The railroad age in Ghana, 1901–1931

Historical background

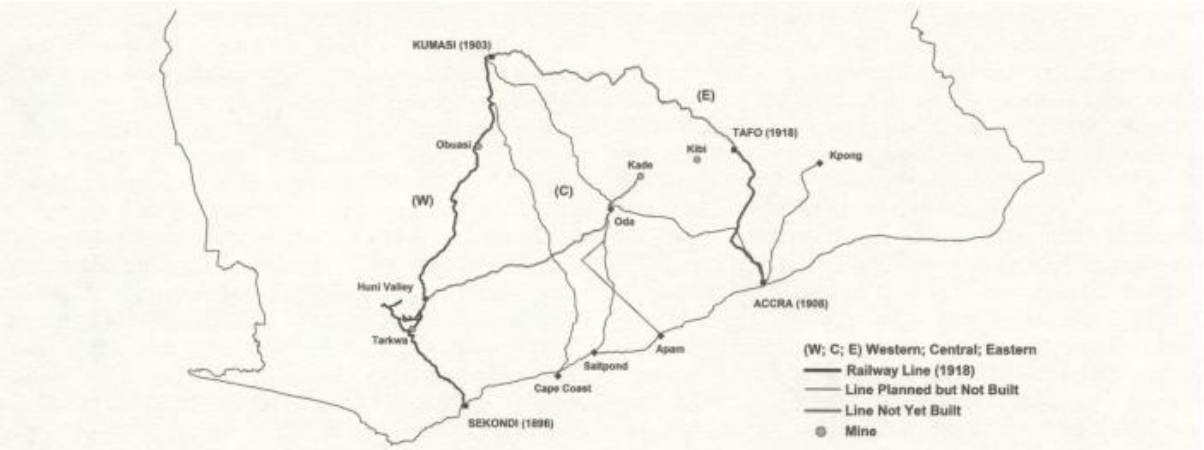
Once the British had consolidated their control over Ghana in 1896, they sought to build transport infrastructure to permit military domination and boost trade previously constrained by high trade costs (Gould, 1960; Luntinen, 1996).

Ghana lacked waterways, and draft animals were not used due to the tsetse fly, making head loading the main method of transportation. There were then few trails because of the thick forest. Railroads were the latest and best mass transportation technology, but the British had to choose between a western, central or eastern route. The first line followed the western route (W in Figure 1). Strong interest groups of British capitalists lobbied to connect the gold fields of Tarkwa and Obuasi to the coast, as the mines needed heavy machinery and large quantities of firewood or coal. The colonial administration gave in to the pressure, turning down alternative lines for which surveys attested a higher potential for agricultural exports. The governorship of Maxwell (1895–1897) was instrumental in the decision-making process. Maxwell previously worked in colonial Malaya, where railroads served the tin mines, and he supported the same model of 'mining first' for Ghana. There were also military considerations. The British had fought four wars before they annexed the Ashante Kingdom. The railroad was meant to allow the quick dispatch of troops to the Ashante town of Kumasi. The line started from Sekondi (1898) and reached Tarkwa, Obuasi and Kumasi in 1901, 1902 and 1903, respectively. The line went through virgin forest. Initially, mining accounted for two-thirds of the line's traffic. Colonial governors then long favoured a central route (C in Figure 1), but a series of events led to the governorship of Rodger (1904–1910), who decided that the capital, Accra, should be the terminus of this second line to Kumasi, via the eastern route (E in Figure 1). By 1905, several additional motivations were cited for its construction: the export of cash crops, the exploitation of the goldfields (at Kibi) and the development of tourism (around Abetifi). Construction started in 1908, but completion was delayed by wartime shortages. By 1918, only Tafo had been reached. Kumasi was connected in 1923.

Five alternative routes were proposed before the first line was built (see Figure 1). Random events explain why the construction of these routes did not go ahead. First, the Cape Coast–Kumasi line (1873) was proposed to link the then capital of Cape Coast to Kumasi to send troops to fight the Ashante. The project was dropped because the war came to an abrupt halt in 1874. Second, Governor Griffith wanted a central line from Saltpond to Kumasi (1893) in order to tap the palm oil areas and link the coast to Kumasi. When he retired in 1895, he was replaced by Governor Maxwell, who favoured the mining lobbies and built the Western Line. For the third and fourth proposed routes, Maxwell thought that a second line was needed, and two projects had two different termini: Apam–Kumasi and Accra–Kumasi. A conference was to be held in London to discuss the proposals, but Maxwell died before reaching London and neither route was built. Finally, Governor Hodgson favoured Accra, but he thought that the line should be

built to Kpong rather than Kumasi. He retired in 1904, before work began, and was replaced by Governor Rodger, who built the Eastern Line instead.

FIGURE 1.—COLONIAL RAILROADS AND PLACEBO LINES IN SOUTHERN GHANA



The map displays the railroad lines in 1918, the years line construction begun and finished for both the Western Line (each segment completion is listed below: Sekondi 1898, Tarkwa 1901, Obuasi 1902 and Kumasi 1903) and the Eastern Line (Accra 1908, Tafo 1918, and Kumasi 1923), and the seven placebo lines. The Western Line was built to connect the mines of Tarkwa and Obuasi to the coast (Sekondi). The line was extended to Kumasi to allow the quick dispatch of troops in the Ashanti areas. The Eastern Line was built to connect Accra and Kumasi. Several additional motivations were cited for its construction: the export of cash crops, the exploitation of goldfields at Kibi, and the development of tourism at Abetifi. Five lines were planned but not built (Cape Coast–Kumasi 1873, Saltpond–Kumasi 1893, Apam–Kumasi 1897, Accra–Kumasi 1897, and Accra–Kpong 1898), and two lines were not built early enough to affect cocoa production in 1927 (Tafo–Kumasi 1923 and Huni Valley–Kade 1927). (W), (E) and (C) show the western route, the eastern route, and the lines of the proposed central route, respectively. See the online appendix for data sources.

