ECONOMIC AND SOCIAL RESEARCH FOUNDATION

(ESRF)

Transport Cost and Trade Policy in Tanzania

A DRAFT REPORT TO CREDIT, UNIVERSITY OF NOTTINGHAM, UK FOR THE EC-PREP PROJECT

By

Josaphat Kweka[1]
Research Fellow
Economic and Social Research Foundation
P.O. Box 31226
Dar es Salaam, Tanzania

October 2004

---

[1] Mr. Vincent Leyaro, a Researcher at ESRF, provided research Assistance for this study, for which I am grateful. The Financial resources for the study were provided by the Centre for Research in Economic Development and International Trade (CREDIT), University of Nottingham through a contract to ESRF. The usual disclaimer applies.

ABSTRACT

Recent studies on trade policy for low-income countries such as Tanzania have established that high transport costs associated with poor (and often inadequate) infrastructure characteristic in such countries add to transaction costs, which is a barrier to trade and an additional source of protection to domestic producers of import competing goods. Using the analytical framework applied by Milner et al, 2000 for Uganda, this paper reports the results on Tanzania of a study to assess the protective impact of transport costs on trade. The estimates are used to identify sectors most vulnerable to transport costs, and determine the extent in which Transport costs contribute to protection.

The results shows that although substantive trade policy reforms have succeeded in lowering average tariff levels and associated protection, transport costs increase the level of protection for almost all sectors; notably Beverages and Tobacco, cash crops, manufactured foods and building materials. In addition, decomposition of disprotection (taxation) effects on exports imply that measures to reduce transport cost burden on exporters can (and that tariff liberalisation alone is not sufficient measure to) significantly improve export performance for Tanzania. Simulation of the protection effects under the would-be new EAC custom Union shows that overall, the level of tariff protection may increases. These results provide further evidence to show that, the initiative to enhance Tanzania's export competitiveness may require selective policy action to reduce the level of effective protection in favour of export sectors, and additional investment to reduce infrastructure-related transport costs.

Table of Contents

ABSTRACT ..... **I**

LIST OF TABLES AND FIGURES ..... **IV**

1.0 INTRODUCTION **1**

2.0 A REVIEW OF TRADE POLICY AND PERFORMANCE FOR TANZANIA **3**

2.1 TRADE POLICY REFORMS 3

2.2 THE STRUCTURE AND PERFORMANCE OF TANZANIA'S EXTERNAL TRADE 6

2.3 REGIONAL INTEGRATION FOR TANZANIA 10

3.0 THE TRANSPORT SECTOR IN TANZANIA **12**

3.1 THE STRUCTURE AND REFORMS IN THE TRANSPORT SECTOR 12

4.0 FRAMEWORK AND DATA FOR ANALYSING LEVEL OF PROTECTION **16**

4.1 FRAMEWORK FOR ANALYSING PROTECTION 16

4.2 DATA AND INDICES OF TRANSPORT COSTS 19

5.0 ESTIMATES OF PROTECTION DUE TO TARIFF AND TRANSPORT COST **25**

5.1 TRENDS IN NOMINAL AND EFFECTIVE RATES OF PROTECTION: HOW EFFECTIVE IS TRADE POLICY REFORM IN TANZANIA? 25

5.2 TRENDS IN TRANSPORT COSTS-INDUCED PROTECTION 27

5.3 ESTIMATES OF TOTAL (COMBINED) PROTECTION 30

5.4 INDICES OF FREIGHT RATES FOR TRADITIONAL EXPORT CROPS 33

5.4 ESTIMATES OF EFFECTIVE DIS-PROTECTION (TAXATION) OF EXPORTERS 34

5.4 POTENTIAL TARIFF PROTECTION FACING TANZANIA UNDER EAC CUSTOMS UNION 37

5.5 COMPARISON OF RESULTS WITH THOSE OF THE TTPP STUDY 39

6.0 CONCLUSION AND POLICY IMPLICATIONS **41**

REFERENCES **43**

APPENDIX **45**

TABLE A4.1: MATCHING THE AGGREGATED SECTOR/COMMODITIES.....45

TABLE A4.2: INDICES OF PER UNIT SURFACE FREIGHT CHARGES BY COMMODITIES (1992=100).....45

TABLE A5.1: EFFECTIVE RATES OF PROTECTION DUE INTERACTIVE EFFECTS OF TARIFF AND TRANSPORT COSTS 46

TABLE A5.2: EFFECTIVE TAXATION OF EXPORTS DUE TO INTERACTIVE EFFECTS OF TARIFF AND TRANSPORT CHARGES.....46

LIST OF TABLES AND FIGURES

Tables

Table 1.1: Import Tariff as a % share of c.i.f. value (1998-2001)....4

Table 1.2: Imports by Main Product Categories in 2000....10

Table 3.1: Contribution of Transport Sector on the Economy (selected years)....13

Table 4.1: International (sea) Freight rates (s_j)....22

Table 4.2: Domestic (overland) Freight rates (d_j)....23

Table 4.3: Difference in freight costs between international and domestic goods (s_j-d_j)....24

Table 4.4: Total (international and domestic) Transport costs (s_j+d_j)....24

Table 5.1: Nominal Rates of Protection due to Tariff charges....26

Table 5.2: Effective Rates of Protection due to Tariff Charges [Eq. 1]....27

Table 5.3: Effective Rates of Protection due to Transport costs [Eq. 2]....29

Table 5.4: Combined Effective Protection due to (and interactive effects of) tariff and freight costs [Eq. 3]....30

Table 5.5: Change in Total ERP due to effects of Transport cost (average 1998-2001)....32

Table 5.6: Typology of Sectors by Intensity of Protection....32

Table 5.7: Freight rates for selected Major export crops....33

Table 5.8: Effective Taxation of exports due to import tariff [Eq. 1X]....35

Table 5.9: Effective Taxation of exports due to transport cost [Eq. 2X]....36

Table 5.10: Effective total Taxation of exports [Eq. 3X]....37

Table 5.11: Potential Tariff ERP for Tanzania under the EAC Custom Union....39

Figures

Figure 1: Tanzania's Trade Balance 1996 - 2001....7

Figure 2: Export Performance for major crops (1994-2002)....9

1.0 INTRODUCTION

Although trade policy has not featured prominently in Poverty Reduction Strategy (PRS) for Tanzania, it is widely recognised that trade can play an important role in poverty reduction[2]. Central to this role is increasing exports (especially, in Africa, of agricultural products from which rural households derive incomes) and the ability of sectors to adjust to increased competition following liberalisation of imports. It is also recognised that trade liberalisation in itself does not ensure that exports will increase, nor that import-competing sectors will be able to adjust smoothly. In general, domestic supply side constraints have increasingly been identified as constituting major impediments to export growth in low-income Sub Sahara African countries such as Tanzania. One explanation is that transport costs represent a significant burden on most African countries, and constrain their export competitiveness.

Generally, trade transaction involves transport costs (which, according to Amjadi and Yeats, 1995, is normally about 5% of value), but in this case, we are concerned with the effect of excessive transport costs arising from, among other sources, poor infrastructure; and which becomes an additional burden to exporters/importers. For instance, in the Sub-Saharan region, transport costs account for 40% of the total costs of goods at consumer point compared to 10% in Europe, often placing their exports at serious competitive disadvantage (Amjadi and Yeats, 1995). Clearly investment in transport infrastructure has many benefits, one of which is to reduce transport costs important for enhancing trade competitiveness.

In Tanzania's case, the policy makers are increasingly prioritising investment in transport infrastructure as one of the ways to achieve the development objective of poverty reduction. For instance, rural road transport is identified as one of the priority sectors in the PRSP. To corroborate this strategy, the government has recently pronounced its plan to subsidize agriculture (peasant farming), initially by subsidizing transportation of agricultural inputs (especially fertilizers) to the biggest grain producing regions in the southern part of Tanzania. Since Tanzania exports mostly traditional agricultural products, the bad road network in the rural areas impose high costs of freighting goods to the market centres and eventually to the ports. The high transport cost will therefore reduce producer farm gate price or increase the merchandise price of the goods paid by buyers, hence impair trade competitiveness. Likewise, high transportation costs on imported goods widen the wedge between international and domestic price of imports beyond the import tariff, thereby providing

additional source of protection to the domestic import competing sectors. Clearly, such protective effects can compromise the contribution of trade in poverty reduction objective by limiting (through inefficient production and high price of agriculture inputs) the potential growth in export, and reduce import consumption hence diminishing welfare.

This paper reports the preliminary results on Tanzania of a study to assess the trade policy of four East African countries (Kenya, Malawi, Tanzania and Uganda), considering imports and exports, with emphasis on related policies towards trade costs, especially transport. The most commonly used measures of trade policy are measures of protection, which aim at capturing the effects of trade policy changes on relative prices of exports and imports. Previous studies in Tanzania assessed trade policy by examining nominal rate of protection (NRP) which ignores tariff on imported inputs (Effective Rate if Protection – ERP) used in the production of both domestic and export supplies. A recent study for the Government of Tanzania by the Tanzania Trade and Poverty Programme (TTPP, 2003) estimated ERP at enterprise level. In this study, we extend this literature by addressing the contributory effects of transport costs in ERP estimation using the general analytical framework developed and applied on Uganda by Milner *et al*, 2000.

The report is organised as follows. Section 2 reviews trade policy performance for Tanzania and highlights the trends in transport cost. Section 3 describes the transport sector in Tanzania, highlighting the structure/status of the transport system and the reforms in the sector. It is demonstrated that the reforms in the sector have concentrated on restructuring and liberalisation (with moderate investment in infrastructure) but with less impact on reducing transport costs that will enhance trade competitiveness. Section 4 explains the analytical framework used in estimating protection and the data required. The results are presented in section 5 before concluding in section 6.

[2] For a review of Trade content of PRSPs, see Gilson and Hewitt (2003). In the case of Tanzania, a study by Booth and Kweka (2004) addresses the linkage between trade and poverty.

2.0 A REVIEW OF TRADE POLICY AND PERFORMANCE FOR TANZANIA

2.1 Trade Policy Reforms

(i) Overview of Trade Policy Reforms

Trade policy has been the subject of economic reforms in developing countries for over two decades; motivated by the concept that trade-policy reform is critical to their quest for higher rates of economic growth and poverty reduction. The general relationship between trade and development, and specifically between trade policy and poverty reduction now enjoys some prominence in both academic and policy discourses. . In Tanzania, the economic reforms were intended to move Tanzania away from a centrally-planned economic policy stance to a market-determined and private-sector-led economic development with lean government intervention. This was necessarily a gradual process. A number of policy and institutional reforms were adopted during the 1990s, leading to a more open trade regime. Despite the massive liberalisation, a number of trade policy challenges are imminent for Tanzania, four of which are notable.

First, trade reforms have succeeded in lowering of import tariff (see Table 1.1) but not been effective in promoting export, although they have led to a notable growth of imports. This means that, trade liberalisation through reductions in tariff levels will only be effective if accompanied by complementary measures to address non-tariff barriers to import trade or supply-side constraints to export trade. For instance, although the impressive New Trade Policy for Tanzania (URT, 2003) seeks to address such limitations, the issue of high transport costs due to inefficient infrastructure is neither its explicit nor its immediate concern.

Second, the agenda of trade reforms has yet to be completed. Further harmonisation of the tariff structure is needed to enhance economic efficiency, and continued improvements are needed in agricultural marketing and the supply of inputs. On the side of import liberalisation, the current agenda is towards further elimination of non-tariff barriers by improving custom administration and management of cross-boarder trade. In the agriculture sector, the main aim of policy has been to increase agricultural production through devaluation and improvement in marketing and transport. However, this agenda is by no means complete, and government actions are not always consistent with it.

Third, as the National Trade Policy (NTP) correctly thrives to achieve the necessary trade competitiveness for Tanzania, its implementation is far more complex than stated. Achieving high level of competitiveness requires, among others, an economy-wide improvement in productive capacity and institutional efficiency (coordination of various public and private actors) in both of which Tanzania has disappointingly poor performance. Policies to enhance agriculture (the largest contributor to exports), for instance, are very attractive on the paper but in practice peasant farming has had little support and performance. On the institutional front, sector coordination to enhance trade performance has been reported in various forums to be poor.

Table 1.1: Import Tariff as a % share of c.i.f. value (1998-2001)

Product	**1998**	**1999**	**2000**	**2001**	***Average***
Livestock	19.3	19.9	21.0	18.8	*19.7*
Food Products	9.5	12.3	11.4	8.7	*10.5*
Coffee, tea, cotton & sugar	15.3	15.7	12.7	14.1	*14.4*
Fish Products	14.3	3.2	3.9	4.6	*6.5*
Manufactured foods	13.0	11.5	10.9	12.4	*11.9*
Beverages and Tobacco	18.3	19.6	16.4	2.5	*14.2*
Mineral Products	1.4	1.5	4.7	1.4	*2.2*
Chemical Products	5.5	5.0	5.2	3.3	*4.8*
Forestry Products	10.4	8.8	7.6	8.7	*8.9*
Building Materials	14.8	10.5	15.0	10.5	*12.7*
Textile and clothing and leather	22.0	17.8	17.9	17.0	*18.7*
Metal products and machinery	7.4	5.3	4.7	3.3	*5.2*
Transport equipment	7.2	6.1	7.9	7.0	*7.0*
Other manufactures	12.0	10.2	10.6	7.5	*10.1*
Average	*8.0*	*6.9*	*7.7*	*5.8*	*7.1*

Source: Own computation from Customs Data (various years)

Several other factors may be mentioned that are favourable to the implementation of the liberalisation agenda of the NTP. One is that the government is continuing to attach great importance to the macroeconomic fundamentals, ensuring the macroeconomic stability that is a necessary condition for trade and growth. In addition, the government has taken initiatives to improve the tax regime to make it more favourable to private investment. It has also committed itself to the reform of local government taxes, which are recognised as one of the barriers to trade. These policy initiatives have to translate to the micro level to practically enhance productive capacity.

