# Tanzania's Fastest Growing Economies in the World

"Focus on transport Economy and Industrial Development"

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# Technical Approach to transport Economy Analysis

KEY POINTS

① The principal role of transport is to provide or improve access to different locations for individuals and businesses. Transport thus facilitates a wider range of social and economic interactions than would otherwise be possible.

② Transport is an important sector of the economy in its own right. Transport infrastructure provision and transport operations together account for 4.4% GDP.

③ Inadequate transport investment can hold back economic development. In countries with development potential, transport investment facilitates economic growth.

④ In developed countries, such as Tanzania, where there is already a well-connected transport infrastructure network of a high quality, further investment in that infrastructure will not on its own result in economic growth. Investment in these circumstances should focus on responding to demand and 'pinch points' which would otherwise constrain growth.

⑤ The quality of transport links can affect the relative competitiveness of one area over another area, because of quality of life, lower costs to access resources and markets, and access to larger markets.

⑥ The impact of improved transport links on regional economies is context-specific and must be assessed on a case-by-case basis. Not all transport investments will be equally effective in enhancing economic growth. Transport investment is a necessary, but on its own not sufficient requirement to generate significant economic growth at either a national or regional level.

⑦ However, by improving safety or other aspects of the transport experience for freight carriers or visitors to a region, transport investments may generate longer-term benefits.

⑧ At an urban/metropolitan level, there is strong evidence that transport links can have major effects on the location and pattern of development. Transport investments can have significant impact on urban form by enhancing or detracting from it, leading to an impact on the attractiveness of a city as place to live, work and visit.

**Tanzania has three international airports in Dar es Salaam, Kilimanjaro and Zanzibar. In addition, there are a number of domestic airports. Tanzania has one of the largest domestic air transportation markets in sub- Saharan Africa, but high demand leads to capacity constraints, especially at Dar es Salaam airport.**

## Transport Investment Management

# Overview of the economic role of transport

- The principal role of transport is to provide or improve access to different locations for businesses and individuals, for both freight and personal movements. For the business sector, this involves connections between businesses and their suppliers, between businesses and other businesses, and between businesses and their markets. For the household sector, transport provides people with access to workplaces, schools and shops. It connects them to social, recreational, community and medical facilities for personal and leisure activities.

