LABOUR AND LAND IN GHANA, 1874-1939: A SHIFTING RATIO AND AN INSTITUTIONAL REVOLUTION

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This paper offers a West Africa perspective on Williamson’s proposition, which is supported by evidence from a sample of Asian and Latin American countries, that the 1870-1914 era of global convergence in commodity prices was associated with a lowering of the ratio of wages to land rents in land-abundant countries in the ‘Third World’, as well as (and to a greater extent than) in the already-industrialised countries of the period. This trend was not sustained during the subsequent generation of generally lower commodity prices and international divergence. No African countries were included in Williamson’s sample, proximately because of lack of data. The aim of the paper is to reduce this gap by providing a case study of what is now Ghana, which as of 1870 was a good example of the land abundance and labour scarcity which characterised most of West Africa (and indeed most of Sub-Saharan African as a whole) at the time.

It will be argued here that there was indeed a lowering of the cost of labour in relation to that of land in Ghana within the late nineteenth and early twentieth century, but that in this West African context the change was more fundamental, in the sense of being institutional rather than simply quantitative. Specifically, slavery and debt bondage were replaced by wage labour and the mortgaging or pledging of land, while in some parts of the country a factor market in land materialised for the first time. The transition from slave to free labour meant that labourers gained in absolute terms even while the free-market bargaining power of land-owners increased. Essential to understanding the change in relative factor scarcities, in how these were expressed in price terms, and in the distributional consequences within the African population, is the fact that the quality of land varied greatly, especially between the savanna of the north and the forest zone of the south. A fundamental continuity of this period is that the commercially valuable natural resources were located in the south; while labour moved from the north to the south, whether through the internal slave trade or, under colonial rule, in response to a market for free hired labour. Finally, this is a case-study also in specifically ‘imperial’ globalization, in that the forms and extent of convergence between markets in Ghana and international markets were – in part – shaped and qualified by the European partition of Africa, which occurred during this era, and by the specific characteristics of British rule in West Africa. The latter was in turn a reaction to indigenous African political structures, supply response, and entrepreneurship.

The precise dates chosen for this study are both slightly within the 70-year span of Williamson’s thesis. This is because, in terms of market integration and price

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1 An earlier version of this paper was presented at a seminar at the Graduate Institute of Economics, Osaka University, in July 2006. I am very grateful for the comments received.
2 Williamson, Land, labor, and globalization.
3 Hopkins, Economic History of West Africa; Iliffe, Africans.
convergence, the years 1874 and 1939 are turning-points in Ghanaian history whereas 1870 and 1940 are not. 1874 saw the beginning of the British colonisation of the interior of Ghana, reducing the transactions costs of trade between the inhabitants and the Atlantic economy, and ultimately leading to the creation of the institutional and physical infrastructure for something approaching a national economy. Conversely, 1939 brought the introduction of statutory marketing of what by then was Ghana’s major export commodity, cocoa beans: the imposition of a government intermediary between the Ghanaian producer and the world market. In terms of intermediate dates, we will see that in Ghana the shift in relative factor scarcities, and the institutional changes related to them, continued at least through the 1920s.

As of 1874, the economies of Ghana had adapted to the major external shock of the ending of the Atlantic slave trade. The abolition of that notorious commerce was long drawn-out, but as far as Ghana was concerned occurred entirely from outside, and mainly between 1808 (British abolition) and c.1840. In terms of export commodities, African economies responded primarily by selling gold and palm oil to the Europeans and (in the case of Asante) by expanding the export of kola nuts to the predominantly Muslim societies of the savanna, especially the Sokoto Caliphate (centred commercially on the city of Kano in what is now northern Nigeria). For this paper, it is important to note that extra-subsistence production was an integral part of household economies, and that the commerce in goods was complemented by trade, if not generally in labour services, then in labourers: for slaves and human pawns were the means by which extra-familial labour was recruited. Land for cultivation was physically abundant and institutionally accessible, usually for no or merely token payment. The commercially-valuable natural resources – kola, palm and rubber trees, and (fortuitously) gold deposits – were concentrated in the forest zone. By no coincidence, the internal slave trade ran from suppliers in the savanna to buyers in the forest. Thus it fulfilled the basic role of a factor market, bringing mobile resources together with the most valuable immobile ones, thereby maximising returns on both.

Williamson’s thesis entails a causal sequence for 1870-1914 from a massive reduction in transport costs to convergence of commodity prices and on to convergence in factor prices. The paper will consider each step. Successive sections will examine the fall in transport costs; the shift in factor ratios propelled by the adoption of cocoa growing in response to world market demand; how the change in relative factor scarcities was responded to and mediated institutionally; and the consequences for the distribution of income within the country. But first, let us consider the changing political and commercial framework.

THE CREATION OF COLONIAL ‘GHANA’: RE-FORMATION OF POLITICAL AND COMMERCIAL FRONTIERS AND NETWORKS

As of 1870, the territory of what is now Ghana was divided between a number of polities, ranging in degree of centralisation from kingdoms, through chiefdoms (some independent, some paying tribute to kingdoms, some fully part of kingdoms), down to fundamentally independent villages which might confederate in wartime. By far the largest state, in terms of both directly-ruled territory and its penumbra of tributaries, was the kingdom of Asante (or Ashanti). While Asante domination extended north

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4 E.g. Austin, ‘No elders were present’.
5 Austin, Labour, Land and Capital.
and west, its heartland comprised the northern half of the forest zone of Ghana. The formal European presence was limited to a few forts on the coast, which by 1874 were all in British hands.

