

CHAPTER 5

The Impact of Cartels on Transport Prices and Quality

The trucking survey indicates that a large markup or profit margin by transport providers, made possible by the current regulatory regime, is probably the main determinant of high transport prices along some international corridors, such as that in Central Africa. The large disconnect between the transport cost incurred by the service providers and the cost to the users (transport prices) signals the existence of a distorted transport market with a cartel.¹ Profits achieved despite low yearly utilization of the transporters' vehicle fleet and many nontariff barriers suggest that new operators would aggressively enter the market. Yet, this does not necessarily happen; the total fleet size does not increase. Furthermore, oversupply remains rampant. This is explained by the fact that operators already participate in the current system of market regulation (formal and informal) and outsiders may find it hard to operate in a market where compliance with operational regulation and market access rules is necessary.

The trucking industry in Sub-Saharan Africa faces various regulatory constraints, such as market entry barriers, market access restrictions, technical regulations, and customs regulations (table 5.1). However, market access restrictions through freight-sharing schemes have the largest impact on the performance of the trucking industry. The current system gives power to large fleets in poor condition and fosters corruption—the

Table 5.1 Main Regulatory Barriers in Sub-Saharan Africa

	<i>West Africa</i>	<i>Central Africa</i>	<i>East Africa</i>	<i>Southern Africa</i>
<i>Market entry</i>				
Licenses	Not restrictive (especially for nationals)	Not restrictive (especially for nationals)	Not restrictive (especially for nationals)	Not restrictive
<i>Market access</i>				
Bilateral agreement	Yes	Yes	No	Yes
Quotas/freight allocation	Yes	Yes	No	No
Queuing system	Yes	Yes	No	No
Third-country rule ^a	Prohibited	Prohibited	Prohibited	Allowed in some countries ^b
Technical regulation (road-user charges, axle load, vehicle standard, import restriction)	Problem of harmonization of axle-load regulation	Problem of harmonization of axle load enforcement	Problem of harmonization of axle load regulation, delays at weighbridges	Prohibition of secondhand imports in South Africa
Customs regulation	Cumbersome transit procedures inducing border-crossing delays	Cumbersome transit procedures inducing border-crossing delays	1. Prohibition for trailers in transit to pick up backloads in Kenya 2. Cumbersome transit procedures inducing border-crossing delays	Cumbersome transit procedures inducing border-crossing delays

Source: Study team compilation of data from various sources.

a. The third-country rule allows operation of trucks registered in a third-party country to transport goods between two other countries.

b. South Africa, Zimbabwe (on a reciprocal basis), and Malawi (during a defined period of time).

only way to increase transported volumes is to bribe the freight bureaus. This situation also explains why direct contracting, one of the best signs of better logistics, is almost nonexistent in Central Africa and marginal in West Africa. The freight allocation system is entrenched in these sub-regions and several attempts to abolish it have been unsuccessful.

The different levels of truck utilization in Sub-Saharan African sub-regions are the result of oversupply of transport capacity, which explains differences in transport prices. The two main strategies that operators use to mitigate regulatory burdens are the use of secondhand trucks and overloading. See box 5.1 for an illustration of how this system was abolished in the case of France.

Impact of Freight-Sharing Schemes

Market entry through the licensing process is relatively easy. Indeed, trucking companies and operators do not identify the licensing process as a main constraint of the sector. Moreover, except in Kenya and Uganda, licenses to operate internationally remain marginal expenses in total VOCs. Oversupply in many landlocked countries (see below) tends to demonstrate that market entry and credit access to finance trucks are not a major constraint to market entry.

However, customs regulations have a major impact on truck utilization and therefore on VOCs.² For instance, Kenya bans trucks used for international transit from transporting domestic goods on return trips, which leads to cutting in half the average payload utilization on the Mombasa–Kigali route. This is detrimental to trucking industry profitability. Moreover, cumbersome transit regimes induce delays at the borders, which can seriously limit truck utilization.³

Notably, the main regulatory issue concerns operational rules and market access restrictions, mainly through freight-sharing schemes. The regulatory environment of landlocked countries in West and Central Africa is centered on two related regulations:⁴

- a transit bilateral treaty, which establishes quotas for the fleets of the coastal and landlocked countries
- a formal/informal queuing system (“order of loading” or *tour de rôle*⁵) that allocates freight to transport companies, requiring the operator to be affiliated with a transporter association

Even though the *tour de rôle* is perceived negatively by most stakeholders in landlocked countries, the bilateral quotas are supported to protect truckers

Box 5.1**History and Impact of the Queuing System in France**

The queuing system in France originated with inland water shipping. Established in 1936, the system was codified by the law of March 22, 1941. Queuing was applied to the road transport sector after the establishment of the regional freight bureaus (BRF) in 1961.