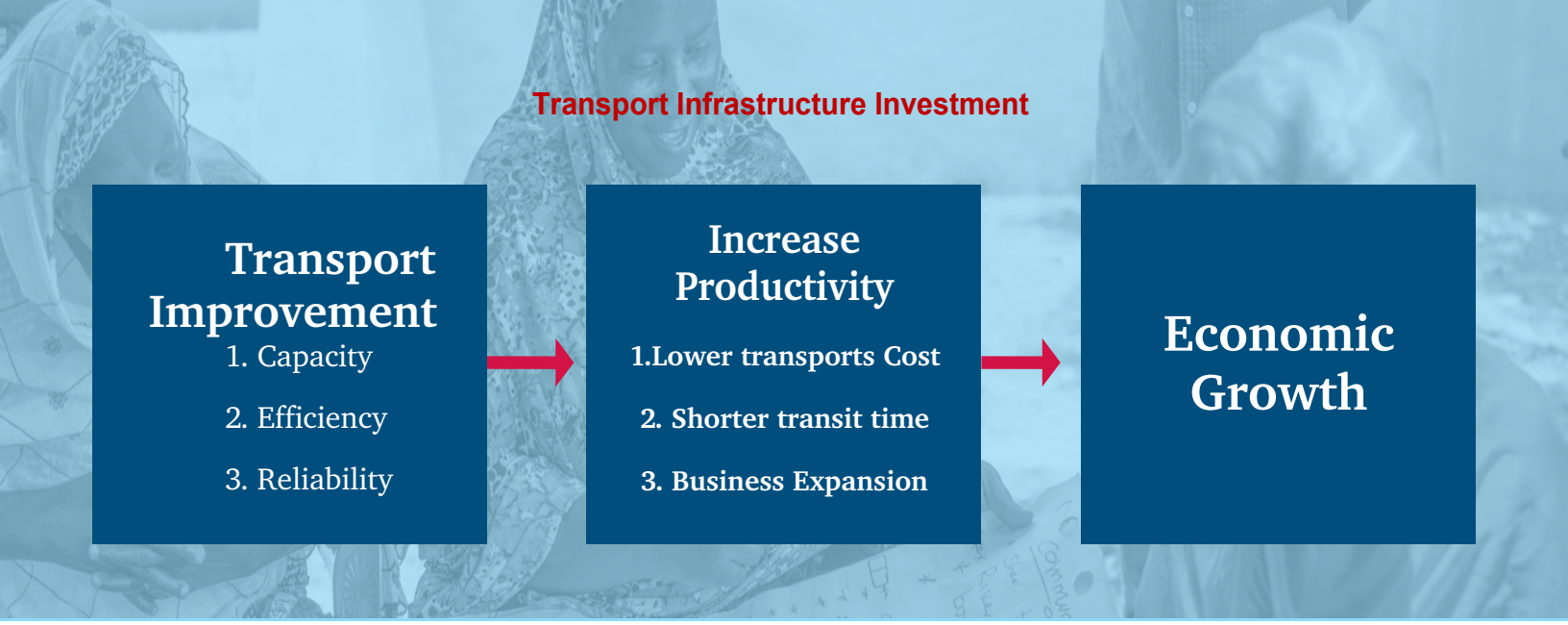
- Transport is an important sector of the economy in its own right: transport infrastructure provision and transport operations together account for about 4.4% of Tanzania GDP. The level of transport investment together with the amount of expenditure on transport operations can have wider effects on the economy (as is seen when transport fuel prices increase substantially, resulting in reduced household expenditures on other goods and services)

- In Tanzania, the land transport system is largely self-funded, in the sense that most of the costs of road investment, operations and maintenance are either paid directly by users (e.g. through car operating costs) or are funded initially by governments and recovered from transport users (e.g. through fuel excise duties and road user charges). There are exceptions to this 'hypothecated' (self-funding) approach the main one being the partial funding of local roads and local public transport services through regional or local rates.

- The Tanzania transport system gives rise to some external costs or 'externalities'. These include road accident costs, global environmental impacts (greenhouse gas emissions) and local environmental and health impacts (e.g. noise and particulate pollution).

- The direct effects of transport investment are to reduce transport time and costs by reducing travel times decreasing the operating costs of transport and enhancing access to destinations within the network. Transport investment may also mitigate any economic disbenefits, for example, by reducing congestion or the risk of injury. These incremental benefits of transport investments may be measured through conventional cost-benefit analysis.

- Other indirect consequences of transport investments should also be considered in the evaluation of transport projects. These include effects on productivity and the spatial pattern of economic development. In the long term, transport investments contribute to economic development by stimulating a variety of inter-connected economy-wide processes, which can yield spatial and regional effects that augment




# Public Investment- Transports Economy

Transport investments have multiple over-lapping economic impacts, which can be assessed from several perspectives. The initial impacts of investments 'ripple' through the economy both spatially and over time, manifesting themselves through changes in residential and industrial location, property prices, changes in the supply and demand for labour, and differential effects on the economy in any given area/region relative to other areas/regions.

As a contributor to economic development, transport infrastructure, by its very nature, has important impacts on intra-regional and inter-regional transport time and costs, and thus potentially on the location of households and businesses.

Transport services are produced and consumed jointly with transport infrastructure. Another distinguishing feature of the transport sector is that its function is primarily as an input to many other activities. Firms transport products to distribution centres and retail outlets; businesses send their employees to meet with customers, suppliers, regulators and co-workers; people travel to work and for leisure pursuits.

