

An Approach for Analyzing Trucking Regulation

Extract from : [“Assessing the Effects of Trucking Regulation in Korea.”](#)
Smith G., Michell T. and Shin B. May 1998. World Bank Transportation Department.

1. Objective

This document sets out an approach and consequent line of reasoning that can be followed in any study of deregulation in a developing country.

Studies are meant to lead to action, where shown to be desirable, by governments. The overall government objective which we take as axiomatic is that a change in regulations should be adopted if it will increase the net benefits to be derived from transport activities (accepting, of course, that prescribed safety and environmental standards are adhered to). “Benefits” include not only reduced costs of operation but also service improvements to shippers. These may not always coincide when a given change is implemented. Increased costs, accompanied by improved service levels can yield net benefits; conversely, a sacrifice in service levels may be justified by a large enough decrease in costs. Users’ choice of mode or type of truck service will be influenced by both the price and quality of services offered.

Measuring the benefits of better service, in particular, presents considerable practical difficulty, and will often have to be approximated by enlarging the concept of “cost” beyond expenditures on vehicle operation. Thus, shippers’ costs may also be considered, e.g. storage and handling, pick-up and delivery and processing through a terminal (where relevant), savings in inventory from increased reliability, and decreased loss and damage.

2. Defining “cause and effect” hypotheses

Transport regulations can directly affect decisions about:

- (a) The intensity with which vehicles are utilized, which in turn determines the magnitude of costs allocated to each ton-km performed;
- (b) the size of firm and the scope of its operations;
- (c) the costs of certain inputs, notably wages, overheads and profit;
- (d) the technology of the vehicle;
- (e) the services offered.

To determine whether a change in regulations will be beneficial or not, one has first to establish a cause-and-effect link between the proposed change and relevant decisions by shippers and operators. Such a link cannot be taken for granted. Regulations may exist on paper but not be enforced. Efforts at enforcement may be too weak to affect behavior. Or other constraints on behavior may be masking potential effects of transport regulations –for example, bans on the import of vehicles. In the terminology of mathematical programming, the regulation may not be a binding constraint.

Assessing the effect of a regulation on a given category of carriers will normally involve comparing them with other categories in the same country or with similar carriers in another countries who are not regulated. The cause-and-effect question requires that:

- (a) differences in utilization rates, scale and scope of operations, factor costs or technology among groups of truckers subject to different regulatory regimes have to be established;
- (b) possible explanations other than regulation have to be identified, and
- (c) the effects of these other factors have to be assessed independently, so that residual differences can be attributed to the difference in regulation.

If standardization for the other causal factors explains the entire observed difference between the more regulated condition and the less, one has to conclude that the regulation has no effect, i.e., is not binding.

What is an acceptable standard of proof? There is no clear standard, but the arguments for change have to be persuasive enough to overcome the objections of those whom the existing regulations protect.

3. Parallels with road cost-benefit analysis

In estimating the value of potential benefits, there are useful parallels between this exercise and the cost-benefit analysis of roads with which many readers will be familiar. There is also one important difference.

Reductions in vehicle operating costs per ton are beneficial to existing traffic using that mode. (We use ‘mode’ here to cover the various license categories of for-hire trucks and own-account trucks.) This is the counterpart of VOC savings to existing traffic on a road being improved. Savings in the resource cost of trucking can readily be achieved by raising truck productivity so that standing costs are spread over more ton-km performed. If competitive pressures push freight rates down, existing traffic pays less.

If rates for one commercial truck category go down, some shippers now using other ‘modes’ (including own-account haulage) will switch and make a saving. A reduction in the costs of own-account carriage will likewise encourage mode-switching. This is the counterpart of diverted traffic in road cost-benefit analysis. The saving is the difference between the generalized cost by the original mode and the ‘with-change’ generalized cost by the ‘new’ mode. It is less than the saving to existing users of the ‘new’ mode; if the

cost by the 'old' mode is not known, a rough estimate of the saving per diverted ton of traffic would be half the saving per 'existing' ton. As for estimating the quantity that would divert, disaggregated analysis of specific haul distances and consignment sizes will be needed.

The benefits to existing and diverted traffic as described above assume a fixed trip matrix. Additional (though usually smaller) benefits will accrue to traffic generated by the lowering of rates. This is the counterpart of generated traffic in road CBA. The quantity of additional traffic depends on the price elasticity of freight transport demand (which for most commodities is low). The saving per ton will follow the rule of half.

The major difference with road CBA is the possibility that there are monopoly rents, or inflated margins between the resource cost to the trucker and the rate he charges the shipper. These may take the form of higher quality services. If the dropping of restriction on entry, for example, causes these margins to be squeezed, the immediate saving to the shipper is in the nature of transfer: the shipper's gain is the trucker's loss. It is not *per se* a net benefit to the economy at large. On the other hand it will generate additional traffic and probably also trigger management action to lower costs, which can be a substantial benefit.

4. Where to focus analytical effort

In terms of investigative effort, it pays to concentrate on selected parts of the whole regulatory system where benefits promise to be greatest. These will be where:

- (a) a large part of the whole freight transport market is at stake;
- (b) the potential benefit per ton or ton-km appears large; and
- (c) the cause and effect linkage appears strong.

The different determinants of transport cost – productivity, scale and scope of output, factor prices and technology – are likely to reward study in differing degrees. Productivity and utilization improvements are essentially pure gain; truck capacity is mostly an unstorable commodity – if it is not sold, it is lost. Moreover, intensity of use is relatively easy to document. Cuts in factor prices, in contrast, are not gain to both sellers and buyers; the increase in welfare is the producers' or consumers' surplus derived from generated traffic (the Marshallian triangle). Nor are prospective cuts in factor prices nearly so easy to assess. For one thing most beneficiaries of monopoly rents take pains to hide them. For another, evaluating the welfare increase requires knowledge of both supply and demand elasticities, which are elusive. Comparative evaluation of different price/service quality combinations is very difficult. Scale and scope of operations (company size or network extent) are easy to document but reliable cost information is hard to obtain; isolating the effects of regulations from other determinants of scale and scope also demands care. The impact on technology is even harder to evaluate: first to isolate the effect of regulations from other causal factors and then to predict response to a regulatory change. Furthermore, technological improvements such as special-purpose truck bodies may raise rather than

lower the more readily measured elements of transport cost, but be justified by savings in the harder-to-evaluate aspects like reliability and safety.

Finally, to conclude that it is very hard to nail down the effects of regulations does not mean that they are insignificant or not worth pursuing. Total expenditures on freight transport by road are often very large. A study on Korea in the mid-1980s estimated them at the equivalent of 5% of GNP, which is not exceptional. In that example every one percent reduction would have been worth \$42 million each year. The evidence suggested that savings of several percentage points were feasible, through changes in regulations whose costs would be a small fraction of the benefits.