



Study of Transport Costs and Prices in Sub-Saharan Africa *The Southern African Case*

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Outline



- I. Study justification and scope,
- II. Methodology and hypothesis,
- III. Preliminary results for Southern Africa,
- IV. Southern Africa in comparison with other Sub-Saharan sub-regions,
- V. Main determinants of transport costs and prices in Southern Africa,
- VI. Policy recommendations.

Justification of the study

(1/3)



- ***The cost of being landlocked***
 - Transport prices represent 15-20 percent of imports prices in numerous countries
 - Landlocked countries loose 1-1.5 points of growth per year, all other things being equal (MacKellar 2000)
- ***But not necessarily because of a lack of legal agreements and infrastructure***

(Arvis, Marteau and Raballand (2007). “The Cost of Being Landlocked. WRP 4258)

Justification of the study

(2/3)



- ***The Africa Action Plan*** highlights the importance of the impact of transport high costs on the competitiveness of African economies
- ***IDA-15 or the pursuit of impact on the ground:*** in spite of past efforts, infrastructure projects in Sub-Saharan Africa have not had the expected impact on the reduction of transport prices; it's time to change!
- ***Request from Regional Economic Communities and governments***

Justification of the study (3/3)



- ***Transport and transit facilitation of transport and at the core of regional integration***

Without transport and transit facilitation, regional integration will be limited, and its impact on the field will be almost null. That is the reason why many regional facilitation programs are under implementation



Objectives of the study

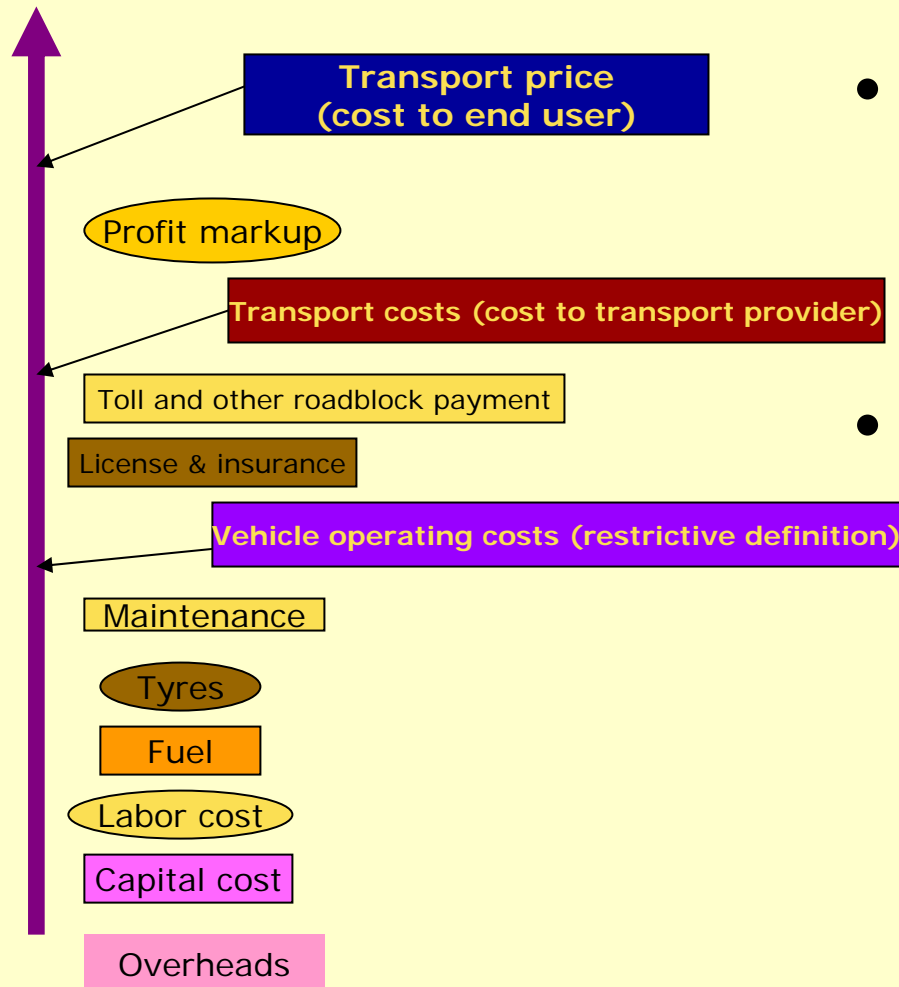
1. Measuring the import/export prices of international transport,
2. Measuring the vehicle operating costs,
3. Comparing results between Sub-Saharan African regions,
4. Identifying the measures that may potentially have the highest impact in each SSA sub-region.

