

Commodity Trade and Development: Theory, History, Future

Alexander Moradi

Free University of Bozen-Bolzano

Many of the goods and services that we consume are not produced by ourselves. We rely on others to provide these goods. We trade. This is truer, the more complex and more advanced an economy becomes. Like people, countries trade too. This is called international trade. Why is commodity trade of such vital importance? Does free trade foster economic development? Do historical trade patterns affect us today? What are the risks of international trade? What insights does history teach us with respect to the recent commodity trade boom in Africa? These are the questions that we cover in this chapter on trade. We first look at the benefits of trade through the lens of trade theory. We then describe the development of trade in Africa from early times to today. We finally discuss the lessons trade history provides when it comes to the recently good performance of Africa countries.

2. Trade Theory

Why do people trade? Because *voluntary* trade must *necessarily* improve the situation of both, buyer and seller. Take two individuals: Saba and Bakari. Also, take one good that they both value: a chicken (it can be any other good; it just happens that Saba and Bakari both like to eat chicken).

We can find out how much Saba and Bakari *value* a chicken by asking: “How much are you *willing to pay* for a chicken?”

Saba: “I am willing to pay up to 10,000 shillings for a chicken.”

Bakari: “I love eating chicken. I am willing to pay up to 20,000 shillings for a chicken.”

Their answers inform us about how much they value a chicken. Both would *gain* from buying a lower price than what they are willing to pay. For example, if Bakari pays 10,000 shillings for a chicken, he *gains* because he is paying 10,000 shillings less than what he would be willing to pay (which is 20,000 shillings).

Now assume that Saba owns a chicken. Should Saba eat the chicken herself or sell the chicken to Bakari? This depends on the price that Bakari pays her.

- a) She will *keep* the chicken for any price lower than 10,000 shillings, because it is less than she values the chicken herself.
- b) She will *sell* the chicken for any price higher than 10,000 shillings.

Because Bakari is willing to pay up to 20,000 shilling and this is more than what the chicken is worth to Saba, there are *gains from trade*. Independent of the actual price they negotiate, the total gain (Total gain = Seller's gain + Buyer's gain) in any trade will sum up to 10,000 shillings.

This is just an example, but it highlights a basic principle of trade. Traded goods have value to both, buyer and seller. Sellers would never produce or sell anything, if they did not get “something better” in return. The good will be passed to the buyer, because the buyer *values* the good more than the seller. It also follows that trade is a *win–win situation*: buyer and seller both gain. If we observe voluntary trade, the alternative of no-trade must have been worse.

Comparative advantages

Trade and economic growth go hand in hand. However, there are reasons to think that trade fosters development. Trade can deepen specialisation. Famous 18th century thinker Adam Smith described how division of labour, through specialisation, can increase productivity: more output can be produced without increasing the amount of labour or capital. The 19th century economist David Ricardo showed that countries can benefit from trade, even if a country has an *absolute advantage* in everything. With “absolute advantage” we mean that a country is better (=uses less resources/inputs) in producing any product. Ricardo's theory of comparative advantage remains a very important argument in favour of international free trade.



Economist David Ricardo 1772-1823.

We can understand the argument best by looking at a simple, hypothetical case: Two countries produce only two commodities using only one input, labour. Say, Malawi and Brazil produce tobacco and textiles. Brazil can produce one unit of tobacco in one hour and one unit of textiles in two hours. Let's say Malawi is less efficient. Malawi needs to employ more labour: two hours to produce one unit of tobacco and ten hours to produce one unit of textiles. Table 1 lists the hypothetical production costs of tobacco and textiles in Brazil and Malawi.

Table 1: Working hours to produce one unit of tobacco/textiles

	Labour costs		Opportunity costs of producing one unit of	
	Tobacco	Textiles	Tobacco	Textiles
Brazil	1 hours	2 hours	½ textiles	2 tobacco
Malawi	2 hours	10 hours	1/5 textiles	5 tobacco

Are there gains from trade? One would think the answer is 'no', because Brazil needs less labour in producing both tobacco *and* textiles than Malawi. But this is wrong.

The production of a good comes at a cost. No country has unlimited resources. The same hour of work used in tobacco production cannot be used in textiles production. With this idea in mind, we can now express production costs in terms of foregone production of the other good. This is what economists call *opportunity costs*.

- Brazil needs to give up 2 units of tobacco to produce 1 unit of textiles. This is because after two hours of work, Brazil produced either 2 units of tobacco or 1 unit of textiles. This means two units of tobacco "cost" 1 unit of textiles; or every unit of tobacco costs Brazil half a unit of textiles.
- Malawi can produce tobacco relatively cheaper than Brazil. Malawi can produce one unit of tobacco at the cost of 1/5 (0.2) textiles. In contrast, if Brazil produced that unit of tobacco she had to forego half a unit of textiles, hence the Brazilian cost of one unit of tobacco is 1/2 (0.5) textiles. Malawi has a *comparative advantage* in producing tobacco. Malawi needs to give up less units of textiles than Brazil. Brazil in turn has a *comparative advantage* in textiles production.

The two countries would gain from trade. Brazil should specialise in the production of textiles and Malawi should specialise in the production of tobacco. The countries should then trade their surplus products in exchange for the other good that they do not produce.

Comparative advantages also affect the prices of the goods involved. With trade, the market price will fall between the opportunity costs of both countries. In the above example, the world market price of textiles will be between 2 and 5 tobacco. Malawians will pay less for textiles buying textiles on the world market than if they produced it on their own. Brazilians will pay

less for tobacco than they would pay if the two countries were producing both goods for themselves. Without increasing inputs (more labour/capital) or technological change, trading partners benefit from a more efficient international allocation of resources.

It is important to understand the concept of *comparative advantage*. Firstly, it explains trade patterns. It is often argued that Africa has a *comparative advantage* in agricultural products such as cocoa, coffee, cotton or groundnuts.

- This does NOT mean that African countries are the only possible producers of these commodities. The United States, for example, can produce cotton, groundnuts and tobacco (and does indeed produce them more efficiently).
- This does NOT mean that African countries are unable to produce sophisticated manufacturing goods like cars or mobile phones.

By *comparative advantage* we mean that African countries can produce agricultural products at lower opportunity costs than other countries. Instead of producing *one* mobile phone, African countries can use the same amount of resources, produce agricultural products, and exchange them on the world market for *more than one* mobile phone.

Other ways how trade can influence development

Scholars have identified various other ways how trade can boost economic development. Firstly, trade attracts Foreign Direct Investments (FDIs). FDIs are inflows of physical investments from individuals or companies abroad. Physical investment means capital such as tools, machinery, and factories (not buying bonds or stocks). FDIs add to a country's capital stock. Capital accumulation is needed, because workers equipped with more capital can produce more goods.

Secondly, trade may enhance technological progress, which is the ultimate engine of economic growth. Technological progress means that more can be produced with the same amount of production factors. The two production factors economists have in mind are capital and labour. Trade can generate technological progress. For example, openness to trade may let highly efficient foreign firms choose to locate production in a developing country. These foreign firms hire and train workers. When those trained people leave and take a job at a domestic firm, they take their knowledge and skills with them and may apply them in their new firm.

Thirdly, international trade can introduce or intensify competition. Obviously, competition is good for consumers, because competition will drive down prices. But what about the producers? In order to survive domestic firms have to improve production processes, reduce costs, improve quality and innovate. Competition provides the incentive to do this. There is large evidence that firms that engage in international trade are more efficient and innovative. Remember the Saba-Bakari trade example above. If Bakari has to pay a lower price for the chicken, he will receive a larger gain; with the saved money he can buy something else. Saba in turn will need to make chicken production more efficient, if she wants to have a larger gain. For example, she can use a different breed of chicken that gives more meat or has a better taste, or she increases her farm size, or looks out for cheaper ways to feed the chicken. If Saba can't match the market price

without making a loss, she will go out of business. But then, she will be “freed” from inefficient chicken production and re-direct her resources and energy to something else that fetches a better return. This may be painful in the short-run, but directing resources to activities which give the highest return is essential in an efficient economy that does not waste resources.