Freight bureaus receive transportation requests from shippers. After centralizing requests regionally, a list of vessels is assigned chronologically to the transport requests. The chronology of assignment mainly depends on when a carrier's availability registration arrives at the freight bureau.

The queuing system was set up by a decree of July 28, 1965, to "ensure the proper functioning of the freight transportation market and allow transport coordination." The BRF* took over coordinating supply and demand of transport, a task that cafés had once performed unofficially. Each carrier was registered on arrival at the BRF and then received a priority order to load freight.

Requests to the BRF for transportation always had to come from a transport broker. The request was displayed on a blackboard with key information (tonnage, destination, type of goods, and so forth). If a carrier was interested in fulfilling this request, an announcement was made in the office. If no other carrier claimed the same freight, the batch was assigned to the carrier that registered first. If the freight was claimed by another carrier, the first registered carrier got the load; however, two subsequent vehicles from the same carrier could not be loaded without a prescribed minimum delay. This system was established to prevent large companies from controlling the BRF.

What was the impact of such a system? The BRF increasingly became responsible for delays and poor transport quality. Indeed, guarantees of work made carriers complacent and competition nonexistent, which undermined transport service quality. Queuing did not lead to an optimal distribution of traffic or give incentives to provide better service, but led to an oversupply of trucks in a context of freight shortage. Oversupply could oblige a trucker to stop running a truck for a month or more. That also discouraged investment in new trucks, which created high risk for future revenues. The queuing system gave more power to large fleets in poor condition and fostered corruption, because the only way to increase transported volumes was to bribe the freight bureau.

In France, this system was abolished 20 years ago in the road transport sector and five years ago in the inland water shipping sector.

Source: Based on Souley (2001).

* France was divided into 19 regions. A national center, CNBFR, coordinated the work of the regional BRF.

from inland countries. In fact, in many countries in West and Central Africa, authorities have tried to tackle the problem by declaring the system (order of loading) unlawful. However, these attempts have not been very successful, mainly because the quota system gives a legal basis to restrictive practices.

A main justification for the queuing system is fairness and the possibility of sharing transport profits with small operators. The rationale is then social. Despite the fact that supporting services provided by national operators in developing countries may be laudable, in many cases the perceived benefits of market regulation in Sub-Saharan Africa are captured by a few people at the expense of the whole economy (see box 5.2 for the example of maritime transport).

Box 5.2**Captured Market Regulation: Cargo Reservation Schemes in Maritime Transport**

The United Nations Convention on the Code of Conduct for Liner Conferences (UNCTAD 1975), which entered into force in 1983 with ratification by 78 countries, established the "40/40/20" Rule in maritime transport. The main provision of the rule was that shipments carried between two state parties had to be shared in the following way: 40 percent for shipowners established in the country of origin, 40 percent for shipowners established in the country of destination, and 20 percent for shipowners from other countries (cross-traders).

Justification of the rule

This cargo reservation scheme was promoted to encourage the development of the shipping industry in developing countries and to counteract the anticompetitive behaviors of the liner conferences,* which were cartel-like arrangements. The rule was meant to give developing countries the opportunity to participate in the carriage of their trade as a method to decrease the trade deficit in services as well as to induce international trade (Fink et al. 2002). With the acceptance of the Liner Code during the 1970s, the European conference members cooperated with the African maritime authorities to share traffic with new national African shipping companies.