Scope



- Sub-regional transport and not maritime and local transport,
- Focus on road transport
- Priority corridors analyzed:
 - **Western Africa:** Tema-Ouagadougou, Lomé-Ouagadougou, Lomé-Niamey, Cotonou-Niamey
 - **Central Africa:** Douala-Bangui and Douala-N'Djaména
 - **Eastern Africa:** Mombasa-Kampala and Mombasa-Kigali
 - **Southern Africa:** Lusaka-Johannesburg , Lusaka-Lilongwe and Lusaka-Livingstone
- ❖ *Trucking surveys in nine countries with a focus on the most important corridors for six landlocked countries.*

Important accuracy of terminology



- Necessary distinction between transport price, transport cost and vehicles operation cost
- The first two are often mixed-up, which is important in a context of over regulation where the margin becomes an excessive profit



Methodology (1/3)

A comprehensive approach with multiple tools

- Phase 1: Review of studies about transport prices and costs in Africa but also in South Asia and Latin America,
- Phase 2: Trucking surveys, including
 - Large trucking companies,
 - Small truckers/transporters.
- Phase 3: Field studies in the four sub-regions to check data from the surveys and deepen some aspects,
- Phase 4: Quantitative analysis of the database,
- Phase 5: Impact simulation of infrastructure investment with HDM-4,
- Phase 6: Stakeholders feedback workshops and formulation of policy recommendations.

Methodology (2/3)



- **Scarce study of this type: trucking surveys** (not performed since the early 90s in Francophone countries and some regular studies from the industry in SA).
- **Draft a comprehensive questionnaire of more than 20 pages covering all the aspects of trucking operations.**
- **Countries studied:** Burkina Faso, Ghana, Chad, Cameroon, Kenya, Uganda, Zambia and South Africa and Mozambique.

Methodology (3/3)



- Final sample**

Country	Type	Approached	Actual	Fleet
Zambia	Companies	50	19	670
	Owner operators	-	45	93
South Africa	Companies	-	34	3,317
	Owner operators	-	80	536
Central Africa (Cameroon, Chad)	Companies	86	31	704
	Owner operators	255	114	155
East Africa (Uganda, Kenya)	Companies	111	38	1,593
	Owner operators	-	112	227
West Africa (Burkina, Ghana)	Companies	-	31	541
	Owner operators	-	99	238
TOTAL		-	603	8,074



Results for Southern Africa (for a Zambian fleet) (1/6)

Corridor	Transport price for a 40' (in USD)	Transport price (in USD cents per tkm)
Lusaka – Johannesburg	3,800-4,200	7.5
Lusaka – Livingstone	N/A	5.9

Results for Southern Africa (for a Zambian fleet) (2/6)



Corridor	Fixed transport cost (in USD cents per tkm)	Variable transport cost (in USD cents per tkm)
Lusaka - Johannesburg	1.08	7.14
Lusaka - Livingstone	1.63	4.92

Results for Southern Africa

(3/6)



- Comparable strong cost structure in the sub-region:
 - Very high variable costs:
85% for Lu-Jo of total costs,
 - The cost of fuel and tyres are the most important expense item:
> 90% of total variable costs for most transporters,
 - Informal payments
Between 0% and 4% of total variable costs.

Results for Southern Africa (for a South African fleet) (4/6)



Low truck utilization compared to its potential

Corridor	Johannesburg - Lusaka
Distance	1,611 km
Average yearly mileage	80,550 km
Average amount of rotations per year	25 rotations / year

Results for Southern Africa (for a Zambian fleet) (5/6)



- **Balanced flows**

Freight return is frequent on these corridors

Corridor	Lusaka – Johannesburg	Lusaka – Livingstone
Load factor	0.96	0.85

Results for Southern Africa (6/6)



Low margins compared with the other three sub-regions in Africa:

- **Lusaka - Johannesburg: 18%**



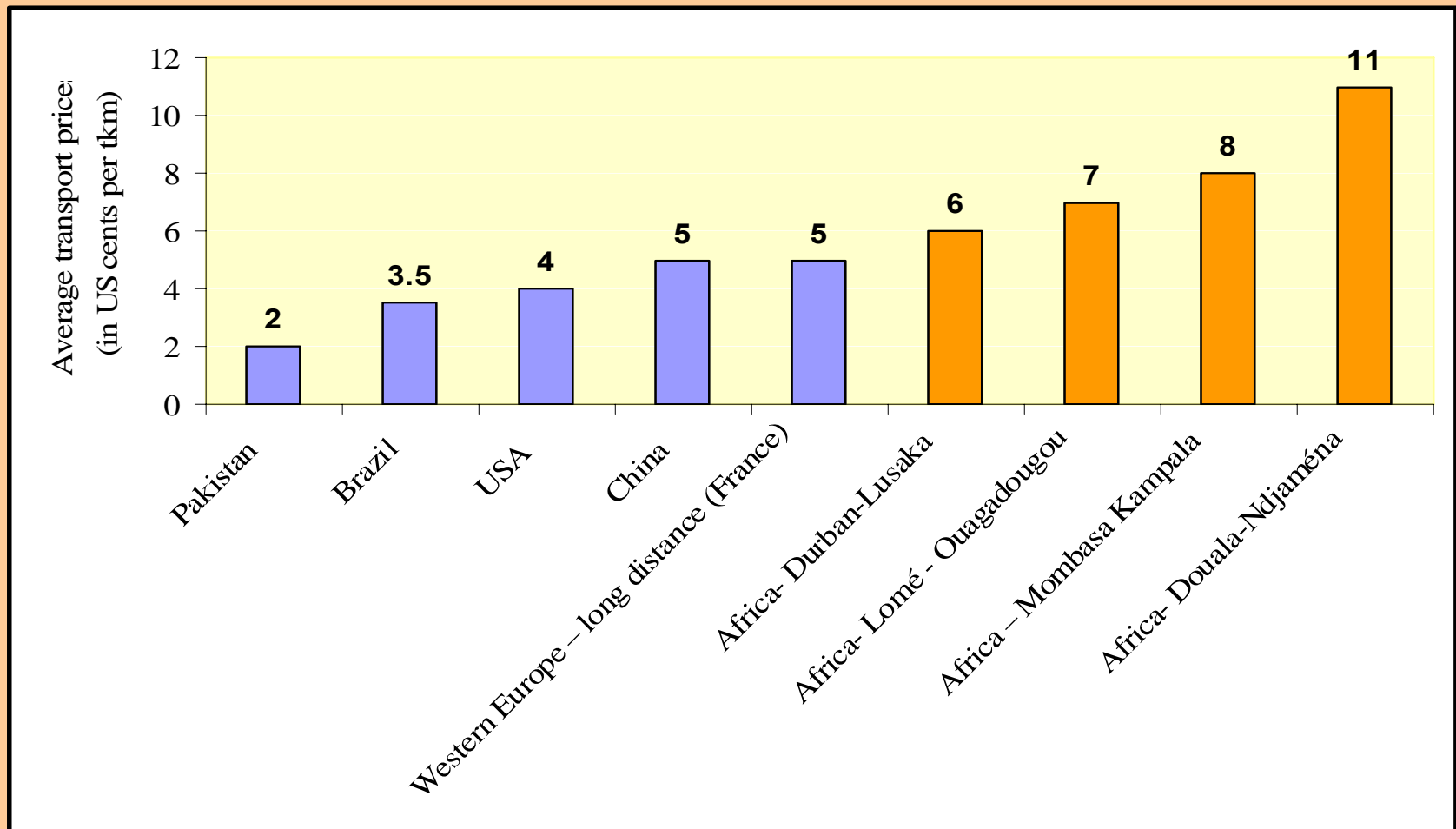
Inside South Africa

- Transport prices in Johannesburg – Durban are cheaper than in the rest of Africa (3 US cents per tkm)
- Importance of relatively new fleet: average fleet age is 5 years old. Depreciation costs are 21% of fixed costs (SA survey).
- Fixed costs are higher than in the rest of Africa and variable costs are lower.