Static and dynamic gains from trade

So far we have drawn a very rosy picture of international trade. However, advantages of trade can be limited. Many gains from trade are *static*. With “*static*” we mean “one time off” gains: Income and consumption increases only once. Once these gains are realised there will be no further gains in the future. For example, international competition that breaks a state monopoly and reduces the consumer price is such a static gain. Once the price is lowered, there may be no further gains for domestic consumers or producers. The same can be said with respect to comparative advantages in agriculture. After opening to trade and specialising in the product in which the country has a comparative advantage, consumption possibilities do increase, but then no further gains may be achieved.

It is important to consider *dynamic* gains. With “dynamic” we mean gains from trade that multiply over time. Dynamic gains can *sustain* economic growth. If developing countries specialize in their *current* comparative advantage such as agriculture, they will not make steps towards manufacturing such as textile production. Is this bad? It is *not* bad, if we only consider static gains. By specialising in agriculture and trading on the world market, African countries will receive more textiles in exchange for their agricultural products as if they produced textiles themselves. Specializing in *current* comparative advantages *might be* bad, however, if we consider *dynamic* gains. It is often argued that there are no dynamic gains from specialising in agriculture, while there are dynamic gains from specialising in manufacturing.

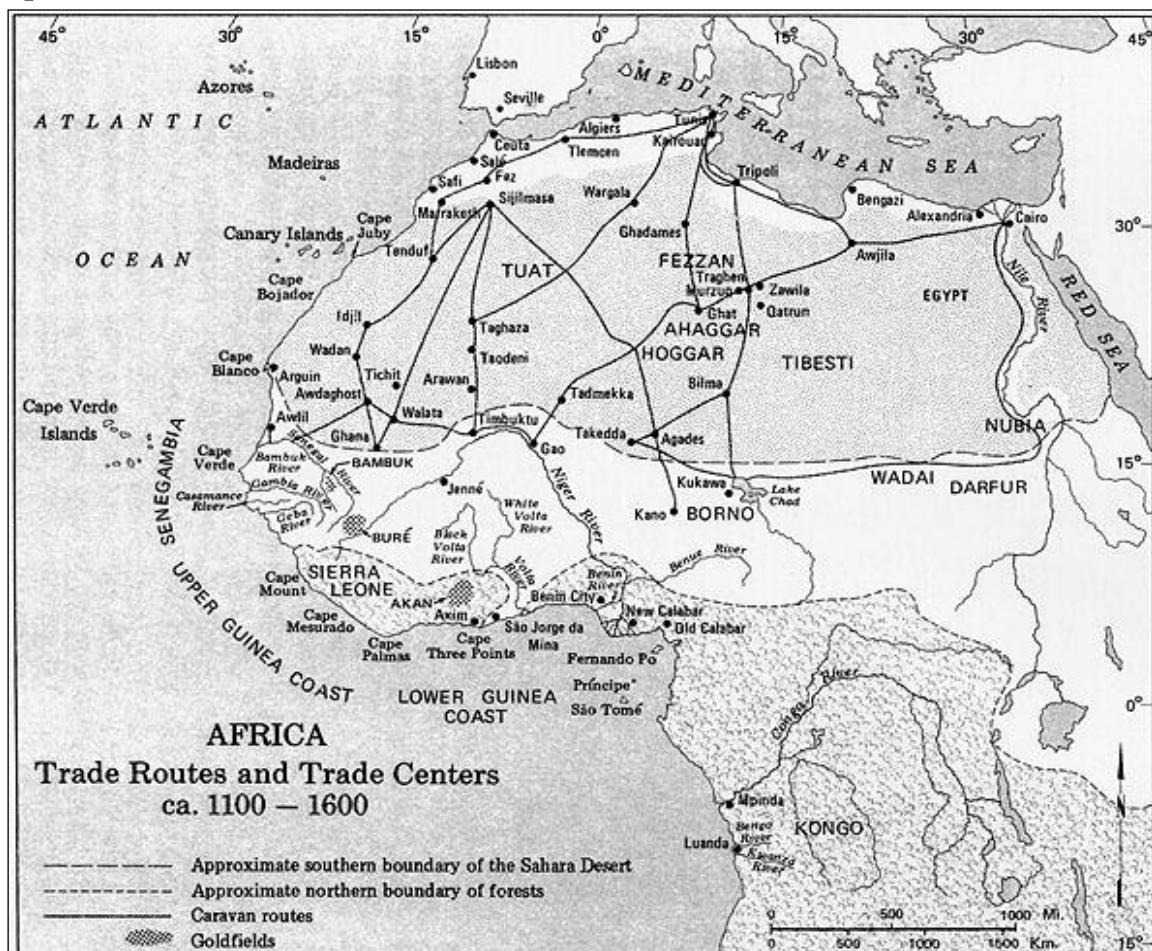
Why are there no dynamic gains in agriculture? The reason is that the scope for productivity gains is limited in agriculture. For example, Ghana specialised in cocoa production. Ghana became the world’s largest producer in 1911 and stayed so until 1977. However, agricultural techniques and yields have hardly changed between 1930 and 2000. Hence, the average cocoa farmer produced about the same amount of cocoa in 1930 as in 2000. Cocoa farmers would only earn a higher income if they receive a better price for cocoa on the world market. In contrast, manufacturing allows productivity gains over time: with the same amount of capital and labour, more goods can be produced every year. The gains in productivity can offset increases in labour costs. Workers can earn more and more over time.

In addition, economic activities are interlinked. Some sectors positively influence other sectors in the economy. For example, a large car industry creates demand for steel, which might develop as a result of having a car industry. Engineers (and businessmen) trained in the car industry can use the set of skills in the tool manufacturing industry. It often reduces costs if industries locate at the same place. Hence, the creation of one industry will create or attract other industries. These linkages are often associated with manufacturing. These linkages do rarely exist in agriculture. Skills and inputs used in producing agricultural exports do not benefit other industries. We will now turn to the history of trade in Africa. We will come back to trade theory later.

3. The Trans-Saharan Trade

For at least 2,500 years there has been trade between sub-Saharan Africa and North Africa and the Middle East. This trade is called “Trans-Saharan Trade”, because it required traders to cross the Sahara. As shown in Map 1, the Sahara separates the Mediterranean economies from the economies of the Niger basin. The Sahara is the world’s largest desert. It is about 2,000 km wide north-south. The desert consists of sand and stone. Temperatures are very high at day and very cold at night. There is no water except in the few oases. This makes the Sahara very difficult to cross.

Map 1: Trade routes in West Africa, 1100-1600



Source: Phillips (1985, p. 115).

Trade was only made possible by the camel. A camel could carry up to 450 kg of goods, make a distance of about 40 km per day and survive without food or water up to 10 days. Caravans consisted of hundreds, sometimes even thousands, of camels, moving from oasis to oasis until they reached the markets in the Sahel region. The photo below shows how goods are transported by camel along the old caravan routes even today.