Finally, the globalisation process offers both new trade opportunities and challenges for Tanzania to avail the benefits of trade to the poor (hence poverty reduction). For instance, the Multilateral Trade System has made several trade preferences for LDCs such as Tanzania including, among others, the AGOA program and the EU-ACP EBA trade preferences. The poor response of export to these opportunities shows little evidence of chances for Tanzania's poor to benefit from globalisation. One way in which the benefit of trade to the poor can be enhanced is by increasing productive capacity of the agricultural export sector (peasant farming) and improving the competitiveness of intermediate markets.

(ii) The Thrust of the New Trade Policy (NTP)

The main trade policy agenda for Tanzania has been to formulate the kind of trade policy that will enable Tanzania to boost her export, raise growth and attain its development and poverty reduction goals, given her domestic supply constraints. Responding to these new demands, and building upon the internal economic reforms that have been under implementation since the mid-1980s, the thrust of the New Trade Policy is to transform the economy from a supply-constrained one into a competitive export-led entity responsive to enhanced domestic integration and wider participation in the global market. Although the NTP has managed to put in place a comprehensive detailed implementation program based on identified problems, there are debates about getting the priority and strategy right, i.e. what need to be done first by the government to make the trade policy effective in realising high export growth (see Booth and Kweka, 2004 for discussion).

One of the significant features of the NTP is its sound emphasis on regional integration and commitment to the Multilateral Trade System (MTS). Tanzania has actively subscribed to selected regional agreements (SADC and EAC) by ratifying the corresponding treaties and protocols. It also is eligible for multilateral trade preferences under the US Africa Growth and Opportunity Act (AGOA), the European Union's Everything But Arms (EBA) and the EU-ACP Economic Partnership Arrangements (EPAs) launched by the Cotonou Agreement. The government is undertaking corresponding efforts to build Tanzania's capacity to access global markets and increase exports, while conforming to trade rules, especially those of WTO. In addition to the above, the last generation of trade reforms has also been characterised by a relentless demand for trade policy to address poverty eradication as the key development challenge for Tanzania.

(iii) Export Promotion and Supply-side Constraints

Another aspect of trade policy reforms is export promotion – that involve concerted efforts to support export marketing and development in order to achieve a favourable balance of trade by increasing export earnings. In this case, a number of programs and schemes were designed, but generally were ineffective as such measures were not accompanied by the necessary action to address domestic supply constraints.

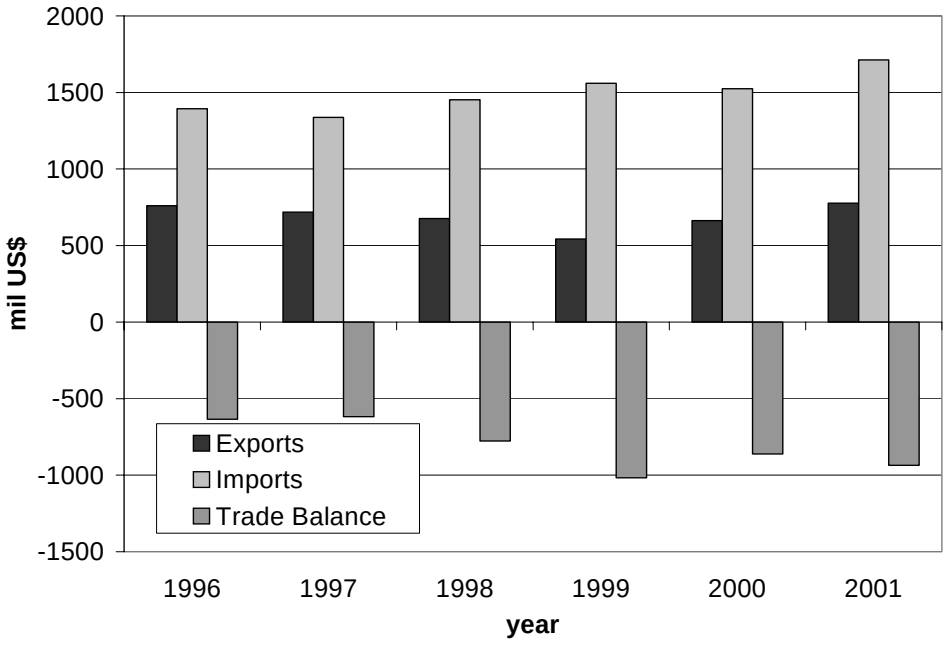
The Government of Tanzania's trade-policy agenda includes attempting to ameliorate this situation in five distinct ways. First, export diversification to promote non-traditional exports. Second, emphasise value-added in agricultural and mineral raw exports to increase value of exports. Third, review of the legal and regulatory regime (e.g. BEST programme) with a view to encouraging and simplifying export procedures including decisions to remove export taxes and permits and simplify export procedures (e.g. lifting of the ban to export cereals). Fourth, put in place Export Development Programmes to enhance export facilitation, marketing and promotion activities. Fifthly, address the structural impediments that impinge on trade performance. These include, among others: lack of trade facilitation, insufficient quality and quantity of traded goods, poor standards, infrastructure limitations, uncompetitive market environments and other production constraints such as high taxes and power tariffs and an unstable supply of utilities (for details see Amani *et al*, 2003). Recently the Government has reinstated the export credit guarantee scheme, which is being implemented by the Bank of Tanzania, initially planned for the traditional agricultural exports only. These measures have yet to produce significant results.

2.2 The Structure and Performance of Tanzania's External Trade

Figure 1 shows the volume of Tanzania's exports and imports for the past 5 years. Not surprisingly for an LDC, the trade balance is negative throughout the period. The worst year during this period was 1999 when the value of exports amounted to roughly one third of the value of total imports, resulting in a trade balance deficit of over 1 billion US$. Exports have been picking up over the last three years, after a continuous decline in previous years, but by far not enough to make up for what seems to be a steady positive trend in imports, leading to an increasingly negative trade balance. A further reduction of import tariffs is likely to exacerbate this worrying situation, at least in the short run. In recent export growth, major agricultural crops have played a declining relative role. At the same time, goods exports declined relative to services, especially tourism, with services earnings reaching between 43

and 48 per cent of total export earnings in this period. This reflects the slump in world prices for agricultural products as well as the fast growth of the mining and tourism sectors (see Wuyts, 2003; Kweka *et al*, 2003).

Figure 1: Tanzania's Trade Balance 1996 - 2001



Source: Bank of Tanzania (various years)

The structure of exports has substantially changed in recent years. By the end of 2002 the share of non-traditional exports had increased to 78% of the total exports, whereas traditional exports accounted for 60% in 1998 (Bank of Tanzania, 2002). This increase is mainly due to large-scale investment in the mining sector (accounting for 38% of total export value in 2002). At the same time, traditional exports have declined both as a share of total exports and value, mainly as a result of low world market prices[3]. The structure of traditional exports has also changed significantly in the last 5 years. The dominant share of coffee and cotton before 1990 has been declining both in favour of reviewed cashew nut industry and also due to overall decline in world prices.

Figure 2 shows the performance of major cash crops for Tanzania. With an exception of tea, many cash crops experienced a significant fall in export volume especially in 1998/99 (even more serious for cotton) after a period of sustained growth in the early 1990s due to a decline

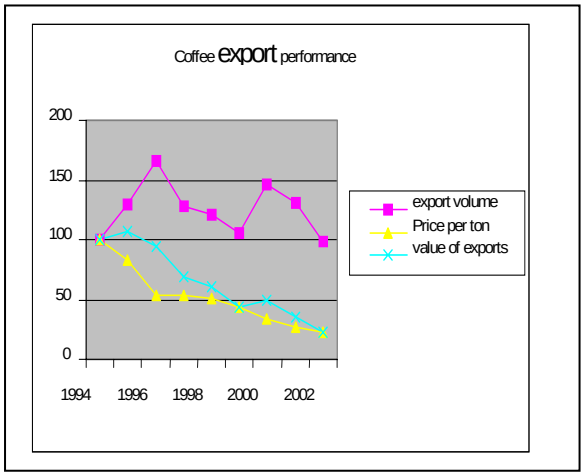
in international prices. Both price and volume exported determine trends in the value of these crops. Most crops saw changes in one or both of these quantities but to a different extent. For instance, while the negative impact of price on the value of exports is significant for tea, it is less so on coffee, and was negligible for tobacco exports whose value increased due to a rise in volume exported. Both price and volume have impact on the value for sisal and cashew nuts. It is important to note, however, that the recovery experienced in the early 1990s (actually starting from late 1980s) is more attributable to increase in volume of exports due to increased production rather than price. Clearly, there has been a fall in real prices for all major export crops relative to the 1994 prices. For this reason, cash crop exports have had a limited impact on the welfare of poor farmers. Fall in real price is more pronounced in the case of the three biggest cash crops: cotton, coffee and tea, whose price fell by more than 50% from 1994 to 2000.

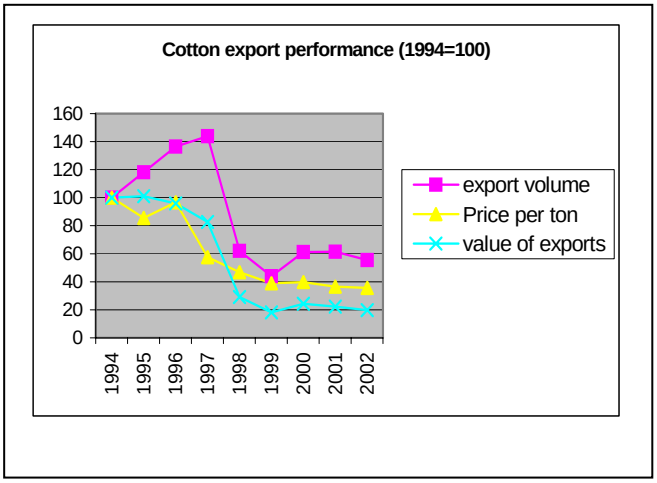
Tanzania's national trade policy provides for the establishment of special export processing zones (EPZs), which are intended to attract investment in export-oriented economic activities by means of tax incentives and the provision of appropriate infrastructure (URT, 2003: 42). Operations in an EPZ are exempt from all kinds of taxes and are allowed to sell up to 20 % of their output to the domestic market. Tanzanian policy makers put high hopes in EPZ, whereas most international observers are less enthusiastic. It is often argued that the backward linkages expected from an EPZ do not automatically develop, and that the opportunity cost of an EPZ (i.e. potential distortions to the rest of the economy due to poor administration of EPZ) may exceed the benefits (Qualman, *et al*, 2003).[4] According to the study by Musonda (2000), Tanzania is ranked high in the region in terms of cost of public utilities such as electricity, transport, water and telephone tariffs.

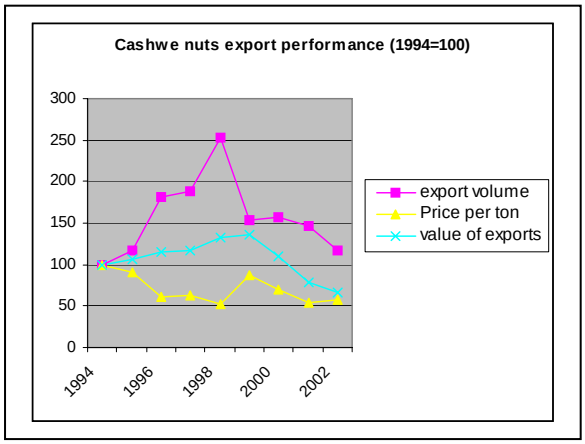
[3] Tanzania's traditional exports are coffee, cotton, sisal, tea, tobacco and raw cashew nuts. Its non-traditional exports include petroleum products, minerals and manufactured goods.

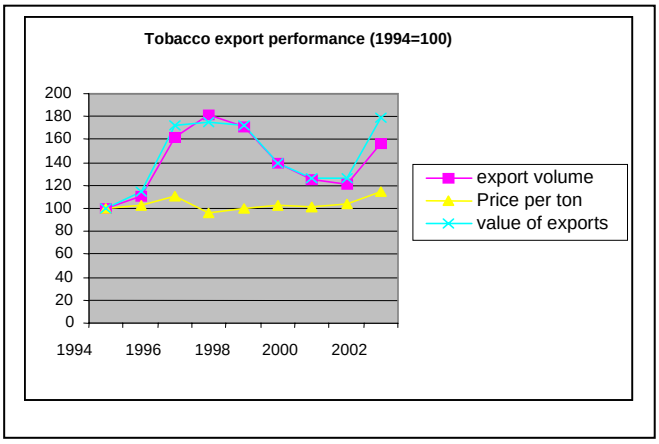
[4] For a comprehensive discussion of the pros and cons of EPZ, see Madani (1998).