The decisive moment in a long series of Anglo-Asante wars came in 1874, when the British and their coastal-African allies (Ga and Fante) defeated the Asante army. Though the British forces withdrew from the Asante capital, Kumasi, after just one day, the Asante humiliation was followed by two crucial political developments. First, Britain established colonial administration over the territory south of Asante, the region which was later called the Gold Coast Colony. Second, a succession of Asante tributaries rebelled, and the core of the Asante state was itself politically and demographically weakened by a civil war (1883-8) which stemmed from the fiscal demands of the post-1874 regime as it sought to reconstruct after the military defeat. The British occupation of Asante itself, and of its northern hinterland, followed in 1896: they became, respectively, the colonies of Ashanti and the Northern Territories. In 1919 the present boundaries of what was to become Ghana were finalised by the addition of British Mandated Togoland. This had been part of the German colony of Togo, which was conquered by British and French forces in 1914. This group of contiguous colonies was later administratively integrated, first as the Gold Coast and then as the new state of Ghana (independent in 1957).

The imposition and extension of British rule had important market-integrating effects. Tariffs and administrative barriers to trade within ‘Ghana’ were removed. The Asante kingdom had long reserved the transit trade through its territory, between the savanna and the coast, for Asantes. This restriction survived the 1874 treaty with Britain, but ended with colonisation. The colonial administration invested in railways, and later, especially after 1918, in motor roads, as will be detailed in the next section. A single currency was imposed, ending the need to convert between the gold dust currency of Asante and the other Akan-speaking states and the cowries used in the savanna economies. Internal peace, the abolition of slavery, and the partial introduction of mechanised transport all greatly facilitated the creation and expansion of a free labour market within Ghana. The latter also attracted migrant labourers from neighbouring French colonies. We will return to slavery and free labour below.

Two qualifications should be entered. One is that is that the introduction of mechanised transport was gradual and geographically uneven, as we will see in the next section. The other is that British policies, and the European partition of Africa generally, also entailed some new restrictions on market integration. The cowrie-based monetary system which had united the Ghanaian savanna with neighbouring areas, notably what became northern Nigeria, was replaced by the distinction between the pound and the French franc or German mark. The new frontiers were highly permeable, however, and became sites of much illegal arbitrage. Again, while the imposition of colonial frontiers and tariffs, including the caravan tolls imposed by the British, restrained the centuries-old export of kola nuts from the Asante forests to northern Nigeria, the Hausa kola traders found that the maritime route, involving steam ships to Lagos and then steam engines to Kano, was anyway cheaper to use than the traditional overland route.

Thus in 1874 Britain displaced the kingdom of Asante as the major political presence in the area, and from 1896 to the end of the colonial period, the boundaries

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6 Wilks, *Asante in the Nineteenth Century*; Austin, *Between Abolition and Jihad*; Austin, ‘No elders’.
7 Austin, *Between Abolition and Jihad*.
8 Nugent, *Smugglers*.
9 Lovejoy, *Caravans of Kola*. 
and, more latterly, the collective identity of what is now Ghana were constructed or emerged. Something of a national economy developed too. It was centred on the cocoa and mineral (and increasingly also timber)-producing forest zone of the south. From there the goods mostly went out by sea, whereas the supply of labour (as during the slave trade, but now voluntary and often seasonal) was supplemented by inflows from the savanna, from both sides of the border.

**FALLING TRANSPORT COSTS AND THEIR IMPLICATIONS FOR COMMODITY MARKETS**

The introduction of mechanized transport was even more revolutionary in Ghana and elsewhere in Sub-Saharan Africa than it was in more northern latitudes because in the African forests, and in much of the savannas, animal haulage was not possible because of endemic sleeping sickness. Accordingly, Ghana experienced progressive and massive reductions in transport costs during the later nineteenth and early twentieth centuries; this observation stands above the inevitable qualifications. Even before colonisation, the introduction of steam ship services in 1852 had cut freight costs from the Gold Coast to other parts of the Atlantic economy. The longer-term consequences of this were to include relatively attractive producer prices for (wild) rubber and for (cultivated) cocoa, from the 1880s onwards. To the steam ship were added the steam engine, with the first railway track being opened in 1902, and then the internal combustion engine, with lorries being imported from the 1910s.

Kay has argued that railways made relatively little contribution to the development of the Ghanaian economy as a whole, because it was aimed at serving European mine-owners rather than African cash-crop farmers; and it was never extended beyond the forest zone. Subsequent research has confirmed that the early, and the majority, of rail construction was done without African farmers in mind. For sure, railways were essential to the development of large-scale, deep-level industrial mining in the interior. Thus the first line from the coast (at Sekondi) to Kumasi, the capital of Ashanti, which was completed in 1903, passed through Obuasi, site of what became the major gold mine in Ghana (using a lease which had already been obtained from Asante chiefs in 1895, before the British colonisation, by the founder of Ashanti Goldfields Corporation). When manganese was discovered, in 1915, at Nsuta in the Gold Coast Colony, it was fortuitously close to that line. A second line from the coast (this time, from the capital Accra) to Kumasi opened in 1923, passing through the only other significant gold mining operation in Ashanti, at Konongo. Mining traffic indeed accounted for the bulk of the railways’ business: 69 per cent of all traffic, by weight, in 1929. Yet cocoa contributed far more than mining to Ghana’s exports, was the ultimate source of the bulk of the money income of the population,

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10 On a key complexity of the latter, see Allman, *Quills of the Porcupine*.  
12 Lynn, *Commerce and Economic Change*; Davies, Impact of expatriate shipping lines.  
14 Tsey, *Gold Coast Railways*.  
15 Dumett, *El Dorado*.  
16 McCaskie, Creation of Ashanti Goldfields Corporation. Ayowa Afrifa-Taylor has nearly completed an LSE PhD dissertation on the business history of this company.  
18 Tsey, *Gold Coast Railways*, 332.
and – crucially for this paper – was overwhelmingly the main source of the commercial value of land.

