a larger selection of cities and towns in Southern Nigeria after 1903); 1904-24 ‘trades Southern Nigeria – laborers and carriers’; 1925-43 ‘manufactures, building (Southern Provinces) – unskilled’; 1933 average of ‘building S.P. and unskilled’

Prices: maize prices 1897-1905, 1910-12, 1940-1, and 1943 were extrapolated on the basis of rice prices ($R^2 = 0.67$); cassava prices 1903-43 were extrapolated on the basis of wheat prices ($R^2 = 0.88$)

Source: Blue book for the Colony of Lagos, 1880-1905; Blue book for the Protectorate of Southern Nigeria, 1900-1913; Blue Book for the Colony and Protectorate of Nigeria, 1913-1945

Kenya:

Urban wages: 1904-12 ‘trades – carpenters, Swahili’, corrected for skill-premium; 1926-44 ‘government, railways – unskilled’

Prices: maize prices 1904, 1906-9, and 1928 were extrapolated on the basis of rice prices ($R^2 = 0.46$); potato prices 1903-4, 1907-9, and 1928 were extrapolated on the basis of rice prices ($R^2 = 0.60$); millet prices 1903-9, 1911, 1913, 1915, and 1937-46 were extrapolated on the basis of rice prices ($R^2 = 0.72$). Wholesale prices were adjusted upward with 30% to reflect market prices, based on years for which observations were available for both market and wholesale prices.

Source: Blue Book of the British East Africa Protectorate, 1901-1916; changed into Blue Book for the Colony and Protectorate of Kenya, 1925-1946

Uganda:

Urban 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 upward to reflect wage rate in Kampala

Prices: millet prices 1907, 1910-4, 1918 and 1922 were extrapolated on the basis of rice prices ($R^2 = 0.09$); cassava prices 1906-24 were extrapolated on the basis of wheat prices ($R^2 = 0.06$)

Source: Blue Book of the Uganda Protectorate, 1901-1945

Nyasaland:

Urban wages: 1902-9 'trades, natives – according to skill', corrected for skill-premium; 1921-4 'trade and manufacture – carpenters', corrected for skill-premium; 1925-30 'industrial – unskilled'; 1931-42 'government, public works' (an average has been taken of wage incl. mentioned ration value and excl. that value for latter two categories)

Prices: maize prices 1901-17, 1923, 1929, and 1940-1 were extrapolated on the basis of rice prices ($R^2 = 0.70$)

Source: Blue Book of Nyasaland Protectorate, 1897-1941

Mauritius:

Unskilled wages: we have taken rural wages as a proxy for the price paid for unskilled labor in Mauritius.

Prices: maize prices 1899-1919 were extrapolated on the basis of wheat prices ($R^2 = 0.10$)

Source: Blue Book for the Colony of Mauritius, 1880-1947

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Table 1: Bare bones subsistence basket in India based on rice

	Unit	Quantity per person per year	Nutrients per kg		Nutrients per person per day	
			Calories	Protein (gr.)	Calories	Protein (gr.)
Rice	kg	162	3.620	75	1.607	33
Beans/peas	litre	20	3.630	200	199	11
Meat	kg	3	2.500	200	21	2
Butter/Ghi	kg	3	8.840	0	73	0
Sugar	kg	2	3.750	0	21	0
Cotton	m	3				
Soap	kg	1,3				
Kerosine	litre	1,3				
Candles	kg	1,3				
Coal	BTU	3 MBTU				
Total					1.920	46

Source: See Allen et al. 2010; see also Allen 2009, p. 37

Table 2: Bare bones subsistence basket in British Africa based on various staple crops

	Unit	Quantity per person per year	Nutrients per kg		Nutrients per person per day	
			Calories	Protein (gr.)	Calories	Protein (gr.)
Main staple	kg	var.	var.	var.	> 1800	> 42
Meat	kg	3	2.500	200	21	2
Palmoil/Ghi	litre/kg	3	8.840	0	73	0
Sugar	kg	2	3.750	0	21	0
Cotton	m	3				
Soap	kg	1,3				
Kerosine	litre	1,3				
Candles	kg	1,3				
Coal	BTU	3 MBTU				
Total					1.914	44

Sources: See appendix. Authors own calculations, following Allen et al. 2010.