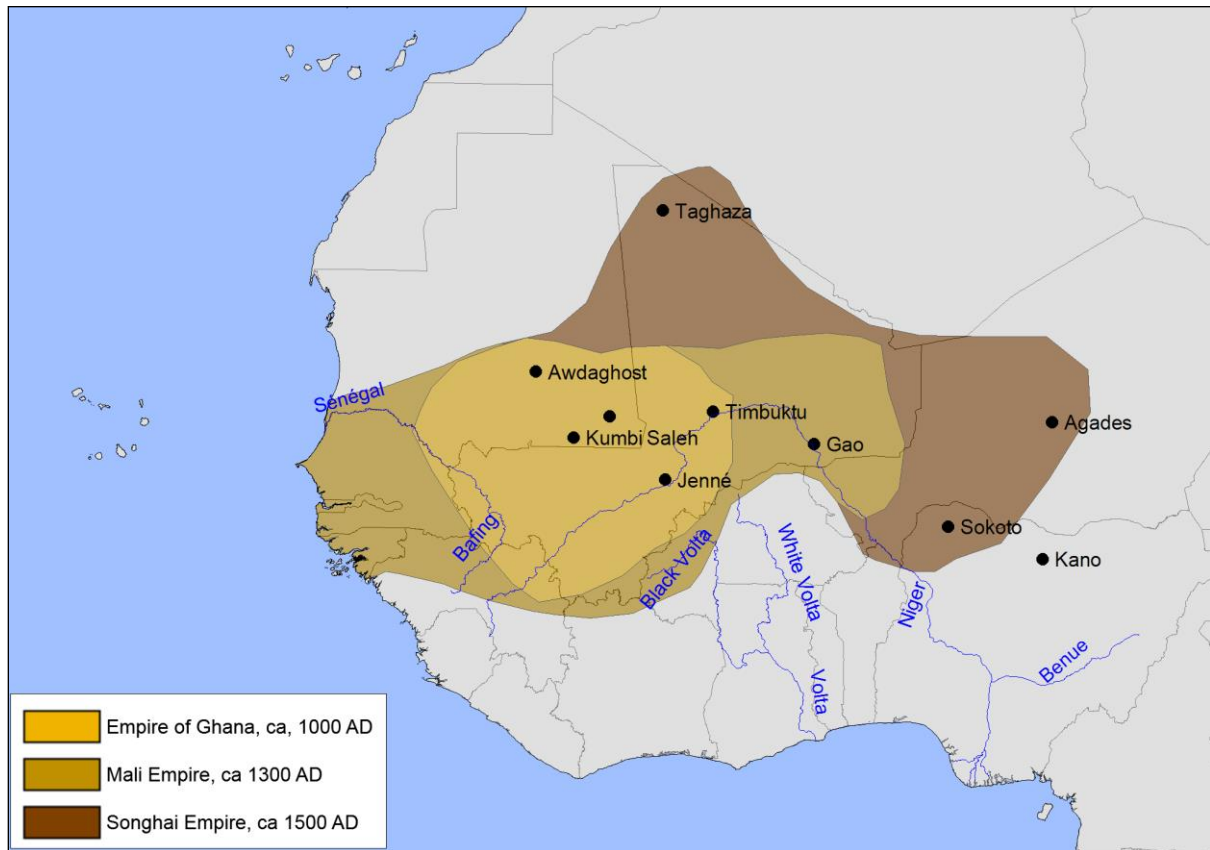
Camel train from Agadez to Bilma in today's Niger.

The height of the Trans-Saharan Trade was between 700 and 1600. Gold dust was the most important export commodity for those West African economies involved. Western Europe and North Africa used gold for coinage, but lacked gold deposits and therefore imported the gold. It is estimated that two-thirds of all the gold circulating in the Mediterranean area in the Middle Ages was imported across the Sahara. In Map 1 gold producing areas are shown as shaded areas and labelled as “Goldfields”. These areas are located in what is now Ghana and Guinea. Other exports included slaves (an estimated 12 million in total between 700 and 1900) and commodities such as ivory and ostrich feathers/ eggs.

The Trans-Saharan trade did not only allow Africans to sell and export their goods but also to import foreign goods, in exchange for West African export goods. A major import good was salt. Major deposits are located in northern Africa at Idjil, Taodeni and Taghaza, as shown in Map 1. Salt makes food taste better. Other import commodities include dates (from the oases), iron tools, copper and brassware, beads, woven cloth, paper and books. Imports as well as exports were luxury items – goods that had a high value to weight ratio. Trade in bulk items was not profitable due to high transportation costs despite of the camel.

Trade gave rise to powerful African empires that controlled and taxed trade. Map 2 shows the Ghana kingdom (nothing to do with present-day Ghana) occupied the transit territory of the Trans-Saharan trade covering areas of Senegal, Western Mali, and Southern Mauritania. The kingdom was first mentioned in 800 AD and lasted until 1240 AD, when it was incorporated into the Mali Empire. In ca. 1350 the Mali Empire stretched from Senegal to Mali. The Songhai Empire (1430- 1591) was even larger stretching to what is now Niger down to the savannah regions of West Africa. Its capital was Gao, and Timbuktu was an important centre of Islamic study and learning. With trade, a new religion - Islam - spread throughout the Sahel region.

Map 2: Trans-Saharan Empires of Ghana, Mali, Songhai



In the 15th century Portuguese voyages opened a new trade route. The maritime route was cheaper than the Trans-Sahara route. In 1471, for example, the Portuguese opened a trading station “Elmina” at the “Gold Coast” (close to “Cape Three Points” in Map 1). However, the real blow to the Trans-Saharan gold trade came after Europeans discovered the Americas. Gold was imported from Central and South America much cheaper and in vast amounts. Consequently, the Trans-Saharan gold trade declined.

Other trade routes also existed. For example, West Africa had trade links with East Africa. This is documented, for example, by cowries which were used as shell money, coming from the Indian Ocean and appearing in Sahelian cities as early as 900 AD. Eastern Africa also had contacts with traders from Middle East and as far as Indonesia. Swahili language is a reminiscent to Arab and Persian traders.

4. Legitimate trade

With the discovery of the Americas and European ships came the *transatlantic slave trade*. European products, such as firearms, copper and cloth, were exchanged for slaves. Slaves, back then, were Africa’s major export commodity. An estimated 12 million Africans were shipped across the Atlantic Ocean to the Americas to work as labourers, mainly on plantations and in mines. This is a very important element of trade that caused immense human misery, reduced

African populations, and disrupted development. It is treated extensively in a different chapter of this textbook.

In 1807, Britain abolished the slave trade; that is Britain declared the trade as illegal. Not all European trading nations followed suit. Nevertheless, transatlantic slave trade declined significantly, because the British navy was patrolling the sea, fining slave ships and setting slaves free. The abolition of the transatlantic slave trade did not mean a trade embargo. Slave trade was replaced with so called “legitimate trade”. Legitimate trade included trade in any commodities except slaves. Remember there are gains from trade.

A commercial shift to agricultural exports indeed took place, to palm oil, ground nuts and gum arabic (from the acacia tree) in particular. The shift had implications for West African societies. Profit margins were lower. African elites probably lost out, because they were less able to participate in small-holder production or effectively tax it.