Again, the network was modest. The mileage of rail track open rose from zero in 1901 to 227 in 1913 and 500 (800 kilometres) in 1929. Tsey estimates that ‘probably no more than 10 per cent of the country’s total land surface could be said to have come under the direct influence of the entire network.’

The railways started at the coast and did not go further inland than the 168 miles to the Ashanti capital, Kumasi; whereas the northern border was a further 272 miles. The northern savanna, lay entirely outside the area directly served by rail. This asymmetry very much reflected the distribution of commercially valuable natural resources within the territory as a whole. The colonial government opted to invest where railways were most likely to pay for themselves, allowing the government to pay off the bonds by which they were financed on the London market.

Yet Kay exaggerated. That the railways to Kumasi were not built for the cocoa trade did not mean that farmers did not start planting cocoa trees (which take several years to begin to bear) in anticipation of the railway. Indeed, in parts of Ashanti and the Western Province of the Gold Coast Colony it made the difference between whether or not it was profitable to grow cocoa beans, or, in low-price years, to market what was grown.

In 1922-3 over 83% of all cocoa exports were carried by rail. Railways also helped the extension of the timber industry beyond the very limited opportunities for the evacuation of logs which were offered by the rivers.

A proposal to extend the railway north was on the agenda before the commercial and fiscal shock of the international Depression from 1929-30. By then, however, the significance of the lack of a northern railway had been greatly reduced by the large-scale construction of motor roads during the 1920s, which simultaneously reduced transport costs both to and in the north, and throughout the cocoa belt. The length of motorable roads tripled from 2,241 miles (3,606 kilometres) to 6,738 miles (10,841 kilometres) in 1930-32. 13,808 cars and lorries were imported during the decade 1921-30, of which 8,921 were licensed at the end of it.

The steam engine and the motor lorry massively reduced freight costs within Ghana, except (usually) from farm to local market, where dependence on head loading continued. In 1923, the colonial governor estimated the cost of head-loading as 5-6 shillings (£0.25-0.30) per ton mile, probably higher. This compared to 2.75 shillings (£0.1375) for lorries. Meanwhile, unit rail charges varied with distance, but, for instance, 100 miles (160 kilometres) would cost 1.125 shillings (£0.05625). This was still early in the history of motor vehicles, especially in West Africa. By 1930-31 ‘many lorries’ were charging only half a shilling (£0.025) per ton mile, and the railway’s share of cocoa exports had been competed down to 58%.

It should be noted that Africans played a key part in the transport revolution, not only as labourers in the construction of railways and roads, but also in taking the initiative in demanding or constructing local roads and as owners and operators of...

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19 Kay with Hymer, Political Economy, 390.
20 Tsey, Gold Coast Railways, 331.
21 Tsey, Gold Coast Railways, 333; Austin, ‘Rural capitalism’.
22 Cardinall, The Gold Coast, 1931, 112.
23 Great Britain, Report by Ormsby-Gore.
25 Governor’s Annual Address, Legislative Council Debates, 1923-4, quoted in Kay with Hymer, Political Economy, 144-5.
26 Cardinall, The Gold Coast, 1931, respectively 114, 112.
27 E.g. Hill, Migrant Cocoa-Farmers.
motor lorries. Chiefs were among the first to import lorries to Ashanti, and one operated a fleet in Kumasi during the First World War. They were soon emulated by smaller operators with lower overheads. The colonial annual administrative report on Ashanti for 1927-8 reported that ‘A large European motor transport company ceased operating in Ashanti and many of the larger Syrian lorry owners are disposing of their fleets presumably due to the fact that they are unable to compete with the ever-increasing African owner-driver.’ It was reported that many of the latter ‘actually live in’ their lorries.

Facilitated by these massive reductions in transport costs, the economies of the future Ghana were fundamentally transformed in response to a new pattern of commodity prices offered on Atlantic markets. In relation to Williamson’s thesis, however, one qualification and one amplification are required. The qualification is about timing: the steamer made a major contribution to the profitability of cocoa farming, and the railway arrived in time to reinforce it by 1914. But the widespread mechanisation of transport, even in the cocoa belt as well as further north, awaited the 1920s, and especially the lorry.

