CHAPTER 10

Implications for Economic and Fiscal Analysis and for Data Collection

The study findings suggest areas where countries should consider reviewing various approaches to economic analysis for transport investment, as well as data collection in areas related to transport and trucking. In particular, countries should work to improve the quality of economic analysis of road investments, the effectiveness of fiscal policies, and the monitoring of the road freight market.

Finance Regular Studies of Transport Prices and Costs Determinants

Data collection on the trucking fleet, transport prices, and costs is largely inadequate in most countries in Sub-Saharan Africa. For instance, data on vehicle registration have to be used with caution as many vehicles out of service have not been removed from the database. Vehicle registration data need to be systematically updated. Hard data on overloading practices are not available for most corridors in Africa despite the fact that major rehabilitation works of road infrastructure have been carried out or are under way and overloading practices should have been monitored and controlled in parallel to the new investment.
A good knowledge of market structure, regulation, and practices is critical to identify measures likely to bring the most benefits to the end users of transport services.

**Improve the Economic Analysis of Road Projects**

Better identification of interventions that lower the price end users pay for trucking services is crucial. In some regions, interventions targeted at increasing competition rather than improving paved roads are likely to be the most cost effective.

Economic analysis is the key tool for decisions on road investment and maintenance strategies. In most African countries and elsewhere in the developing world, investment in road projects and the design of maintenance strategies is done using the HDM-4 model, which requires data specific to the country of the analysis, including statistics on the country’s trucking industry. However, such data are often unavailable, or only a small part of the data required is actually collected through the country’s statistical systems. In the absence of country-specific data, analysts make use of data from other countries that they hope reflects the condition in the country of analysis. However, such data may be significantly different, thus affecting the results obtained with the HDM-4.

One problem with inputting trucking data is that the HDM-4 model assumes that truckers buy new trucks when they renew their fleets. The HDM-4 analysis should be improved knowing that in many African countries, truckers, especially those who operate on low-traffic roads, usually buy aged, secondhand trucks, at prices substantially below new trucks. Those low-priced vehicles are likely to benefit less from road improvements, which reduce the vehicle maintenance benefits that are part of the model. The HDM-4 model cannot deal with large fleets of secondhand vehicles, which are, however, the most common in Africa.

Although this study focused only on international corridors, it can suggest more broadly that for national corridors and local roads a return to economic analysis of road investments should be reviewed to better understand the impact of roads, especially rural roads, on accessibility. This would include a better assessment of roads’ development impact, both social and economic, and a better way to quantify the benefits of savings in travel time. The trucking survey and other literature suggest that such a return could lead to a better way of assessing the benefits of road improvements.

Numerous studies demonstrate that rural roads substantially promote social and economic development; the question is how best to assess the
benefits and carry out economic analysis of rural road investments. This is especially important for low-volume rural roads, where improvement significantly increases mobility and creates new opportunities for development and access to markets and social services.

In addition, the impact of improved, low-cost rural roads in reducing transport time is not adequately captured in current economic decision models such as the Roads Economic Decision model (RED, a simpler version of the HDM-4). A study (Pedersen 2001) shows that 4 percent of total transport distance (rural and local trucking transport) contributes to almost 50 percent of total transport costs from Ghana to Europe. Rural transport is almost 500 times more expensive than maritime transport in U.S. dollars per ton-kilometer. The same study shows that reducing rural transport time by 50 percent would reduce total transport costs by almost 15 percent (table 10.1). Because investments on the main international corridors remain the major share of transport investments in Sub-Saharan Africa, this survey, combined with other surveys of investments on rural roads, could prove a milestone for road investment policy in the region.

It is possible, subject to more detailed study, that revisions of the road economic analysis along the lines suggested above may lead to important