5. The transport revolution

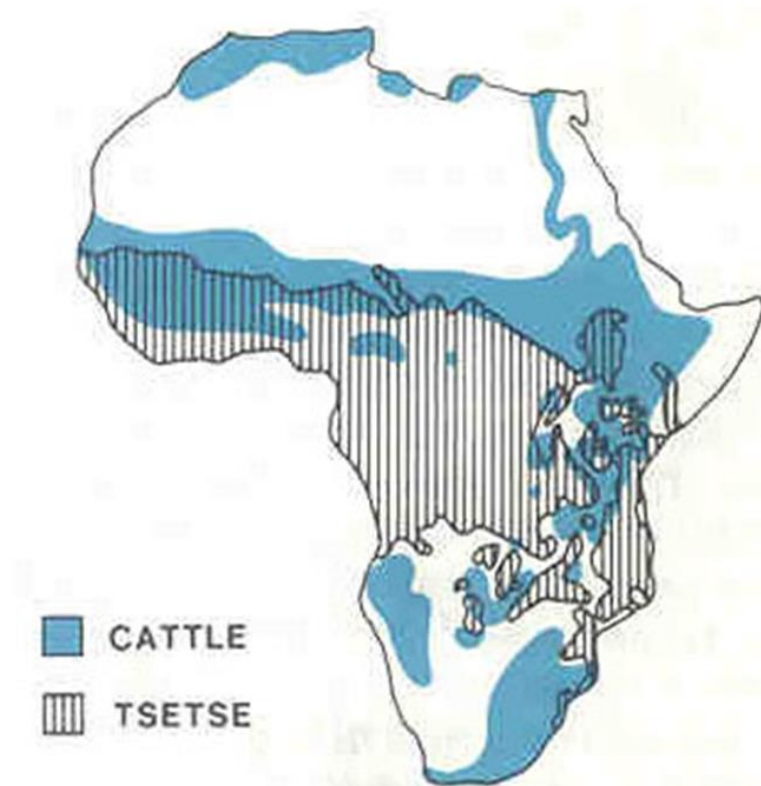
Transportation costs greatly matter for trade. Why do transportation costs hold back trade? Transportation costs create a price wedge between buyer and seller and can undo gains from trade. Again, take Saba and Bakari. If it costs 10,001 shillings to transport the chicken from Saba’s farm to Bakari’s home, there will be no gains from trade and hence, no trade. This is because either the buyer or seller has to pay the transportation costs. If Saba pays the transportation costs of 10,001 shillings and she values the chicken herself at 10,000 shillings, she will ask for a price of at least 20,001 shillings. However, Bakari is not willing to pay this price. If Bakari pays for the transportation, the maximum price he would be willing to offer to Saba is 9,999 shillings (Bakari’s willingness to pay 20,000 minus the transport costs of 10,001). You can see what happens when transportation costs decline below 10,000 shillings: We observe trade between Saba and Bakari. With every further decline, gains from trade will increase. Note that reducing transportation costs can benefit both producers and consumers.



Shifting transportation technologies on Lake Victoria. Dugout canoe (left). Steamship (right) at Kisumu, ca. 1910.

Early trade was held back by extremely high transportation costs. Geography is to blame. Typically, water transport is the cheapest means of transport. Africa, however, lacks navigable and inter-connected waterways. Canoes were used along some rivers such as the river Niger and on Lake Victoria (some 700 km away from the sea). Large reductions in transportations costs came with big vessels and modern steam ships in the late 19th century. However, steamships could not navigate on African rivers because of frequent rapids and low water levels during the dry season. The next best transport option for inland traffic would be draft animals such as horses, oxen and donkeys. However, because of the presence of animal trypanosomiasis draft animals and cattle herding could not be used in large parts of Africa. Trypanosomiasis, is a parasitic disease transmitted by the tsetse fly. Draft animals infected with trypanosomiasis are likely to die. Map 3 shows the absence of cattle in tsetse areas.

Map 3: Cattle and Tsetse distribution in Africa



Hence, head-loading was the main mode of transport. This was extremely costly. Much of the cargo consisted of provisions for the voyage itself. Only low weight - high value goods were carried through the hinterland. The slave trade was cheap, because slaves could be walked. The photo below shows a caravan transporting highly valuable ivory from Uganda to the coast, some 1,000 km faraway. Bulky items were transported over very short distances only.

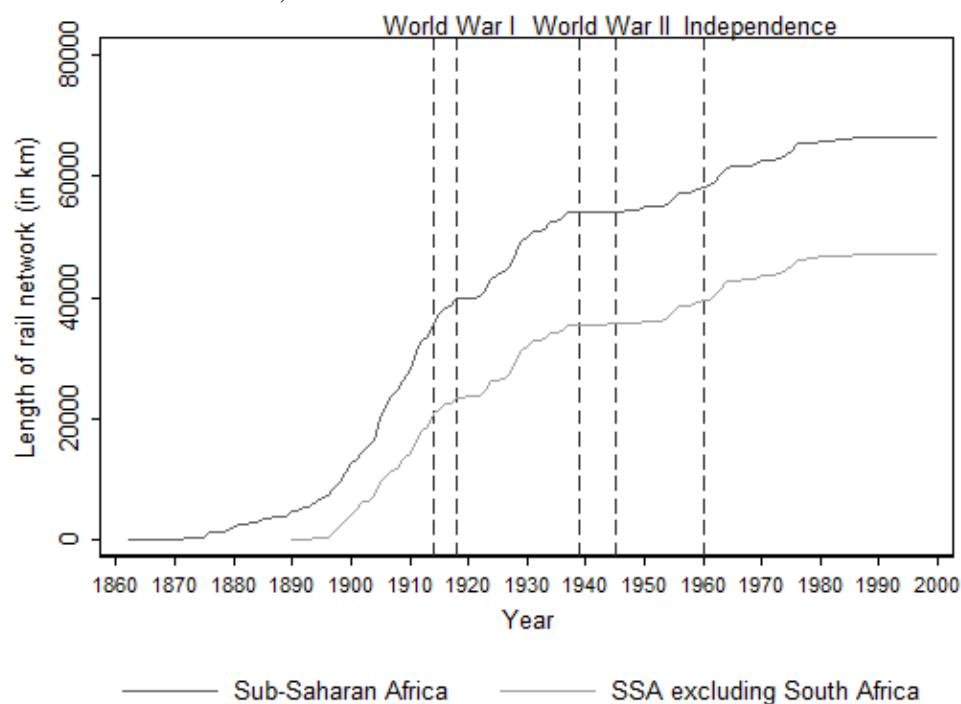


Ivory trade in Uganda 1899. A caravan on its way to the coast.

A new technology brought a transport revolution: Railroads. The first railroad was built in 1862 in South Africa to facilitate the export of gold and diamonds. From 1883 on, railroads were built in other sub-Saharan African countries. Figure 1 shows the expansion of railroad coverage. The phase up to 1914 was most dynamic: More than 21,000 km of rail were built. The speed slowed down in the 5 years after World War I (which ended in 1918), but caught up in the interwar period. By 1937 the rail network reached 35,000 km of length. The year 1937 marks the end of the dynamic: 75 percent of today's rail network (ca. 47,000 km) has been established by then. Recently, rail saw a comeback due to Chinese investments. Motor roads started in the 1930s. At the beginning, roads were often feeder roads, directing traffic to the railroad. Later, in the 1950s and 1960s, motor roads became the dominant transportation technology.