The elaboration is that, in the Ghanaian case, what was critical was not price convergence per se but the fact that the second industrial revolution created new markets in the industrialised economies, for rubber and milk chocolate. The Gold Coast and Asante forests participated in the worldwide response to the demand for the produce of naturally-occurring rubber trees, in the late nineteenth century. However, there was a major limitation to this form of integration in the Atlantic economy. As was also largely true of the existing trade in palm oil (and was overwhelmingly the case with kola for West African markets), rubber production in Ghanaian forests was profitable only as long as it could be undertaken in the most labour-saving and land-extensive fashion possible, by harvesting wild trees rather than by deliberate cultivation. The economic revolution came with the adoption of cocoa, an exotic crop which was necessarily planted deliberately. In this sense (and literally), Ghana’s involvement in international markets was deepened. Ghana was revealed to have a comparative advantage in cocoa cultivation sufficient to enable it to overtake Brazil as the world’s largest producer in 1910-11, only twenty years after exports began. The growth of cocoa output was sustained through the 1920s: partly because investment in a tree-crop lie cocoa involves several years of gestation, partly because Ghana enjoyed a degree of ‘producer surplus’ making further planting worthwhile even when prices were a little lower, and partly because cocoa prices in the 1920s were not that much lower on average than in before 1914. This meant that the government enjoyed revenues sufficient for the further investments that it made in transport in the 1920s. Above all, it meant that the shift in factor ratios continued well into the inter world-war era: the reduction in uncultivated land, and the growth in the stock of agricultural fixed capital (cocoa trees), as well as the growth of the labour force, both indigenous and immigrant.

For an overview see Heap, Development of motor transport.


Arhin, ‘Economic and social significance of rubber; Dumett, ‘Rubber trade’.

Austin, Labour, Land and Capital.

Hill, Migrant Cocoa-Farmers.
A SHIFTING FACTOR RATIO

In 1874 the economies of what became Ghana were generally characterised by a high ratio of cultivable land to labour, and a low level of fixed capital formation in agriculture. To analyse the evolution of the factor ratios in later decades, it is necessary to examine both the growth of population and the spread of export agriculture, specifically tree-crop cultivation.

Ghana combines a similar physical area to the United Kingdom with a much smaller population. The task of estimating the latter is hindered by the absence of ‘national’ censuses until the twentieth century, and the universally acknowledged incompleteness of the early counts: which were under-resourced, and evaded by some who feared taxation. It is likely, but not certain, that the population grew at all during the period of international economic convergence before the First World War. It is accepted that population growth was faster after 1918 (the period that ended with the exogenous shock of the Influenza pandemic). By 1939–40 the population had reached about 4 million, at least double what it had been at the time of the 1911 census (when the official total was 1.5 million). Thus, if Ghana fits the Williamson prediction about the growth in the value of land relative to labour before 1914, it is not because of demographic change: that came later.

Table 1 Population of Ghana by region, 1891-1948 (census years; thousands) returns

<table>
<thead>
<tr>
<th></th>
<th>Gold Coast Colony</th>
<th>Ashanti</th>
<th>Northern Territories</th>
<th>British Togoland</th>
<th>‘GHANA’ official total</th>
<th>GHANA adjusted total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1891</td>
<td>765</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1901</td>
<td>1028*</td>
<td>364*</td>
<td>358*</td>
<td>144</td>
<td>1550</td>
<td>1894*</td>
</tr>
<tr>
<td>1911</td>
<td>1150*</td>
<td>346*</td>
<td>442*</td>
<td>166</td>
<td>1504</td>
<td>2104*</td>
</tr>
<tr>
<td>1921</td>
<td>1300*</td>
<td>448*</td>
<td>583*</td>
<td>207*</td>
<td>2298</td>
<td>2538*</td>
</tr>
<tr>
<td>1931</td>
<td>1589</td>
<td>585</td>
<td>693</td>
<td>294</td>
<td>3160</td>
<td>3160</td>
</tr>
<tr>
<td>1948</td>
<td>2429*</td>
<td>962*</td>
<td>1027*</td>
<td>458*</td>
<td>4118</td>
<td>4876*</td>
</tr>
</tbody>
</table>

Source: Kay with Hymer, *Political Economy*, 310. The non-asterisked figures are from official sources, following the census reports; the asterisked ones are Kuczynski’s (*Demographic Survey*, 413), who raised some figures in an attempt to allow for under-counting.

Everywhere in Ghana in 1874 there was enough land for the local population concerned to feed itself: even if, for example, in some areas of the north access to the most fertile land was inhibited by river blindness, as continued to be so during the colonial period.\(^{35}\) In general, the issue of land availability concerned not food but money: the fact that the principal commodities, palm oil and kola nuts, could be produced only in the south, which was also where rubber trees – soon to be attacked in the brief but spectacular international boom – grew wild. Above all, cocoa beans, which began to be exported regularly in 1891, could be grown only in (large) parts of the forest zone. The whole of that zone was within the south: meaning the Gold Coast Colony, Ashanti, and the southern district (the Ho-Kpandu area) of British Mandated Togoland. Before cocoa, very little of the land (in any part of Ghana) was used to grow export crops.

So, in asking how the land-labour ratio changed in response to the convergence and deepening of international commodity markets, we need to ask how much of the forest zone was shifted from forest to cocoa farms. During the colonial period, for Ghana (or southern Ghana) as a whole, nothing else really matters in this context. Rubber proved unprofitable as a cultivated product under Ghanaian conditions. It displaced palm oil as an export crop where the two were in competition, which was only close to the coast. Kola production continued, mainly in areas where cocoa could not be profitably grown.\(^36\)

In counting cocoa hectares, the problem is that we have no direct information. Fortunately, we make estimates by working backwards from the volume of exports, and contemporary figures for the yield per unit area. In order to relate our findings on cocoa to the population figures, here we will focus on population census years. There was no domestic market for cocoa, so we can equate output with exports: except that in years of relatively low producer prices, some cocoa beans might be left unharvested. For that reason, besides the census years, it is worth including the year of highest exports during the period to 1939, namely 1936. Given the time-specificity of the Williamson thesis, it is appropriate to take 1914 also.

