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TRANSPORT TRENDS AND ECONOMICS

Studies on transport economics and track costs undertaken by other organizations

**Transmitted by the Organisation for Economic Co-Operation and Development (OECD)
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- Annex 1: Round Table 130 on Transport and Decentralisation;
- Annex 2: Round Table 131 on Transport and International Trade;
- Annex 3: Round Table 133 on The (de-) regulation of the Taxi Industry;
- Annex 4: Round Table 134 on “Europe and Central Asia: Trade In Transport Services, Market Access and Trade Facilitation”.

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Annex 1

ROUND TABLE 130 ON TRANSPORT AND DECENTRALISATION

Conclusions of Discussions

INTRODUCTION

Transport is a sector where the power wielded by government is omnipresent in organisation and management of networks and the overall regulation of activities. It is a sector where responsibilities are shared and one which is based upon a system involving many different actors operating at different geographical levels in accordance with rationales that are sometimes incompatible. The nature of central government and its relations with the sector also vary according to the mode of transport concerned, and according to whether the focus is on infrastructure or on the provision of the services which use that infrastructure.

While decentralisation is a policy pursued almost everywhere in Europe, the problem of ensuring that the financial resources needed to meet responsibilities is equally a problem almost everywhere.

Decentralisation has therefore become a topical issue. It is a fact that major decisions which have a direct impact on people's daily lives are taken in the transport sector. Roads, local rail services, airports or ports are subject to decisions that must satisfy a mix of local, regional, national and international imperatives. This explains why decentralisation in the transport field merits particularly close examination. The aim of the Round Table organised by the joint ECMT/OECD Transport Research Centre was to break new ground in this area of research, at least at the European level. While it largely drew on other experiences around the world, the conclusions presented in the following paper are an initial attempt to address a seldom discussed topic. The work of the Round Table can best be described as proceeding in five separate stages:

- first, the institutional framework;
- second, the issues at stake in the decentralisation debate;
- third, the aims of decentralisation;
- fourth, the arguments against decentralisation;
- fifth, the way towards better decision-making processes.

1. THE INSTITUTIONAL CONTEXT

In a study on the sharing of infrastructure responsibilities, TDIE² noted that in almost every European country responsibilities are broken down according to the geographical levels laid down by law. In the case of intercity services, both road and rail networks are often identified at either the national, regional or local level.

^{2/} European comparative study on the sharing of responsibilities for transport infrastructure (planning, programming, financing), TDIE, Paris, February 2005.

There are some exceptions such as Italy, however, where the transfer of responsibilities has not exactly followed this pattern, as well as France where local territorial authorities are responsible for roads that form part of the national network.

The distinction between the level at which infrastructure is organised also applies to services: a distinction is often drawn, for example, between local and territorial services. The same is also true of airports and maritime ports. In contrast, local public transport is in most cases the responsibility of municipalities, although as a general rule this does not mean to say that central government no longer makes major investments. Looking at the broader picture, we can concur with TDIE in saying that:

- Transport within the EU area, in terms of either networks or the services provided on those networks, is by definition a sector in which responsibilities are shared between the European Union, Member States, local authorities, and public and private operators.
- In most countries, it can be shown that while government involvement in the sector is determining, the notion of government power embraces a wide range of actors.
- Within the ECMT area, major transport infrastructure of national and European interest is in most cases the responsibility of States.
- Since the early 1980s, two trends have been apparent in all countries: deregulation of transport services and greater decentralisation of responsibilities with regard to both infrastructure and the supply of services.
- In Europe, the deregulation/decentralisation process, driven by European legislation, applies to most countries and is aimed at transferring infrastructure management to public or private operators likely to be capable of improving the efficiency of the transport system. A parallel goal is to shift the balance of the modal split towards “green” modes.
- In practically all countries, the very process of decentralisation raises the issue of how to ensure that the requisite financial resources are available to meet the responsibilities that have been transferred. This issue is more or less unrelated to the degree of fiscal autonomy of the local authorities concerned. States can continue to provide large-scale support to help regional authorities implement the decisions for which they are now responsible, particularly with regard to investment. The issue of how to match resources to different decision-making levels and different modes of transport frequently gives rise to complex discussions.
- It is to be noted that in most cases central government retains the right to tax infrastructure use and to levy taxes and charges on transport activities, with the exception of urban public transport services. It is a given in EU Member States that the decentralisation of transport and responsibilities does not imply the transfer of the power to tax of such activities. Revenue from transport activities makes a substantial contribution to government budgets.
- Consequently, a distinction can therefore be drawn between decentralisation, as a political process, and the mechanisms for allocating public funding, which for the most part remain centralised. It is therefore instructive to review the aims and challenges of the debate over decentralisation.

2. THE ISSUES AT STAKE IN THE DECENTRALISATION DEBATE

As matters stand at present, no-one can state conclusively what benefits transport derive from decentralisation. The few examples of decentralisation in this area that have been analysed in depth are far too recent to be able to draw any firm conclusions. The aim of decentralisation in the transport sector is clearly to bring decision-making centres closer to the actual point of delivery of transport services, while the parallel political process is to bring elected officials closer to their constituencies and thereby make them accountable for their decisions to the people who elected them. There is also a perception that the major monopolies in the transport sector currently being made to compete against each other would benefit from being broken down into smaller sized units, even if no more than at the decision-making level. The desire for transparency in the supply of public transport services as well as open negotiations with local elected representatives over the contents of such services, and in particular the public service obligation, provide the political impetus for decentralisation.

Decentralisation is therefore driven by a desire to make public services, as well as the enterprises providing those services, more efficient, and also to make elected officials assume greater responsibility. In addition, given the diversity of local conditions in demographic, geographical, sociological or economic terms, using central government to address the needs of the regions has many shortcomings: supply of inappropriate services, excessive costs, administrative bureaucracy, disempowerment of local representatives, etc. The advocates of decentralisation are therefore motivated by a desire to improve governmental decision-making processes.