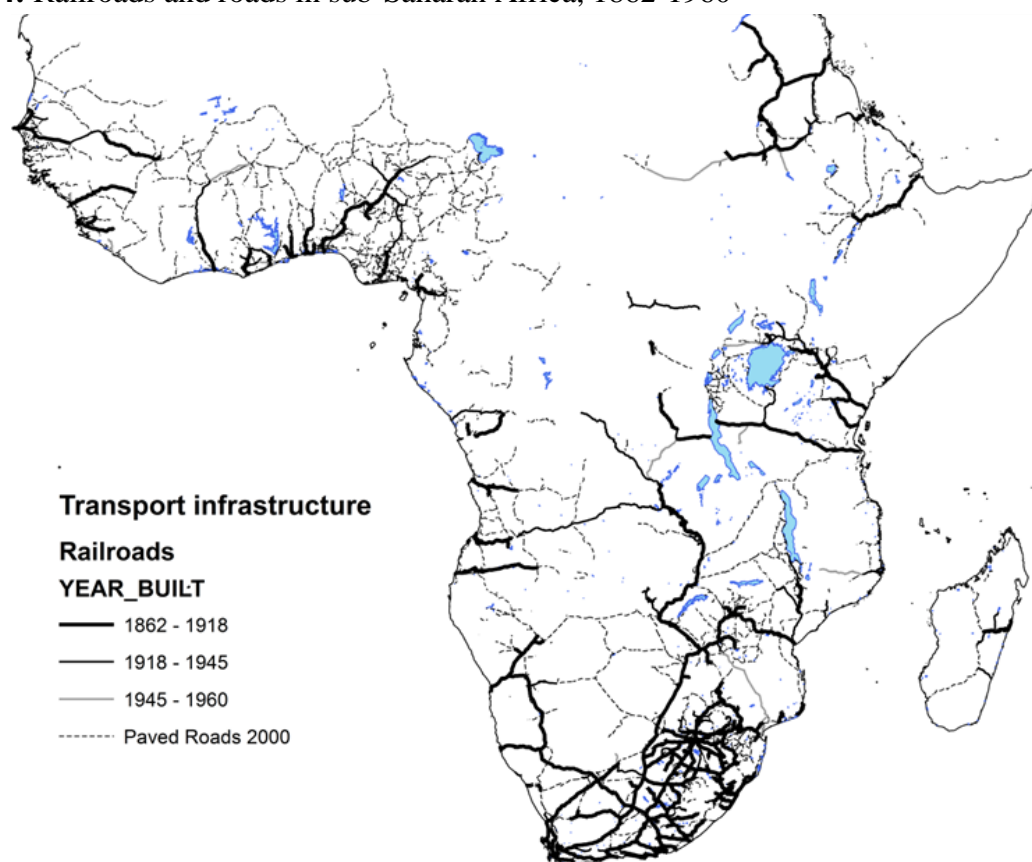
Colonial administrations heavily invested in physical infrastructure (education and health expenditures were negligible by contrast and typically left to Christian missionaries). This was not unselfish (economic and political choices are rarely unselfish). As you can see in Map 4, railroads lead to a terminus at the sea port. The purpose of the railroads was to open the hinterland to trade. Colonial administrations succeeded on this account.

Figure 1: Railroad construction, 1860-2000



Source: Data from Mitchell (2007).

Map 4: Railroads and roads in sub-Saharan Africa, 1862-1960



Note: No road data available for Chad, Equatorial Guinea, Gambia and Somalia. Hence, the territories of these countries appear as white even though there might be paved roads.

Transportation costs of pre-modern transportation technologies were extremely high making export production unprofitable. For example, the Gambia and Senegal groundnut production was only profitable close to the Gambia River that flows into the sea. Ghana's cocoa production was profitable only up to a 50 km distance from the coast. In Kenya, coffee growing would have been profitable only up to 300 km from the coast (not reaching the fertile soils of the Kenya Highlands).

Table 2 shows the massive reduction in transportation costs by the railroad. In Ghana, carriers would move one ton of goods over one mile at the cost of 5 shilling. In contrast, the railroad charged 0.8 shilling. Hence, the railroad did the same service at only 16 percent of the costs. In Nigeria, carriers were paid less and therefore head-loading costs were lower. Still, the railroad charged only 7.6 percent of the price of head-loading. Transportation in Kenya was particularly expensive before the railroad. Part of the high portage costs can be explained by marauding Maasai warrior parties at that time. Caravans needed large numbers of armed guards for protection. Porters probably asked for a higher salary as well to be persuaded to take the dangerous journey through Kenya.

Table 2: Transportation costs: Head-loading versus Railroad (in shillings per ton mile)

Country	Head-loading	Railroad	Ratio
Ghana (1902)	5	0.8	16%
Kenya (1902)	11	0.09	0.8%
Malawi (1900)	3		
Nigeria (1910)	2.5	0.19	7.6%
Sierra Leone (1910)	2.5	0.27	10.8%
Tanzania (1896)	3.5		

Source: Jedwab, Kerby and Moradi (2014).

Note that railroad costs were decreasing further over time. The railroad contributed to the expansion of African exports. Cocoa farming in Ghana became profitable up to 250 km from the coast. There are many more examples: Groundnut production in Nigeria, cotton in Uganda, wheat and coffee in Kenya, mineral commodities such as copper in Zambia and iron ore in Sierra Leone.

6. Trade under colonial rule

In the introduction we said that trade cannot be bad if it is voluntary. In some parts of Africa trade under colonial rule was not voluntary. The worst example is the Congo Free State, the territory what is now the Democratic Republic of Congo. Villagers were told to deliver a certain amount of rubber, which would then be exported. Failing the quota was punishable by death. Many, many people were killed. Many, many people were also mutilated. Soldiers were ordered to bring the hand as evidence that the punishment was executed and a bullet was shot. Soldiers started to cut off hands. Moreover, 35 percent of the population was under forced labour – slaves in all but name. Colonisers also used subtle methods as well: hut taxes. Households had

to pay a tax in coins. These coins had to be earned first, e.g. by working as labourers or producing and selling goods for the market. By and large, however, export production and trade was voluntary.

There were also trade restrictions in place that favoured the coloniser. For example, the coloniser's trading firms received favourable treatment, exports had to be shipped to the coloniser, or exporters had to ship goods solely by that coloniser's shipping agencies. Table 3 shows export values of selected countries. Export values are expressed in constant 2000 US dollars. Using „constant values“ eliminates inflation effects, because all goods are valued by prices that existed in the year 2000. The method is useful, because it makes figures from different years comparable. For example, one US dollar earned in 1883 expressed in constant 2000 US dollars, would buy the same goods as one US dollar earned in the year 2000.

Table 3: Export values 1883-2000 (in constant 2000 USD millions)

Country	1883	1913	1960	2000
<i>Former British</i>				
Gambia	18.5	55.8		202.0
Ghana	33.3	460.0	1996.6	2429.1
Nigeria	146.0	575.0	2257.4	24820.5
Kenya-Uganda	5.5	125.5	2105.5	3399.4
Malawi	0.0	19.2		446.4
Sierra Leone	40.7	116.7		115.0
Tanzania	5.5	68.0		1526.9
Zambia	0.0	17.4	2244.4	877.6
Zimbabwe	1.8	34.8		2659.7
<i>Former French West Africa</i>	4.0	73.9	535.7	2049.7
<i>Other</i>				
Democratic Rep. Congo	40.7	203.9	3773.9	963.8
Angola	37.0	97.6		8182.0

Sources: Meier (1975), p. 442 and World Development Indicators (World Bank, 2014). No export data available for Guinea, Mali and Mauritania in 1960. For calculating exports of former French West Africa in 1960, we assumed that these three countries exported 77 percent, which was about the case 1986-2005. Prices deflated by US consumer price index.

Table 3 shows that trade expanded massively under colonial rule. In 1883, Kenya-Uganda's exports were worth a meagre 5.5 million US dollars. By 1913, exports increased 23-fold. By 1960, the exports grew ten-fold. After that, export growth slowed down. In 2000, exports exceeded the level of 1960, but by only 61 percent. Most African countries show similar patterns up to 1960. Countries like Zambia and Sierra Leone have even lower export volumes in 2000 than in 1960. Nigeria and Angola are big exceptions. Their export strength in 2000 is mainly due to crude oil.

What did African countries export? Primary commodities! This is in line with Africa's comparative advantages. Africa's workforce was skilled with respect to agricultural techniques, cultivating in climatic and ecological complex environments. But Africa had an unskilled

workforce with respect to manufacturing. Africa had abundant land. But Africa had little capital. Hence, it was *relatively* cheaper to produce agricultural products. And this is what African countries did. Table 4 shows the principal exports of a selection of African countries over the colonial era and 1990.