The derived estimates of area under cocoa will relate only to bearing trees. There are complications here: Amelonado cocoa (the sole variety of cocoa grown in Ghana during this period) took 4-7 years before starting to produce beans. Again, it took a few years after that before the tree reached full bearing; and it was estimated that ‘the average useful life of a cacao tree in the Gold Coast is about thirty years’.\(^37\)

Fortunately, none of these matter very much for the present exercise. The derived acreage can be taken as equivalent to the area under mature cocoa trees. It will therefore underestimate the overall cocoa acreage, but as of 1936, not by much. Because of low cocoa prices in the early 1930s, there was relatively little immature cocoa (as is confirmed by the lower subsequent cocoa harvests); and in any case young cocoa farms also produced food crops, in that the cocoa plants were interplanted with tall food crops such as plantain, which provided shade for the cocoa. A more serious omission is and/or diseased cocoa trees, which continued to occupy land while producing little output. These either dated from the earliest years of cocoa exporting or were infected. As it happens, these two categories overlapped heavily, because swollen shoot virus disease emerged in the 1930s in the original cocoa-growing areas, which were in the Eastern Province of the Gold Coast. We can take the stock of trees that produced the crop of 1911 as an approximation to the stock of ‘senile’ trees as of 1936.

A variety of figures for the average yield of bearing cocoa farms are available from well informed contemporaries, albeit concentrated in the 1930s. They ranged from 7 to 10 ‘loads’ (60 pounds: 27.2 kilograms) per acre. J. C. Muir, the head of the Ashanti Division of the Agricultural Department, gave the highest figure, in 1932-33, for Ashanti.\(^38\) A. W. Cardinall, the census officer, presumably drew on agriculture department sources available a year or two earlier in giving 9 as the average for the Ghanaian cocoa belt as a whole.\(^39\) Beckett’s survey of the village of Akokoaso, in Akyem Abuakwa in the Gold Coast Colony, reported an average of 7 during the early

\(^{36}\) [References to be inserted]

\(^{37}\) Cardinall, The Gold Coast, 1931, 87.

\(^{38}\) Public Relations and Archive Administration, Kumasi, Ghana, File entitled ‘Cacao’ (formerly classified D4B), Muir to Assistant Chief Commissioner of Ashanti, Kumasi, 28 Jan. 1933.

\(^{39}\) Cardinall, The Gold Coast, 1931, 90.
1930s. His figure is based on the most precise measurements but the village may not have been entirely representative, in that it was a relatively old cocoa-growing area. Muir’s figure may have had the opposite bias, as Ashanti included a higher proportion of the relatively new cocoa-growing areas. The following table presents the results in three forms: taking Muir’s and Beckett’s extreme figures, and then the mean of the two.

Table 2. Estimated Area Under Bearing Cocoa Trees (Population Census Years)

<table>
<thead>
<tr>
<th>Year</th>
<th>Exports (000 tonnes)</th>
<th>Area: Minimum Estimate (sq km)</th>
<th>Area: Maximum Estimate</th>
<th>Area: Mean Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1901</td>
<td>1.0</td>
<td>92.3</td>
<td>129.8</td>
<td>203.3</td>
</tr>
<tr>
<td>1911</td>
<td>40.9</td>
<td>3,719.3</td>
<td>5,308.2</td>
<td>4,513.7</td>
</tr>
<tr>
<td>1914</td>
<td>52.9</td>
<td>4,810.5</td>
<td>6,865.6</td>
<td>5,838.0</td>
</tr>
<tr>
<td>1921</td>
<td>135.3</td>
<td>12,291.3</td>
<td>17,560.0</td>
<td>14,925.5</td>
</tr>
<tr>
<td>1931</td>
<td>248.0</td>
<td>22,529.4</td>
<td>32,186.9</td>
<td>27,358.1</td>
</tr>
<tr>
<td>1936</td>
<td>311.1</td>
<td>28,261.8</td>
<td>40,376.4</td>
<td>34,319.1</td>
</tr>
<tr>
<td>1948</td>
<td>217.7</td>
<td>19,776.9</td>
<td>28,254.4</td>
<td>24,015.6</td>
</tr>
</tbody>
</table>

Units: volumes are metrics tonnes, areas are square kilometres.
Sources: Export volumes from Kay and Hymer, *Political Economy*, converted to metric.
Note: Years are the population census years, plus the year with the largest crop (1936). Area is only for cocoa trees in bearing. It is assumed that all output was exported. Minimum area: assuming 10 loads (load = 60 lb = 27.2 kg) per acre. 272 kg/acre = 110.078 kg/hectare = 11007.8 kg/sq km = 11.0078 tonnes/sq km = 28.499 tonnes/sq mile. Maximum area: assuming 7 loads per acre = 190.4 kg/acre = 77.055 kg/hectare = 7705.5 kg/sq km = 7.705 tonnes/sq km = 19.948 tonnes/sq mile.

