COST/TIME-DISTANCE METHODOLOGY FOR ANALYSING TRANSIT TRANSPORT ROUTES

1.   The cost/time-distance methodology is based on the graphical representation of data collected with respect to the cost and time associated with the transit transport process. The vertical axis of the model represents the time and cost incurred while the horizontal axis represents the distance travelled from origin to destination. The methodology enables easy comparison and evaluation of competing modes of transport operating on the same route and comparison of alternate transit routes.

2.   The methodology is based on the premise that the unit costs of transport may vary between modes, with the steepness of the cost/time curves reflecting the actual cost, price or time. At border crossings, ports and inland terminals, delays occur and freight/document-handling charges and other fees are usually levied without any material progress or movement of the goods being made along the transport route. This is represented by a vertical step in the cost curve. The height of the step is proportional to the level of the charge or time delay. The purpose of the model is to identify inefficiencies and isolate bottlenecks along a particular route.

3.   The methodology can be further refined to break down to a greater level of detail the contributory costs and time, for example, associated with border crossings. This may be particularly useful to policy makers in focusing their policy approaches on the most critical issues. Similarly, the inclusion in the methodology of data on inventory costs for particular commodities, demurrage charges and other indirect costs may be useful to specific export/import industries in evaluating their logistics performance.

Figure I. Sample graph illustrating the basic time/cost-distance model
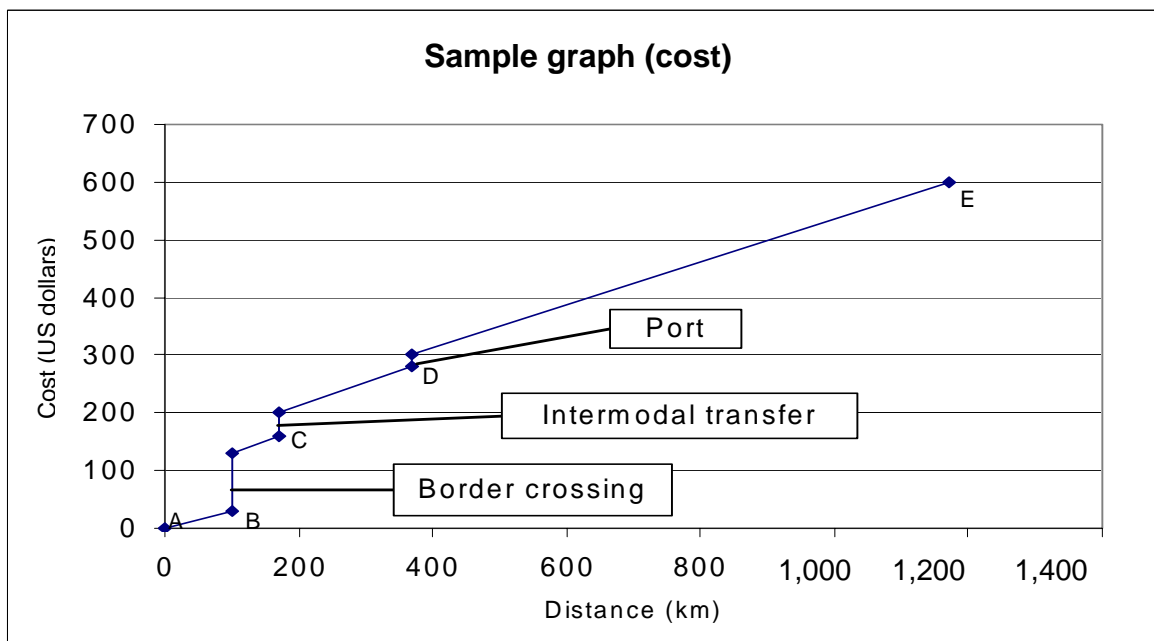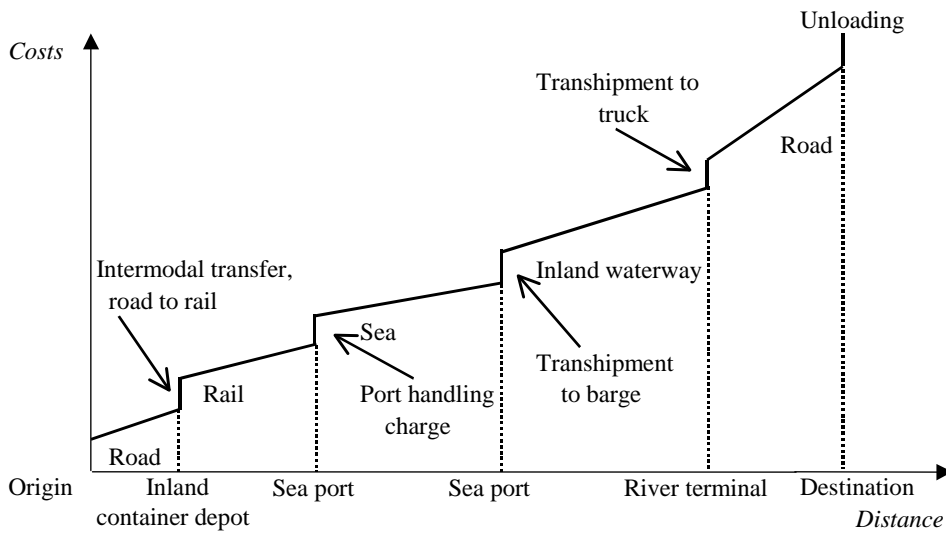
Figure II. Multimodal transport from origin to destination[a]

4.   At each intermodal transfer point there is a cost (or time) increase represented by a vertical steps, which is cumulated with transport and other costs that have been incurred up to that point. Should a border crossing occur along the route, the border-crossing charges (and time spent) can be represented by another vertical shift upward in the cost curve at that point, which can then be cumulated with other costs.