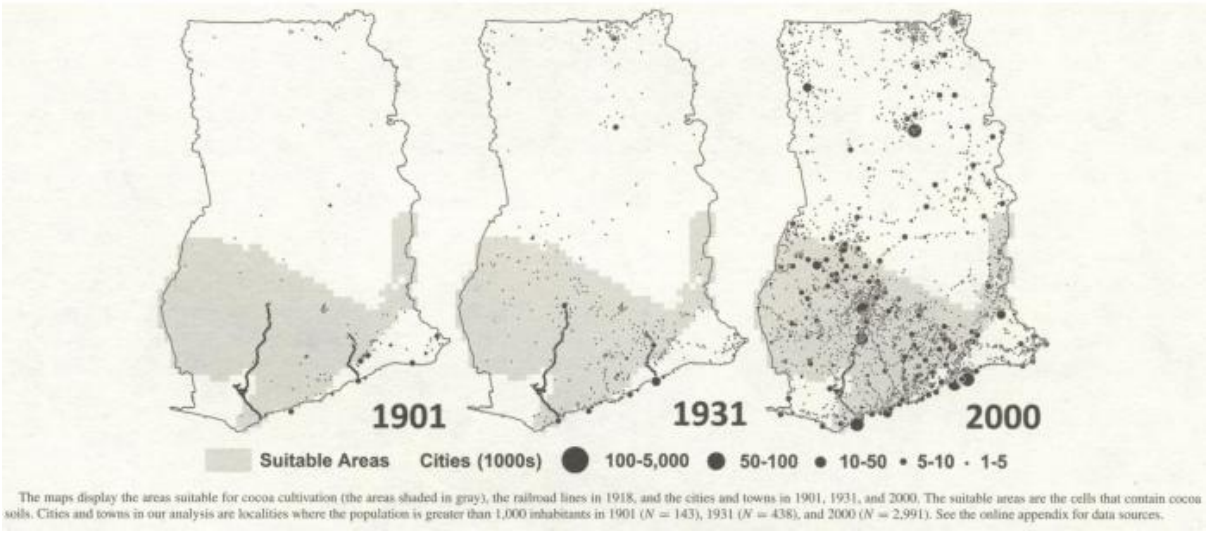
The impact of railway building

The rail reduced trade costs. We verify that pre-rail trade costs were prohibitively high for cocoa cultivation. Using port prices for cocoa, historical estimates of production costs and the least-cost route to any port in 1901, we estimate the profitability of cocoa cultivation for each location. We find that without railroads, production would have been limited to a narrow coastal strip, while with railroads, cultivation was profitable in the hinterland. As Luntinen (1996) commented, 'The very existence of the transport network encouraged the production of surplus for the market. It was cocoa that made the Gold Coast the richest colony in Africa. The farmers seized the opportunity as soon as the rail reached them.' This is evident in the fact that after 1910, 80% of the cocoa produced was transported by rail.

Although cocoa was introduced by missionaries in 1859, production remained close to zero in 1901. By 1931, only 30 years later, total production reached 250,000 tons and Ghana was the world's largest exporter of cocoa. Cocoa originally spread out around Aburi, where the British distributed cocoa seedlings. As Ghanaians realised how profitable cocoa was, more and more people specialised.

Data on production costs in 1931 indicate that cocoa farmers were 90% wealthier than subsistence farmers.

FIGURE 3.—COLONIAL RAILROADS AND CITY GROWTH, 1901–2000



The maps display the areas suitable for cocoa cultivation (the areas shaded in gray), the railroad lines in 1918, and the cities and towns in 1901, 1931, and 2000. The suitable areas are the cells that contain cocoa soils. Cities and towns in our analysis are localities where the population is greater than 1,000 inhabitants in 1901 ($N = 143$), 1931 ($N = 438$), and 2000 ($N = 2{,}991$). See the online appendix for data sources.

Ghana's urbanisation rate increased from about 20% in 1901 to 40% in 1931 and to 70% in 2000. Figure 3 shows the spatial distribution of these towns over the past century. Before 1901, towns were chieftaincy towns or coastal trading centres (Dickson, 1968). In the twentieth century, most urban growth took place in the forest zone, with the development of modern transportation, cocoa production and mining.

Rail connectivity has a strong effect on cocoa production, but the effect decreases as we move away from the line. There is then a strong effect on rural population growth up to 30 kilometres from the line and urban population growth up to 10 kilometres.

The population effects are indeed picked up by the cocoa variables. The rail effect on rural growth can be explained by the fact that more production requires more rural labour. Cocoa is often produced on the farms surrounding villages. The rail effect on urban growth can then be explained by the fact that more cocoa being transported requires larger rail and trading stations. Cocoa farmers also established small producing towns. Indeed, the number of cities increased by 150 towns and the urbanisation rate of the forest by 10 percentage points between 1901 and 1931.

We find positive effects on the number of schools and the probabilities of having a hospital being crossed by a class 1 road. We do not find any effect for churches.

Anthropometric data indicates that living standards increased along the lines. Using individual data on Africans recruited by the British Army before independence, it is shown that the height of the soldiers was higher for those born along the lines after 1918.

Extract adapted by Emma McKenna from Jedwab, R. and Moradi, A. (2016) 'The permanent effects of transportation in poor countries' in *The Review of Economics and Statistics*, *98*, no. 2, pp. 268–284