For the Williamson thesis, the salient results are as follows. As of 1914, the stock of bearing cocoa trees was equivalent to mature trees occupying about 6,000 square kilometres. As the 1921 crop was to confirm, a lot more land was under immature cocoa plants. Indeed, the 1921 area in bearing would correspond fairly closely to the total cocoa area of 1914. Thus we can estimate the latter as about 15,000 square kilometres; though the young cocoa farms were available for food production. By 1936 there had been a massive further extension of cocoa cultivation. The crop of that year corresponds to a stock of mature cocoa trees occupying perhaps 34,000 square kilometres. To this, as noted above, we can add the 1911 bearing area of about 6,000 square kilometres, to represent the stock that was old and diseased a quarter-century later. So the overall area under cocoa appears to have been about 15,000 square kilometres in 1914; and some 40,000 in 1936 (and in 1939, when it is likely that rather less than the whole crop was marketed, because of lower prices).

Let us now turn to demography, and specifically to the population density of the South.
Table 3 Population Density in the South of Colonial Ghana

<table>
<thead>
<tr>
<th>Census Year</th>
<th>Population (000s: after Kuczynski)</th>
<th>Mean density (per sq km)</th>
<th>Mean density (per sq mile)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1901</td>
<td>1,459</td>
<td>11.74</td>
<td>30.40</td>
</tr>
<tr>
<td>1911</td>
<td>1,623</td>
<td>13.06</td>
<td>33.81</td>
</tr>
<tr>
<td>1921</td>
<td>1,844</td>
<td>14.84</td>
<td>38.42</td>
</tr>
<tr>
<td>1931</td>
<td>2,300</td>
<td>18.51</td>
<td>47.92</td>
</tr>
<tr>
<td>1948</td>
<td>3,599</td>
<td>28.96</td>
<td>74.98</td>
</tr>
</tbody>
</table>

Definitions: ‘South’ = Colony, Ashanti, and Southern British Mandated Togoland.

The most authoritative estimate of the ‘critical population density’ (the maximum population supportable from a given area with given technology) for foodcrop-growing in the Ghanaian forest zone using the prevailing methods, remains Allan’s of ‘between 85 and 130 people per square mile’ (33-50 per square kilometre), probably approaching ‘the higher figure’.

Without the addition of cocoa since the late nineteenth century, the population would still have been short of the critical density even by 1948 – at least in southern Ghana as a whole. But cocoa made an increasing difference.

Taking the overall area of the South as 124,000 square kilometres, and deducting 6,000 square kilometres for bearing cocoa farms (therefore not producing food crops), the population density on the land available for food cultivation (and towns, mines etc) comes out as 13.75 per square kilometre. That is less than half way to critical level. In 1948, on the other hand, assuming that the 1936 estimate for cocoa area still applied (which was likely, because there had been little new planting), about 84,000 square kilometres were available for non-cocoa activities. The population density on this area averages 42.8: about midway in the ‘critical’ band. Besides the issue of the availability of land for foodcrops, it should also be noted that not all even of the south was suitable for growing cocoa (most obviously not, the Accra plains).

The government estimated the total area suitable for cocoa as 62,000 square kilometres. This seems too conservative, but it would imply that nearly two-thirds of the land was already devoted to that end by 1936. Given this aggregate picture, it is not surprising that there is evidence of pressure on land in particular localities, especially old cocoa-growing areas which by now were relatively densely planted.

Even in Ashanti, where population density was lower than in the Gold Coast Colony, there was evidence of such scarcity in the older cocoa-growing areas by the end of the 1930s. It was strong enough to persuade the Ashanti Confederacy Council of Chiefs to ban the creation of new farms in 1939 – despite their and their subjects’ dependence on cocoa income. Admittedly, this policy proved excessive where it not largely ineffective, and was consequently abandoned in 1946.

But there was some reason for its adoption. For the 1940s there is evidence from Amansie district in south Asante of fallows being shortened and even of a dietary change driven by pressure on land: for the first time, cassava (manioc) was widely adopted in the area, apparently because it would grow on the marginal-quality land that was increasingly what was available. In the same decade, in the neighbouring district of Ashanti-Akyem, land

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42 Austin, *Labour, Land and Capital*.
43 Cassava had been grown in the nineteenth century, but then only by slaves. Austin, *Labour, Land and Capital*, 66.
suitable for cocoa-farming had become scarce enough that young men from the area could not necessarily get access to it to start their own cocoa farms, until they had worked for a period as hired labourers on cocoa farms belonging to their elders.\textsuperscript{44}

It should be noted that the motor of this shift in factor ratios was rather different from that generalised by Williamson. He reported that, unlike in industrial Europe, in ‘land-abundant Asia … few of the capital-deepening and TFP-improving forces of modern economic growth were at work’.\textsuperscript{45} In Ghana in land-abundant West Africa, however, the transformation of land use, and of labour-purchasing power, was based on a combination of the introduction (via the adoption of an exotic cultigen) of a new production function\textsuperscript{46} and of an unprecedented scale of fixed capital formation, in the form of the establishment of tree-crop farms that would produce income for 30-50 years.\textsuperscript{47}

Thus, because of the advent of cocoa farming, the labour: land ratio was transformed in Ghana – arguably in a more profound way than the Americas or Europe and perhaps even in Asia, because the change was institutional as well as quantitative.