Southern Africa compared to other SSA regions (1/5)



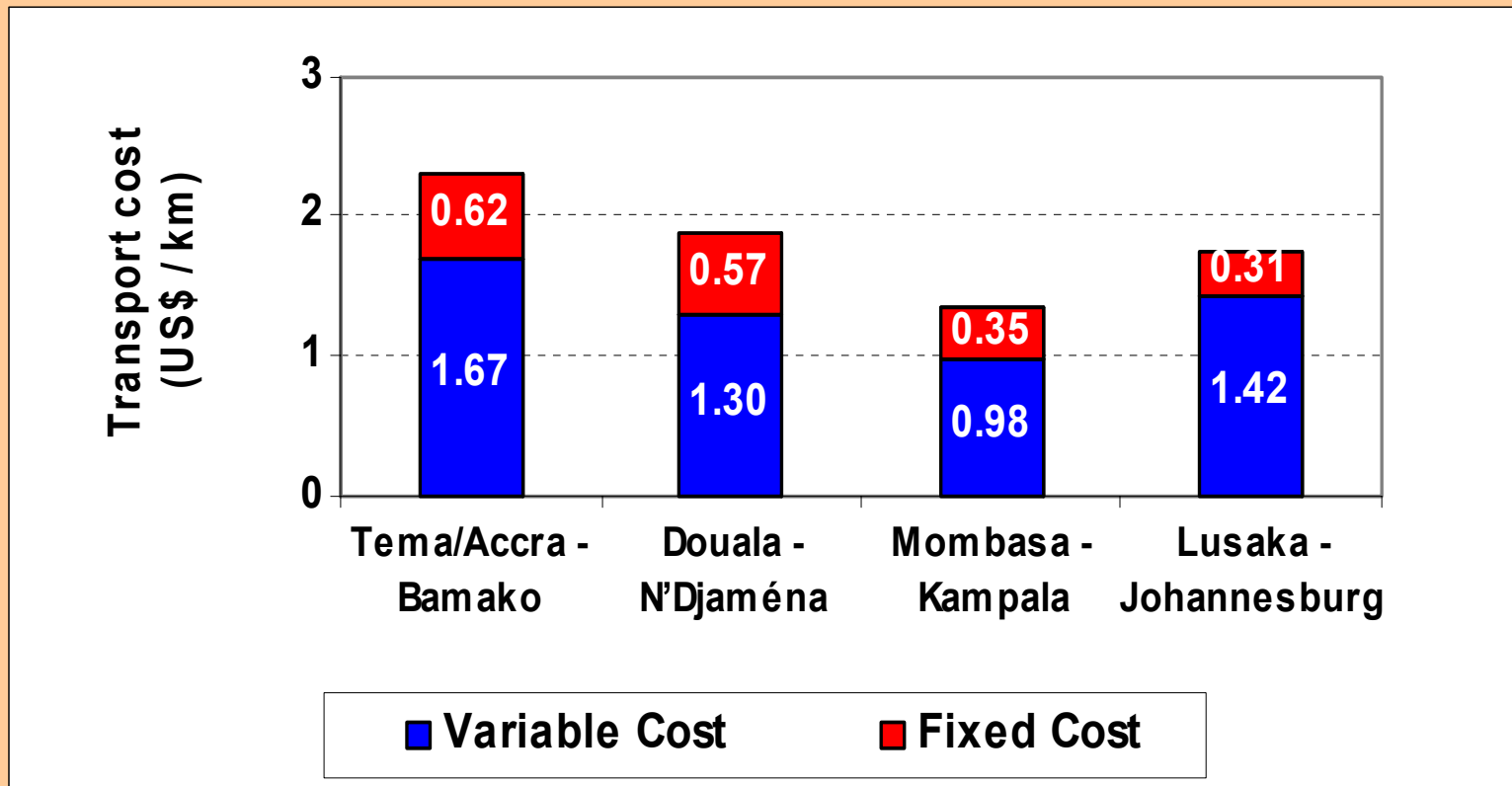
International transport in Southern Africa is the least expensive in Africa on long distances



Southern Africa compared to other SSA regions (2/5)