Table 4: Principal exports of selected African countries, 1900-1990 (percent of total export value)

	1900	1930	1960	1990
Gambia		Groundnuts: 99%	Groundnuts: 27% Groundnut oil: 13%	Groundnuts: 20% Groundnut oil: 14%
Ghana	Rubber: 37% Palm oil: 27% Palm kernels: 11% Gold: 10%	Cocoa: 78% Gold: 12%	Cocoa: 60% Wood: 15% Gold: 10%	Cocoa: 29% Aluminium: 18% Gold: 13% Wood: 11% Diamonds: 10%
Kenya		Coffee: 50% Sisal: 15% Maize: 10%	Coffee: 33% Sisal: 12% Tea: 12%	Tea: 19% Coffee: 14% Oil: 13%
Malawi	Tobacco: 75%	Tobacco: 73% Cotton: 11%	Tobacco: 77% Tea: 13%	Tobacco: 68% Tea: 11%
Nigeria	Palm kernel: 46% Palm oil: 21%	Palm kernels: 25% Palm oil: 22% Ground nuts: 15% Cocoa: 12%	Groundnuts: 27% Cocoa: 23% Palm kernels: 16% Palm oil: 10%	Petroleum: 96%
Sierra Leone	Palm kernels: 47%	Palm kernels: 64%	Diamonds: 54% Iron ore: 16%	Titanium minerals: 52% Aluminium: 19% Diamonds: 15%
Uganda		Cotton: 71%	Cotton: 40% Coffee: 34%	Coffee: 74%
Zambia		Zinc: 27%		Copper: 88%
Zimbabwe		Asbestos: 18% Iron ore: 13% Tobacco: 10%		Tobacco: 24%

Sources: Commodities with 10 percent or more of total exports. 1990 figures are from Deaton (1999). Other figures are from 1960 Blue Books and FAOSTAT (<http://faostat.fao.org/site/342/default.aspx>). Nigeria before 1930 refers to South Nigeria.

The type of primary commodity may differ across countries and time, due to differences in soils, climate, altitude, and world market prices. For example, Senegal specialised in groundnuts, Ghana (see Table 4) and Cote d'Ivoire in cocoa, Kenya in coffee (see Table 4), Malawi in tobacco (see Table 4), Mozambique in maize.

Is specialisation in agriculture bad for development in the long run?

- No, because Africa's comparative advantages are in agriculture. Hence, specialisation in the agricultural sector offered the highest gains from trade: Instead of producing consumer goods, Africans could produce agricultural products and exchange them for a larger quantity of consumer goods imported.
- Possibly yes, if we consider dynamic gains of trade. By specialising in agriculture, Africa's labour force has not acquired skills to turn the comparative advantage to manufacturing. Compare section 2 of this chapter.

Table 4 shows a different aspect of specialisation in Africa: Heavy dependence on a very small number of commodities. In 1930, Gambia, groundnuts contributed to 99 percent of export earnings. In Ghana, cocoa was the main export earner, contributing 78 percent in 1930. In Malawi, 75 percent of export earnings were achieved by tobacco. This hasn't changed over a century.

7. Trade policies after independence and the economic crisis of the 1980s

After independence, African governments were free to choose their own trade policy and trading partners. The 1960s was a time of optimism. There was a strong belief that a country could be transformed using developmental policies – which colonial administrations have not followed. Trade policies were part of the mix of developmental policies. Almost all African governments followed a policy of import substitution. Import substitution policies aimed to substitute foreign goods (=imports) with domestically produced goods. This can be achieved by using quotas – allowing only a small quantity of imports, or tariffs making imports more expensive and hence less desirable for the domestic consumers. The hope was that as a result domestic industries would develop.

Initially, consumer goods were substituted. Reducing the trade bill for consumption goods and keeping export earnings unchanged means more foreign exchange (US dollars) can be used to import capital goods. Capital goods are machinery, factories, and intermediate goods. This would lead to industrialisation increasing output and income. African governments also heavily taxed agricultural exports. This was done using parastatal marketing boards. Farmers had to sell their harvest to marketing boards. Only marketing boards were authorised to sell (or „market“) to the world market. Hence, farmers had no other choice than to sell their produce to the marketing boards. Marketing boards, however, paid producers a price much below the world market price. By selling the good at the higher world market price, African governments made a profit (at the expense of the farmers). This profit, in turn, was meant to be used to finance industrialisation.

Unfortunately, these policies have failed to achieve their goal.

- Manufacturing industries did not develop. In the 1990s, the share of manufactures in total exports was tiny. In Gambia, for example, the share of manufactures exports was 0.6 percent. Figures for the other countries are as follows. Ghana: 3.2 percent, Malawi: 4.9 percent, Nigeria: 0.9 percent, Sierra Leone: 2.6 percent, Uganda: 0.8 percent, Zambia: 4.0 percent. Kenya (21.1 percent) and Zimbabwe (34.4 percent) are exceptions with very high shares of manufacturing exports (though the shares used to be high in the 1960s too).

- Commodity dependence remained strong, see Table 4. Note that the shifts you can see in Table 4 were not due to trade policy. Shifts in commodities mainly occurred because of the discovery of mineral resources or changes in world market prices. For example, Sierra Leone's main export commodity used to be palm kernel up to the late 1930s, when diamonds, iron ore and ilmenite were found. Only 20 years later in 1960, Sierra Leone transformed to an economy mainly exporting mineral resources. There is a similar story for crude oil in Nigeria which was discovered in the Niger delta in the late 1950s. In Kenya, coffee was the main export commodity but with the decline in coffee prices in the 1980s, Kenya switched to tea. Low cotton prices pushed Uganda towards coffee.
- Africa's share in world trade fell from 4 percent in the 1950s to under 2 percent in 2000. This can be partly attributed to the fact that primary commodities decreased in importance in world trade. However, African countries even lost market share to Latin America and Southeast Asia. In shelled groundnuts, for example, Africa's combined market share shrunk from 93 percent in 1960 to 2 percent in 2000. The market share in palm oil shrunk from 60 percent in 1960 to 14 percent in 2000. Coffee shrunk from 18 percent in 1960 to 12 percent in 2000. Cocoa shrunk from 76 percent in 1960 to 71 percent in 2000. Copper shrunk from 23 percent to 4 percent. Increases in market shares are modest by comparison. Cotton slightly increased from 10 percent to 14 percent. Tobacco increased from 12 percent to 17 percent, and tea from 6 percent to 23 percent (mainly because of Kenya which alone accounts for 20 percent of world production).

Why has import substitution failed? Some scholars say these policies were doomed to fail because they would not change comparative advantages. African manufacturing products remained relatively more expensive to produce than agricultural products.

There are many more reasons:

- Restrictions on imported machinery, equipment, and raw materials drive up the prices of these inputs to all domestic firms. Would-be exporters cannot sell their products on world markets at competitive prices and quality.
- Also, remember that the purpose of trade is to exchange something that you value less (e.g. a chicken) for something that you value more (e.g. money that allows you to buy something better than a chicken such as a mobile phone).
 - When restricting the import of consumption goods, their price will increase. Exporters lose an incentive to supply export goods.
 - When lowering the price to exporters, exporters lose an incentive to produce export goods. For example, in 1984, Ghanaian cocoa farmers received 20 percent of the world market price. In 1991, Ugandan coffee farmers received about 30

percent of the world market price. Instead of increasing government revenues, lowering the producer price to these levels did reduce agricultural production. Governments killed the goose that laid the golden egg.

- State led industrialisation is problematic if it encourages mismanagement.
 - Many of the policies created opportunities for Africa's political and economic elites to enrich themselves. For example, the exchange rate was often manipulated. The exchange rate is the price for which the domestic currency can be exchanged for another country's currency such as US dollars. The manipulation took the form that state selected firms imported using an "official" exchange rate. This official rate was much lower than the market exchange rate. The goal was to reduce import costs for selected firms deemed to be important for industrialisation. However, a frequent practice was to make money by claiming "discounted dollars" from the government and change the dollars at the much higher exchange rate offer on the black market.
 - State industries are prone for inefficiencies. State firms can employ a large number of employees, and pay them high wages, without producing something valuable. The firm will survive because the state pays for the losses.