Notes: The following nutritional values were assumed for the staple crops: 3.600 calories and 80 grams of protein per kilogram of maize, see Johnston, *staple food* ; 3.620 cal. and 72 gr. of protein per kg of rice, see Allen, *The British Industrial Revolution*; 3.020 cal. and 110 gr. of protein per kg of millet, see Allen, *The British Industrial Revolution*; 1600 cal. and 45 gr. of protein per kg of cassava. The cassava root itself contains only 15 grams of protein per kg, but the cassava leaves contain much more. The application of traditional fermentation processes using these leaves to make *fufu* (West Africa) or *kowan* (Uganda) is estimated to raise the original protein content with three to eight times. We assume a conservative increase of three times, see Hahn, Reynolds and Egbunike, *Cassava*; 900 cal. and 48 gr. of protein per kg sweet potatoes. The protein content is a minimum estimate obtained from Purcell, Walter Jr. and Giesbrecht, "Distribution of Protein".

Table 3: Subsistence ratios of urban unskilled labor in British Africa, 1880-1940 (decadal averages)

	Gambia Bathurst		Sierra Leone Freetown		Gold Coast Accra		Southern Nigeria Major cities		
	rice	maize	maize	rice	millet	maize	rice	maize	cassava
1880/9	1,24		0,94	1,02		2,48	0,74	1,67	2,16
1890/9	1,38		1,30	1,40		3,00	0,73	1,35	2,26
1900/9	2,05		1,31	1,42		3,04	0,78	1,99	2,39
1910/9			1,28	0,87	2,05	2,77	0,84	1,90	1,98
1920/9	1,72		1,34	1,31		3,14	1,11	2,21	2,43
1930/9	2,19	3,69	2,35	2,49		3,84	1,84	2,61	3,31

	Kenya Nairobi		Uganda Kampala		Nyasaland Zomba		Mauritius		
	maize	millet	millet	cassava	sw. potato	maize	rice	rice	maize
1880/9									
1890/9									
1900/9	0,93	1,39	1,03	0,72		0,58	0,49	1,73	
1910/9	0,81	1,03	1,02	1,32	2,27			1,76	2,69
1920/9	1,19	0,98	2,35	1,73	1,90	0,70	0,35	2,26	
1930/9	1,44	1,18	1,21	1,58	0,91	1,18	0,33	2,01	

Sources: See appendix

Table 4: Price of a family subsistence basket in pence per day, 1880-1940 (decadal averages)

	Gambia Bathurst rice	Sierra Leone Freetown maize	Gold Coast Accra maize	S. Nigeria Major cities maize	Kenya Nairobi maize	Uganda Kampala millet	Nyasaland Zomba maize	Mauritius rice
1880/9	11,8	11,9	3,8	6,4				
1890/9	10,7	8,4	3,0	6,0				
1900/9	7,1	6,5	3,3	4,2	3,1	4,2	4,8	5,5
1910/9		8,1	4,1	4,8	3,5	6,0	4,3	7,9
1920/9	13,2	10,0	5,4	7,0	6,4	4,7	5,2	12,6
1930/9	6,6	5,0	3,3	4,0	4,4	5,2	3,5	5,7

Sources: See appendix

Table 5: Average unskilled rural-urban and urban skilled-unskilled wage ratio in the pre-1914 years, the 1920s and the 1930s

	Rural-urban wage ratio			Skilled-unskilled wage ratio		
	pre-1914	1920s	1930s	pre-1914	1920s	1930s
Gambia	0.86	0.81	0.75	2.50	3.34	4.40
Sierra Leone	0.70	0.83	0.72	2.95	2.94	2.36
Gold Coast	0.92	1.02	0.94	2.49	3.01	3.43
Nigeria (Southern)	na	0.53	0.63	3.90	2.78	2.71
Uganda	0.48	0.56	0.51	na	na	na
Kenya	1.06	0.91	0.75	na	na	na
Nyasaland	0.69	0.82	0.69	na	na	na
Mauritius	na	na	na	2.34	1.76	2.70