Account needs to be taken of the fact that the transport sector is highly disparate. This can readily be seen the fact that the transport sector comprises not only land modes but also maritime shipping and air transport, that transport services may be local, regional, national international or intercontinental, that some services are supplied in the form of public transport while others are subject to market forces, that infrastructure may be of local, regional, national or international significance, etc. This disparity makes it difficult to adopt a holistic approach and complicates the task of the legislator. Some of the impacts of transport such as pollution caused by greenhouse gas emissions are of global significance, whereas others such as noise or congestion are felt at the local level. Formulating transport policy measures is therefore difficult in that their impacts are felt not only by the local population but also by interregional populations and, in the case of greenhouse gases, even those of other countries. Establishing which population will be affected by transport measures allows policy-makers to determine the appropriate level at which to act. However, there are also spillover effects which mean that, besides those living in the vicinity of a given infrastructure, a large segment of the population, for example, can suffer the consequences of traffic. Congestion, which is a local phenomenon, can therefore have an adverse effect on long-distance transit flows, and in particularly severe cases at critical locations can also damage international trade. This shows that the impacts of transport are the concern not only of local authorities but also of national and international authorities. Formulating a

coherent transport policy that takes account of the multiple dimensions of transport clearly calls for inter-institutional mechanisms. However, forcing local elected representatives to take account of the imperatives of international transport policy can lead to conflict in the event of incompatibilities. This is what happens, for example, when the construction of infrastructure for long-distance traffic meets with opposition from local residents.

Another question that arises is that of financial resources, in that in many cases, as mentioned earlier in this report, taxes are levied by central government while expenditures are incurred at the local level. There may therefore be a mismatch between the amounts redistributed and actual local expenditure. The levying mechanisms themselves may also fail to establish an appropriate link between expenditure on project funding and the taxes levied. It is only logical for those benefiting from an infrastructure to help cover its costs. This argues in favour of road taxes or tolls, but at present the lion's share of income from the transport sector is provided by fuel taxes and therefore only establishes a tenuous link between infrastructure usage and the contribution of such infrastructure to costs.

In view of these considerations which reveal both difficulties and contradictions, decentralisation can only be seen as a means of achieving certain goals. Let us examine this point in greater detail.

3. THE AIMS OF DECENTRALISATION

As noted above, two goals provide the main impetus for the move towards decentralisation: the desire to give actors greater power and responsibilities and the desire to allocate resources more efficiently. Bringing decision-making centres closer to events on the ground reinforces the empowerment of locally elected representatives and, as a corollary, strengthens the perception that public expenditure and decision-making is better matched to the real needs of inhabitants. The diversity of local situations and therefore the impossibility of timely decision-making by central government make this abundantly clear.

In one way the aim of central government is to discharge itself of difficult tasks such as the planning and specification of local rail services, which are transferred to regional decision-making bodies better placed to assess the timeliness and form of such services. At the same time, local elected representatives are keen to assume greater responsibility, since it is in the nature of things for a politician to want greater power. It is therefore clear that a political move towards decentralisation is easier to pursue than the opposite policy of recentralisation.

Furthermore, it is easier to involve people in the decision-making process at the local level in the form of consultations than it is at the level of central government, with the result that there is every likelihood that decisions will be more readily adopted definitively by the population. The involvement of the population in infrastructure projects at a point far upstream in the process makes it easier to secure approval for such projects. The result is that decentralisation can help

to unblock projects that have stalled.

It is therefore easy to understand that a link can exist between decentralisation and democratisation. Greater account can be taken of the demand from citizens for recognition of their identity and the diversity of local situations if decisions are decentralised than in the opposing case.

It is also at the local level that it is easier to determine whether the services provided by an operator are commensurate with their cost. For example, if certain public service franchise contracts are opaque, shortcomings will be perceived more clearly at the local level, as will the need to obtain a high quality, cost-effective service. Decentralisation can therefore ensure greater efficiency in the allocation of resources. Decentralisation increases the transparency of the prices and costs of services supplied by firms awarded contracts by local authorities. Resources are therefore allocated more efficiently than in a centrally administered economy.

Taken to its extreme, resources are allocated more efficiently in an economy based on privatised services in which redistribution objectives are met through direct subsidies to individuals. In practice, however, privatisation and decentralisation are interchangeable rather than complementary. Privatisation is a politically harder process to pursue than decentralisation, and in fact is practically irreversible.

Awarding a franchise to a supplier of services is fraught with hazards in that the franchise contract must be flexible enough to allow the terms of the contract to be adjusted to match changes in context (variations in the economic climate, technology, political or social conditions). It is also extremely difficult to establish a framework that is relevant in the long run if the franchisee is only offered a short-term contract which provides no incentive for him to invest. This shows the importance of having regulatory authorities that are free of any outside pressure to supervise the contractual commitments entered into by the parties. It is in this way that decentralisation goes hand in hand with national, if not supranational, economic regulation.

Decentralisation therefore does not dispense with economic regulation by appropriate bodies given that decentralisation can exacerbate disparities between regions and work against the principle of equality. There are indeed arguments against decentralisation.

4. THE ARGUMENTS AGAINST DECENTRALISATION

If the public authorities are viewed as the bodies which implement sovereign functions, then it is clear that economies of scale can be achieved by maintaining a centralised organisation. The same is true of R&D into new processes, where by maintaining a centralised unit it is possible to generate substantial gains. This only holds true, however, if there is a certain degree of territorial uniformity such that a unique solution formulated by central government can meet the aspirations of different populations.

Another factor that argues in favour of maintaining some form of centralisation relates to spillovers. Greenhouse gas emissions, for example, have repercussions at the planetary level, hence the need to adopt a centralised approach to compensatory mechanisms. Moreover, it is clear that transport impacts on other areas of life such as housing, hence the need for an integrated approach to transport issues.

It is also worth noting that decentralising governmental powers increases the risk of local government falling under the sway of local actors. This problem would be particularly acute were there no regulatory bodies to provide safeguards. Such bodies, by encouraging comparisons of the terms of franchise contracts, would make it possible to issue comparative standards.

In contrast, the Round Table recognised that it was not possible to draw any firm conclusion regarding the issue of corruption. Corruption is not necessarily increased by decentralisation, although it is a severe problem in Europe's peripheral areas.

Another very real phenomenon is the bidding war between regions seeking to attract firms by offering tax cuts and incentives. While this type of competition has a positive side, in that it puts pressure on government to reduce the tax burden and thereby rationalise expenditure, there is a very real danger that regions are competing against each other to offer firms the best possible tax conditions to the detriment of funding for sovereign actions.