However, the demand for transport cannot be treated solely as a derived demand, i.e. solely responding to freight and passenger movements in the wider economy. Improved access is a necessary (but not sufficient) precondition for increased productivity, and improvements in transport systems may themselves promote growth, e.g. through reorganisation of production, distribution and land use by businesses, and reducing labour costs by expanding catchment areas for business recruitment of skilled and unskilled workers.

As discussed later, the link between transport and the economy depends crucially on whether firms are primarily consumers (users) of transport services, or whether firms use transport to change their production processes (or some combination of these roles).

# Supply of transport services

- The production of all goods and services can be described using the concepts of inputs, outputs, and technology. Inputs have to be acquired by the firm and combined in order to produce and supply outputs. In the case of transport, the firm has to use vehicles, terminals, rights-of-way, energy, labour and so on, to produce movements of freight or passengers, from many different origins to many destinations in various periods and at various frequencies.
- The supply of transport services occurs through a combination of providing and using infrastructure across a range of modes. Provision of infrastructure incurs capital costs and covers, for example, roads, railway lines, airports and ports, while usage is made possible through vehicles (e.g. cars, trucks, trains, aeroplanes and boats) and management systems (e.g. traffic lights, signals, air traffic control and navigational aids).
- It is evident that the 'transport system' is broader than just physical transport networks and vehicles. It includes institutional settings and the 'soft' systems that underpin the coordination of transport services
- From the viewpoint of those using the transport system, a key aspect of supply is its price, i.e. the cost of using the transport system. The cost of transport to the user is conventionally discussed in terms of generalised cost. In transport economics, generalised cost is the sum of the monetary and non-monetary costs of a journey. Monetary costs might include fares, fuel and other vehicle operating costs, tolls etc. The main non-monetary cost is the value of time devoted to the journey, which will be influenced by the reliability, quality and comfort conditions of travel.
- The generalised cost of a journey will clearly depend on, among other things, the amount of congestion on the network, and may therefore vary by time of day and location. As with other goods and services, the demand for transport will be inversely related to its costs as perceived by the users (not always the same as the full costs actually paid). For example, as the perceived costs of transport go up, demand generally goes down and vice versa.
- For business users of transport, deterioration in the supply of transport, leading to a rise in its generalised cost, will tend to raise the price at which they can supply the market. Similarly, an improvement in transport supply, leading to a fall in costs, will tend to lower the price. To the extent that these transport costs are passed on, the impact of changes in the cost of transport is felt by the purchaser of the final goods and services.
- Given that different areas have varying transport requirements for the distribution of products and/or the sourcing of inputs, the level of transport costs can influence the location of economic activity and businesses between towns, regions and even countries.

## The supply side of the transport system can be altered in a number of ways:

① additions to, or improvements in, the quality or capacity of transport infrastructure

② replacement of existing infrastructure assets

③ accelerated additions or replacements during economic recessions when there is underemployed

④ labour and other resources

⑤ better management of the asset base (clearing breakdowns faster, better management of traffic

⑥ flows, new services making fuller use of existing infrastructure)

⑦ changes in costs (e.g. in the case of roads, tolls, parking charges, fuel prices)

⑧ changes in regulations relating to the delivery of transport services (e.g. changes in competition and

⑨ regulations affecting entry to public transport and taxi market).

# Transport markets

In economics, 'the market' is an abstract concept. It is the interface between the supply of, and the demand for, a particular good, which determines the prices and quantities that are bought and sold.

In Tanzania , with the exception of rail services, most freight and passenger services are provided by the private sector, although public subsidies are common for urban bus and rail passenger services.

Transport is characterised by a profusion of markets e.g. in terms of mode, localities, routes, service frequency and cost. For passengers and freight, there are varying degrees of substitutability between transport modes, often influenced by the distance between origin and destination. A large part of transport activity is transport for its 'own account', i.e. provided and operated by the person/business making the trip rather than by a specialist transport provider/operator. This is the case for car passenger transport, and also for a significant proportion of the road haulage market.