Impact of the rule in developing countries

In general, the Liner Code has been counterproductive (Chasomeris 2005; European Commission 2005) because local shipping industries did not take off. As a result of the Code's distorting practices, maritime transport prices increased. The

(continued)

Box 5.2 (Continued)

"40/40/20" Rule led to a protected market for African shipping companies, an oligopolistic rent for European shipping lines, and strengthened vested interests in the sector. In reality, the rule created several national shipping companies without ships, which sold their country's share of cargo to foreign shipping lines without accepting any responsibility for the quality or cost of the services provided (Harding et al. 2007). In addition, the Liner Code sometimes was used as a justification for discriminatory practices that created market distortions. In some instances, the Code provisions were misused to justify the extension of the "40/40/20" Rule to the whole of liner trade or even to bulk transport.

The end of the rule

During the 1980s, it became increasingly difficult to keep some European and Asian members of the conferences out of the market, and in 1992 the European Court ruled that the liner conferences were illegal monopolies. In many West and Central Africa countries, the lifting of the "40/40/20" Rule has led to increased competition with Europe, which ultimately has led to decreased transport prices (Pedersen 2001). As a result of maritime transport liberalization (still only de facto in some countries) and the end of the rule, national shipping lines that had been established under the umbrella of the Liner Code greatly diminished in size and importance and were usually taken over by foreign shipping lines or went bankrupt.

Source: Task team based on Souley (2001).

* Shipping companies have organized themselves since the 19th century in the form of liner conferences, which fixed prices and regulated capacity. They are associations of shipowners operating on the same route served by a secretariat.

In road transport, bilateral transit treaties with quotas and freight allocation and the queuing system play the same role that the "40/40/20" Rule played in maritime transport. This system and rule lead to poor service and low productivity, with no incentives to improve efficiency.⁶ So that transport quality could be assessed in such an environment, a measure of transport quality was developed that was based on trucking survey results.⁷ The measure is a proxy for a transport quality index and is based on factors known to influence transport quality.⁸ It includes the education level of the head of the company, the number of years in the industry for the head of the company, the perception of the importance of domestic competition, the importance of load obtained through contracting, the use of a tracking system, the fleet age and size, and the number of employees (see

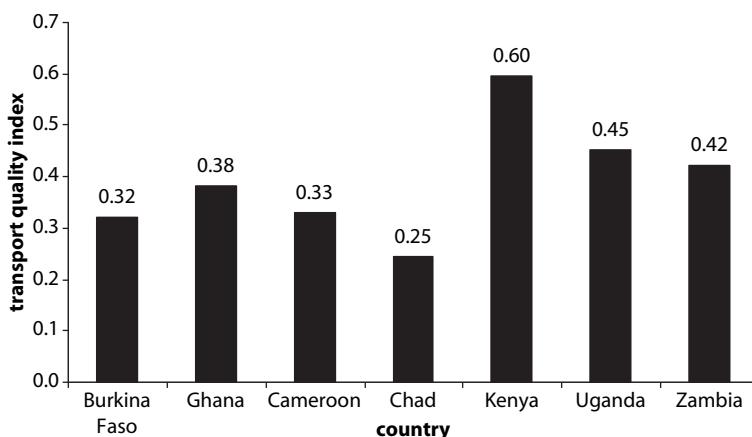
results in figure 5.1). According to this index, transport quality seems to be highest in Kenya and Uganda and lowest in Chad and Burkina Faso.

While bilateral freight allocation protects the trucking industry of landlocked countries, it creates de facto cartels and slows down market and regional integration. Furthermore, the protected operators often do not meet regulatory requirements. For instance, the Nigerien fleet is not appropriate to handle freight peaks and for various reasons is less competitive than are coastal countries' fleets.

In practice, authorities and trucking companies acknowledge that bilateral quotas are not enforced in the case of Niger.⁹ Adoléhoumé (2007) estimated a 36 percent market share for the Nigerien fleet on the Togolese corridor in the first six months of 2007, whereas it should have been in theory two-thirds. The same figures are given for the Central African Republic and Cameroon. On the ground, landlocked countries' fleets do not carry more than 50 percent of total traffic because the fleets are inadequate and uncompetitive.

Adoléhoumé also estimated that the Nigerien fleet of articulated trucks is on average 29 years old, and its operating costs per vehicle-kilometer are some 30 percent higher than the Beninese or Togolese fleets. Shippers who are forced to use local fleets have to pay a surcharge that reflects higher prices, lower quality, or bribes (if shippers want to use their own transporters). These costs are detrimental to the interests of landlocked economies.