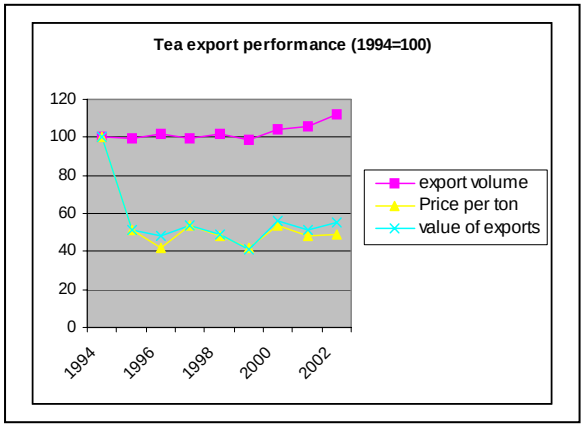
Figure 2: Export Performance for major crops (1994-2002)

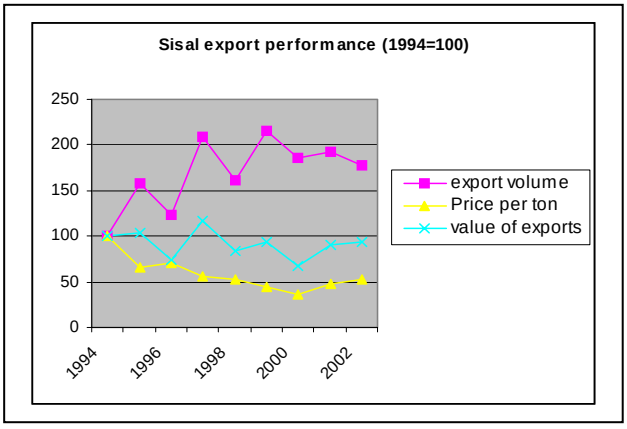












Source: Own computation using Data from the Economic Survey (various years).

In the case of imports, Tanzania relies on a wide range of imports. Machinery, transportation equipment, industrial raw materials, and consumer goods constitute the major portion of imported products. In addition, food imports have also increased in some recent years, but this is potentially reversible as it is dependent on weather/climatic changes. The aggregated composition of Tanzania's imports by major commodity groups with the respective nominal tariff rates is shown in Table 1.2.

Table 1.2: Imports by Main Product Categories in 2000

Product Category	Millions of TSh	Share in %	Tariff Rate
Capital Goods	237,668	40	0% / 5% / 10%
Intermediate Goods	119,302	20	10% / 15%
Consumer Goods	243,395	40	25%
Total	600,365	100	–

2.3 Regional Integration for Tanzania

Regional integration agreements have led to the need to adopt lower tariff regime in order to encourage trade in the regional market. Tanzania has actively pursued regional integration arrangement (RIA) with current membership to SADC and EAC (after pulling out of COMESA in 2000). It is envisaged that once the regional economy is integrated the partners will enjoy a wider market such that integration creates rather than diverts trade. Although there is much enthusiasm that RIA will be beneficial to Tanzania in the long run, the short run effects are less favourable to Tanzania given her weak export base. The weak export base to the region is mainly explained by supply rigidities and structure of the economies in question (all produce similar agricultural exports).

Elimination of trade barriers is expected to result in efficiency gains for members of FTAs due to a more effective division of labour and the resulting trade creation. However, for these gains to materialise, a minimum degree of differentiation between the member states' economies is necessary. As far as regional trading partners in sub-Saharan Africa are concerned, there is only limited scope for such differences or even complementarities, as most of these countries share similar internal economic structures resulting in patterns of trade flows largely biased towards advanced countries in both directions. As a result, Tanzania's intra-regional trade with other EAC (and SADC) members is low, as is the case for most sub-Saharan African countries (Lyakurwa *et al*. 2001: 19).

In the case of EAC where RIA is more advanced than in SADC (Custom Union for EAC was signed in March 2004), Kenya is the dominant regional supplier (over 80% of imports of Tanzania and Uganda). Tanzania has over the years imported more goods from than it has exported to regional markets. In 1999 for example, the volume of Tanzania's imports from the region market was 265% higher than her exports (Musonda, 2000). Nonetheless, the balance of Trade between Tanzania and Uganda has greatly improved compared to Kenya. Only a few products are exchanged, implying possible inclination by members to pursue trade more heavily with their traditional trade partners (Rajaram *et al.*, 1999:41). For instance, over 50% of Kenya's imports from Uganda consist of four products, namely cordage, soya beans, gas cylinder and tractors. About 60% of Tanzania's exports to Kenya consist of raw cotton and fresh fish. Tanzania imports from Kenya are mainly detergents, beer (10%), iron and steel (13%). Uganda's imports from Kenya consist mainly of Gasoline, cement and fuels (over 20%)[5].

[5] The limited participation of Tanzania in the regional export market is also evident in the case of SADC, where, Amani *et al*, 2003 found that domestic supply side constraints, inefficient boarder administration and persistence of informal cross-boarder food trade are factors to blame, among other.

3.0 THE TRANSPORT SECTOR IN TANZANIA

Existing evidence suggests that producers in sub-Saharan Africa often face a transport disadvantage against their competitors. Though the size and nature of this disadvantage varies from country to country, the international transport costs margin seems to be higher for imports than for exports. However, internal transport costs incurred in getting exports from production areas through ports and out of the country, and imports from their point of entry into the country to producers and consumers is in most cases a more serious source of competitive disadvantage than inter country transport cost (UNCTAD, 1999). Furthermore, high international and internal transport costs reduce returns to producers in Africa since they have to sell at the set world prices, which are beyond their control[6]. This section examines the transport cost in Tanzania by reviewing the structure of and reforms in the transport sector.

3.1 The Structure and Reforms in the Transport Sector

By many standards, the transport sector in Tanzania is poor, inefficient and highly inadequate. Its contribution to GDP has averaged about 5% of GDP (1990-2002 period), declining from 8% in the early 1980s (see Table 3.1). Infrastructure development has been an uphill task of the government, and has not secured sufficient domestic resources to reflect government's commitment to stir the required growth of the economy. As shown in Table 3.1, the share of government spending in infrastructure development has been a small share of the overall expenditure. For instance, the road sub sector alone spends on average between 3% - 6% of total government spending, leaving only 1% to 3% for the rest of the sub sectors. So far, the government has, to a greater extent implemented restructuring and reforms of the transport sector to increase its efficiency. However, the real gains from these reforms can be fully realised if similar efforts are deliberately made to channel additional resources for infrastructure development.

The sector is also limited in its structure as it relies mostly on road and railway (90% of freight) transport, and less so on air transport. Water transport which includes sea and lake services is also important in some parts of country for example moving coffee from Kemondo Bay in Bukoba to Mwanza before being transported by either road or railway to Dar es Salaam to be exported by deep sea to overseas markets. Deep-sea transport is relatively more important for international transport of goods to/from abroad. In recent years, air transport

has become common for less bulky and high value exports such as minerals, floriculture, fruits, fish and vegetables; and imports of less bulky raw materials.

Table 3.1: Contribution of Transport Sector on the Economy (selected years)

Year	Percentage Values		**Indices (1990=100)**	
	%Share of GDP	*%Share of Govt Spending*	*%Share of GDP*	*%Share of Govt Spending*
1980	7.8	9.0	144.6	304.9
1990	5.4	3.0	100.0	100.0
1995	5.7	4.1	105.6	138.8
1996	5.6	4.6	103.7	156.3
1997	5.1	4.4	94.4	148.2
1998	4.8	8.4	88.9	285.0
1999	4.9	7.6	90.7	258.0
2000	4.9	7.1	90.7	241.0
2001	4.7	6.4	87.0	214.8
2002	4.7	6.9	87.0	234.0

Source: Own computation from *Economic Surveys* (various years)

3.1.1 Reforms in the Transport Sector

As part of its response to adopting economic reforms, the government launched the 'Transport Sector Recovery Programme' in 1987 that included restructuring and implementing a number of reforms in the transport sector. The reforms were aimed at loosening its regulatory framework and movement to market based operation, management and determination of the freight rates. The reforms also intended to bring in more private players in the provision of services to and operation of the transport facilities. In the case of the roads transport, the government is implementing '*Integrated Road Programme* - IRP' which focuses on the investment, resource mobilization, institutional improvement and market liberalization that are intended to improve the poor state of the road network. As a result of these reforms, TANROADS (the national road agency) and the Road Fund Board have been formed to oversee implementation of these programs.

[6] A study on Nigeria (Singh, 1986) reported substantial costs to farmers due to inadequate transportation facilities connecting rural areas. In the case of rural agricultural production, improving transport may lower

As regards railway, TRC have been implementing a number of major restructuring programmes including the Railway Restructuring Project (RRP) in 1991 and Institutional Change (IC). These measures have impacted favourably on the performance of the railways and enhanced their commercial status hence making them attractive candidates for privatisation[7]. Similar restructuring and reforms are being implemented by TAZARA. In the case of port authority, the DSM Port Development Programme coordinated by the World Bank started in 1985, and in 1994 the authority adopted the commercialisation strategy. In 1996, the government through PSRC decided that THA should be transformed into Land Lord Port Authority. TCFB (which has been commercially doing well) has continued to play a regulatory function for the deep sea shipping services. To increase its efficiency, TCFB intends to privatise its commercial functions. In 1992, the government liberalized the domestic air transport industry for wider participation of the private sector[8]. Clearly, an important aspect of transport service for trade performance is changes in freight cost that are generally considered to affect trade competitiveness. Although Tanzania's transport policy does not explicitly address trade concerns, it has focused on transport sector reforms that could lead to reduction in transport costs in the long run.

3.1.2 Overview on Freight Cost and Performance

Liberalizing the transport sector has led to further commercialisation and competition, which contribute to increasing Tanzania's trade competitiveness and welfare by lowering the price of tradable goods. However, the poor state of infrastructure contributes significantly to the high cost of domestic transport. In the case of international trade, high transport cost may provide undue protection to import competing goods and limits export competitiveness. Freight rates in the pre-reform period were notably too low to cover the operating costs. At the same time, the operators were facing higher prices of spare parts due to higher import duties and tax (for some ranging between 45% and 50%). Following the reforms described above, most freight rates and passenger fares are market determined. As discussed in section 4.2, international (e.g. ocean) transport cost has been decreasing in real terms relative to the situation in the mid 1990s; but that of domestic transport cost has showed mixed trends. Freight rates for railways have slightly increased as a result of the restructuring programme,

input prices and hence production costs.

7 According to anecdotal sources, the privatisation process is currently at advanced stage.

8 Air Tanzania Corporation (ATC) was later privatised to Air Tanzania Company Ltd (ATCL). Subsequently, air tariffs have been market determined given the introduction of other private providers, and the Tanzania Communication and Aviation Authority (TCAA) became a regulatory body for the industry.

but for road transport, real freight rates have, in most cases, declined as a result of improvement in the road infrastructure. Air freight rates have remained constant[9]. However, Given the introduction of new private operators in the air industry and successful privatisation of the ATC, the rates are likely to increase.

Clearly, freight performance and efficiency of transport services has improved notably following the reforms implemented in the sector, with its annual growth rate exceeding 6% on average in the late 1990s compared to about 1% in the 1980s (see Economic survey, various years). For instance, freight through Dar port has also been increasing over years. The sector also has recorded improvement in terms of the quality of the transport services relative to the pre-reform era. In fact, Dar es Salaam port has been ranked by an independent assessment as the top most efficient port in the East and Southern Africa region in terms of container handling and shipment time (see the *Daily News* Newspaper, February 2004). However, there are concerns that Tanzania has not taken full advantage of the port improvement to increase freight or her export performance.

[9] With an exception of human remains, precious gemstones, Bank of Tanzania cargo or minerals, all cargos are charged at the same rate depending only on weight. Between 1992 and 1994 the average freight rates for ATC increased by 5% for the below 45 KG cargo and by 6% for above 45 KG cargo; and by 18.5% for the below 45 KG cargo and 22.8% for the above 45 KG cargo between 1994 – 2002. Since then, the rates have remained constant.

4.0 FRAMEWORK AND DATA FOR ANALYSING LEVEL OF PROTECTION

4.1 Framework for Analysing Protection

Protection is the tendency for domestic trade policy to artificially raise the price of imported goods in order to encourage demand and production of its domestic substitute. As a result of protection, a price wedge between imports and domestically produced goods occurs. Protection is usually exercised in order to encourage domestic industrialisation or producers by protecting them against competition from foreign producers. Although protection is implemented through introducing high import tariff on imports, often such high level of tariff are also considered important source of government revenue particularly in the developing countries with weak tax bases.

