Motivation

Tanzania
1. Tanzania’s government committed to the implementation of one of the first open-access railway systems in the world in 2013
2. The government’s objective is twofold: a) ensure that efficient companies can access the infrastructure and operate trains, and b) provide resources through access charges to keep the system operative in the future

International
1. In the last 15 years, the use of shared and open-access railway systems has been proposed to improve infrastructure utilization and increase efficiency in the industry
2. The use of infrastructure by multiple companies requires coordination between the infrastructure manager and the train operators

Objectives

The objective of this research is to understand the implications of capacity pricing schemes designed to recover maintenance and financial infrastructure costs and to ensure that train operators can viably operate (positive profits) for different stakeholders in Tanzania

Capacity Pricing Schemes

This research considers two main price-based capacity pricing schemes (Gibson, 2003)
1. Variable access charges (i.e. $0.035 per ton-km operated on the infrastructure)
2. Fixed access charges (i.e. $10.5 million annual lump sum to operate)

Model

We use a financial model developed following (World Bank, 2014) to determine the annual operating margin and cash flow for separated and integrated railway companies.

| Business Model | Transportation Revenues | Operation Costs (train lease, fuel, personnel) | Access Charges | Infrastructure Costs (maintenance, finance costs) | Integrated Railway Company
|-----------------|-------------------------|-----------------------------------------------|----------------|-----------------------------------------------|------------------------
| Train Operator  |                        |                                               | Access Charges |                                                |                        |
| Infrastructure Manager |            |                                               |                |                                                |                        |

Generalizability

Tanzania’s railway system provides a useful case to illustrate multiple important concepts to be considered when implementing a pricing scheme in more complex railway systems

Tanzania’s rail system characteristics:
1. Focus on freight traffic
2. Independent corridors
3. No network effects
4. No capacity constraints
5. Every operator should have access
6. Limited institutional capacity

Conclusions

1. The use of variable access charges widely used in the railway industry may create incentives for rational train operators to operate fewer trains than an integrated railway company (social planner).
2. Regulators need considerable information about the sector to determine adequate access charge levels that train operators can viably pay
3. Discriminate pricing may be needed to be able to recover infrastructure costs when different types of train operators face very different levels of cost and revenues
4. The use of fixed access charges aligns the behavior of vertically separated firms with the behavior of an integrated railway company
5. The level of service offered by TOs is robust for a wide range of fixed access fees, thus relaxing the regulator needs of information
6. Different fixed access charges can be designed by the regulator with different objectives

References

Gibson S. (2003), Allocation of capacity in the railway industry, Utilities Policy, 11