There is also a risk of overcapacity. This can be seen, for example, in countries where individual autonomous communities each invest in their own port facilities and where the lack of an overall master plan leads to overcapacity. It should nonetheless be recognised that if economic logic were applied with the requisite rigour, any over-investment would be sanctioned by the inability to secure a return on the investment, which would thereby put an end to any expansionist policy that went beyond the actual needs of the local or regional economy.

The need to co-ordinate the actions of local, regional, national and international authorities is particularly important in the case of road infrastructure which, in addition to local traffic, also carries transit traffic. Radical decentralisation would result in a failure to take account of national and international imperatives. That the problem is a serious one can clearly be seen from the example of certain countries which refuse to accept transit traffic. The only viable possibility is to provide for compensation mechanisms so that the essential requirements of populations other than those in the country concerned are duly taken into account. The question that arises here is that of the incentives put in place.

Decentralisation can only be envisaged if it leads to greater transparency in the costs of decentralised systems, transparency that in fact it helps to achieve. If not, decentralisation could well exacerbate shortcomings in the allocation of resources by encouraging government to press

on ahead regardless in response to electors who are unaware of the real cost of the services demanded.

Decentralisation can also upset the principles of equity and social cohesion. Decentralisation therefore calls for clarification of the redistributive policy pursued by central government. It needs to be said that such a debate, despite the good it would undoubtedly do, scarcely seems conceivable on such a politically sensitive issue.

The benefits of decentralisation can extend beyond the boundaries of the transport sector. When funding problems arise, the question is how to secure the rents that have been created. Allowing tax-levying powers to remain in the hands of central government may result in an impasse.

Faced with transport systems exhibiting the attributes of networks, decentralisation may be perceived as a process of fragmentation in which the very concept of a network is lost.

At a time when sustainable development is starting to take centre stage in the development of decision-making processes, its environmental dimension in the form of transport externalities does not necessarily argue in favour of decentralisation. Many environmental effects have a global dimension and therefore require decisions to be taken at the supranational level.

5. CONCLUSIONS: THE WAY TOWARDS BETTER DECISION-MAKING PROCESSES

Transport systems are complex because of their number and because they relate to many aspects of our economic systems such as land use, housing, the environment or even economic development. Any decision about one field of the transport sector must therefore take account of its impacts on other spheres of economic and social activity.

There nonetheless exists a non-negligible amount of room for manoeuvre in the process of devolving power to improve the efficiency of the transport system and bring it closer into line with the aspirations of local residents and populations. However, any attempt by central government to divest itself of budgetary responsibilities would simply devalue the potential gains from decentralisation.

There are arguments both for and against decentralisation. Rather than proposing an ideal solution to fit all circumstances, the Round Table preferred to stress that there do exist virtuous decentralisation processes which need to take account of local circumstances, the ranking of objectives and the attributes of the transport system in question.

In this respect, decentralisation has a greater chance of success if it is applied to components of the transport system which have low externalities, which can easily be charged for infrastructure use and which do not have the most onerous requirements with regard to interoperability. A low risk of capture by the regulated agent is another non-negligible aspect.

Responsibilities can be ranked according to the strategic, tactical or operational level at which the responsibilities to be decentralised lie. Logically, the strategic level remains the sovereign responsibility of central government, whereas the operational and managerial sides can be decentralised. Changes in the levying of tax resources must accompany the decentralisation process, although it is clear that the former must be accompanied by a movement towards greater transparency in the prices and costs of decentralised systems. Prices must be allowed to play their role fully in the allocation of resources, and it is inevitable that local involvement in decision-making will have counterparts in the form of a price to pay. Consequently, a local decision to build new infrastructure requires the local population to cover part of the costs.

Privatisation and decentralisation have the similar goals of increasing economic efficiency. Privatisation – the more radical approach – is more efficient in that respect, but is often irreversible and creates different political obstacles to those associated with decentralisation. The latter, once the rhetoric has ceased, is often liked by local politicians as it widens their scope of action.

No conclusion can be drawn with regard to the issue of the degree of corruption of decentralised decisions. Corruption is probably due to other factors than those relating specifically to decentralised decisions. Likewise, lobbies are probably less organised at the local rather than national level. Local conditions may not be typical, however.

If local elected representatives are to take account of national and supranational interests there need to be procedures to allow decisions to be taken jointly, and it is feasible that the leeway afforded local decision-makers will be bounded by regulatory or financial incentives contain the seeds of the general interest of all. The same is true of interregional co-operation. This is an area where there is scope to discuss and analyse inter-institutional mechanisms and one which requires a pragmatic approach.

It appeared at the Round Table that it was difficult to draw any more specific conclusions due to the lack of data on experiments that were either still in progress or completed. It is therefore essential for the discussion on decentralisation to collect statistical and financial information on the performance of transport systems that have been decentralised with the aim of achieving transparency. In addition, case histories and international comparisons, carried out in accordance with standard methods, would be of invaluable assistance to the scientific community in providing follow-up to policy decisions.

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Annex 2

ROUND TABLE 131: TRANSPORT AND INTERNATIONAL TRADE

SUMMARY

The Round Table assessed the role of transport policy in supporting international economic integration and the realisation of the potential income gains from international trade. Background papers were provided by David Hummels (Purdue University), Anthony Venables (London School of Economics and Political Science) as well as John S. Wilson and Harry Broadman (World Bank).

The Round Table started out from a discussion of how international transport costs have developed in the last decades. In contrast to the popular assumption that the currently observed globalisation is, to a large extent, due to the decrease of transportation costs, the empirics show a more differentiated picture:

- The traditional measure of transport costs per tonne, which is important for estimates of the development of transport equipment use and infrastructure planning, does not show a secular, overall decline in international transport costs. Ocean shipping prices increased from the beginning of the seventies until the mid-eighties and have declined since then. Prices of maritime transport services per tonne are, however, about the same as they were at the beginning of the seventies.
- International transport costs per tonne have declined for air transport, although not in such a dramatic way that it could account for the strong intensification of international trade.
- More important for the measurement of the trade frictions resulting from transport costs is the cost of transport service per value of goods traded. While corresponding prices for ocean shipping have decreased for some countries and some goods, this is not a universal phenomenon.
- Transport costs per value units have substantially decreased for air transport.
- The increase in international trade has been accompanied by a massive increase in the value/weight ratio of the goods traded. This implies the increased impact of variations in international transport costs on the incentives to trade goods and services internationally.
- The structural shift of trade flows has been accompanied by a strong shift in the modal split of international transport.