4.1.1 Formula for Estimating Effective Rate of Protection

Effective rate of protection (ERP) captures the effects of both tariffs on outputs and on inputs, to identify protection of the value added. Protection of final output raises (while that on inputs lowers) the value added relative to that given by free trade prices. Consider first producers of import-competing goods. In the absence of 'natural' barriers to trade the effective protection afforded to the value added of commodity *j* by tariffs on product *j* and inputs *i* is given by e_j:

$$e_j = [t_j - \sum_i a_{ij}t_i]/[1 - \sum_i a_{ij}] \quad [1]$$

The t_j and t_i are *ad valorem* tariff rates on imported final output (*j*) and intermediate inputs (*i)* respectively. The a_{ij} is the technical coefficient that represents the share of input *i* in the cost of producing one unit of output *j*. We can allow for non-tradables by adjusting the value added measure in the denominator[10]. Equation [1] measures the protection afforded to domestic producers competing with imports of *j*.

[10] Two ways have been outlined in the literature to deal with non-tradable goods in the estimation of protection: the Balassa and Corden Method. Traded inputs are subtracted from the value of output under the Corden method, while both traded and non-traded inputs are subtracted under the Balassa method. Following Milner *et al* (2000), we use the latter approach assuming that all non-traded inputs are supplied to the production process at a constant cost.

4.1.2 Revised Formulae Incorporating Transport Costs

Our purpose is to examine the trend in the level of protection that takes into account the protective effect of high transport costs on domestic sales. In order to do so, we distinguish between internal or overland (*d*) and international (*s*), sea or air, transport costs (TC), measured as *ad valorem* freight rates on output *j* or input *i*. On one hand, importers incur international transport costs for freighting goods up to the point of entry, and additional domestic transport cost for moving or distributing the goods to their final consumption point. On the other hand, exporters incur such costs reversibly by paying for transport costs of moving export merchandise to the port and additional international costs of freighting them to their final point of sale. In the former case, importers incur costs in addition to the tariff hence face higher price relative to domestic producers of similar goods. In the later case, exporters do not incur tariffs but the additional transport costs have similar effects equivalent to taxation.

From the perspective of a producer of import-competing goods, the relevant issues are the difference in TC (for getting the product to the point of sale) between domestically produced and imported goods, defined as $[s_j - d_j]$. In general $d_j = 0$, as production is at the point of sale or imports and domestic goods incur the same local TC (if production is at the point of entry). The major exception would be if domestic production is in the interior (e.g. Mwanza) whereas sale is at the point of entry (e.g. DSM). Thus, nominal protection due to transport costs ($NRPT_j$) will be within the range s_j and $[s_j - d_j]$, and the latter could be negative (i.e. disprotection). Both of these values are reported in Tables 4.1 – 4.3.

The additional *TC* of importing inputs rather than sourcing locally, defined as $[s_i - d_i]$ for input *i* is required to calculate effective protection due to transport costs ($ERPT_j$). Where inputs are not available locally, $d_i = 0$, and s_i represents *TC* element of using imported inputs (and reduces effective protection on final output)[11].

To examine the effects of transport cost in estimating level of protection, the ERP equation can be extended to incorporate any price raising factors such as freight costs. That is, Effective protection due to transport costs can be represented in the same way.

[11] The interpretation of *d* is different for each country. In Tanzania it represents internal costs, measured as rail freight Mwanza-DSM, typically, more relevant to exporting than import-competing, so in practice $d_j = 0$. In Kenya the most relevant internal transport is Nairobi-Mombassa; insofar as Nairobi is the main centre of domestic production and sale, *d* applies only to imports so we use $[s_j + d_j]$ and $[s_i + d_i]$. Imports to Uganda must be transported overland through Kenya or Tanzania, so in practice we use $[s_j + d_j]$ and $[s_i + d_i]$, where *d* is Kampala-Mombassa or proxied by Mwanza-DSM.

$$ERPTj = \{[s_j - d_j] - \sum_i a_{ij}[s_i - d_i]\} / [1 - \sum_i a_{ij}] \quad [2]$$

Tariffs are usually levied on the import price inclusive of TC (s), and this should be allowed for. To measure combined effective protection due to tariff and freight charges we have (omitting the denominator for convenience):

$$e_j^T = (t_j - \Sigma a_{ij} t_i) + \{[s_j - d_j] - \sum_i a_{ij}[s_i - d_i]\} + (s_j t_j - \Sigma a_{ij} t_i s_i) \quad [3]$$

Equation [3] gives the total protection that would result from both tariffs and transport costs under the c.i.f. valuation system. That is, the first term on the right hand side is the tariff protection effect only, the second term is the natural protection effect only, and the last term is the protection due to interaction of tariffs and transport costs.

4.1.3 Adjustments for Export Producers

In the case of exports, transport is a cost that should be interpreted as a tax on exports. That is for exports, TC are an additional cost (relative to competitors) of getting the product to the point of sale, defined as $[s_j + d_j]$. Only where export production is at the point of exit do we have $d_j = 0$; this is most likely to apply to products exported by air. In general, nominal *taxation* due to transport costs (NTT_j) is $[s_j + d_j]$. These estimates are reported for specific major export commodities of Tanzania for selected years in Table 5.7; and for the 14 sectors in Table 4.4.

East African countries export mostly relatively unprocessed commodities, and few intermediate inputs are actually used. Insofar as inputs are imported, such as fertilizer, production costs are increased by $[s_i + d_i]$ for input i. This is required to calculate effective taxation due to transport costs (ETT_j). Measures that protect import-competing producers of a given good disprotect, or tax, exporters of that good. If domestic producers are exporters of j, we simply set $t_j = 0$ in [1] to capture the negative protection of exports. It will be convenient to redefine this measure as positive, and interpret as net taxation of exports:

$$T_j = \sum_i a_{ij} t_i / [1 - \sum_i a_{ij}] \quad [1X]$$

All TC on final products are a cost to exporters, so [2] becomes:

$$ETTj = \{[s_j + d_j] + \sum_i a_{ij}[s_i - d_i]\} / [1 - \sum_i a_{ij}] \quad [2X]$$

To measure combined effective taxation of exports due to tariff and freight charges we have (omitting the denominator for convenience):

$$ETX_j^T = \Sigma a_{ij} t_i) + \{[s_j + d_j] + \sum_i a_{ij} [s_i - d_i]\} + \Sigma a_{ij} t_i s_i) \qquad [3X]$$

4.2 Data and Indices of Transport Costs

4.2.1 Data for Estimating Transport Costs

Estimation of NRP is simple and straightforward if one has data on the value of imports and their respective import duty charges. Calculation of ERP requires information on the input-output coefficients (a_{ij}) obtained from the national Input-Output (I-O) Tables. In the case of Tanzania, the 1992 Input-Output Table has been used to derive the estimates of a_i. Two problems are obvious in such an exercise. First, although we compute ERP for different years, it is not possible to get I-O tables for each year. However, in the context of LDCs where technological progress changes slowly, the I-O coefficients are not expected to change within short to medium term. Second, matching I-O sectors with the customs-based commodity classification may be difficult and there is a possible *aggregation bias*. The estimates should be considered as an approximation. The matching of the I-O to the Custom's Department data on trade is shown in Appendix Table A4.1. We first aggregated the 79X79 I-O Table into a 20X20 I-O Table containing 14 tradable sectors (1-14) and 6 non-tradable sector (15-20) sectors[12]. We then proceed to aggregate and match the commodities in the customs data to the I-O sectors[13].

Analysis of the impact of transport costs on trade policy reforms requires, in addition to data on tariff and value of trade, information on the *ad valorem* freight rates (freight charge per value of the freight) of the selected commodities. Unfortunately, such data are difficult to obtain from the secondary sources. *Ad valorem* freight rates would be most useful in understanding the relative price-raising impact of transport costs for individual commodities. However, transport costs are usually expressed as freight charges per unit of freight (e.g. weight, containers, general cargo etc.) and distance[14]. Even for these, there are no consistent

[12] The dimension of the aggregated I-O Table was based on a careful matching of activities of the sectors to minimise aggregation *bias*.

[13] The custom's data include information on the c.i.f. value and quantity of imports, import tariff charges and other taxes (including VAT).

[14] Interview with some Tanzania Marine Transport Company revealed that, transport service providers are reluctant to express freight cost as share of value to avoid revealing the true value of their sales to tax authority.

and reliable data for a range of commodities for Tanzania. We therefore rely on *ad hoc* measures of freight rates as explained below.

In the absence of consistent data on road transport, we proxy the domestic transport costs (*d*) by data on rail transport costs available from the Tanzania Railways Corporation (TRC). This data is expressed as freight charges per unit of transport for a range of commodities and for a number of years (1995 – 2001). The commodities reported by TRC data had to be matched with those aggregated from the Customs authority (that contained information on tariff and trade). Unfortunately, the matching can only be crude except for few sectors where the match is more or less straightforward. The results should therefore be interpreted with such caveat in mind. To obtain *ad valorem* estimates from these data we followed the following procedures.

From the 1992 Tanzanian Input-Output Table, we obtained data on the input-output technical coefficient for transport and communication services as a share of output of each sector (*Ai*) expressed as $A_i = Z_i / Y_i$, where Z_i is the cost of transport and Y_i is the value of output, both for a given sector *i*. We firstly computed price index of the freight cost for each commodity for the 1998-2001 period to obtain the rate of change in freight costs for each year and for each commodity (Δ_{ti}). This rate of change (expressed as a coefficient) is then used in updating the freight rate per value of output computed from the I-O data (i.e. A_i) to obtain an estimate of *ad valorem* freight rate for each year (TC_i):

$$TC_i = (1 + \Delta_i) A_i . \qquad [5]$$

A similar methodology was followed in deriving *ad valorem* estimates of international transport costs using data from the Tanzania Central Freight Bureau (TCFB) on sea/ocean transport costs per unit of freight. From this, we compute the rate of change in transport cost (corresponding to Δ_i) and apply it to the *ad valorem* freight rates (corresponding to A_i in equation [5]) for 1992 from Amjadi and Yeats (1995)[15] to obtain *ad valorem* freight rates (*s*) for different commodities and for selected years. As earlier indicated, these are rough estimates that can give magnitude of variation of freight rates across different sectors and over time. Note that all the estimates are given as *Ad valorem* rates (share of unit value of

[15] These are sectoral average freight rates (given as ratio of freight payments to shipment value (*ad valorem* rates).

merchandise) and in real terms after being deflated by Transport Consumer Price Index in 1992 prices obtained from the Bank of Tanzania[16].

4.2.2 Indices of Transport Costs

We report the nominal protection due to transport costs ($NRPT_j$), which include estimates of international transport cost (s_j) in Table 4.1, domestic transport cost (d_j) in Table 4.2 and that of the difference between, and sum of the two in Table 4.3 and 4.4 respectively. The price index showing changes by year of domestic transport charges is shown in Appendix Table A4.2. As shown in Tables 4.1 and 4.2, there is a marked difference between the magnitude of international and domestic transport costs, where the former are about twice the size of the later. The lower domestic transport costs may be reflecting the extent of subsidies in the public transport sector before reforms (rates were not commercially determined). In addition, except for cash crops, most manufacturing and processing industries are concentrated near the port and in the main commercial centres, thus requiring less transport cost.

Table 4.1 shows that international transport costs have been declining over the period, from an average of 12% in 1990s to 10% in the 2000s. Presumably, the decline in costs may reflect increasing competition as a result of (international) liberalisation of the freight industry. In contrast, no significant change occurred in the domestic transport costs (which fell on average 6% for this period). In the case of d_j the biggest change in freight charges occurred between 2000 and 2001, presumably explained by the impact of introducing commercial freight rate for TRC to replace the low (subsidised) rates that were applied before. The bulky nature of goods in the said sectors necessitated preference for railway transport compared to transportation of such products as fish that have low demand for railway transportation.[17] In addition, the *ad valorem* freight rates for 1992 (as sourced from the IO data) are surprisingly lower than would be expected given the bad state of Tanzania's transport infrastructure. It is most probable that this is a reflection of unreliable data and a fact that many industries are situated near the port to reduce transport costs. However, we consider sectoral variation shown by the current data to be reasonable and independent of the change in the size of freight rates.

---

[16] Bank of Tanzania (2002), Economic and Operations Report for the Year ended 30th June, 2002.

[17] In the period before 2000, parastatals transport agencies still dominated transportation in some (especially bulky goods) sectors. In addition, since we are sourcing our data from railway, much of the TRC freight rates were still unrealistically low (subsidised), until in recent years when the companies started applying commercial viable rates.

In both estimates, Beverage and Tobacco, Livestock and Cash Crops sectors face relatively very high transport cost (over 20%), while Fish products, Chemical products, Metals and Machinery face relatively very low costs (below 5%). This shows that different sectors are affected differently by high transport cost, presumably due to two reasons. First, different nature of goods may necessitate different transport costs (e.g. goods vary in bulk or perishability). Secondly, the effect of transport cost may also depend on the importance of distribution costs for a particular product. For instance, beverages are consumed in the entire country unlike fish products that is mostly consumed in the localities. In fact, as shown in Table 4.2, manufacture foods and food products, which are largely consumed within the localities also face relatively low transport costs (below 3%).