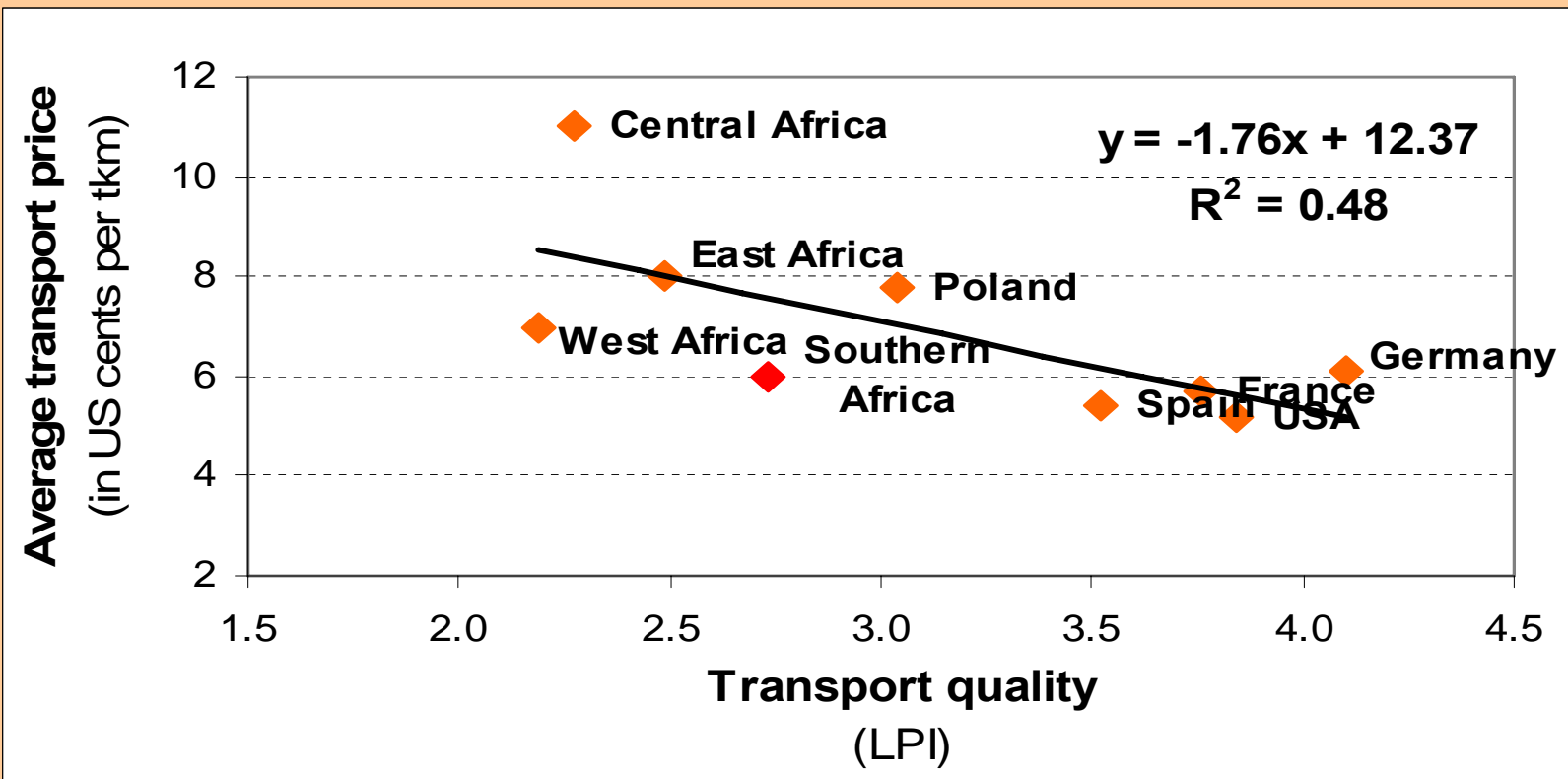
Vehicle operating costs are comparable to that of other SSA regions for a Zambian fleet





Southern Africa compared to other SSA regions (3/5)