A first indication of the importance of transport costs and transport policies for international trade is obtained from empirical studies of the importance of distance for international trade relations. Roughly half of the world's trade takes place between countries located within 3 000 kilometres of each other. This picture has not been changed significantly by the fact that long-distance transport costs decrease more sharply than costs for short-distance transport. Bilateral trade costs are strongly influenced by trade volumes, indicating that trade costs are dependent on

the fixed costs of transport infrastructure facilities. For smaller countries, this implies high benefits from co-ordinated investment in international transport infrastructure.

The Round Table discussed the consequences which transport costs have for national incomes if the economies export part of their production and import part of their intermediate goods. The poorer the countries are, the more likely that the opportunity costs of high trade costs will have to be borne by the wage earners. If the production exhibits increasing returns to scale, transport costs also strongly influence firms' location decisions. In general, the accessibility and size of an economy favour location decisions by monopolistically competitive industries. Small countries could suffer from the reduction in transport costs, if the costs remain in an intermediate range.

Transport policy has a particular role to play in reducing transport costs by infrastructure investment. The background papers and the discussion at the Round Table confirmed that infrastructure investment plays a crucial role for the level of trade costs. As the benefits of transport infrastructure investment, which helps international trade, do not only accrue to the domestic population, there is a strong need for international co-ordination in order to avoid a persistent tendency towards underinvestment in international transport infrastructure.

When policy barriers to international trade are reduced, behind-border policies, traditionally considered to be national policies, gain importance to help further international economic integration. The Round Table discussed four areas of reform which bear upon international trade costs, measures to increase "port efficiency" (broadly defined), the reform of customs procedures, investment in IT infrastructure and regulatory reform. The background papers to the Round Table discussion showed large trade gains to be expected from these reform steps globally, and in middle and eastern European countries in particular.

The analysis revealed major differences in distances from best practice benchmarks between the new EU 8 Member countries and the sample candidate EU Member countries. With respect to a possible sequencing of measures, it is important to note that the greatest absolute trade gains, of US \$49 billion and US \$62 billion, would result if the port efficiency and IT infrastructure reached half the average level of the EU15. Seventy per cent of these gains would result from export expansion.

Again, initiatives to facilitate trade are associated with international co-ordination problems, as the benefits of their implementation do not only occur domestically but also in the trading partners' countries. Without co-ordination mechanisms, it is likely that too little effort will be allocated to trade facilitation measures.

1. TRANSPORT COSTS AND THEIR IMPACT ON INTERNATIONAL TRADE

1.1. Introduction

There is widespread agreement that the reduction in long-distance transport and communications costs has been an important determinant of today's globalisation. In view of this consensus, relatively little research has been carried out on what transport policy's role has been in bringing about the decline in transport costs and, more importantly, which challenges transport policy has to face in a globalising world and how to respond to them.

One reason for this contrast has been the fact that transport costs, or more generally trade costs other than trade policy barriers, have traditionally been largely neglected, not only in international economics but in macroeconomics more generally. Obstfeld and Rogoff (2000) argue, for example, that all the major unresolved problems of international macroeconomics hang on trade costs.

Trade costs, broadly defined, include not only transport costs but all costs incurred in getting a good to the final user, minus the marginal costs of production: policy barriers (tariffs and non-tariff barriers), information costs, contract enforcement costs, costs associated with the use of different currencies, legal and regulatory costs and local distribution costs (wholesale and retail). Transport costs are not only freight but also time costs. Given the broad definition of trade costs, it is clear that transport policy plays a central role in their determination rather than only in narrowly-defined transport costs.

For a long time it was believed that trade costs other than policy barriers would be of minor importance for the volume and structure of international trade. Recently, it has been acknowledged that trade costs are large and varied. A prominent example is given in the literature (Feenstra, 1998) to illustrate the potentially large effects: the production costs for Mattel's Barbie doll is 1 US dollar, while it sells for 10 US dollars on the US market, without any policy barrier to its importation. The costs of transportation, marketing, wholesaling and retailing represent an *ad valorem* tax equivalent of 900 per cent.

A rough overall estimate of the tax equivalent of representative trade costs for industrialised countries is 170 per cent. It breaks down into 21 per cent transport costs, 44 per cent border-related trade barriers, and 55 per cent retail and wholesale distribution costs. The 21 per cent transport costs estimate includes directly measured freight costs and a 9 per cent tax equivalent of the time value for goods in transit (Anderson and Wincoop, 2004a, p. 692).

By contrast, direct evidence on border costs shows that tariff barriers are now low, on average less than 5 per cent for rich countries, and with a few exceptions average between 10 and 20 per cent for developing countries.

High value-to-weight goods are less penalised by transport costs. The value of the timeliness of transportation varies across goods and over time, explaining the modal split and its gradual development. The empirical picture of how transport costs influenced and influence international trade was presented by David Hummels in his paper, *Transportation Costs Over Time*.

The impact of transport costs on international trade points to the importance of transport policy for the overall economic development of national economies, depending on their access to export and import markets. The paper by Anthony Venables, *Infrastructure, Trade Costs and Gains From International Trade*, introduced the mechanisms by which transport policy can help to reduce trade costs and how reduced trade costs change the real income of the countries involved. Although distance is a powerful explanatory variable for international trade, trade theory did have relatively little to say about its implications. The question of how transport costs determine not just the volume of trade but industrial structure, factor prices and income across countries is particularly important for low-income countries, some of which, even after trade liberalisation, find participation in world trade impeded by transport costs and other real trade barriers.

Long distances to relevant export and import markets, having a poor infrastructure and/or being landlocked by neighbours with poor infrastructure can make transport costs many times higher for some poorer countries than for developed countries. For these countries, trade costs have dramatic effects in reducing trade volumes. Estimates suggest that doubling transport costs approximately halves trade flows, and landlocked countries have 50 per cent higher transport costs than otherwise similar coastal economies (Venables and Limão, 2002). Gallup and Sachs (1999) and Radelet and Sachs (1999) have shown that high transport costs can damage countries' export performances and growth. The Round Table discussed in detail the role of transport policy in reducing international trade costs, which crucially depend on the structure of product markets. Consequently, the planning and evaluation of transport policy measures have to be based on an analysis of the sectors demanding transport service, including export and import sectors.