Hence, many of the government revenues were wasted rather than put into productive purposes.

Expansion in trade is what matters for economic development. If exports decrease, imports must decrease at some point too. This is because countries cannot run trade deficits forever. Trade deficit means that the value of imports is larger than the value of exports. Foreign countries (or the international capital market) would not be willing to finance this trade deficit forever. Persistent trade deficits contributed to the economic crisis that gripped many African countries in the 1980s. The International Monetary Fund (IMF) and the World Bank were instrumental in "restructuring the economy". Many of the trade restrictions were lifted.

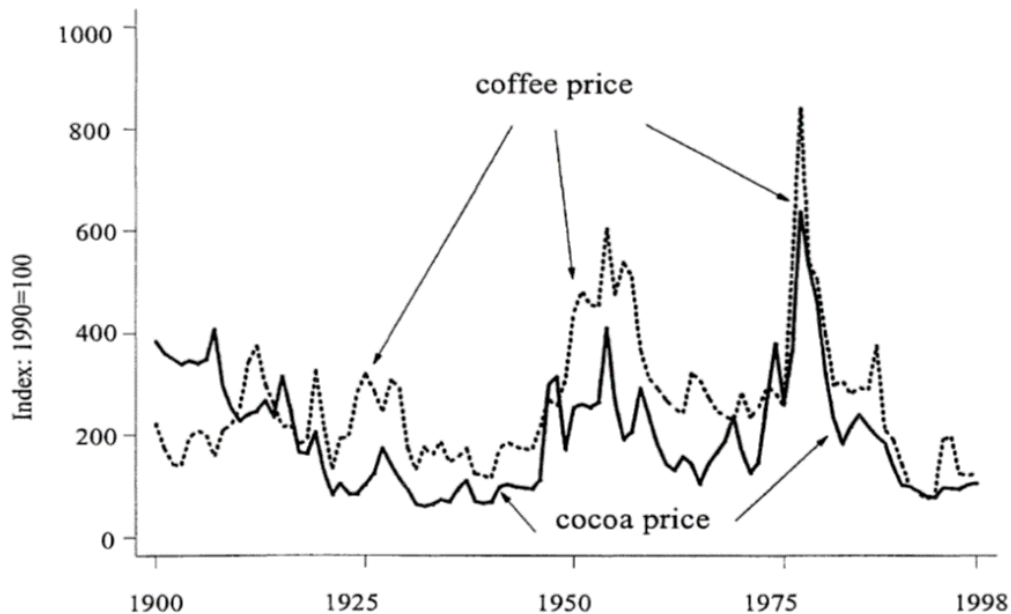
8. World market prices and terms of trade

Prices are important, because they determine how gains from trade are divided between sellers and buyers. At a chicken price of 10,000 shilling, Bakari gains more, than at a price of 19,999 shillings. In international trade, commodities are traded on the world market. Hence, world market prices are relevant.

How did world market prices develop in the long run? Figure 2 shows the development of coffee and cocoa prices over one century. The prices are compared to the price in the year 1990, which is set to 100. For example, when you see a cocoa price of 150, it means that the price is 150 as compared to 100 in 1990, or the price is 1.5 times higher than compared to 1990. A cocoa price of 75 reads as 75 percent the level as compared to 1990 or 25 percent lower than in

1990. When you see a cocoa price of 400 – as was the case in 1907 and again in 1954 – it means that prices were 4.0 times higher than in 1990. This means that a cocoa farmer could buy four times as much from the proceeds of his cocoa farm in 1907 and 1954 as compared to 1990.

Figure 2: Real coffee and cocoa prices 1900-1998



Source: Deaton (1999).

Figure 2 conveys two insights:

- There were large ups and downs between 1900 and 1998. Price volatility is a problem:
 - Production that was profitable at last year's price can be loss-making in the next year. This volatility is a problem for producers. It is very difficult - if not impossible - to predict prices. For example, frosts reduced Brazil's coffee harvest in 1976. Because Brazil is the world's largest coffee producer, world market supply was seriously reduced driving up the world market price for coffee. African coffee producers (well, African governments' marketing boards) were lucky in 1976, because they benefitted from higher world market prices.
 - Because of the heavy dependence on one or two commodities (see table 4), price volatility threatens a country's macroeconomic stability. Government revenues fluctuate yearly. Expenditures may need to be adjusted (or financed by debt). Lower prices and income for exporters mean less income spent for other sectors of the economy such as for non-tradable goods, schooling, health, etc.
- Secondly, there apparently is a downward trend in the long run. So in addition to large volatility, world market prices for coffee and cocoa tended to fall over time. This means that coffee and cocoa farmers would earn less income, unless they were able to increase

yields. However, African farmers were typically not able to increase yields by much. In Ghana, for example, yields per acre in 2000 were very similar to the ones in 1930.

We discussed world market prices for export goods. In international trade, world market prices for import goods do matter as well. This is where the concept of Terms of Trade (TOT) becomes useful.

To better understand TOT, we start with an example. Take a country that only exports coffee and only imports machinery. It is bad news for this country, if the world market price for coffee stays the same whereas the world market price for machinery doubles. In this case TOT worsened:

- The country now must export twice as much coffee to import the same quantity of machinery as before.
- If the country cannot expand coffee production, which is probably the case, it must reduce imports by half.
- If the country keeps exporting the same amount of coffee and importing the same amount of machinery, it will run a trade deficit. More goods are imported than exported. The trade deficit can be financed by debts – repaid if the quantity of coffee exports doubles in the future or TOT shift back to the advantage of the country.

Obviously, in the real world more products are traded than coffee and machinery. TOT takes into account the complexity of export and import goods by using the export and import price indices. The export price index reflects the prices of all the goods that a country exports (such as coffee in our example). The import price index reflects the prices of all the goods that a country imports (such as machinery in our example).

Terms of Trade are then defined as the ratio of the export price index to the import price index. Similar to the example of coffee and machinery, TOT measures the amount of import goods a country can buy per unit of export goods.

Changes in TOT have far-reaching welfare implications. TOT were falling between 1900-2000. So, who determines or what causes TOT to change? There is no evil mastermind behind changing TOT. Supply and demand on the world market determine world market prices. Whatever shifts world supply and demand of traded goods will affect TOT. There are forces, however, that tend to erode TOT to the disadvantage of African countries:

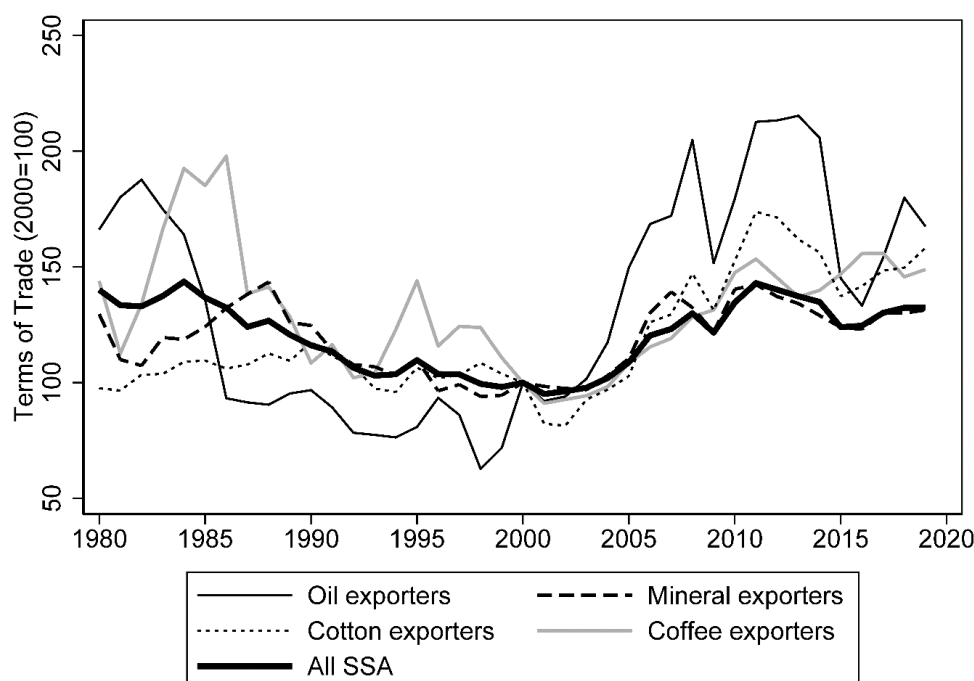
- Supply: Competitors - Latin American and South East Asian producers of tropical products - enter the market for commodities. This increases supply. The price of tropical products tends to fall.
- Demand: As people get richer, they consume fewer primary commodities and spend more of their income for manufactures and services. The writer of this text, for example, is a passionate coffee drinker. A rough calculation suggests a yearly consumption of

about 10 kg per year, which is about the average consumption of worldwide leading Scandinavian coffee drinkers (Finland: 12kg, Norway 10kg). A pay rise would not be spent for increased coffee consumption, but instead pay for a cleaning robot produced by a South Korean manufacturer. The example highlights general consumption patterns in rich countries.

- Some commodities exported by developing countries were substituted by synthetic (or chemical) products. Natural rubber (or caoutchouc) is an excellent example. Natural rubber is a tropical product tapped from rubber trees. Rubber is used for car or bicycle tires and other components in cars and many other machines. In 1900 rubber prices were very high and Africa contributed about half of world supply. During World War II chemists developed a new synthetic rubber, which is made from petroleum; it is cheaper and better for some purposes. Today, natural rubber is still used but less so than if synthetic rubber did not exist.

How was the recent development in TOT? Figure 3 shows the terms of trade for the last 40 years for African countries. You can see how TOT worsened between 1980 and 2000. However, in the 2000s we observed a turnaround in TOT. In 2011, TOT reached the same level as in 1980 before the major economic crisis set back African countries to pre-independence levels. Since then, TOT have remained at relatively high levels.

Figure 3: Terms of Trade 1980-2020 (2000=100)



Notes: Oil exporters include Angola, Cameroon, Congo (Brazzaville), Gabon and Nigeria. Mineral exporters include Botswana, Congo (Kinshassa), Guinea, Mauritania, Niger, Zambia and Zimbabwe. Cotton exporters include Benin, Burkina Faso, Chad, Mali, Sudan and Togo. Coffee exporters include Burundi, Ethiopia, Rwanda, Tanzania and Uganda.

Source: World Development Indicators (World Bank 2022).

What caused the improvement in TOT since ca. 2000? It is China mainly, and partly India. The effect of China's phenomenal growth is twofold:

- China produces manufactured goods such as textiles, mobile phones, fridges and motor cycles much cheaper than other countries. Hence, China's cheap production and exports reduced the import price index of African countries. You can see Chinese products in daily life in every corner of Africa. African consumers benefit from this.
- China buys commodities on the world market. Because China is such a big country, the increased demand affects prices. So far, the increased demand was not matched by big shifts in supply. Hence, prices of African export commodities increased.

9. Future outlook

In the last 20 years many people became optimistic that finally "Africa is rising". The economic history of trade suggests being cautious. The recent performance is fuelled by an increased demand for African primary exports. The Terms of Trade were improving. Is this sustainable? History saw many price cycles, but no upward trend in the long run. African governments often took periods of high world market prices and spent heavily and inefficiently, wasting the revenues. We should not be overoptimistic. Prices may drop in future.

However, this time the situation may be different. The current demand is fuelled by a very big economy - China. With all likelihood the Chinese demand is about to stay for a longer time. Imagine what happens if the two billion consumers in China and India start to eat chocolate like Europeans (5.7 kg per capita per year). Demand will increase. Prices will increase. African cocoa producers will gain. Today represents an opportunity to make a leap forward. Government revenues are likely to increase. As for trade, trade patterns will only change if comparative advantages will change.

Study questions

1. Chicken trade between Saba and Bakari
 - a. Is it smart if Bakari wants to trick Saba by insisting that he would be willing to pay only 3000 shilling? What would happen? Would the outcome make Bakari happy? Why would Bakari lose?
 - b. The price for a chicken at the nearby market is 8,000 shilling. This means the price is lower than what Saba would be willing to pay for a chicken (10,000 shilling). Would she sell her chicken at a price of 8,000 shilling? Or would she *buy* a chicken for that price? Does her situation improve?

[To make it more fun you can do a play. One student plays the buyer (Bakari) and the other student plays the seller (Saba). Make sure Saba and Bakari know their willingness to pay. Calculate the gains from trade for a) Saba, b) Bakari and c) the two of them (Total gain = Saba's gain + Bakari's gain).
2. What hindered trade in African history? What hinders trade nowadays?
3. If one shilling in 1900 is worth about US\$6.5 in 2006, what is the daily wage of a 1900 Nigerian porter in today's terms? Assume that a porter can carry 30 kg over 12 miles per day. Do you find such job attractive at this pay?

Hint: First, calculate how many days a porter needs to carry one ton (=1000 kg) over one mile. You can then assume that for this work the porter is paid the cost for head-loading reported in Table 2. In 1900, being a porter was not an attractive activity/occupation. This implies that in 1900 many Africans had better opportunities than portering.
4. What trade policies did African countries follow after independence? Why did it harm trade?
5. What is the general trade pattern in sub-Saharan Africa? When did this pattern emerge? Is this a problem?

Suggested readings

- Deaton, A. (1999). Commodity Prices and Growth in Africa. *Journal of Economic Perspectives*, 13(3), 23-40.
- Frankema, E., Williamson, J. G. and Frankema, E. (2018). An Economic Rationale for the West African Scramble? The Commercial Transition and the Commodity Price Boom of 1835-1885. *Journal of Economic History* 78(1): 231-267.
- Jedwab, R., Kerby, E. and Moradi, A. (2014). History, Path Dependence and Development: Evidence from Colonial Railroads, Settlers and Cities in Kenya. CSAE Working Paper 4, University of Oxford.
- Kaplinsky, R. (2006). Revisiting the Revisited Terms of Trade: Will China Make a Difference? *World Development*, 34(6), 981-995.

- Reader, J. (1998). *Africa: A Biography of the Continent*. London: Penguin Books. Ch. 26: Implications of trade, Ch. 38: Africa Transformed.
- Ross, E. (2011). A Historical Geography of the Trans-Sahara Trade. In G. Krätli & G. Lydon (Eds.), *The Trans-Saharan Book Trade: Manuscript Culture, Arabic Literacy, and Intellectual History in Muslim Africa* (pp. 1-35). Leiden: Brill.
- McMillan, M., Rodrik, D. and Verduzco-Gallo, Í. (2014). Globalization, Structural Change, and Productivity Growth, with an Update on Africa. *World Development*, 63, 11-32.
- Wood, A., & Mayer, J. (2001). Africa's export structure in a comparative perspective. *Cambridge Journal of Economics*, 25(3), 369-394.

About the author



Alexander Moradi is an economist and economic historian at the Free University of Bozen-Bolzano (Italy). His research is primarily focused on topics related to African economic development over the long run.

<https://alexandermoradi.org/>