Figure 5.1 Transport Quality Index Based on the Trucking Survey Results



Source: Trucking survey and own calculations.

The bilateral quota system is prone to strengthen bribes because the trucking association in charge of enforcing quotas “sells” market shares and freight to truckers and trucking companies ready to pay the highest bribe. This helps explain why bilateral quotas are not enforced. Further, in the case of Niger, the trucking association frequently sells freight to non-Nigerien companies.¹⁰

Direct contracting—that is, a medium- or long-term contract between a shipper and a trucking company—is one of the best signs of good logistics. However, direct contracting is almost nonexistent in Central Africa and limited in West Africa to some institutional shippers, which bypass the queuing system (see table 5.2). Stakeholders and representatives of transport associations usually agree that such contracts are the only way to develop an efficient transport industry. That is why the importance of direct contracting is an excellent proxy to assess modernization, or the lack of, in the trucking industry.

Central and West Africa are clear examples of the negative effects of freight-sharing schemes on transport prices and quality. However, the freight allocation system entrenched in these subregions would not be easy to abolish. In Niger, there was a recent attempt to abolish the queuing system. A government decree¹¹ states that (i) the two-thirds and one-third rule to distribute traffic between local transport companies and the maritime transport companies is still in effect, but (ii) all trucking operations

Table 5.2 Main Methods Used by the Trucking Industry to Get Freight
(percentage by subregion)

	Through independent freight agents	Through public-private institutions in charge of freight allocations	By phone/fax and through contracts from customers	By trucks waiting at lorry parks and finding their own loads	Others
West Africa	42.7	21.0	16.2	1.9	18.2
Central Africa	35.7	11.4	2.1	24.1 ^a	26.7
East Africa	12.7	20.7	27.3	5.1	34.2
Southern Africa	12.5	1.1	16.4	0.8	69.2

Source: Trucking survey and own calculations. Data for Zambian fleet for Southern Africa.

Note: It is difficult to capture the exact role of freight bureaus from the trucking survey. Interviews suggest that bureaus are more important than surveys because truckers with old fleets benefit from the current system.

a. This percentage, as well as the percentage of freight procured through independent agents, can be construed as part of the freight procured through allocation bureaus. Indeed, agents that “negotiate” with freight bureaus and truckers waiting at lorry parks depend on paperwork issued by the freight bureau.

within the Nigerien two-thirds are open to full competition.¹² Yet a workshop organized by the government on the Nigerien transport industry with all stakeholders to discuss the decree was boycotted by trucking associations.¹³

Up to now, the decree is nothing more than a signal. Indeed, the *tour de rôle* never had any legal ground and was designed by the Nigerien truckers to be self-imposed. Hence, its implementation requires willingness from Nigerien trucker association representatives. The queuing system will persist as long as transport associations have leverage, thanks to the bilateral transit agreement, which gives them the power to avoid direct contracting between the shipper and the transporter.

Occasionally, smart outsiders can enter this closed market, creating some competition. However, entering the market this way generally means long waiting times at the port and possible risks of retaliation from the trucking association or freight bureau.

Truck Age and Utilization

The large difference in transport prices (and costs) between Southern Africa on the one hand and Central and West Africa on the other is clearly correlated with the level of truck utilization and the oversupply level, which mainly depends on the existence of cartels. Although trucking companies in Southern Africa are able to utilize their vehicles at levels similar to European transporters (10,000–12,000 kilometers per month), operators in Central and West Africa utilize their vehicles at lower rates (sometimes as low as 2,000 kilometers per month).

The dismal truck utilization in West and Central Africa implies that the profitability of the trucking operations comes from other factors. One factor is the low capital investment where operators purchase old trucks. Table 5.3 shows that only 34 percent of truckers or trucking companies financed their vehicles, partially through a bank loan in Central Africa, and only 21 percent in West Africa. The cost of a truck, more so than financing costs, may explain why truckers buy low-cost and old vehicles. Figure 5.2 shows that fleet age is highest in West and Central Africa. These subregions also have the lowest yearly mileage because of cartels and oversupply.