Within the category of transport policies which help international trade, trade facilitation measures are of particular importance. The background paper of Wilson, Luo and Broadman, *Trade and Transport Facilitation: European Accession and Capacity Building Priorities*, examines trade facilitation and capacity building priorities in twelve countries in Europe and the Central Asian Region. Based on data from the World Economic Forum, indicators of port efficiency, regulatory regimes, IT infrastructure and customs regimes were analysed to determine the most effective instruments to reduce trade costs. The Round Table discussed the reform steps, considered in the light of the differences between individual countries and the progress achieved so far. Measures to facilitate trade promise substantial benefits for the countries which are part of the integration process.

2. THE DEVELOPMENT OF INTERNATIONAL TRANSPORT COSTS

Direct international transport costs include freight charges and insurance, which is customarily added to the freight charge. Indirect transport costs include holding costs for the goods in transit, inventory costs due to buffering the variability of delivery dates, preparation costs associated with shipment size, etc. There is usually no direct evidence of the indirect cost of transport. Direct information on transport costs is obtained by quotes from shipping firms for standard transport services (as in Hummels, 2001b), on ocean shipping and air freight. Indirect sources are census data for the US on imports, by exporter country, mode of transport and entry point, by weight and valued at c.i.f. and f.o.b. prices. A more widely available but less satisfactory source of *ad valorem* transport costs are the aggregate bilateral c.i.f./f.o.b. ratios produced by the IMF from matching export data (reported in f.o.b. values with import data reported in c.i.f. values)^{3/}.

A first indication of the development of international transport costs can be obtained by looking at the import wedge, i.e. the price of goods at the exporter's departure port relative to the price at the importer's destination. The data on the development of the import wedge presented to the Round Table came from customs declaration forms, in which firms report c.i.f. and f.o.b. values of the shipment measured. The *ad valorem* shipping costs for all goods have not decreased, in contrast to widespread perceptions about what has driven the recent increase in international trade, for most of the countries in the sample and between 1994 and 2000. Shipping costs create a substantial wedge between home and foreign price, except for the US whose imports are dominated by North American goods with very low shipping rates. Rates differ substantially across products, with *ad valorem* costs being much higher for bulk commodities than for manufactured goods.

The aggregate import wedge has not decreased much either. The data for New Zealand and the US, countries for which longer time series are available, show that *ad valorem* freight costs have been fairly stable on average for New Zealand over the last four decades, and have decreased for the US since the time of the first oil shock.

However, behind the stable aggregate figures lie major shifts from ocean shipping to air transport and dramatic differences in the development of shipping costs across modes. Leaving aside very large price spikes in the oil shock years, time charter series for ocean shipping show no clear decline, while the voyage charter series exhibit a downward trend relative to the US GDP deflator. Also, the liner shipping price index of the German Ministry of Transport shows a strong upward trend from 1954 to 1984 and a downward trend since then with liner shipping prices in 2004 being about the same as in 1970.

A clear downward trend in transport costs is observed for air transport. Measured in prices per kg shipped there is an average worldwide of 1.5 per cent per annum. Declines in *ad valorem* rates

^{3/} As Hummels (2001b) has reported, a high share of the observations is imputed, severely limiting the value of the data for analytical purposes.

are much larger. The decrease is 3.5 per cent over all routes.

The sourcing wedge compares prices for two different foreign sources of supply. The size of the sourcing wedge is mainly influenced by distance and transport scale economies. In contrast to what has been considered to be the most important determinants of trade flows in the theoretic literature, distance has been and remains a crucial factor to explain international trade. Roughly half of the world trade takes place between countries located within 3000 km of each other. While the increase of transport costs with distance decreases over time, this had remarkably little influence on the impact of distance on trade. In fact, there is an ongoing debate on whether the results on the importance of distance for trade should not give reason to doubts on the usefulness of the methods of analysis: For example, Grossman (1998) pointed out that the distance coefficients found in empirical studies implied that regions which are 500 miles apart trade 2.67 time more with each other than regions that are 1000 miles apart. Introducing information barriers (Portes and Rey 2002) or levels instead of logarithmic argument values in the estimation equations reduces the coefficient value for distance (Coe et al. 2002) without removing the strong influence of distance, indicating in turn a strong influence of transport costs and transport policy on international trade.

The fact that the influence of distance on international trade has not decreased in recent years has been termed the “missing globalisation puzzle”. It is based on the finding in a large number of studies that the distance elasticity has not declined or has even risen over time (see a survey of this literature in Coe et al. 2002). The perception of a puzzle is due to the presumption that transport costs have generally declined. Attempts to solve the puzzle have been inconclusive so far (e.g. Brun et al. 2002).

A second major factor in the size of the sourcing wedge is scale economies, or rather decreasing average costs in shipping. The evidence shows that larger importers have clearly smaller shipping costs for comparable goods. More systematically Hummels and Skiba (2004) have estimated that doubling bilateral trade quantities results in a 12 per cent reduction in shipping costs.

One of the reasons for decreasing transport costs in international trade lies in the indivisibility of transport infrastructure. The high fixed costs, for example for port facilities, points to an important demand for international transport policy co-ordination between smaller countries. The round Table discussed the observed co-ordination failures in Europe and elsewhere and the ensuing disadvantage of high international trade costs. Other cost advantages correlated with trade volumes result from an increasing set of specialised services, as well as the profitability of larger vessels and aircrafts with lower unit costs for transportation services.

The link between transport costs and international trade has dramatically changed its character, due to a shift in the composition of world trade with respect to value per ton over the last 30 years. WTO data show that the real value of trade grew 18-fold in real terms between 1970 and

1999, while trade in manufactures grew 22-fold, trade in agricultural and mining goods growing only to a 10-fold level. With these structural shifts the value/weight ratio increased by more than 900 per cent since 1970.

The increase of the value/weight ratio is mirrored by the change of the modal shift. Air shipment is more likely to be used when the ad valorem price differential between the modes is small. This is the more the case the smaller the freight bill relative to the unit value of the good, that is, when the value/weight ratio is large.