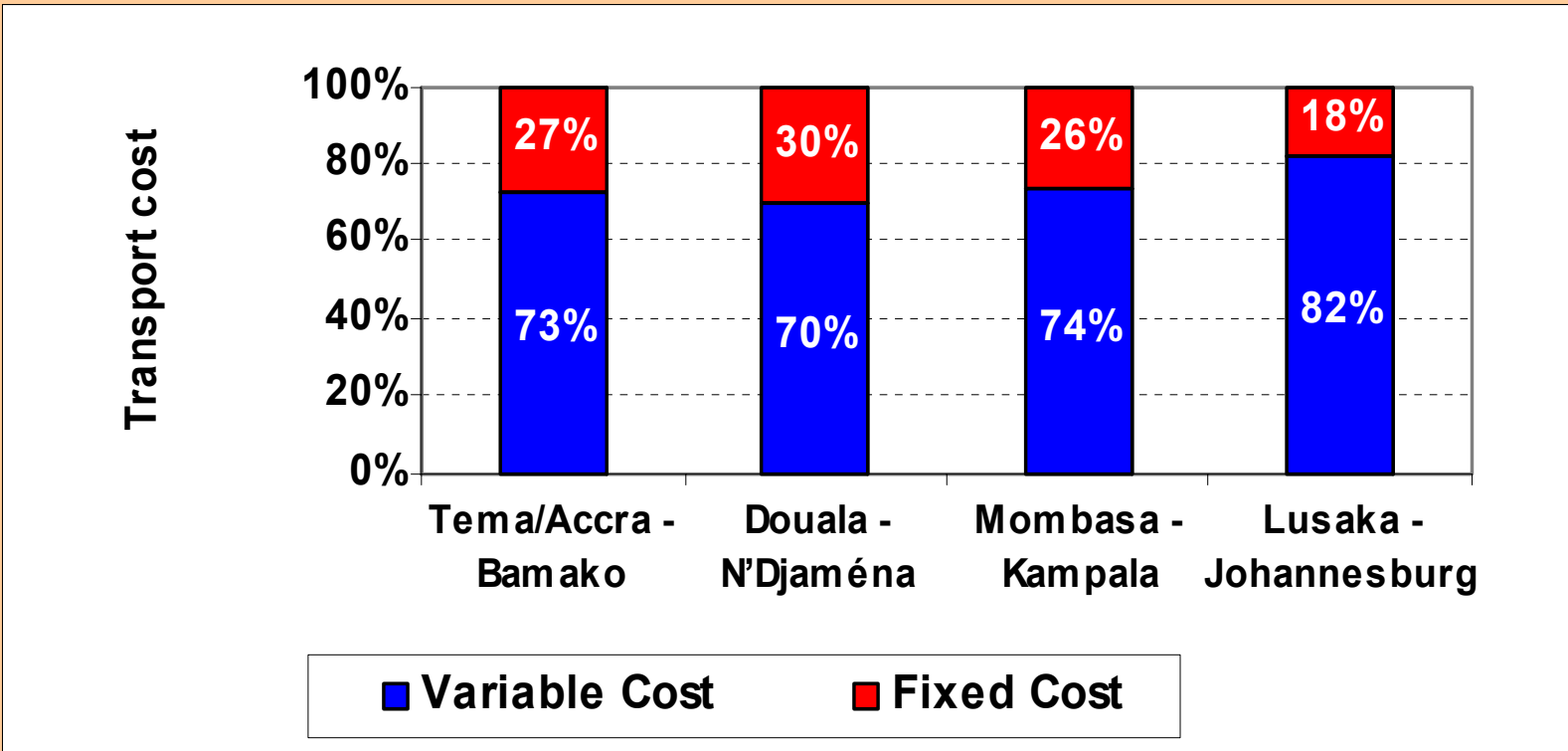
Weak transport quality is common to all African sub-regions but Southern Africa has the highest in Africa





Southern Africa compared to other SSA regions (4/5)

The importance of variable costs is common to all sub-regions (for a Zambian fleet)





Southern Africa compared to other SSA regions (5/5)

- But various strategies:
 - The “professionals”: *large fleet, access to capital, new trucks, high yearly mileage,*
 - The “small operators”: *small fleet, disorganized management, old trucks, low yearly mileage but higher than in Central and West Africa,*
 - Own account transport.

To sum up, Southern Africa is...



- A competitive environment on the international corridors,
- The most advanced of all SSA sub-regions both in terms of regulatory regimes and efficiency of logistics services, however:
 - It remains the issue of delays and border-crossing delays, and
 - Variable costs depend mostly on fuel and tyres prices.



Possible transport prices determinants

- High technical and financial risks,
- Limited market and unbalanced trade flows,
- Strong market regulation,
- High vehicle operating costs.



Possible transport costs determinants

- Infrastructure problems,
- High input costs (fuel, trucks),
- High technical and financial risks,
- Limited market and unbalanced trade flows,
- Waiting time at borders and informal payment,
- Strong market regulation,
- Companies weak management capacity.