Truck overloading. Another critical variable in the profitability of trucking is the load per truck. To maximize loads and revenues from limited trips and low vehicle utilization, operators need to overload their vehicles. Since the revenue of the transport providers is generated on a per-ton basis and the marginal cost of overload is low, overloading does make sense.¹⁴

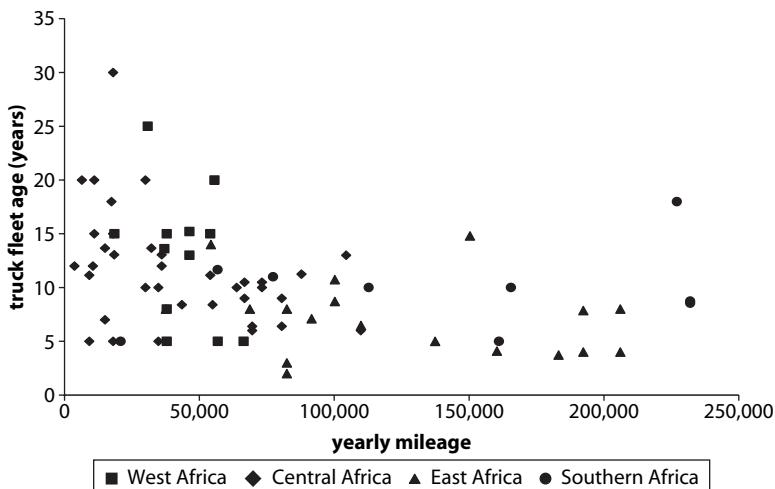
**Table 5.3 Method of Financing Truck Purchases
(percent)**

	<i>Financed by a bank</i>	<i>Financed by company cash flow</i>	<i>Financed by personal savings</i>	<i>Financed informally</i>
West Africa	21	58	47	8
Central Africa	34	42	46	13
East Africa	53	53	54	5
Southern Africa	7	56	56	11

Source: Trucking survey and own calculations.

Note: Sum of columns exceeds 100 as often more than one method of financing is used for truck purchase.

**Figure 5.2 Fleet Age and Yearly Mileage
(by subregion)**



Source: Trucking survey and own calculations.

Most stakeholders in the trucking business have a vested interest in operating with overloads:¹⁵

- The driver is a direct beneficiary because he or she is paid cash for extra tons loaded but not declared. This may double or triple his or her salary (from FCFA 50,000 to FCFA 100,000 or even FCFA 150,000 per month).
- The head of the trucking company knows about this practice but disregards it as long as it does not have much impact on the truck.
- The intermediary also has a direct interest, his or her commission being calculated on the load for which he or she intermediates.

- The shipper also benefits since the load logged at the border will be the legal one, resulting in large savings on tariff duties.
- Law enforcement agents (including customs agents) who overlook the obvious overload are adequately rewarded.

The only loser of this systematic overload is the economy of the country, either directly through lower import tax revenues or indirectly through rapid road destruction.

Niger's public authorities, for example, have relaxed their policy regarding overloading penalties. According to regulations of the West African Economic and Monetary Union (WAEMU), a penalty of US\$120 per overloading ton should be enforced on top of a flat penalty fee. However, in 2005, the government adopted a national regulation that reduced drastically the penalties for overloading. According to the old regulations, a truck with a 65-ton load (common in West Africa) should have been penalized more than US\$1,000; the new regulation has reduced the overloading fee to US\$25. This policy adjustment certainly benefits trucking companies and truckers, but it heavily taxes the general public, who have to pay for the premature deterioration of the country's road assets.

The use of weighbridges to control loads has been ineffective, and not just in Niger. As shown in table 5.4, several road sections with weighbridges are in no better condition than sections where there are fewer or no weighbridges. There is sufficient evidence to assume that overloading is the main cause of road deterioration and, therefore, that the weighbridges are not being utilized effectively to control overloading.

Table 5.4 Infrastructure Condition and Load Control

Region	Origin	Destination	Percentage of road section in good or fair condition	Number of weighbridges
West Africa	Tema/Accra	Ouagadougou	82	no data
	Tema/Accra	Bamako	61	no data
Central Africa	Douala	N'Djaména	45	7
	Douala	Bangui	53	6
	Ngaoundéré	Moundou	100	0
	Ngaoundéré	N'Djaména	61	2
East Africa	Mombasa	Kampala	86	4
	Kampala	Kigali	75	2
Southern Africa	Lusaka	Johannesburg	100	no data
	Lusaka	Dar-es-Salaam	no data	no data

Source: Task team calculations.