One reason for the increase in the value/weight ratio of the goods traded may be the fact that the technology content of the goods increases. Technology intensive goods, or fashion goods, tend to have a highly volatile market demand, due to either short (technical) product cycles or fashion cycles. An increase of the share of technology or fashion goods in the total of the goods traded implies an increase of the demand for timeliness of transport services and for the speed of transport. As an example, Evan and Harrigan (2003) demonstrate that apparel is an example where ideal characteristics are difficult to discern and therefore firms produce and ship close to sales dates. The requirement of short shipping periods had even led to the relocation of outsourced production to less distant countries. As Hummels has argued, the structure of goods traded changes towards more complex manufactured goods (Hummels 2001a). For transport policy this has the consequence that the geography of freight flows and the associated demands for investment in transport infrastructure changes. The structural shift towards more time sensitive goods is expected to be paralleled by a shift from ocean shipping and land transport towards air shipping as it is associated with an increase of the value/weight ratio. Harrigan and Venables (2004) argue that time costs are qualitatively different from monetary trade costs in that they promote clustering of economic activities.

3. TRANSPORT COSTS, INTERNATIONAL TRADE AND ECONOMIC DEVELOPMENT

A second major discussion block of the Round Table addressed the question of how reduced transport costs lead to repercussions outside the transport sector. If these effects are important to the overall economy, it is important that the planning and evaluation of transport policy measures takes account of these effects. This holds in particular for decisions to invest in transport infrastructure. As part of the benefits of transport policy measures that support international economic relations will not accrue to the domestic population but to firms and households in foreign countries, a lack of coordination between national and regional governments is likely to lead to a persistent underinvestment in international transport facilities. The first part of the Round Table discussion led to the assessment that the costs of international transport had much less declined than what was often presupposed. The second discussion block aimed at identifying the mechanisms by which the reduction of international transport costs benefit the overall economy.

The dimension of the impact of international transport costs on national incomes depends first of all on the structure of the markets of traded goods. For perfectly competitive markets the point of departure of the assessment of income effects of reduced international transport costs is an economy whose exports are produced using imported inputs. High transport costs squeeze the domestic value added of such an economy in two ways: The domestic producer receives the world market price of the export good minus the (high) shipping costs for the export good and pays a relatively full import price which includes the shipping costs for imported inputs. The numerical example given in the background paper of Venables shows, how small changes in trade costs may have strong effects on domestic incomes. Given the typical capital-labour-endowments of countries which have at the same time a poor transport infrastructure, the consequences of higher trade costs will have to be borne almost entirely by wage earners.

How strong these effects are, depends on the transport intensity of the economy (Venables and Limao 2002). If peripheral countries typically exported goods which have a low transport intensity, the wage squeeze resulting from high trade costs could be relatively unimportant. In fact, there seems to be a close correlation between how much skills are used in producing export goods and their transport intensity. For example, one of the fastest growing parts of world trade has been trade in parts and components as firms outsource various stages of the production process. While individual components may be cheap to transport, this sort of activity is highly dependent both on imported inputs and on exporting the outputs. This is why the overall production is “transport intensive”. The destination countries of outsourcing may therefore be strongly affected by the wage squeeze resulting from trade costs.

High international transport costs have stronger effects on national incomes the smaller the non-tradeable sector and the larger absolute disadvantages in the production of goods which are imported rather than produced domestically at low levels of trade costs.

When (potential) export industries produce under increasing returns to scale in sectors with horizontally differentiated products, firms face the choice of where to locate a plant of minimum efficient scale. The level of transport costs then strongly affects location choices as well. The Round Table discussed how the additional dimension of firm mobility modifies the link between international transport costs and national incomes. In the framework of the theoretical models of economic geography the effect of transport costs on the location decisions of firms are greatest when they are neither very high (location decisions are then dominated by local demand as trade volumes become very small) nor very low (firms are then indifferent as to where to locate). The better the market access of an economy the higher will be nominal and real wages. Smaller countries are disadvantaged at intermediate levels of transport costs. With intermediate transport costs small countries are exposed to strong import competition. Small countries benefit most from a reduction of trade costs beyond in intermediate level.

High trade costs and low levels of international trade may have other negative consequences for

national incomes and the catching up of poorer economies: With international trade, countries with relatively small R&D sectors may benefit from spillovers of technical and organizational knowledge (Coe and Helpman 1995). Lower transport costs might also help Foreign Direct Investments if they are of a vertical type. Vertical FDI results from parts of domestic production processes being relocated to foreign countries with different relative factor prices. As is well known foreign direct investment can also strongly support the international diffusion of technical and organisational knowledge (Barba Navaretti et al. 2004b).

The empirical evidence on the above relationship between market access which were discussed by the Round Table suggests that there is a strong positive relationship between income and market access. For example, focussing on Europe, there is evidence of a wage gradient from Belgium/Luxembourg (with the best foreign market access) through France, Britain, to Spain, Portugal and Greece. Hypothetical experiments on the basis of the estimated relationship between market access and income show that being landlocked and being an island both have negative effects on income. Changing the countries' trade openness from the 1994 value to the most open status possible led to extremely large income gains, of around 25 per cent for countries that were relatively closed in the initial situation.

To obtain a quantitative picture of the extent to which transport policy contributes to openness the impact of infrastructure investments on openness was analysed. The infrastructure measure used was designed to measure the costs of travel in and through a country. It was constructed as an average of the density of the road network, the paved road network, the rail network and the number of telephone main lines per person. The results point to the importance of infrastructure in determining both trade costs and trade volumes. To quantify the magnitude of the infrastructure effects the estimated elasticities were used to establish the costs and benefits of being at different points in the distribution of countries by infrastructure. Improving the infrastructure from the median to the top 25th percentile reduces the c.i.f./f.o.b. ratio from its median value of 1.28 to 1.12. This reduction could increase the trade volume by a full 68 per cent.

The results of the theoretical and empirical analysis of the effects of trade costs on incomes and of transport policies, in particular infrastructure investment for trade costs suggests that these effects deserve more attention in cost benefit and policy analyses than they received in the past. The analysis also shows that the costs of a failure to internationally coordinate transport policies and in particular transport infrastructure investment might have high opportunity costs in terms of real income and wages.