Table 4.1: International (sea) Freight rates (s_j)

Sector	1998	1999	2000	2001	2002	Average
Livestock	0.062	0.058	0.058	0.055	0.070	0.060
Food Products	0.179	0.184	0.163	0.116	0.119	0.152
Coffee, tea, cotton & sugar	0.276	0.254	0.287	0.343	0.162	0.265
Fish Products	0.056	0.058	0.058	0.049	0.066	0.057
Manufactured foods	0.166	0.163	0.152	0.142	0.173	0.159
Beverages and Tobacco	0.251	0.266	0.250	0.209	0.260	0.247
Mineral Products	0.103	0.109	0.107	0.100	0.115	0.107
Chemical Products	0.059	0.059	0.050	0.045	0.061	0.055
Forestry Products	0.130	0.134	0.136	0.116	0.178	0.139
Building Materials	0.134	0.132	0.140	0.105	0.137	0.130
Textile and clothing and leather	0.069	0.063	0.062	0.074	0.059	0.065
Metal products and machinery	0.057	0.061	0.060	0.058	0.045	0.056
Transport equipment	0.057	0.060	0.059	0.040	0.052	0.054
Other manufactures	0.102	0.100	0.107	0.080	0.104	0.099
Average	0.121	0.122	0.121	0.109	0.114	0.117

Source: Calculated as described in the text.

Table 4.2: Domestic (overland) Freight rates (d_j)

Sector	1998	1999	2000	2001	2002	Average
Livestock	0.071	0.096	0.102	0.097	0.110	0.082
Food Products	0.027	0.028	0.029	0.036	0.036	0.028
Coffee, tea, cotton & sugar	0.058	0.069	0.073	0.077	0.083	0.064
Fish Products	0.000	0.000	0.000	0.000	0.000	0.000
Manufactured foods	0.006	0.009	0.011	0.012	0.012	0.009
Beverages and Tobacco	0.092	0.099	0.105	0.115	0.121	0.095
Mineral Products	0.041	0.060	0.064	0.069	0.073	0.054
Chemical Products	0.055	0.081	0.087	0.095	0.100	0.073
Forestry Products	0.025	0.027	0.028	0.029	0.031	0.026
Building Materials	0.071	0.082	0.090	0.181	0.150	0.100
Textile and clothing and leather	0.023	0.008	0.008	0.009	0.010	0.011
Metal products and machinery	0.032	0.044	0.047	0.044	0.050	0.039
Transport equipment	0.031	0.043	0.045	0.043	0.049	0.038
Other manufactures	0.059	0.060	0.086	0.103	0.104	0.072
Average	0.042	0.050	0.055	0.065	0.066	0.049

Source: Calculated as described in the text.

Table 4.3 and 4.4 provide the indices of net and total transport cost respectively. Net transport cost (s_j-d_j) captures the extent to which a sector faces additional transport cost relative to that incurred in the domestic marketing/distribution of its products, hence a source of protection for a given sector. It assumed therefore that, both domestic vz. imported goods face necessary domestic transport constraints/costs, so that it is the additional transport costs included in the domestic price that matters as a source of protection. As shown in Table 4.3, a couple of sectors (Livestock, chemical products and building materials) face negative net transport cost implying that, domestic transport costs are much bigger than international transport costs, hence a dis-protection (transport costs work against domestic relative to international producers). Estimates also show significant variation (in magnitude) by years and across sectors, although, given the they have been declining over time apparently due to the falling s_j. cash crops, manufactured foods, beverages and tobacco show higher estimates of net transport costs (over 15%) compared to most sectors (about 6% on average).

The total transport costs measures the combined domestic and international components. These indices (reported in Table 4.4) are used in measuring export taxation as discussed in section 5.4. For cash crops and beverages and tobacco sectors, the total transport cost is a significant share (almost one-third) of the value. Products in these sectors are bulky in nature,

and in the case of beverages (mainly beer and soft drinks) distribution costs constitute the large component of the total cost.

Table 4.3: Difference in freight costs between international and domestic goods (s_j-d_j)

Sector	1998	1999	2000	2001	2002	Average
Livestock	-0.008	-0.038	-0.044	-0.043	-0.040	-0.021
Food Products	0.152	0.156	0.134	0.080	0.083	0.124
Coffee, tea, cotton & sugar	0.218	0.185	0.213	0.266	0.079	0.201
Fish Products	0.056	0.057	0.058	0.049	0.066	0.057
Manufactured foods	0.160	0.154	0.141	0.131	0.160	0.150
Beverages and Tobacco	0.159	0.168	0.145	0.094	0.139	0.152
Mineral Products	0.062	0.049	0.043	0.031	0.042	0.053
Chemical Products	0.004	-0.022	-0.037	-0.050	-0.040	-0.018
Forestry Products	0.106	0.107	0.108	0.087	0.146	0.113
Building Materials	0.063	0.050	0.050	-0.076	-0.013	0.030
Textile and clothing and leather	0.046	0.055	0.054	0.065	0.049	0.054
Metal products and machinery	0.025	0.018	0.013	0.013	-0.005	0.017
Transport equipment	0.025	0.018	0.014	-0.003	0.003	0.016
Other manufactures	0.043	0.040	0.021	-0.023	0.000	0.026
Average	0.079	0.071	0.065	0.044	0.048	0.068

Source: Calculated as described in the text.

Table 4.4: Total (international and domestic) Transport costs (s_j+d_j)

Sector	1998	1999	2000	2001	2002	Average
Livestock	0.133	0.154	0.160	0.152	0.179	0.142
Food Products	0.206	0.212	0.193	0.151	0.155	0.180
Coffee, tea, cotton & sugar	0.334	0.324	0.360	0.421	0.245	0.328
Fish Products	0.056	0.058	0.059	0.049	0.067	0.058
Manufactured foods	0.172	0.172	0.163	0.154	0.185	0.168
Beverages and Tobacco	0.343	0.365	0.355	0.324	0.381	0.342
Mineral Products	0.144	0.169	0.171	0.168	0.188	0.160
Chemical Products	0.113	0.141	0.137	0.141	0.161	0.128
Forestry Products	0.155	0.161	0.164	0.145	0.209	0.164
Building Materials	0.205	0.213	0.230	0.286	0.287	0.229
Textile and clothing and leather	0.092	0.071	0.070	0.083	0.069	0.077
Metal products and machinery	0.089	0.105	0.106	0.102	0.095	0.095
Transport equipment	0.088	0.103	0.105	0.084	0.101	0.091
Other manufactures	0.162	0.161	0.192	0.183	0.209	0.171
Average	0.164	0.172	0.176	0.174	0.181	0.167

Source: Calculated as described in the text.

5.0 ESTIMATES OF PROTECTION DUE TO TARIFF AND TRANSPORT COST

In this section we report different estimates of Effective Rates of Protection (*ERP*) due to tariff and transport costs ($ERPT_j$) for selective years. For consistency purposes, we report the relevant estimates of tariff-related (policy) *ERP* before reporting the transport-related (natural) *ERP* and total protection (due to tariff, transport and interactive effects of both). Discussion of results is organised into three parts. Firstly, we report estimates of the NRP and ERP arising from imposition of tariff on imports. Secondly, we report estimates of protection arising from transport costs. Finally, we examine changes in total ERP (sum of tariff, natural and interactive effects of both barriers). The objectives are to examine the extent to which transport cost is an important source of protection for domestic sales, and show the extent to which sectors are affected differently by the protection arising from policy (tariff) and non-policy (natural) barriers to trade.

5.1 Trends in Nominal and Effective Rates of Protection: How Effective is Trade Policy Reform in Tanzania?

We report results on protection estimates for the 1998 - 2001 period, but for comparative purposes, we also provide estimates for 1995 (when tariff rates were relatively high), and also for 2005 based on projections of the would-be tariff rates after the adoption of the EAC Custom Union in 2005. Table 4(a) and 4(b) show the estimates for NRP and ERP respectively.

The estimates for nominal and effective rates of protection are given in Tables 5.1 and 5.2 respectively. In both estimates, the general trend show declining level of nominal protection from an average of 15% in 1995 to about 8% in 2001 for NRP; and from 19% to 10% respectively for ERP. This decline implies that the trade reforms have been effective in reducing the tariff barriers to trade. The estimates also show more protection of agricultural sectors. For instance, the Livestock sector ERP increased from 9% in 1995 to about 20% in 2001, while Cash crops have ERP (23%) above the average (14%) for all sectors.

Although significant sectoral variations exists in the estimates, a dichotomy of sectors with highest vs. lowest estimates is not different between the NRP and ERP estimates (see Table 5.5). High protection is notable in the cash crops, textile & leather and livestock sectors; and is lowest in the mineral products, metals and machinery, fish products and chemical products

sectors. For most sectors these results can be explained by Tanzania's trade policy stance. On one hand, countries such as Tanzania tend to protect the infant industry (such as textile and leather) and the agriculture sectors; but on the other give lucrative fiscal incentive to high-capital/technology driven sectors such as mining, metal products and machinery. In addition, the low protection estimates on chemical products reflect the significant subsidies in fertilisers and pharmaceuticals[18].

However, as the essence of ERP is to measure both the protective effects of tariffs on imported inputs on the level of protection and those on final goods, estimates of ERP are higher than those of NRP. As shown in Table 5.2, level of protection increased for most sectors but to a differing extent reflecting different use of inputs with different tariffs. For instance, while the average protection increased by 3 percentage points (from 11% to 14%), it increased by 81% in the building materials (most of which is cement and iron sheets), followed by manufacturing sectors (42%) and Beverage and Tobacco (40%). Sectors with low level of NRP also increased to a lesser extent in ERP. The low level of nominal protection (NRP) on Metal and Machinery sector increased slightly under ERP, implying that it uses inputs that are subjected to higher tariffs than the final good itself.

Table 5.1: Nominal Rates of Protection due to Tariff charges

Sector	1995	1999	2000	2001	Average
Livestock	0.086	0.199	0.210	0.188	0.171
Food Products	0.106	0.123	0.114	0.087	0.108
Cash crops	0.319	0.157	0.127	0.141	0.186
Fish Products	0.134	0.032	0.039	0.046	0.063
Manufactured foods	0.118	0.115	0.109	0.124	0.117
Beverages & Tobacco	0.150	0.196	0.164	0.025	0.134
Mineral Products	0.104	0.015	0.047	0.014	0.045
Chemical Products	0.130	0.050	0.052	0.033	0.066
Forestry Products	0.137	0.088	0.076	0.087	0.097
Building Materials	0.291	0.105	0.150	0.105	0.163
Textile & leather	0.177	0.178	0.179	0.170	0.176
Metals & machinery	0.085	0.053	0.047	0.033	0.055
Transport equipment	0.072	0.061	0.079	0.070	0.070
Other manufactures	0.174	0.102	0.106	0.075	0.114
Average	0.149	0.105	0.107	0.085	0.112

Source: Calculated as described in the text (see *equation 1*)

[18] Fertiliser subsidy in Tanzania was reduced from 78% in 1990-91 to zero in 1994-95 (World Bank, 2000:144).

Table 5.2: Effective Rates of Protection due to Tariff Charges [Eq. 1]

Sector	1995	1999	2000	2001	Average
Livestock	0.086	0.223	0.238	0.214	0.190
Food Products	0.110	0.131	0.121	0.091	0.113
Cash crops	0.397	0.191	0.153	0.173	0.229
Fish Products	0.134	0.017	0.025	0.034	0.053
Manufactured foods	0.163	0.105	0.099	0.192	0.140
Beverages & Tobacco	0.192	0.322	0.261	-0.031	0.186
Mineral Products	0.114	0.014	0.051	0.013	0.048
Chemical Products	0.149	0.058	0.059	0.038	0.076
Forestry Products	0.155	0.100	0.086	0.099	0.110
Building Materials	0.528	0.191	0.272	0.190	0.295
Textile & leather	0.176	0.236	0.248	0.228	0.222
Metals & machinery	0.100	0.062	0.054	0.036	0.063
Transport equipment	0.076	0.068	0.088	0.079	0.078
Other manufactures	0.239	0.150	0.149	0.109	0.162
Average	0.187	0.133	0.136	0.105	0.140

Source: Calculated as described in the text.

Clearly, the trade policy reforms have been effective in reducing the protective nature of the Tanzania trade regime. An important issue is whether the achievements of trade policy reforms are enough to bring about favourable trade performance. Although this analysis has concentrated on protection of domestic sales from imported goods, it possibly indicates that there has been gradual opening up to external trade that can benefit exporting. In practice though, export (or more generally trade) performance is closely limited by other non-(trade) policy barriers. In the next section, we evaluate the importance of transport costs as a non-policy (natural) barrier to trade compared to tariff (trade policy) in limiting trade for Tanzania.