How do we explain transport costs? (1/3)

- First explanation: infrastructure
 - It is essential that a minimum level of service is attained (need of pavement on the corridors and a certain road quality). But that is already the case for the main international corridors in the sub-region!
 - In East Africa, the improvement of a road in good from fair condition saves around **USD 9000 per year** per truck, which means that for roads in fair condition, there is a minimum of at least 200 trucks per day to become economically viable.



How do we explain transport costs? (2/3)

- Second explanation: the regulatory barriers through
 - Transit procedure,
 - Trucks import rule,
 - Permit and the third party rule.

	West Africa	Central Africa	East Africa	Southern Africa
Market entry				
Licenses	Not restrictive	Not restrictive	Not restrictive	Not restrictive
Market access				
Bilateral agreement	Yes	Yes	No	Yes
Quotas/freight allocation	Yes	Yes	No	No
Queuing system	Yes	Yes	No	No
Third country rule	Prohibited	Prohibited	Prohibited	Allowed in several countries
Technical regulation (road user charges, axle-load, vehicle standard, import restriction)	Problem of harmonization of axle-load regulation	Problem of enforcement of axle-load regulation	Problem of harmonization of axle-load regulation, delays at weighbridges	Prohibition of second-hand vehicle imports in South Africa
Customs regulation	Cumbersome transit procedures inducing border-crossing delays	Cumbersome transit procedures	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

How do we explain transport costs? (3/3)



- Border-crossing time in Beit Bridge and Chirundu: 30-40% of transport time spent at the border

=> Truck utilization could be increased by 30-40,000 kilometers per year

Northbound	Sep. 05	Oct. 05	Nov. 05	Dec. 05	Jan. 06	Feb. 06	Mar. 06	Apr. 06	May 06	June 06
Consolidated multiple entry (CME) ¹⁹	83	62	75	125	50	62	59	59	60	63

Source: FESARTA data on Beit Bridge

What to do in Southern Africa?



- Multiple options:
 1. Financing of road rehabilitation,
 2. Reduction of border crossing time,
 3. Reduction of fuel prices,
 4. Reduction of informal payment.

An estimate of the impact of each measure



In a competitive environment like East Africa...

Measures	Δ Total Costs	Δ Income	Percentage Δ Price
Rehabilitation of corridor (totality) from fair to good	-15%	NS	-7/-10%
20% reduction of border crossing time	-1/-2%	+2/-3%	-2/-3%
20% reduction of fuel price	-12%	NS	-6/-8%
20% reduction of informal payment	-0.3%	NS	+/-0%

Notes: For the simulation, VOCs data from East Africa are used. NS means not significant.

Fuel costs breakdown in Zambia



	In USD	In percentage
Wholesale price	0.11	8.4%
Transport margin	0.03	2.0%
Terminal fee	0.05	3.8%
Oil marketing company margin	0.06	4.6%
Dealer margin	0.04	3.1%
Margins and wholesale price	0.29	21.8%
Road levy	0.20	15.0%
Excise duty	0.59	45.0%
VAT	0.23	17.5%
Energy Regulatory Board fees	0.01	0.7%
Taxes and levies	1.02	78.2%
Total fuel price	1.31	100%

Can landlocked countries' fleet compete with coastal fleet?



Combination Vehicle	Malawi NEW	Malawi USED	South Africa
Ratios, Cost per km	USD	USD	USD
Tyres	0.110	0.110	0.060
Fuel and lubricants	0.560	0.560	0.300
Maintenance	0.130	0.150	0.120
Overhead	0.100	0.040	0.100
Depreciation	0.230	0.060	0.120
Capital	0.540	0.100	0.060
Transit fees	0.170	0.170	0.125
Insurance	0.210	0.002	0.080
License and permits	0.010	0.010	0.015
Driver wages	0.010	0.010	0.100
Total per km	2.064	1.21	1.080
Ton kilometer	0.098	0.058	0.051



Our preliminary conclusions

- On costs, the most effective measures are likely to be road rehabilitation (on 200+ trucks per day), reduction in fuel costs, and reduction of border-crossing delays.
- On prices, these measures may be likely be translated in (limited) transport prices

=> Need to put under scrutiny fuel costs (fiscal policy) and tackle border-crossing time and various delays and cumbersome procedures.

Your views are needed...



- According to you, what are the most important constraints in SA?
- Are bilateral agreements a major issue inducing a lack of competition in the sub-region?
- Do you think the taxation level of fuel is a major obstacle?
- Is Beit Bridge a real bottleneck in Southern Africa? What should be done?



Thank you!