To proceed from these conclusions to the implementation of trade cost reducing measures requires an understanding of which measures are the most cost effective in which economic circumstances. It also must take account of the high resource requirements that some of the trade cost reducing measures are associated with. The background paper provided by Wilson, Luo and

Broadman “Trade and transport facilitation: European accession and capacity building priorities” aims at the identification of measures that predominantly behind the border measures of national policies which have a high potential of promoting the *international* integration, in particular of Western and Middle and Easter European economies.

4. TRADE FACILITATION

Traditional definitions of “trade facilitation” focussed on narrow measures to achieve the reduction of international trade costs. With the policy barriers to international trade being much reduced further progress in greater economic integration depends on improved efficiency in logistics at ports and customs but also streamlined regulatory policies, deeper harmonisation of standards, and conformance to international norms so that overall transaction costs are lowered. At the centre of the current policy proposals of trade facilitation are domestic reforms. They include greater transparency for customs procedures, ensuring that operational decisions are rules-based (rather than discretionary), enhancing the professionalism of customs officials, harmonizing product and technical standards with international or regional regulations, and strengthening the integration of new technologies into the transport and communications infrastructure. This holds as well and in particular for the transition countries of Europe, CIS and Central Asia.

The increased importance of the domestic reform steps to facilitate trade has been reflected in changes of the agenda of international trade negotiations. Trade facilitation was added to the policy dialogue on trade issues at the Singapore Ministerial of the WTO in 1996. Moreover, in August 2004 the WTO decided to focus part of the negotiations currently underway in the Doha Round to trade facilitation issues. They are today at the centre of the Doha Development Agenda. The European Union has been a leading advocate of discussing regulatory reform, modernisation of customs regimes, and infrastructure investment related to lowering trade logistics costs as part of such negotiations.

The empirical study which served as a background paper of the Round Table discussion was based on a paper of Wilson, Mann and Otsuki (2004). It uses four separate indicators to estimate trade gains due to trade facilitation progress in:

- port efficiency,
- customs regimes,
- regulatory policy, and
- information technology infrastructure.

On a global basis, the study of Wilson, Mann and Otsuki (2004) suggests that increased port efficiency, improved customs regimes, streamlined and/or harmonised regulatory policies can lead to substantial trade gains. Their analysis indicates that for the 75 sample countries in the global study, raising capacity halfway to the global average would yield a US \$ 377 billion gain

to world trade. In the background paper of the Round Table the same analytical approach was applied to eight new members of the EU, and four accession candidate members, Bulgaria, Croatia, Romania, and Turkey.

The analysis uses a gravity model of bilateral trade flows. The estimated gravity equations are used to simulate prospective country specific measures to facilitate trade in the four dimensions listed above. Indicators are constructed to measure the degree of trade facilitation in the sample countries relative to benchmark countries which have been defined using data of the World Competitiveness Yearbook (IMD) in 2000. Singapore was the best performer in port efficiency and Finland the best performer in the other three areas. For each country the indicator “port efficiency” is an average of the efficiency of port facilities, inland waterways facilities and air transport. The indicator “customs regimes” captures the hidden import barriers other than published tariffs and quotas, and the irregular extra payments or bribes connected with import and export permits. The indicator “regulatory” policy is constructed as the average of the transparency of government policy and the control of corruption. Finally, the indicator “information technology infrastructure” is a measure of the speed and cost of internet access and the contribution of the internet to the reduction of the inventory cost. Inevitably, the operationalisation of policy variables for areas as broad and diverse as those to measure trade facilitation invites critical discussion. Potential improvements of the indicators notwithstanding, the results of the empirical analysis are highly illustrative of the achievements and remaining actions required by the countries in the sample.

The analysis revealed that EU8 member countries still have deficits with respect to the four areas of trade facilitation. As to three candidate member countries (Bulgaria, Romania and Turkey), the development of their trade facilitation is further behind, the state of their customs regimes being 58 per cent of the level of the EU15 countries. There are substantial differences between the EU8 countries Estonia being a good performer with respect to port efficiency, IT infrastructure and customs efficiency. Major differences exist also between the candidate accession countries with respect to the variables indicating the state of trade facilitation.

Controlling for development differences between the countries the analysis of the data suggests that the new and candidate EU member countries are in general weak performers in all four of the trade facilitation dimensions examined. Even in the context of their relatively low level of development their trade facilitation development is under the benchmark level. The only exception is Estonia which performs stronger than the benchmark level in all four categories.

By making use of the estimated gravity equations the role of trade facilitation in bilateral trade is examined. If infrastructure is upgraded and transaction costs lowered, trade volumes can expand. Expanded trade could then contribute to higher incomes, as the Round Table had discussed in the second discussion block, to higher growth rates and to a lower level of unemployment. Moreover, the implementation of trade facilitation measures could increase

reliability of delivery times. The empirical gravity equations are used to simulate the impact of the hypothetical improvements in port efficiency, customs regimes, regulatory policy and information technology infrastructure to half-way to the benchmark level on bilateral trade flows.

After controlling the effects of tariffs, differences in development level, distance between trading countries and regional characteristics of exporters and importers, the analysis shows that behind-the-border factors do play a critical role in determining bilateral trade flows. Three out of the four policy categories, (port efficiency, regulatory regimes and IT infrastructures) increase exports relatively more than imports. The new and candidate member countries of the EU would expect large trade gains as well as an improvement in the balance-of-payments situation. The greatest absolute trade gains, of US\$49 billion and US\$62 billion, would result if port efficiency and IT infrastructure reached half the average level of the EU 15. Seventy per cent of these gains would result from export expansion.

Trade gains would result in the new member and candidate member countries, as well as the EU 15 countries, benefiting from the unilateral actions of the EU 8 and candidate accession countries. Among the four dimensions of trade facilitation, improvement of IT infrastructure will result in the highest trade gains (more than US\$4 billion), which is greater than the gains from port efficiency (with trade gains close to US\$3 billion). Improvements in regulatory policy and customs regimes lead to about the same trade gains of around US\$1.5 billion each. That is to say, more than 40 per cent of the trade gains come from improvements in IT infrastructure and almost 30 per cent from port efficiency.