5.2 Trends in Transport Costs-induced Protection

We use the values of TC_t to estimate protection from both domestic surface transport and international sea-based on the analytical framework described in section 4 above. Although the available data for analysis of transport costs are limited to rail (for d_j) and ocean (for s_j) freight rates, the results indicate only the relative significance of transport costs for each sector in limiting trade (especially export) performance. In the case of (d_j), rail is significantly used (in competition with road) in transporting most of the bulky cargo to/from the vast

interior of Tanzania[19]. For (s_j), most imports and exports (except for high value/delicate or perishable goods) are freighted by ocean from/to international markets. Nevertheless, the focus here is the extent to which transport cost adds protection to domestic against foreign producers. Thus, the measure of ERP from transport cost (*ERPTj*) is assessed by considering the additional transport cost incurred by importers over the that incurred by domestic producers, giving net transport cost (s_j- d_j).Table 5.3 reports results of ERP from transport cost and shows how different sectors are affected differently by additional transport cost. Several observations about transport costs for Tanzanian industries can be made. First, the extent of protection from transport cost is significant but less than that caused by tariff. This is not surprising, however, given the advantaged geographical position of Tanzania where most firms are situated near the major market centres/ports (such that the transport cost is mainly driven by s_j). A more plausible interpretation is that both international and domestic producers face similar extent of transport costs (making net transport cost smaller in absolute terms). Second, there has been substantial reduction in the protective effect of transport cost from nearly 10% to 5% between 1995 and 2001. This may not be surprising given the decrease in freight rates over the period in question. Thirdly, some sectors experience real dis-protection (additional taxation) from transport cost (negative $ERPT_j$). These include Livestock, chemical products and a few in some (especially 2001) years. These estimates should be interpreted in absolute terms, since our measure of transport cost is defined by net effect of both international and domestic transport costs (see Table 4.3)[20]. For these sectors, transport cost is least likely to ramify significant protection to domestic producers.

A final and especially interesting observation is that, the estimates show a sharp divide between sectors with high and low $ERPT_j$. A few sectors are overly affected (protected) by transport cost by over 20% while the overall average $ERPT_j$ is below 8%. These include: Cash crops (29%), Manufactured foods (25%) and Beverages and Tobacco (about 20%). Most of other sectors (except forestry products with $ERPT_j$ of 11%) have $ERPT_j$ below 5%. The interpretation of these findings is clear. For the sectors with large estimates of $ERPT_j$ this implies that s_j is notably larger than d_j (which means domestic transport cost is notably low), whereas sectors with low estimates of $ERPT_j$ have relatively larger d_j (so that net effect is smaller). The low value $ERPT_j$ sectors may also be identified with low values of both d_j and s_j.

[19] In fact rail is also used in transiting most of exports and imports of neighbouring land locked countries especially Uganda, Burundi and Rwanda.

To corroborate these scenarios, we relate these estimates to the corresponding indices in Tables 4.1 to 4.3. We find that:

(i) Sectors with high/low $ERPT_j$ are identified with high/low s_j in both absolute and relative terms, showing that, the protection effects of transport costs emanates largely from international relative to domestic transport costs;

(ii) Sectors with negative $ERPT_j$ (e.g. Livestock, chemical products-mostly petroleum) are those whose d_j is far greater than s_j (which would be an ideal situation for such sectors as they have huge distribution costs across the vast hinterland are notable).

(iii) While Beverages and Tobacco sector has both high s_j and d_j, fish products sector has both low s_j and d_j, hence their respective high and low $ERPT_j$.

(iv) In most cases, d_j reveals independent influence on $ERPT_j$ from that of s_j (as d_j is more effective on sectors that are less tradable). It is for this reason that the building material sector is found to have high estimates of d_j in absolute terms.

Table 5.3: Effective Rates of Protection due to Transport costs [Eq. 2]

Sector	1995	1999	2000	2001	Average
Livestock	-0.036	-0.072	-0.077	-0.068	-0.063
Food Products	0.166	0.172	0.147	0.088	0.143
Cash crops	0.278	0.238	0.277	0.347	0.285
Fish Products	0.056	0.057	0.059	0.047	0.055
Manufactured foods	0.249	0.230	0.226	0.275	0.245
Beverages & Tobacco	0.224	0.249	0.208	0.107	0.197
Mineral Products	0.069	0.054	0.048	0.035	0.052
Chemical Products	-0.001	-0.032	-0.049	-0.063	-0.036
Forestry Products	0.120	0.122	0.123	0.099	0.116
Building Materials	0.107	0.083	0.083	-0.152	0.030
Textile & leather	-0.003	0.025	0.013	0.013	0.012
Metals & machinery	0.028	0.019	0.014	0.015	0.019
Transport equipment	0.028	0.019	0.016	-0.003	0.015
Other manufactures	0.052	0.051	0.023	-0.040	0.022
Average	0.096	0.087	0.079	0.050	0.078

Source: Calculated as described in the text.

[20] In fact, the same sectors/years with negative (s_j- d_j).are also identified with negative $ERPT_j$).

5.3 Estimates of Total (combined) Protection

One useful way in which to assess the relative impact of transport costs on the level of effective protection is to compare the total protection with the baseline – i.e. protection without impact of transport costs. Estimates of protection due to the interactive effects between tariffs and transport costs are reported in Appendix Table A5.1, but our discussion here is based on estimates of total protection, which are reported in Table 5.4. The key argument for Table 5.4 is that, the individual effects of tariff and transport costs are not mutually exclusive and their effects do not occur independently.

Table 5.4: Combined Effective Protection due to (and interactive effects of) tariff and freight costs [Eq. 3]

Sector	1995	1999	2000	2001	Average
Livestock	0.054	0.162	0.173	0.156	0.136
Food Products	0.296	0.327	0.288	0.189	0.275
Cash crops	0.788	0.479	0.476	0.582	0.581
Fish Products	0.197	0.075	0.085	0.083	0.110
Manufactured foods	0.438	0.353	0.343	0.501	0.409
Beverages & Tobacco	0.472	0.665	0.540	0.073	0.437
Mineral Products	0.194	0.070	0.104	0.050	0.105
Chemical Products	0.156	0.029	0.013	-0.024	0.043
Forestry Products	0.296	0.235	0.220	0.209	0.240
Building Materials	0.706	0.299	0.393	0.059	0.364
Textile & leather	0.162	0.266	0.266	0.245	0.234
Metals & machinery	0.134	0.085	0.071	0.053	0.086
Transport equipment	0.108	0.091	0.109	0.079	0.097
Other manufactures	0.316	0.216	0.188	0.078	0.200
Average	0.308	0.239	0.234	0.167	0.237

Source: Calculated as described in the text.

One main result in Table 5.4 is that inclusion of interactive effects of both tariff and transport costs protection increases the value of ERP estimates for almost all sectors; showing that the level of protection is higher when importers are faced with both tariff and high transport costs. Overall, average total protection is about 23%. However, sector that have significant ERP_j or $ERPT_j$ are also identified with very high total protection. These include cash crops (over 50%), Beverage and tobacco (43%), manufactured foods (over 40%), and Building materials ((36%). Conversely, the following sectors have low estimates of total protection (below 10%): metals and machinery, transport equipment, and mineral products.

To get a clearer picture of the contributions of tariff and transport costs to total protection, we calculate the percentage change/share in total ERP due to the individual effects of tariff and transport costs. The results are reported in Table 5.5. It is found that, by incorporating effects of transport costs, average ERP increased by 69% (from 14% to 24%). Effects of transport costs constitute over one third (33%) of total protection (i.e. the share of tariff in total ERP is about 70%). Unlike in the comparable case of Uganda, tariffs constitute a higher proportion of total effective protection Tanzania[21]. However, this should not be surprising as Uganda incurs additional transport costs due to the landlocked position of the country compared to Tanzania.

On the average transport costs contribute about 30% of total protection. However, in the chemical products, mining, and food related product sectors the level of protection from transport costs are notably higher than that of tariff (over 50% of total protection), reflecting the fact that tariff rates are lower in these (mostly subsidised) sectors. : The most and least susceptible sectors to the protection effects of transport cost are evident from Table 5.5. For the most susceptible sectors, which are largely the agricultural/natural- resource-related sectors as well and Beverages and Tobacco, ERP increased by over 100% as a result of including transport costs. The least affected sectors include textile and leather and building materials sectors, presumably because of the relatively larger effects of tariffs. For the former category, $ERPT_j$ constitute over 50% of the total ERP and about 10% for the latter category of sectors.

Table 5.6 summarises the above discussion by grouping sectors by the extent in which they are affected by different sources of protection and reporting respective average sectoral estimates.

[21] In the Ugandan study, effective rate of protection associated with surface transport was estimated at about 50% compared to that by tariff (38%) of the respective of the domestic price of imports in 1994. This is huge compared an average estimates of 3% and 23% respectively.

Table 5.5: Change in Total ERP due to effects of Transport cost (average 1998-2001)

Sector	ERP	Trans	Total	% Change in ERP	% Transport effects
Livestock	0.19	-0.063	0.136	-28	-46
Food Products	0.113	0.143	0.275	143	52
Cash crops	0.229	0.285	0.581	154	49
Fish Products	0.053	0.055	0.11	108	50
Manufactured foods	0.14	0.245	0.409	192	60
Beverages & Tobacco	0.186	0.197	0.437	135	45
Mineral Products	0.048	0.052	0.105	119	50
Chemical Products	0.076	-0.036	0.043	-43	-84
Forestry Products	0.11	0.116	0.24	118	48
Building Materials	0.295	0.03	0.364	23	8
Textile & leather	0.222	0.012	0.234	5	5
Metals & machinery	0.063	0.019	0.086	37	22
Transport equipment	0.078	0.015	0.097	24	15
Other manufactures	0.162	0.022	0.2	23	11
Average	0.14	0.078	0.237	69	33

Source: Calculated as described in the text.

Table 5.6: Typology of Sectors by Intensity of Protection

Level of Protection	ERP - Tariff	ERP - Transport cost	ERP - Total
High	Building Materials	Beverage & Tobacco	Beverage & Tobacco
	Beverage & Tobacco	Cash crops	Cash crops
	Cash crops	Manufactured foods	Manufactured foods
	Textile and Leather	Food products	Building materials
Low	Chemical Products	Transport equipment	Fish Products
	Fish Products	Chemical products	Chemical Products
	Transport Equipment	Livestock	Metals & Machinery
		Textile and Leather	
Average	0.14	0.08	0.24
(Share of Total)	(67%)	(33%)	(100%)

Source: Own computation

5.4 Indices of Freight rates for Traditional Export crops

Given the significance of agricultural export crops in Tanzania's trade performance, we report specific estimates of transport costs (s_j and d_j) for 5 of the main export crops for Tanzania (all expressed as real *ad valorem* rates). Clearly, high domestic transport costs (from farm to the port) and the international transport cost (from the port to the world market) decrease export competitiveness of these crops which reduces producer earnings , hence compromising poverty reduction efforts. The *ad valorem* estimates of these transport costs were obtained in the same way as described in section 4 and are reported in Table 5.7.

Table 5.7: Freight rates for selected Major export crops

(a) International (sea) Freight rates

Year	Cotton	Coffee	Tobacco	Sisal	Tea	Average
1996	0.102	0.108	0.250	0.324	0.114	0.180
1997	0.077	0.053	0.129	0.162	0.068	0.098
1998	0.063	0.025	0.063	0.048	0.022	0.044
1999	0.052	0.057	0.157	0.327	0.060	0.130
2000	0.087	0.067	0.158	0.193	0.068	0.115
2001	0.079	0.075	0.128	0.159	0.075	0.103
2002	0.054	0.035	0.116	0.156	0.057	0.084
Average	0.073	0.060	0.143	0.196	0.066	0.108

(b) Domestic (rail) Freight rates

Years	Cotton	Coffee	Tobacco	Sisal	Tea	Average
1996	0.029	0.036	0.072	0.109	0.036	0.057
1997	0.022	0.020	0.038	0.060	0.022	0.032
1998	0.010	0.010	0.010	0.019	0.006	0.011
1999	0.016	0.029	0.050	0.169	0.025	0.058
2000	0.028	0.031	0.052	0.090	0.027	0.046
2001	0.027	0.029	0.044	0.062	0.028	0.038
2002	0.033	0.028	0.072	0.123	0.040	0.059
Average	0.024	0.026	0.048	0.090	0.026	0.043

(c) Total (International and Domestic) Freight rates

Year	Cotton	Coffee	Tobacco	Sisal	Tea	Average
1996	0.132	0.144	0.322	0.433	0.150	0.236
1997	0.099	0.072	0.167	0.222	0.090	0.130
1998	0.073	0.034	0.073	0.068	0.029	0.055
1999	0.068	0.086	0.207	0.496	0.085	0.188
2000	0.115	0.098	0.209	0.284	0.095	0.160
2001	0.106	0.104	0.172	0.221	0.103	0.141
2002	0.087	0.063	0.188	0.279	0.098	0.143
Average	0.097	0.086	0.191	0.286	0.093	0.151

Source: Calculated as described in the text.

Examining the total transport cost in panel (c) one notes that, on the average, domestic transport costs are relatively smaller share (nearly one third) of the total transport cost incurred by the exporters. Thus, the larger share of transport costs is attributable to the international transport costs (72%). Furthermore, about 15% of the export value is made up of transport costs (where s_j is about 11%and d_j is 4%). Except for sisal, which has a relatively larger transport cost component (29%) of export value, there is no remarkable differences in the selected sectors. Sisal is also identified with largest d_j (31%) relative to the other sectors. Conversely, cotton has a relatively high s_j and low d_j, while tea has the lowest of both estimates.