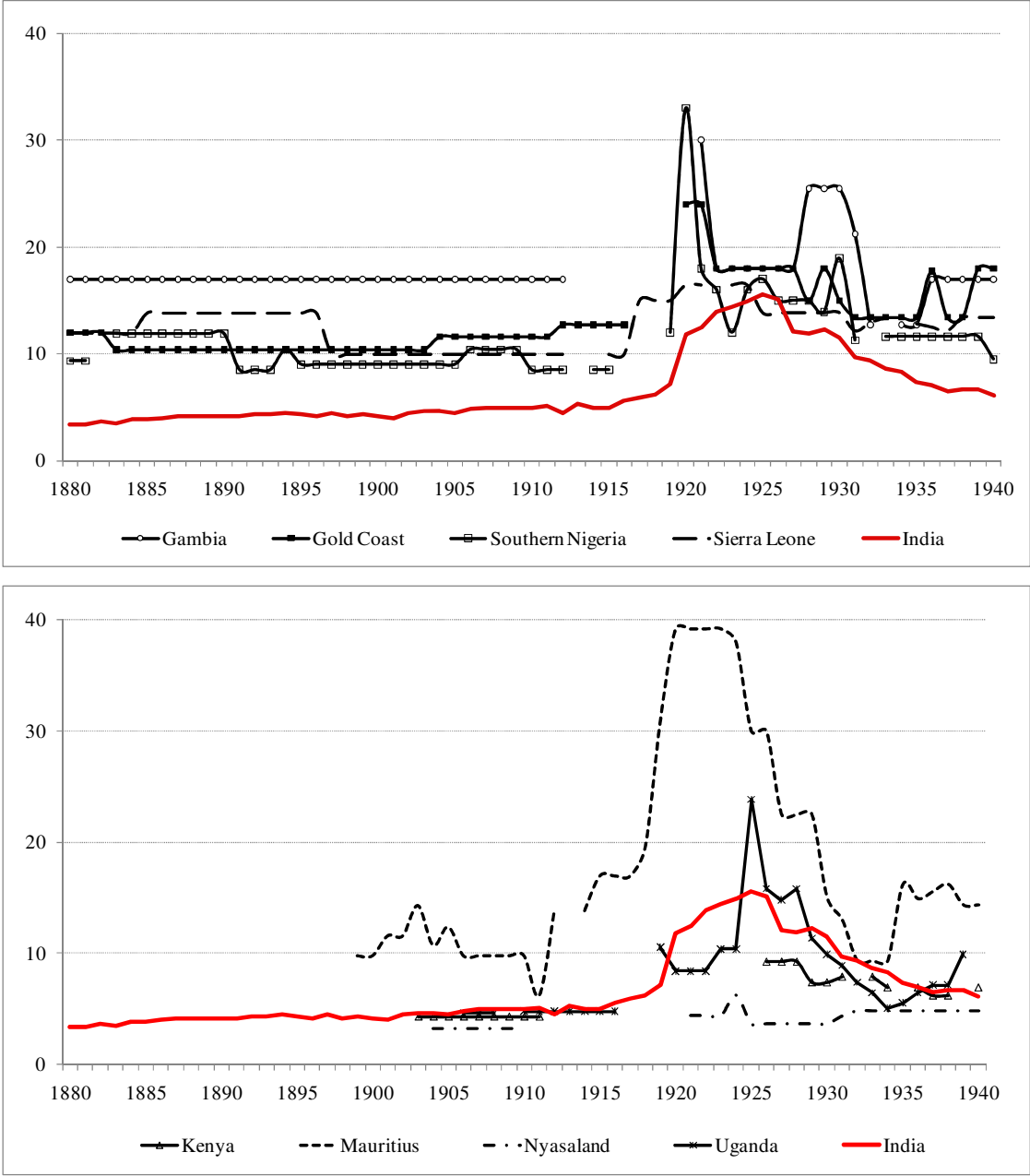
Note: For Mauritius we obtained wages of unskilled workers on sugar estates and skilled labor wages (carpenters, bricklayers etc.), but no separate data for unskilled urban workers was available in the blue books. Given the small geographical size of Mauritius and the prevalence of the sugar-plantation sector, labor and consumer markets were probably better integrated than anywhere else on the African mainland. It is therefore highly likely that rural-urban wage differentials were comparatively limited, if not negligible.

Table 6: The estimated impact of direct native taxes on the subsistence ratio in British Africa, 1937-38

	Subsistence ratio	Direct taxes as % share of annual wage income	Post-tax subsistence ratio
Gambia	2.3	1.1%	2.3
Sierra Leone	2.1	1.6%	2.0
Gold Coast	3.3	0.0%	3.3
Southern Nigeria	3.3	1.7%	3.2
Uganda	1.8	8.0%	1.6
Kenya	1.3	5.6%	1.2
Nyasaland	1.4	4.8%	1.3
Mauritius	2.5	0.0%	2.5