Note: Good or fair condition reflects the percentage of the section that could be traveled at 50 km/hour in all seasons.

A vicious circle of transport prices and costs. The combination of the regulation framework and the operators' mitigation strategies, including overloading, is illustrated in figure 5.3. Three main issues affect risk for truckers and shippers:

- limited market and oversupply, which makes freight scarce
- cumbersome public procedures (freight-sharing schemes, controls on goods in transit, border controls), which lead to truck underutilization
- high costs of inputs and technical risks (linked to old fleets operated on roads that may be in poor condition), which make truck utilization costly

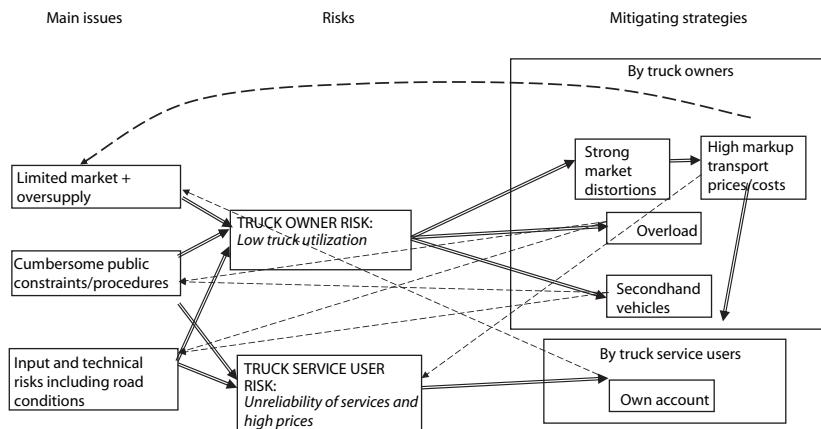
Truckers' mitigation strategies are centered on the following issues:

- cartel formations
- overloading
- the use of secondhand vehicles

Cartels

Truckers have misconceptions about the benefits of cartels. One of cartels' negative consequences is oversupply. Indeed, this system attracts more truckers because of the *potential* profits and increases technical risks because of the fleet age and overloading practices. Freight bureaus are

Figure 5.3 The Vicious Circle of Transport Prices and Costs in a Strongly Regulated Environment



unconcerned, because as long as their fees (official and nonofficial) are paid, freight is allocated irrespective of whether oversupply is rampant. Consequently, there are too many trucks and not enough freight.

Moreover, many transporters may ultimately suffer instead of benefiting from the regulatory regime, since commercial trucking becomes less attractive to users. Indeed, shippers have to pay a high price for a low service quality—a strong incentive for widespread own-account transport. Representatives of transporters' associations usually single out own-account transport as one of the main reasons for market oversupply and unfair competition. However, they usually acknowledge that own-account transport is the result of the transport industry's poor performance.¹⁶ For shippers, the main mitigation strategy is to develop own-account transport, which makes freight even more scarce for professional truckers. That is also why the model of trader-transporter is so widespread in West and Central Africa.

Fleet Size

What is the ideal fleet size for landlocked countries? Under the current traffic allocation assigning two-thirds of international freight to landlocked countries, their fleets are up to three times larger than needed for satisfactory levels of productivity for the capital invested in trucks.

Even considering long turnarounds and fleet characteristics, several landlocked countries have larger truck fleets than they need to meet current demand. This is partially explained by cartels. For example, the Central African Republic has a (theoretical) fleet of 600 trucks¹⁷ for approximately 200,000 tons of exports and less than 100,000 tons of imports. Assuming about one-third of the fleet is composed of inactive or out-of-service trucks, this leaves about 395 trucks as the adjusted current active fleet. However, the demand—measured by current import/export volume—would only require 125 good-quality trucks to carry the current freight volume. In West Africa, the total Nigerien fleet is approximately 4,500 trucks. Applying the same one-third factor to discount trucks not in service, the operational fleet would still be three times larger than needed. With around 1 million tons of imports and two-thirds of the traffic for the Nigerien fleet, than 100 trucks per day are needed. Fewer with a turnaround of 15 days, its ideal size should be about 900 trucks (see table 5.5).