5.5 Estimates of Effective Dis-protection (Taxation) of Exporters

Clearly, measures that protect import-competing producers dis-protect, or tax, export producers. If domestic producers are exporters of *j*, we can capture the negative protection effects on exports by regarding $t_j = 0$ in [1]. For convenience, we redefine these measures as positive numbers, and interpret them as net taxation of exports. Consistent with the import protection reported above, we report estimates of dis-protection arising from import tariff (T_j), transport costs (ETT_j), and the combined effects of both (ETX_j) in Tables 5.8 – 5.10 (corresponding to equations [*1X*], [*2X*] and [*3X*]) respectively[22].

Table 5.8: Effective Taxation of exports due to import tariff [Eq. 1X]

Sector	1995	1999	2000	2001	Average
Livestock	0.019	0.020	0.019	0.017	0.019
Food Products	0.018	0.017	0.017	0.013	0.016
Cash crops	0.201	0.103	0.086	0.090	0.120
Fish Products	0.024	0.021	0.021	0.020	0.022
Manufactured foods	0.212	0.259	0.247	0.202	0.230
Beverages & Tobacco	0.171	0.153	0.135	0.091	0.138
Mineral Products	0.007	0.003	0.004	0.002	0.004
Chemical Products	0.015	0.005	0.007	0.004	0.008
Forestry Products	0.029	0.019	0.016	0.018	0.021
Building Materials	0.038	0.014	0.020	0.014	0.022
Textile & leather	0.160	0.101	0.091	0.093	0.111
Metals & machinery	0.034	0.022	0.020	0.015	0.023
Transport equipment	0.009	0.005	0.005	0.003	0.005
Other manufactures	0.047	0.018	0.025	0.014	0.026
Average	0.070	0.054	0.051	0.043	0.055

Source: Calculated as described in the text.

As shown in Table 5.8, some exporting sectors are seriously taxed by tariff on imports. These include manufactured foods (mainly cooking oils) where T_j = 23%, beverages and tobacco (T_j = 14%) and cash crops (T_j = 12%); compared to the average T_j of 5%. This shows that such sectors heavily use imported inputs that are subjected to high import tariffs. For instance, the manufactured foods sector, which is composed mainly of cooking oils, use as their main raw materials some oil products on which are levied exorbitant import tariffs. For sectors with lowest T_j imported inputs are of little/no importance, or are charged low tariffs, or both. For instance, imported inputs are not relevant for transport equipment sector, while in the case of mining and chemical sectors most of their respective imported inputs are exempted from duty. Effective taxation of exports is found to decline significantly relative to the situation in the year 1995, but such declines have not persisted in subsequent years (i.e. 2000s).

In Table 5.9, we examine trends in effective taxation of exporters due to transport cost (ETT_j). Unlike T_j, estimates of ETT_j are influenced by the importance of both imported inputs (i.e. s_i is significantly important) and transport costs (s_j and d_j). The results show that transport influenced taxation effects on exporters is overly significant, with some sectors taxed by

[22] Transport costs (as source of (dis) protection) include both international (sea) and domestic (rail) transport charges expressed as a share of value of merchandise.

about 100% of export value. Generally, effective taxation of exporters due to transport costs averaged 33%. Beverage and Tobacco, cash crops, and manufactured foods are most seriously taxed by transport costs. Surprisingly, trends in ETT_j for the selected years do not indicate any sign of reversing. Instead, estimates of ETT_j have been increasing from 24% in 1995 to over 35% in 2001. This implies that, *ceteris paribus*, the competitiveness of Tanzanian exporters is disproportionately affected by transport cost burden. It seems also that there has not been any effective policy response to mitigate this effect. One reason for this failure may be the fact that much of the taxation effects are due to non-policy (natural) limitations (i.e. poor transport infrastructure).

Table 5.9: Effective Taxation of exports due to transport cost [Eq. 2X]

Sector	1995	1999	2000	2001	Average
Livestock	0.138	0.214	0.219	0.203	0.193
Food Products	0.231	0.271	0.245	0.190	0.234
Cash crops	0.497	0.716	0.799	0.941	0.738
Fish Products	0.057	0.079	0.080	0.068	0.071
Manufactured foods	0.287	0.805	0.738	0.628	0.615
Beverages & Tobacco	0.667	1.039	1.002	0.902	0.903
Mineral Products	0.163	0.198	0.200	0.195	0.189
Chemical Products	0.137	0.181	0.175	0.178	0.168
Forestry Products	0.186	0.239	0.243	0.214	0.221
Building Materials	0.382	0.429	0.461	0.560	0.458
Textile & leather	0.085	0.214	0.222	0.268	0.197
Metals & machinery	0.130	0.173	0.173	0.166	0.161
Transport equipment	0.102	0.123	0.124	0.098	0.112
Other manufactures	0.247	0.279	0.328	0.303	0.289
Average	0.236	0.354	0.358	0.351	0.325

Source: Calculated as described in the text.

In Table 5.10 we report the influence of both policy (tariff) and natural (non-policy) effects in measuring effective taxation on exporters (i.e. total taxation of exporters, ETX_j). As expected, the conclusions made above regarding the effect of tariff and transport costs on taxation of exporters still hold since the results in this Table are sum of those in Tables 5.8 and 5.9. However, given its magnitude, we find that *ETTj* influences *ETXj* more than T_j. Sector with highest or least in ETX_j are same as those for ETT_j. The only notable exception is the textile and leather sector, which is found to be affected more by the tariff (34%) rather than transport

(60%) component of ETX_j[23]. Consequently, this sector is also identified with highest estimate of the interactive effects (7% of ETX_j) on export taxation (see Appendix Table A5.2). In sum, decomposition of ETX_j into T_j (14%), *ETTj* (84%) and interactive effects of both tariff and transport cost (2%) imply that measures to reduce transport cost burden on exporters can (and that tariff liberalisation alone is not sufficient to) significantly improve export performance for Tanzania.

Table 5.10: Effective total Taxation of exports [Eq. 3X]

Sector	1995	1999	2000	2001	Average
Livestock	0.160	0.238	0.241	0.221	0.215
Food Products	0.251	0.291	0.264	0.205	0.253
Cash crops	0.750	0.843	0.907	1.059	0.890
Fish Products	0.083	0.102	0.102	0.090	0.094
Manufactured foods	0.535	1.105	1.020	0.853	0.878
Beverages & Tobacco	0.874	1.225	1.165	1.010	1.068
Mineral Products	0.171	0.201	0.204	0.198	0.193
Chemical Products	0.154	0.187	0.183	0.183	0.177
Forestry Products	0.219	0.261	0.262	0.235	0.244
Building Materials	0.424	0.445	0.484	0.576	0.482
Textile & leather	0.279	0.332	0.330	0.381	0.330
Metals & machinery	0.165	0.197	0.195	0.182	0.185
Transport equipment	0.111	0.128	0.129	0.102	0.118
Other manufactures	0.299	0.299	0.355	0.318	0.318
Average	0.320	0.418	0.417	0.401	0.389

Source: Calculated as described in the text.

5.6 Potential Tariff Protection Facing Tanzania under EAC Customs Union

In this sub-section, we simulate the potential protection for Tanzania once the EAC custom union is implemented in 2005. The Custom union intends (articles 3 and 10) to facilitate flow of trade in goods within the region by removing all internal tariffs among the member countries, increasing trade performance and, it is hoped, poverty alleviation. As part of this objective, there will be three bands of external tariff imposed on all goods imported in the region from non-members: a maximum of 25% on all final consumption good, 10% on raw

[23] The % share of T_j in ETX_j for textile and leather is highest, relative to the average of 14%.

materials and intermediate inputs, and 0% on all capital goods. Since this regional integration objective is likely to change the trade policy stance for member countries, we simulate the potential protection on Tanzania arising from the would be new tariff structure under the Custom Union. As stated in article 11 of the Union, there will be gradual but progressive phasing out of the internal tariffs for Kenyan goods entering Ugandan and Tanzanian market (reduction of 2% annually for 5 years).

To understand the likely protection for Tanzania when the Custom Union is operational, we take the ERP estimates for 2001 as base year with the average Nominal Rate of Protection (NRP) of 15% for all sectors and simulate two scenarios. First, we assume that in year 2005, all tariffs on intermediate inputs will be phased out to 0% (zero rated); and secondly, impose 10% common external tariff (CET) on all intermediate inputs in 2005. The first scenario takes into account the possible source of traded inputs to be from within the region, and vice versa for the second scenario that assumes all trade to be from outside the region (hence charged an average of 10% tariff for all sectors).

Results of these simulations are reported in Table 5.11. Two important findings arise. First, the overall level of protection increased (doubled) from an average of 20% in 2001 to 40% (under the 0% tariff on imported inputs scenario) and to 37% (under the 10% tariff on imported inputs scenario) in 2005 under the EAC Custom Union. Secondly, the changes in the level of protection due to the envisioned custom union are also likely to have important sectoral implications. Some sectors (especially cash crops and manufactured products, beverages and tobacco) will experience significant increase in the level of protection, while others (for instance livestock, food and fish products) will experience a slight increase in the level of protection. However, these sectoral patterns do not vary with the two scenarios. That is, the changes in the level of protection is generally similar regardless of whether the inputs are charged 0% or 10% tariff on inputs.

Thus, operationalisation of the custom union is most likely to increase the current level of protection. It is important to note, however, that the EAC has potential to provide other trade (facilitation) provisions that may favorably enhance trade performance for Tanzania and the region in general. In the context of this study, one of the benefits from the regionalisation process that can bring about “quick wins” for trade performance is improvement in transport infrastructure. This is quite likely since one of its provisions is to cooperate in infrastructure development. In addition, improvement of transport infrastructure can hasten intra regional

trade in the EAC, which has been found to be growing in importance (Kweka and Mboya, 2004).

Table 5.11: Potential Tariff ERP for Tanzania under the EAC Custom Union

	2001		2005		
Sector	NRP	ERP	NRP	ERP [0%]	ERP [10%]
Livestock	0.150	0.167	0.250	0.307	0.290
Food Products	0.150	0.167	0.250	0.300	0.285
Cash crops	0.150	0.191	0.250	0.469	0.397
Fish Products	0.150	0.157	0.250	0.295	0.280
Manufactured foods	0.150	0.274	0.250	0.793	0.597
Beverages & Tobacco	0.150	0.272	0.250	0.605	0.494
Mineral Products	0.150	0.171	0.250	0.289	0.283
Chemical Products	0.150	0.185	0.250	0.316	0.303
Forestry Products	0.150	0.184	0.250	0.337	0.315
Building Materials	0.150	0.278	0.250	0.486	0.463
Textile & leather	0.150	0.191	0.250	0.474	0.411
Metals & machinery	0.150	0.220	0.250	0.392	0.357
Transport equipment	0.150	0.174	0.250	0.295	0.288
Other manufactures	0.150	0.232	0.250	0.411	0.377
Average	0.150	0.204	0.250	0.412	0.367

5.7 Comparison of Results with those of the TTPP Study

As noted earlier, the TTPP (2003) study estimated ERP at enterprise level based on survey data of 152 manufacturing enterprises. The objective was to assess whether changes in trade policy in Tanzania were consistent with the policy objective of increasing trade performance. Their results show high levels of effective protection persisted even after substantial trade liberalisation. As in the current study, the TTPP is sectoral in approach, i.e. assessing sectors according to the extent in which they are affected differently by protection. However, our study uses sectoral data directly from the customs department trade database and the IO Table, whereas the survey data utilised in TTPP study requires the surveyed firms be allocated to sectors.

In one sense, our study can be considered an important extension of the TTPP study given our focus on protective effects of transport costs. Although the two use different data sources

and sectoral coverage (TTPP has fewer sectors and all are manufacturing) the results of both studies are generally consistent with each other. The sectors identified with significant increases in the level of protection in the TTPP study are also identified with very high level of ERP in our case. These include textile and leather, tobacco and beverages products. In addition metal products are identified with low level of protection in both studies. For those sectors covered in both studies, the only exception to consistent results is the chemical products whose ERP estimate increased notably from NRP of 21% to 216% in the TTPP study but is shown to have low estimate of ERP in our study. As the two studies use very different data and approaches, finding such a discrepancy should not be surprising (and this is only one large discrepancy). The large estimate of ERP in the TTPP study may be reflecting a particular (or atypical) firm included in the study (whereas our estimate are based on broader sector average).

Nevertheless, this comparison provides further evidence to show that the initiative to enhance Tanzania's export competitiveness may require further *selective* policy action to reduce the level of effective protection in favour of export sectors (e.g. reduce input tariffs on EPZ terms).

6.0 CONCLUSION AND POLICY IMPLICATIONS

Using the analytical framework applied by Milner *et al*, 2000 for Uganda, this paper reports the preliminary results on Tanzania of a study to assess the trade policy for East African countries with emphasis on related policies towards trade costs, especially transport. The main hypothesis is that the high transport costs associated with often inadequate infrastructure add to transaction costs, creating a barrier to trade and an additional protection to domestic producers of import competing goods. The estimates are used to identify sectors most vulnerable to high costs of transport, and determine the extent to which Transport costs potentially contribute to protection.