The operating environment in these markets has an important bearing on the conduct and performance of the transport sector, and in turn on outcomes such as affordability and safety.

Land transport infrastructure funding and investment is a major part of the government's involvement in transport and a major lever applied to transport policy objectives and broader economic objectives. Governments, both central and local, are major funders of transport and other infrastructure, so at the margin transport infrastructure is competing for political support with all other publicly-funded programmes and projects (including social infrastructure such as schools and hospitals).

The government in Tanzania realizes that an improved transport sector is critical to opening up the development of its economy, strengthening competition, increasing access

to farming implements and products, promoting trade, tourism, and foreign investment apart from contributing immensely to the govern- ment revenues. With this in mind, efforts are being made

to ensure sufficient budget allocations especially to the roads sector, which is essential for opening up remote rural areas which are Tanzania's bread baskets.


# TRANSPORT AND REGIONAL DEVELOPMENT EFFECTS

Transport investment is often seen as an effective policy available to governments to boost the economy of less economically-buoyant regions-- through improving transport links both within the 'target' region and to/from adjacent regions. However, such policies will not necessarily be successful, in particular because of the 'two-way road' problem: they may result in additional private investments and employment opportunities flowing into the region; but may equally result in population and employment opportunities flowing out of the 'target' region due to improved access to other centres. Any policy to apply transport investments to support regional development would warrant very careful appraisal.

This chapter comprises discussions of:

- ► spatial perspectives on transport investments
- ► transport investments and regional economic development
- ► inter-relationships between transport, land-use and economic development.

## Spatial perspectives on transport investments

The empirical evidence on the effectiveness of transport investments on regional development is surprisingly sparse and of variable quality. The (generally optimistic) forecasts of many modelling studies have not materialised in practice; and most evidence indicates that the majority of any regional impacts are a transfer of activity from other regions, rather than a net increase in activity.

However, at an urban/metropolitan level, there is strong evidence that enhancements in accessibility to or in particular areas can have major effects on the location and pattern of development (e.g. the opening of the Bridge). In the longer term, accessibility

changes can influence the form and density of the urban area, including the balance between the use of different transport modes (e.g. walking and cycling for shorter trips, public transport for longer trips).
Other issues need to be considered to provide a better understanding of linkages and interventions in a spatial dimension. These issues include how firms respond to transport changes; how labour and housing markets respond to transport changes; and the role of agglomeration effects.

Main identified the 'two way road problem' as a key issue in attempts to promote regional development (typically in relatively 'disadvantaged' regions) by means of transport investment within the region and between it and other regions. It concluded that:
"Improving transport links to a region identified as depressed or disadvantaged may result in investment and/or employment opportunities flowing into the region. However, equally, people, jobs (and perhaps investment) may flow out of the 'target' region due to improved access to other centres – through roads and other transport links."
Transport and the Economy full report to UK Department of the Environment, Transport and the Regions.

In assessing the likely regional impacts (in terms of under what conditions transport investment will benefit the 'target' region and under what conditions there would be an outward flow of investment and jobs would occur), TICGL suggested the following key issues that would be relevant:
► scale economies (for example, where these dominate, lower transport costs through improved accessibility may encourage an increased concentration of firms in core regions, until the point that diseconomies sets in)
► size of the local market
► local land and labour conditions
► the nature of backward and forward linkages in the local economy
► the nature and scale of transport improvements.
It concluded that the impact of improved transport links on regional economies is context-specific and must be assessed on a case-by-case basis,

*". . . there is no guarantee that transport improvements will benefit the local or regional economy at only one end of the route – roads operate in two directions and in some circumstance the benefits will accrue to other competing regions. . . assessment of whether economy impacts will actually benefit the intended target area will need to consider impacts outside the immediate neighbourhood. . . greater attention should be paid to the question of where the impacts will occur and on whom they will fall."*

# Transport investment and regional development

This section summarises evidence from international case studies on the impacts of new road schemes or road improvements on economic development at the regional and metropolitan levels.