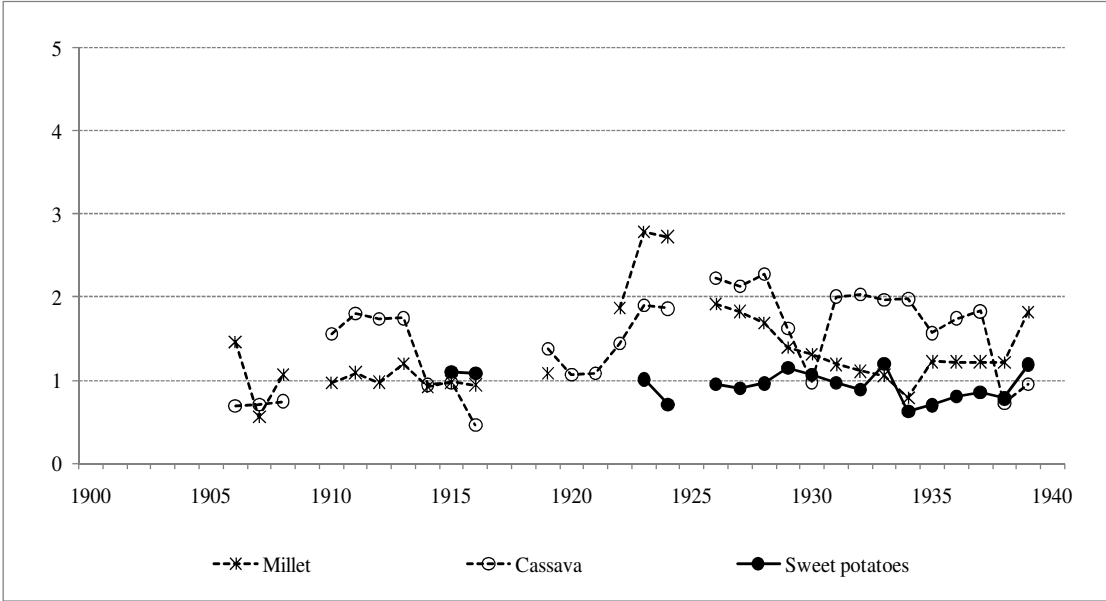
Source: Tax rates are taken from the same bluebooks as listed in the appendix. See for more information on the comparative impact of colonial taxes in British Africa Frankema, "Raising Revenue".

Figure 1: Nominal wages of urban unskilled workers in British Africa and British India, 1880-1940 (pence per day)