The results show that trade policy reforms have largely succeeded in lowering the protective nature of the Tanzania trade regime to a remarkable extent. There has been modest decline in effective rate of protection from an average of 19% in 1995 to 11% in 2001. Effective rate of protection due to transport cost decreased by about 100% from 10% in 1995 to 5% in 2001. Inclusion of interactive effects of both tariff and transport costs protection increases the estimate of total protection for almost all sectors, average of which increased to 30% from a tariff protection of 19% for 1995, and to 17% from 11% respectively for year 2001. Sectors showing notable increase in protection due to additional interactive effects include Beverages and Tobacco, cash crops, manufactured foods and building materials. Those least affected by transport effect include Fish products, chemical products, metals and machinery. The results imply that trade liberalisation is less adequate to remove barriers to trade compared to reduction of transport costs.

Unlike in the comparable case of the Ugandan study (*ibid*), tariff constitutes a higher proportion of total effective protection in Tanzania, suggesting that the impact of surface transport is relatively less (and that tariffs are relatively lower in Uganda). In the Ugandan study, effective rate of protection associated with transport was estimated at about 50% compared to that by tariff (38%) of the respective domestic price of imports in 1994. This is huge compared to 8% and 14% respectively in this study. The high proportion of transport costs for Uganda also reflects its land-locked status in which costs of surface transport are much higher.

While the protective effect of tariff and transport cost on imports is straightforward, that on exports is a dis-protection that is considered as an implicit taxation of exporters. However, export tariff are no longer applied in Tanzania, but production of exportables requires among

others, imported inputs (such as chemicals, fertilisers etc.) whose tariff and transport costs constitute a source of protection that may impair supply of exports.

We find that, on the average, domestic transport costs is relatively smaller share (nearly one third) of the total transport cost incurred by the exporters. Thus, the larger share of transport costs is attributable to the international transport costs (72%). Estimates of export disprotection have been increasing from 24% in 1995 to over 35% in 2001. This implies that, *ceteris paribus*, the competitiveness of Tanzanian exporters is largely affected by disproportionate transport cost burden. Much of the taxation effects are due to non-policy (natural) limitations (i.e. poor transport infrastructure). The only notable exception is the textile and leather sector, which is found to be affected more by the tariff than transport component. These results provide further evidence to show that, the initiative to enhance Tanzania's export competitiveness may require *selective* policy action to reduce the level of effective protection in favour of export sectors (e.g. reduce input tariffs on EPZ terms).

Simulation of the protection effects under the would be new EAC custom Union shows that overall, level of protection will increase by about 100% from 20% in 2001 to about 40% in 2005 under the EAC Custom Union. The changes in the level of protection seem generally similar regardless of whether the inputs are zero or non-zero rated. In sum, decomposition of disprotection effects imply that measures to reduce transport cost burden on exporters can (and that tariff liberalisation alone is not sufficient measure to) significantly improve export performance for Tanzania. In the context of this study, one of the most important benefit from the regionalisation process that can bring about "quick wins" for trade performance is improvement in transport infrastructure.

REFERENCES

Amani, H, D. Nyange, J. Kweka and V. Leyaro (2003) *Trade Policies and Agricultural Trade in the SADC Region: Challenges and Implications – Tanzania Country Report*, Dar es Salaam: Economic and Social Research Foundation, Jan.

Amjadi A. and A.J. Yeats (1995), "Have Transport Costs Contributed to the Relative decline of sub-Sahara African Exports?" World Bank Policy Research Paper no. 1559, Washington, DC.

Booth, D. and Kweka, J. (2004), " Priorities for Implementing the New Trade Policy for Tanzania" a report prepared for the Tanzania Trade and Poverty Programme for the Ministry of Industry and Trade, Dar es Salaam, Tanzania.

Gillson I, and A. Hewitt (2003) "Trade Content of PRSPs" *ODI Working Paper*, Overseas Development Institute, London.

Kweka, J., O. Morrissey and A. Blake 'Economic Potential of Tourism in Tanzania', *Journal of International Development*, 15, 335-351.

Lyakurwa, W. M., G. D. Mjema and L. Rutasitara (2001): A Regional Integration Study of East Africa – Tanzania Country Report – Final Draft, University of Dar es Salaam.

Madani, D. (1998): A Review of the Role and Impact of Export Processing Zones, World Bank, econ.worldbank.org/docs/965.pdf, 16/05/2003.

McKay, A., Ch. Milner and O. Morrissey (2000): The Trade and Welfare Effects of a Regional Economic Partnership Agreement, CREDIT Research Paper No. 00/8, University of Nottingham.

Milner, C., O. Morrissey and N. Rudaheranwa (2000) 'Policy and non-Policy Barriers to Trade and Implicit Taxation of Exports in Uganda', *Journal of Development Studies*, 37:2, 67-90.

Musonda, F. M (2000) The Impact of East African Integration on Tanzania's Economy, *Occasional Papers*, Konrad Adenaurer Foundation, Kenya.

Singh, B (1986) “Analysis of market Infrastructure Problems inn the Green revolution Region in Nigeria” *Economic Affairs*, Vol. 31, No 4.

UNCTAD (1999), ‘New Agenda for the Development of Africa in the 1990s: African Transport Infrastructure, Trade and Competitiveness”, UNCTD Secretariat Report, Geneva.

URT - United Republic of Tanzania (2000), ‘Commercialization/Privatization of the Transport Sector in Tanzania: Review of Progress and Prospects’ Ministry of Communication and Transport, Dar es Salaam.

TTPP (2003) “United Republic of Tanzania: Tariff Policy and Effective Rates of Protection“, a study by the Economic Research Bureau – University of Dar es Salaam for *United Republic of Tanzania*, as part of Tanzania Trade and Poverty Programme.

URT - United Republic of Tanzania (2003b), National Trade Policy 2003 – *Trade Policy for a Competitive Economy and Export-Led Growth*, Ministry of Industry and Trade, Dar es Salaam.

World Bank (2001) *Tanzania at the Turn of the Century: From Reforms to Sustained Growth and Poverty Reduction*, Washington, DC: Government of Tanzania and World Bank.

Wuyts, Marc (2003) ‘Economic Growth, Trade Integration and Employment: Reflections on Tanzania’, paper submitted to the Forum to Assess Development Policies in Tanzania, Dar es Salaam, 24-25 April.

APPENDIX

Table A4.1: Matching the Aggregated Sector/commodities

Code	Description	HS_2 Commodity[1]	I-O Sectors[2]	TRC Freights[3]
1	**Livestock**	**01-02, 04-05, 41-43**	**23, 25-26**	**Livestock**
2	**Food Products**	**06-08, 10-14**	**01-09,18-21**	**Maize, Grains**
3	**Cash crops**	**09+17+52**	**10-11, 13, 17, 37**	**Cotton and Coffee**
4	**Fish Products**	**3**	**24**	**Refrigerated Container**
5	**Manufactured foods**	**15-16, 18-21, 23**	**32-36, 38**	**Cotton Seeds**
6	**Beverages & Tobacco**	**22, 24**	**12, 39-41**	**Sugar**
7	**Mineral Products**	**25-27**	**28-31, 54**	**Salt, Oil (Petroleum)**
8	**Chemical Products**	**28-38**	**52-53**	**Fertilizer**
9	**Forestry Products**	**44-49**	**27, 49-51**	**Timber**
10	**Building Materials**	**68**	**58**	**Cement**
11	**Textile & leather**	**50-51, 53-67**	**42-48**	**Container (20 ft)**
12	**Metals & machinery**	**72-85**	**59-62**	**Motor Vehicles**
13	**Transport equipment**	**86-89**	**63**	**Motor Vehicles**
14	**Other manufactures**	**39-40, 69-71, 90-97**	**55-57, 64**	**Others/general goods**
15	**Other Cash crops**		**14-16, 22**	
16	**Electricity and Water**		**65-66**	
17	**Construction**		**67**	
18	**Trade & Busin. Services**		**68, 69, 73-75**	
19	**Transport &Comn.**		**70-72**	
20	**Public and other services**		**76-79**	

***Sources**: [1]URT, Tanzania Customs Department of Tanzania Revenue Authority (TRA); [2]URT, The 1992 Input-Output Table for Tanzania; and [3]Tanzania Railways Corporation (TRC) data files.*

Table A4.2: Indices of per Unit Surface Freight Charges by Commodities (1992=100)

Sector	1992	1997	1998	1999	2000	2001	Average
Livestock	**100**	**456**	**618**	**657**	**626**	**707**	**268**
Food Products	**100**	**220**	**226**	**240**	**290**	**293**	**120**
Cash crops	**100**	**287**	**341**	**360**	**379**	**407**	**162**
Fish Products	**100**	**167**	**174**	**185**	**194**	**209**	**90**
Manufactured foods	**100**	**184**	**290**	**340**	**356**	**383**	**139**
Beverages & Tobacco	**100**	**231**	**250**	**265**	**290**	**306**	**126**
Mineral Products	**100**	**259**	**382**	**407**	**435**	**464**	**173**
Chemical Products	**100**	**281**	**417**	**444**	**488**	**513**	**188**
Forestry Products	**100**	**184**	**203**	**208**	**219**	**235**	**103**
Building Materials	**100**	**292**	**337**	**373**	**749**	**620**	**200**
Textile & leather	**100**	**220**	**74**	**79**	**87**	**92**	**70**
Metals & machinery	**100**	**230**	**312**	**332**	**316**	**357**	**139**
Transport equipment	**100**	**230**	**312**	**332**	**316**	**357**	**139**
Other manufactures	**100**	**272**	**277**	**393**	**472**	**477**	**166**
Average	**100**	**102**	**137**	**154**	**162**	**189**	**149**

***Source**: Calculated from data on Unit Freight Cost obtained from TRC Data files.*
Note: The above estimates are in real terms after been deflated by using consumer price indices for the transport sector based on 1992 prices.

Table A5.1: Effective Rates of Protection due interactive effects of tariff and transport costs

Sector	1995	1999	2000	2001	Average
Livestock	**0.003**	**0.011**	**0.012**	**0.011**	**0.009**
Food Products	**0.020**	**0.025**	**0.020**	**0.011**	**0.019**
Cash crops	**0.113**	**0.051**	**0.046**	**0.062**	**0.068**
Fish Products	**0.007**	**0.001**	**0.001**	**0.001**	**0.002**
Manufactured foods	**0.026**	**0.018**	**0.017**	**0.034**	**0.024**
Beverages & Tobacco	**0.056**	**0.094**	**0.072**	**-0.004**	**0.054**
Mineral Products	**0.012**	**0.002**	**0.005**	**0.001**	**0.005**
Chemical Products	**0.008**	**0.003**	**0.003**	**0.002**	**0.004**
Forestry Products	**0.020**	**0.013**	**0.012**	**0.011**	**0.014**
Building Materials	**0.071**	**0.025**	**0.038**	**0.020**	**0.039**
Textile & leather	**-0.011**	**0.004**	**0.005**	**0.004**	**0.000**
Metals & machinery	**0.005**	**0.004**	**0.003**	**0.002**	**0.004**
Transport equipment	**0.004**	**0.004**	**0.005**	**0.003**	**0.004**
Other manufactures	**0.024**	**0.015**	**0.016**	**0.009**	**0.016**
Average	**0.026**	**0.019**	**0.018**	**0.012**	**0.019**

Source: Calculated as described in the text.

Table A5.2: Effective Taxation of exports due to interactive effects of tariff and transport charges

Sector	1995	1999	2000	2001	Average
Livestock	**0.003**	**0.004**	**0.003**	**0.002**	**0.003**
Food Products	**0.002**	**0.003**	**0.002**	**0.001**	**0.002**
Cash crops	**0.052**	**0.024**	**0.022**	**0.028**	**0.032**
Fish Products	**0.002**	**0.002**	**0.002**	**0.002**	**0.002**
Manufactured foods	**0.036**	**0.041**	**0.035**	**0.022**	**0.034**
Beverages & Tobacco	**0.036**	**0.033**	**0.027**	**0.016**	**0.028**
Mineral Products	**0.001**	**0.000**	**0.000**	**0.000**	**0.000**
Chemical Products	**0.001**	**0.000**	**0.001**	**0.000**	**0.001**
Forestry Products	**0.004**	**0.002**	**0.002**	**0.002**	**0.003**
Building Materials	**0.005**	**0.002**	**0.002**	**0.001**	**0.003**
Textile & leather	**0.034**	**0.017**	**0.016**	**0.020**	**0.022**
Metals & machinery	**0.002**	**0.001**	**0.001**	**0.001**	**0.001**
Transport equipment	**0.001**	**0.000**	**0.000**	**0.000**	**0.000**
Other manufactures	**0.005**	**0.002**	**0.003**	**0.001**	**0.003**
Average	**0.013**	**0.009**	**0.008**	**0.007**	**0.009**

Source: Calculated as described in the text.