If freight quotas between coastal and landlocked countries' fleet were ended, the market share for Niger's and Burkina Faso's fleets would likely

Table 5.5 Current Trucking Demand and Ideal Supply, Central African Republic and Niger

<i>Country</i>	<i>Adjusted current fleet^a</i>	<i>Demand</i>	<i>Oversupply ratio</i>	<i>Ideal fleet</i>	<i>Oversupply/ideal fleet as percentage of current fleet</i>
Central African Republic	395	125 ^b	3.15	100 ^c	6% (25 trucks)
Niger	2,970	905	3.30	455	15% (450 trucks)

Source: Adoléhoumé (2007) for Niger data and Ministry of Transport for the Central African Republic data.

a. Adjusted means total fleet less one-third.

b. 140,000 metric tons of exports are loaded in Belabo (return transport time from Central African Republic (CAR) to Belabo is at most 5 days); 90,000 metric tons of imports come from Douala (return transport time Douala to CAR is about 15 days). Without an overload of at least 10 percent (30 metric tons), we can estimate the average daily demand for 12 trucks to go to Belabo and 8 trucks from Douala. Because of long turnaround times, the total demand is $(12 \times 5) + (8 \times 15)$, of which two-thirds is for the CAR fleet.

c. At the same current demand. Without overloading, we can estimate the average daily demand for 20 trucks to go to Belabo and 15 trucks from Douala. Because of shorter turnaround times, the total demand would be $(19 \times 3) + (12 \times 8)$, of which two-thirds is for the CAR fleet.

decrease. Because of higher capacity resulting from increased truck productivity, the oversupply ratio in these countries would be higher than three, at least until their fleets gradually were downsized.

Notes

1. A cartel is a consortium of independent organizations or companies formed to limit competition and set monopoly prices by controlling the production and distribution of a product or service. Cartels induce abnormal markups.
2. An estimate of the impact of various measures is presented in chapter 10 of the report.
3. For more details on the impact of transit regimes on the trucking sector's competitiveness, see Arvis et al. (2007).
4. See annex 4 for more details.
5. Contrary to bilateral quotas, the *tour de rôle* has no legal basis whatsoever.
6. A landlocked country limiting access to its freight market for foreign companies self-imposes higher transport prices on its trade. Transport cannot be optimized with backloads, and transport providers, assuming no backload, charge higher prices one way.
7. It would have been better to assess transport quality from end users, but it is difficult to get reliable data on transport quality from surveys of firms, such as investment climate assessments.

8. The index is calculated as a weighted average of indexes using the following weights:

<i>Parameter</i>	<i>Weighting coefficient</i>
Education level of the head of the company	2
Experience in the industry of the head of the company	1
Perception of the importance of domestic competition	2
Importance of freight load obtained through contracting	2
Use of tracking system	1
Fleet size	1
Fleet age	3
Number of employees	1

9. This situation also was corroborated for Burkina Faso's trade flows during the stakeholders' workshop in Ouagadougou in February 2008.
10. International own-account transport is usually allocated to Beninese companies. Shippers willing to overload prefer to use Beninese or Togolese fleets, which are younger.
11. Ministerial decree number 09/MT/DTT-MF of February 2007.
12. The most important articles of the decree are the following:
- "Article 2: Within the two-thirds quota allocated to trucks registered in Niger, the importer is authorized to load its cargo on its own truck or any Nigerien trucker's trucks of its choice with trucks registered in Niger (with valid transport and registration documents).
- Article 4: The CNUT is in charge to monitor the repartition between Nigerien trucks and those from the transit country and will report it to the Minister of Transport.
- All changes in truck assignments that violate the freight repartition as done by the *Comité Paritaire* will be fined according to the law."
13. Some companies attempt to enter the market without being part of a trucking association and of the queuing system, but usually on very limited niches.
14. The willingness for all parties to overload trucks to maximize profits does not favor containers, because their fixed maximum capacity prevents overloading. That is why containerization rates remain low in most parts of Africa.
15. Despite being unable to estimate overloading in detail, Oyer (2007) found a strong positive correlation between vehicle operating costs for heavy trucks and cargo factor.
16. This point was discussed at length during the stakeholders' workshop organized in Burkina Faso in February 2008.
17. Figure given by the CAR Ministry of Transport.