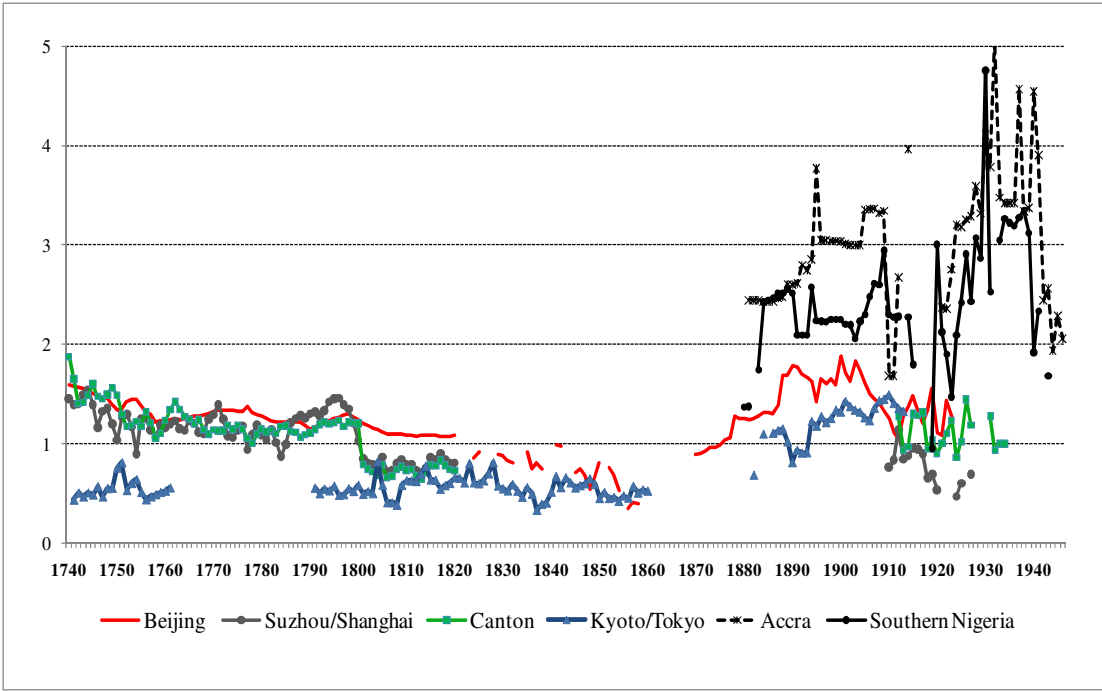
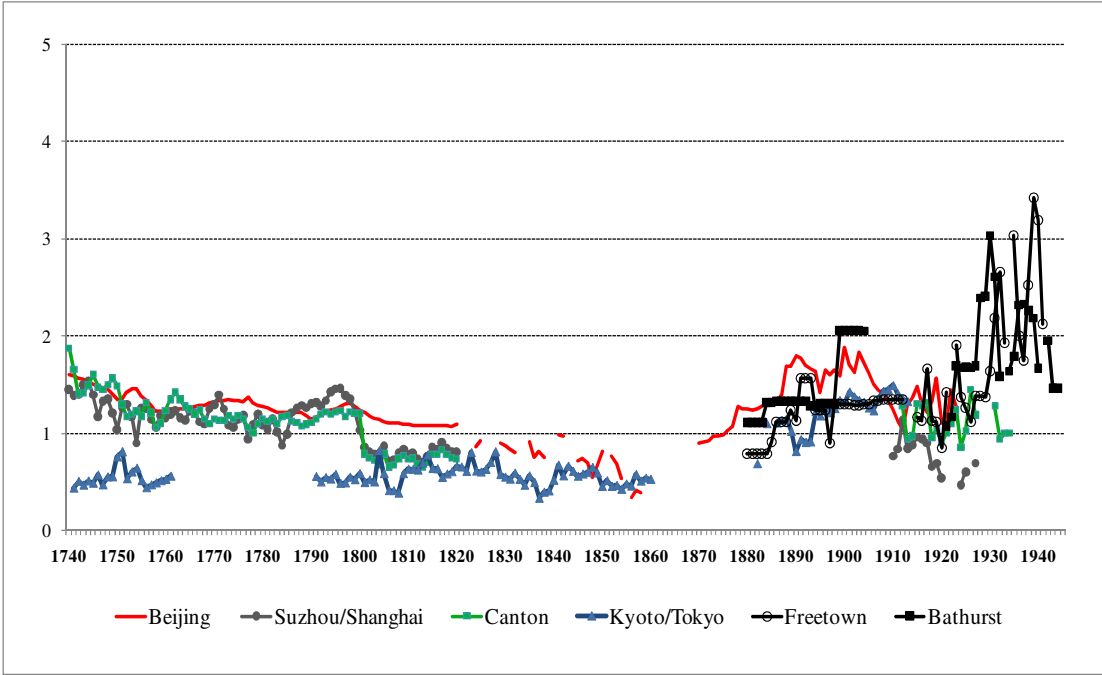
Sources: See colonial blue books listed in the appendix. For India see van Leeuwen, *Human Capital*.
 Notes: For Mauritius unskilled agricultural wages are shown. All wages were reported in British pounds, except for Mauritius, where Indian Rupees were the main currency. We used the official exchange rate as Indian Rupees were directly convertible into British Pounds at a relatively stable exchange rate throughout the period under consideration.