\textbf{AN INSTITUTIONAL REVOLUTION}

Underlying the lack of data on land rent and wages in the early 1870s in Ghana, as in most of Sub-Saharan Africa, is the fact that land was rarely leased or sold, and regular wages were rarely paid. This was not because of custom or religion. I argue elsewhere, for the case of the kingdom of Asante in the nineteenth century, this it was rather because the Nieboer hypothesis applied in its starkest form: with cultivable land accessible to all, and in the absence of economies of scale in production, there was no price at which it was in the mutual interests of prospective labourers and prospective employers to contract with each other. Given political conditions which permitted such systematic coercion, a labour market existed nonetheless: but in slaves rather than in free labour. For closely related reasons, large loans were secured not on land but on persons – debt bondage.\textsuperscript{48} Again, land sales were possible: both of the use rights, and of the land itself (an important distinction in Akan land tenure). They were extremely rare, because land was not scarce.

The proof of the possibility of land sales is that in a relatively small area in the district of Akyem Abuakwa in what became the Eastern Province of the Gold Coast Colony, land was indeed bought for palm oil cultivation in the early to mid nineteenth century.\textsuperscript{49} This rare event reflected the specificity of this particular asset. While the land was used for little but hunting by the Akyem owners, it was valuable to Krobo farmers because the latter had been confined to a small area – Krobo Mountain – since they apparently took refuge there to avoid and resist slave raids.

When cocoa started to be widely adopted in the 1890s, the initial impact on the overall land-labour ratio of the Gold Coast Colony can only have been negligible. We have seen that it was small even by 1914. However, farmers recognised that land suitable for cocoa was potentially very valuable. Again land in Akyem Abuakwa was

\textsuperscript{44} Austin, \textit{Labour, Land and Capital}.
\textsuperscript{45} Williamson, Land, labor, and globalization, p. 78.
\textsuperscript{46} Austin, \textit{Labour, Land and Capital}.
\textsuperscript{47} Szereszewski, \textit{Structural Changes}.
\textsuperscript{48} Austin, \textit{Labour, Land and Capital}.
\textsuperscript{49} Johnson, ‘Migrants’ Progress’.

sold, this time for the making of cocoa farms, from 1896-7 onwards. The buyers were not only Krobo but also Akwapim (whose own local land supplies on the Akwapim ridge were comparatively limited, and they had already been planting cocoa there for several years), and Shai and Ga farmers, whose own lands were unsuited for the crop. As Hill documented, many of these purchases were on very long-term credit. The buyers were quick to take a long view, and within a few years were buying land well ahead of their immediate needs.\textsuperscript{50}

The figures which Hill offered, cautiously, for the price of lands were obtained partly from her own interviews in the late 1950s and the beginning of the 1960s, and partly from accurate measurements made of certain farms when they were later incorporated in forest reserves. The prices she quoted ranged from £0.30 to £1.60 an acre, i.e. £74-395 per square kilometre. The timing of the transactions is very imprecise, however, especially for those areas measured later. They were mostly before 1930, with some presumably going back to the turn of the century. For the Nankese area (this was the case from her interviews) she was able to suggest that the average cost about 1906 was about £1 per acre: £247 per square kilometre.\textsuperscript{51}

The same economic logic, of demand for land for cocoa planting, and often in anticipation of future needs rather than immediate ones, was replicated when cocoa cultivation spread to Ashanti, which it did shortly after the British conquest and especially following the defeat of the Kumasi rising of 1900. However, the institutional outcome was different. In Akyem, the land had been sold not by the paramount chief, but by sub-chiefs. In Asante, more effective political centralisation largely denied the opportunity to the local chiefs to free-ride by selling land which might be wanted by their own subjects in decades to come. There were cases of land being sold, in the 1920s-30s, mostly in Adanse district near the border with the Eastern Region of the Gold Colony – to Akwapim farmers continuing the chain of purchases they had established in Akyem. But this was unusual, and the general refusal of Asante chiefs to sell land outright was reinforced by pressure from the colonial administrators, who were anxious to avoid a repeat of the widespread land alienations that had occurred in Akyem.\textsuperscript{52} Rather, Asante chiefs were prepared to lease land, charging typically one-third of the crop. In 1913 the colonial Chief Commissioner of Ashanti intervened to reduce the rent to one penny per acre of bearing cocoa. Subsequent falls in the producer price meant that one penny was actually not necessarily less than a third, and there followed a long process of pressure and negotiation over the precise rates.\textsuperscript{53}

For what it is worth, in the one case from the Adanse land sales of the 1920s-30s for which the dimensions of the land sold is documented, the average price was £27.4 per square kilometres. Why this was so much lower than the average price of land bought in the original cocoa-land purchases in Akyem Abuakwa is not clear. Part of it is attributable to greater distance from the port, partly to the extremely hilly terrain that separated the lands from the nearest rail or roadhead; and it may also have reflected lower cocoa prices compared to the pre-war period (though not all the Akyem prices were pre-war). But it would be a mistake to read very much into this one case in what was – given the institutional and political constraints in Ashanti – a thin market. What matters is that, whether through sales or rent, the demand for cocoa had created a market in land as a factor of production.

\textsuperscript{50} Hill, \emph{Migrant Cocoa-Farmers}.

\textsuperscript{51} Hill, \emph{Migrant Cocoa-Farmers}, 49-50, 57-8.

\textsuperscript{52} Austin, \emph{Labour, Land and Capital}.