► New or improved roads that enhance accessibility of particular areas result in increased land values in these areas, whether the land is zoned for commercial, residential or other developments.

► The types of new developments which are particularly attracted to highly-accessible locations associated with new roads in peripheral urban areas (e.g. land adjacent to motorway junctions) tend to be:

► distribution/warehousing activities, serving national and regional markets

► hypermarket and superstore developments, that depend on large catchment areas

► high-technology growth industries

► offices requiring good access for employees and visitors, but not requiring central area locations.

► There is limited evidence on the importance of transport in location decisions by commercial or industrial businesses. Many other factors – such as access to labour, proximity to markets, and the costs and availability of suitable premises may affect such decisions.

Transport investment in under-developed areas with previous poor access does not necessarily increase the development of such areas relative to other areas. This is the 'two way road' issue – improved transport links may result in additional private investments and employment opportunities flowing into the region, but may equally result in population and employment opportunities flowing out of it.

► Some theoretical (modelling) studies suggest that enhanced access may result in substantial increases in employment in areas with poor access previously. However such theoretical study results are often not substantiated by the empirical evidence—which tends to indicate much smaller impacts.

► It is generally considered that improvements in accessibility to areas where there is economic decline will not be a sufficient condition, and may not be a necessary condition, to stimulate economic recovery and growth in such areas. It is argued (Breheny 1995) that transport investment will only make a significant difference where it is the only missing feature of a strong economy. Improved transport is likely to be more effective in supporting economic development in the context of an area of economic growth if it removes a constraint to the movement of goods or people.

► There is very limited evidence, from either theoretical or empirical studies, on the net effects (as distinct from the gross effects in the area directly affected) on the development or employment effects of enhanced access. In general, it is likely that most of the gross effects represent transfers from other areas.

► Major new road schemes would generally 'induce' different patterns of land use development than would occur in the absence of the scheme. In particular, they may lead to rezoning of parcels of land in the vicinity of the scheme (e.g. motorway intersections), which will be attractive to particular types of commercial development (as noted above). Such differential land use impacts should properly be taken into account when assessing the traffic, economic and environmental impacts of major road schemes.

# Inter-relationships between transport, land use and economic development

Beyond the initial effects of transport investment on journey times and costs, labour market, agglomeration and transport network effects also influence the long-term impacts of transport investment on economic growth and urban/regional development. Each of these wider economic impacts has a spatial dimension through their influence on the location and geography of economic and social activity. There are a number of different dimensions to these spatial impacts.

The first dimension is that the economic impacts may not be evenly spread. This means there is potential for transport investment to cause redistribution of economic impacts between (and within) regions. Analysts should be cautious when measuring benefits, such as new jobs created in one region, to ensure they are not miscounting redistribution as a benefit. The potential for redistribution is particularly relevant in the case of inter-regional transport links.

A second dimension is that, in an urban setting, local transport investment plays an important role in shaping the aesthetics and amenity of a community. Transport infrastructure and services can have a significant impact on urban form by enhancing or detracting from it, leading to an impact on the attractiveness of a city as place to live, work and visit. This will in turn affect the economic dynamism and culture associated with the city. The impacts of transport investment can thus have long-term impacts on economic growth and development, which go well beyond the initial benefits of travel time savings and lower vehicle operating costs.

Another dimension is that the economic impacts will play out via land use changes. For example, the construction of the Bridges had a major effect on the economic development of region in general in particular. Such wider economic impacts are well beyond what would have been captured in an assessment of the long-term travel time savings, reduced costs, and improved safety attributable to the bridge.

Besides such influences on urban form, appropriate transport investment can improve the way cities function as "agglomerations". People and businesses gravitate to cities because of the benefits of being close to each other – close to potential jobs, potential employees, suppliers and customers. Transport can improve the performance of agglomerations by improving links between the different parties, for example with journey times that are shorter and more predictable.

# Tanzania Investment and Consultant Group Ltd

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