Figure 2: Subsistence ratios in Uganda based on various staple crops, 1900-1940



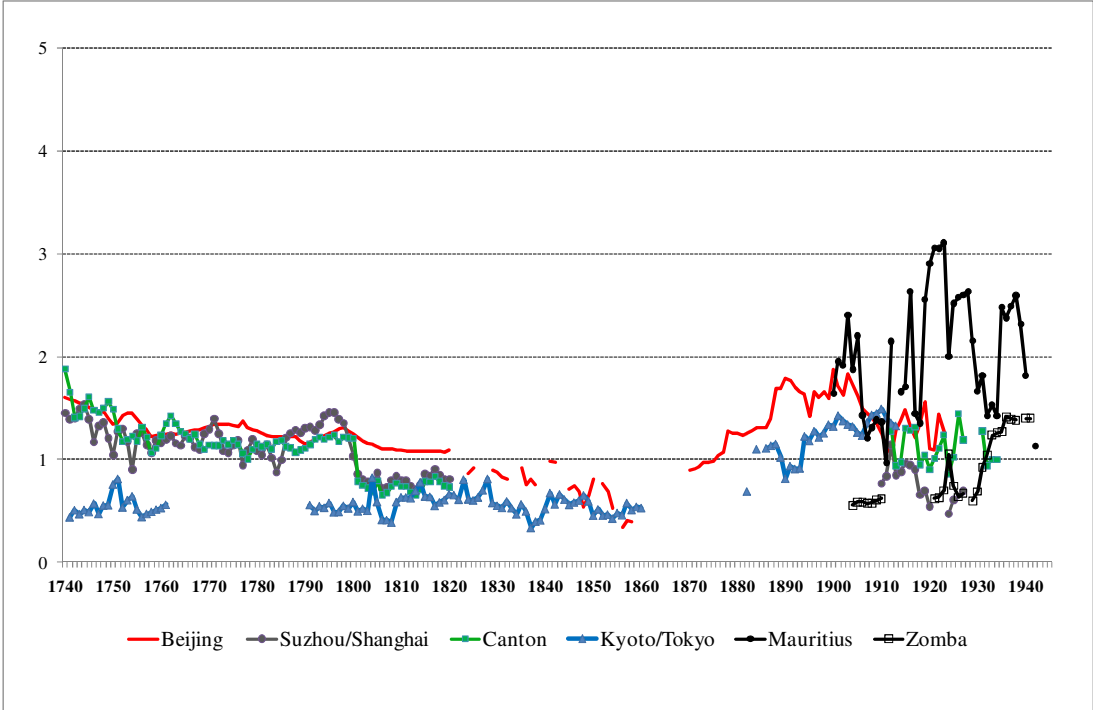
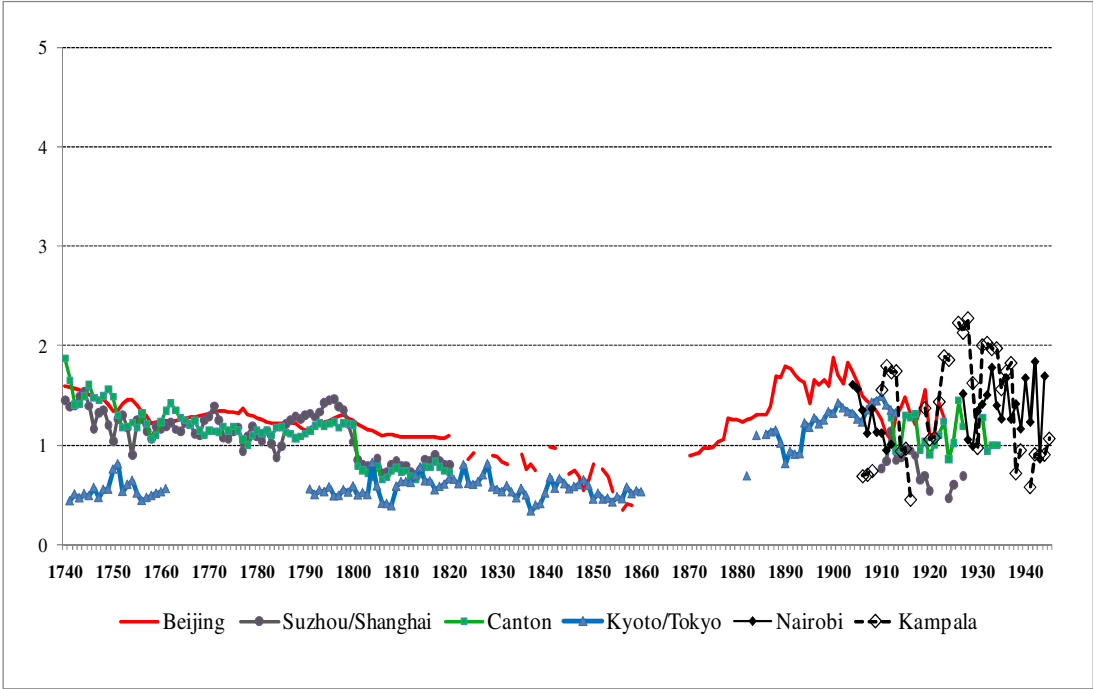
Sources: see appendix

Figure 3: Subsistence ratios in British West Africa and East Asia, 1740-1945



Sources: Series for Bathurst, Freetown, Accra and Southern Nigeria are authors own calculations based on colonial blue books (see appendix). Series for Beijing, Shanghai, Canton and Kyoto/Tokyo from Allen, Bassino et al. 2010.

Figure 4: Subsistence ratios in British East Africa, Mauritius and East Asia, 1740-1945



Sources: Series for Nairobi, Kampala, Zomba and Mauritius are authors own calculations based on colonial blue books (see appendix). Series for Beijing, Shanghai, Canton and Kyoto/Tokyo from Allen, Bassino et al. 2010.