\textsuperscript{53} Examined in ibid.
Even more importantly, slavery and human pawning gave way to regular (annual or six-month contracts) wage labour and the pledging of cocoa trees. Scholarly attention has focussed on legal action, in the form of the British emancipation ordinance in the Gold Coast Colony in 1874. This was followed, eventually, by the prohibition of slavery and pawning in Ashanti, in 1908. While neither act was an example of induced institutional innovation, responding to changing factor scarcities, the transition from coerced to free labour on the ground had an important economic dimension. For too long the argument of MacPhee, relatively close to the events, has been neglected: namely that legal abolition had a negligible effect until the adoption of cocoa made it profitable for masters to become employers, and gave slaves economic alternatives, in the shape of farming for themselves or labouring for wages. I argue elsewhere (in detail) for Ashanti, that the demise of these practices on the ground, and their replacement by wage labour and farm-pledging, was indeed made possible by cocoa revenues.

Wage labour spread rapidly in Ashanti in the 1920s, as it had already done in the Gold Coast Colony. In 1945-6 a sample survey was conducted in the Ahafo and Sekyere districts of Ashanti as part of the wider Ashanti Social Survey. The anthropologist Meyer Fortes, in overall charge of the investigation, noted:

Figures from different areas [of Ashanti] show that approximately 30% of cocoa farms are worked by either caretakers or labourers. That is to say, approximately one farm in three is not worked by the farmer himself with or without the assistance of his family or labourers. Our figures suggest that hired labour is used in working at least 40% of cocoa farms in Ashanti, but I am of opinion that this is an underestimate.

The first relatively comprehensive survey for Ashanti was not until the crop year which ended with Ghanaian independence, 1956-7. This found that the ratio of hired labourers (wage and share-crop) to farm-owners was 1.89:1. Most of these had migrated, seasonally or permanently, from the northern savanna: because cocoa would not grow in the areas where they had land rights. On the other hand, it is worth noting that the fact some Asante youths, by the 1940s, youths were now employed as regular hired labourers, would have been inconceivable without a fundamental shift in factor ratios since the previous century. Then, Asante household heads lacked capital goods capable of generating the flow of cash that would permit them to hire workers. Now, thanks to the fixed-capital formation that had occurred in the form of cocoa-tree planting, they could attract the services (albeit mostly short-term) even of youths who, as Asantes, themselves had claims to land within the forest zone, but who as yet lacked capital goods (a cocoa farm) of their own.

54 Most recently Getz, Slavery and Reform.
55 MacPhee, Economic Revolution in British West Africa.
56 Austin, Labour, Land and Capital.
59 Austin, Labour, Land and Capital, 411-12.
DISTRIBUTIONAL IMPLICATIONS

The distributional implications of these changes were complex, regionally and socially. Land in Ghana was far from homogenous. The land which increased in value because of the cocoa revolution was that which lay in the forest zone; not the savanna, except for relatively small areas who were able to cash in on the cocoa boom by supplying foodstuffs to the cocoa belt. The ownership of the forest lands was monopolised in Asante and in most of the rest of the zone by the local Akan-speaking societies. Hence regional and ethnic inequality increased in monetary terms; but with the difference that the flow of labour from the savanna to the forest now consisted of voluntary seasonal migrants, rather than slaves. Within the forest zone, the distribution of the benefits of land rights in the forest zone was unequal but wide. Receipts from selling and leasing land to ‘strangers’ (non-subjects of the chieftdom that owned the land concerned) went to the local chiefs in the first instance; but their subjects enjoyed free access to the same stock of lands.60

Above all, if in quantitative terms the value of labour fell relative to land during the period, the institutional result was to enable immigrants from the savanna to work the lucrative forest lands as free labourers rather than as slaves, and to remit earnings to their distant homes. Also freed were human pawns, most of whom were Akan-speakers, indigenous to the forest zone. In gender terms the ending of slavery and pawnning was highly uneven, primarily because the economic opportunities for freed slaves and pawns initially fell largely to men only.61 Overall, while the land-labour ratio shifted quantitatively in favour of land owners, the basic beneficiaries of the change were the previously subordinate workers: the former slaves and pawns. They demonstrated their newly-established bargaining power by securing improved contracts, notably (from the 1930s) the replacement of annual wage terms by a form of managerial sharecropping, under which, in most years, they got more money than annual labourers obtained, and had greater autonomy at work.62

CONCLUSION

We can discern the outlines of the causal sequence identified by Williamson in the Ghanaian experience, but with significant differences. Transport improvements, and access to the expanding markets created by the Second Industrial Revolution in Europe and North America, enabled farmers in the forest zone of Ghana to exploit the natural resources in qualitatively new ways. Partly because of the nature of the crop, the motor of the whole process, the spread of cocoa cultivation, continued strongly for a decade and a half after 1914. A fundamental result was that farmers in the forest zone acquired the purchasing power to hire free labourers, mainly from the savanna (where cocoa would not grow), whereas previously extra-familial labour recruitment had depended on coercion. Relatedly, it is not possible to quote land values at the beginning of the period, because land for cultivation was basically a free good (this was the ultimate reason, presumably, for the absence of a tropical African case in Williamson’s sample). Inspired by cocoa, however, markets in land rights emerged: whether land being sold or leased being dependent on regional politics within southern Ghana.

60 Austin, Labour, Land and Capital.
61 Ibid.
62 Ibid.
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