<table>
<thead>
<tr>
<th>Operation</th>
<th>Transported distance (km)</th>
<th>Price (US$ per ton)</th>
<th>Share of total transport costs (%)</th>
<th>Price (U.S. cents/ton-km)</th>
<th>Transport time of one ton (days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural transport</td>
<td>Cocoa field to collection point</td>
<td>9</td>
<td>30</td>
<td>25</td>
<td>333.3</td>
</tr>
<tr>
<td>Trucking transport</td>
<td>From collection point to port</td>
<td>300</td>
<td>27</td>
<td>23</td>
<td>3.0</td>
</tr>
<tr>
<td>Handling</td>
<td>Reloading at depot</td>
<td>8</td>
<td>7</td>
<td> </td>
<td> </td>
</tr>
<tr>
<td>Terminal handling</td>
<td>Handling at the port</td>
<td>10</td>
<td>8</td>
<td> </td>
<td> </td>
</tr>
<tr>
<td>Ocean shipping</td>
<td>7,435</td>
<td>43</td>
<td>37</td>
<td>0.7</td>
<td>0.9</td>
</tr>
<tr>
<td>Total</td>
<td>7,744</td>
<td>118</td>
<td>100</td>
<td> </td>
<td> </td>
</tr>
</tbody>
</table>

changes in the composition of the road investment portfolio, giving more importance to secondary networks and rural access. Indeed, solving access problems in Africa remains vital for supporting both pro-growth and pro-poor policies. Such problems are directly linked to transport infrastructure and involve the allocation of significant financial resources to the maintenance and rehabilitation of existing national roads (secondary and tertiary roads) and to the expansion and rehabilitation of the secondary network and rural networks.

Assess the Impact of Fiscal Policies on Transport Services

Fiscal policies interact with transport services in several ways, but two are especially important: (i) fuel taxes and (ii) tariffs on the importation of vehicles, notably trucks. These policies are important because they significantly affect transport prices and the efficiency of the trucking industry.

Fuel taxes in practically all countries are the instrument of choice for recovering road maintenance costs from road users while generating revenue. As such, fuel taxes are both a user charge and a general tax. The impact of fuel taxes on transport costs and prices in Africa is substantial. On this continent, fuel costs amount to at least 40 percent of total VOCs, of which taxes amount to at least 50 percent. This means that at least 20 percent (and up to 40 percent) of VOCs are the result of fiscal policy. Because fuel taxes generally create less economic distortion than other taxes and are easy and inexpensive to collect, it is unlikely that governments will consider lowering fuel taxes and losing revenue.

However, in some countries, under some conditions, there may be a case for at least reviewing the level of the fuel tax. This would apply especially to some landlocked countries where the fuel tax is already high enough to recover road maintenance costs and generate additional revenues as a general tax. In such countries, where transport distances and crossing of the coastal country are significant trade barriers, the impact of fuel taxes on transport prices may be another critical factor hampering trade. Thus, there is a trade-off, usually neglected, between fiscal policies and truck competitiveness that needs to be carefully assessed. Furthermore, fuel prices at the pump in the landlocked country are significantly higher than those in the coastal country. In this case, creating a level playing field for the competition between the trucking industries of the landlocked and the coastal country would require lowering the price of fuel at the pump in the landlocked country. Zambia and Uganda are good examples of this situation. In Zambia, a 15 percent fuel levy comprises 10 percent of total...
VOCs. Therefore, a drastic decrease of the fuel levy in Zambia could lead to a reduction of VOCs by no less than 4 percent.

Tariffs on truck imports are another dimension of the overlap between fiscal policies and transport. Such a tariff, depending on how it is set and structured, may have a major influence on the efficiency of the trucking industry and on the extent that road improvement programs benefit the trucking industry. There are two aspects to consider: the relative import tax between new and old trucks and the level of the tax. As this study has shown, the trucking fleet in most of Africa is old and inefficient. In most countries, the tariff on truck imports is a proportion of the truck price, and therefore lower for used, cheap trucks. Old trucks not only are fuel inefficient, but also create concerns on road safety hazard and pollution. Because of their inefficiency, they usually put on less annual mileage and thus do not benefit as much from road improvement as do newer trucks. Various alternative tariff policies could influence the truckers’ decision regarding new versus old trucks. One policy would be a higher tariff (as a percentage of price) on secondhand trucks, relative to the age of trucks. Another could be a tariff set as a fixed lump sum, independent of the truck price, which would have the effect of favoring the import of newer trucks (as long as the trucking industry is deregulated in order to give an incentive to the most efficient companies to invest in new trucks).

Note

1. Incorporating social benefits into HDM-4 analysis remains a challenge. Furthermore, for low-volume roads (fewer than 50 vehicles per day), HDM-4 is not considered appropriate, and the cost-effectiveness approach is recommended.