* * *

Annex 3

ROUND TABLE 133: THE (DE-) REGULATION OF THE TAXI INDUSTRY

1. INTRODUCTION

The OECD/ECMT Transport Research centre held a Round Table on the (de-) regulation of the taxi industry on 14/15 April 2005. The Round Table emanated from discussions with the ECMT Urban Transport Policy Working Group. Taxi regulation is a reform topic high up on the agenda of national transport ministries and city governments. The Round Table aimed at answering the following questions:

- What is the basic rationale for the regulation of the taxi industry? Does this rationale give an indication on the appropriate form and degree of regulation?
- Does the experience of de-regulation of the taxi industry indicate the appropriate regulatory reforms?
- Should taxi de-regulation be restricted in view of its role in the *public* transport sector?

Background papers were given by Catherine Liston-Heyes on the economic background of taxi deregulation, on country experience by Peter Bakker (Netherlands), Sean Barrett (Ireland), Dennis Cartier (Canada) and Richard Darbéra (France) as well as a comparative study on country experience by Jan-Terje Bekken.

The Round Table led to the following major conclusions:

- Arguments in favour of entry regulation have been overrated in the past. Entry has been de-regulated in many countries with the result of substantially reduced waiting times. Experience suggests that the entry de-regulation should be accompanied by other regulatory measures. The market structure of the taxi industry improves if entry is not atomistic but is established by the increase of the number of vehicles of firms that pass a certain minimum threshold.
- Price regulation remains necessary to protect the consumer against a weak bargaining position due to search and switching costs. Price de-regulation has not led to a price decrease due to an increase in competition. Entry de-regulation will lead to an increase of the cost per hour of effective passenger travel. Entry de-regulation can in general only be effective when accompanied by a price reform or by subsidies to increase entry with the objective of decreasing waiting times. Price controls like maximum prices can be counterproductive as they work as a coordinating device of price setting by taxi firms. Important differences exist between cruising markets and dispatch centre markets. The less important the cruising market subsector the less important is price regulation.
- Where massive entry occurred after entry de-regulation a decrease of service quality was observed in general. This has led to re-regulation in the form of stricter norms for the

service quality. There seems to be a danger of regulatory capture as in some countries quality regulation has worked like the re-introduction of entry regulation.

- Support for specialised taxi services for disadvantaged groups can lead to a strong development impetus for the industry. Where a strong role of the taxi industry for public transport has been envisaged it had the consequence of substantial budgetary demands.

2. THE ECONOMIC BACKGROUND OF TAXI REGULATION

The Round Table started with a discussion of the economic background of the regulation of the taxi industry. A first basic question to be addressed is ‘Why should the supply of taxi services be regulated at all?’ After all, the market for taxi services has many suppliers and many consumers. This fact could give rise to the expectation that a competitive market emerges which leads to the service to customers at lowest possible costs. Some of the conditions of perfect markets are, however, hardly met on markets for taxi services. A perfectly competitive market would, for example, require that producers and consumers have perfect information on the quantity and quality of the services traded. Market entry and exit should not be associated with major costs, and consumers should have low costs of switching to another supplier.

Which deviations from an idealized market are to be looked at, depends first of all on the form of the market for taxi services. Most arguments on the economics of the taxi industry are based on the assumption of a cruising market, implicitly considering the supply side to be dominated by small owner-operators. This is, however not the only market form. In many cities, or areas of cities, licensed access to taxi stands with an assigned market area are important. These market forms may differ substantially from the cruising market with respect to regulatory issues.

SEARCH COSTS AND PRICE COMPETITION

Analysis

In a cruising market potentially high costs arise from the necessity to search for a taxi. The search costs have the form of time costs which arise from searching for a first offer by a taxi service provider and from waiting for another offer, once an offer has been turned down. moreover, once a particular taxi stops in response to a summons from a user, the service provider has the role of a local monopolist, who may charge a price that is considerably higher than what would be charged on a perfectly competitive market. Given the increase of the switching costs when the trip has started, the taxi operator cannot even credibly announce a price before the end of the trip. In short, the technical conditions of the provision of taxi services provide the operator with high bargaining power which she or he could use to price discriminate between customers. Price charges are then unrelated to costs, driving a wedge between what consumers are willing to pay for a trip and the costs associated with the provision of the service. These problems are particularly significant if the customers have a low level of information on the local market, as for example tourists have, arriving at an airport of an unknown city.

There are other market forms where the local bargaining power of taxi operators is mitigated. This is first the case when the market is not an atomistic market. If taxi firms have a sizable fleet, which are also clearly marked firms can built up a reputation for a good quality of the service and a fair charging of the customer. To some extent the problem of the local monopoly power of the taxi-operators has then be turned into the problem of the internal organisation of a taxi firm: Individual drivers might try to free ride on the reputation of a taxi firm, making use of the local market power to the disadvantage of the fellow employees of the firm.

Secondly, taxi ranks and telephone systems reduce the costs of price search substantially, as long as different stands or call centres can serve the same geographical area. Then price search can be done by calling different taxi firms and the search costs are reduced substantially. However, the reduction of the search costs only holds ex ante. The problem that the consumer has high switching costs after the start of the journey still exists.

Regulation

These arguments show that there is a strong argument for price control. The traditional response to the search costs and the effect on market structure is to control prices by metering. If the objective of price control is confined to reducing the market power resulting from the existence of search and switching costs, the regulated price is based on some formula relating to distance and time of journey, plus some fixed cost. A minimum fare is often introduced to reduce the number of refusals of service for short journeys. If (large) companies introduce meters themselves this has the function of excluding the incentive to free ride on the companies reputation by the individual drivers. They will then be set with the objective to maximise the rate of return for the collection of drivers. To some extent the prices will then still reflect monopoly rents, but will reflect differences in local demand, the competition between rival fleets as well as the competition from other modes.

In some cases, the fares are not only oriented towards guaranteeing a normal rate of return to taxi operators but reflect wider social aims such as congestion targets, or tourism imperatives, universal service ambitions etc. Whenever other objectives than the efficiency of the supply of taxi services are pursued, the instrument of charging the customer has to be compared to the costs of using other instruments. In general, to attach other objectives than efficiency to the pricing prescriptions leads to efficiency losses. There is also some indication that price regulation that tries to achieve other objectives than efficiency increases the bargaining power of the taxi industry in the *political* process by broadening the basis for the mobilisation of special interests to support relatively high prices.

MARKET ENTRY

Analysis

A second area of regulation of the taxi industry is entry regulation. In many cities, or even areas of cities the level of entry barriers to the taxi industry is disputed. On the conceptual level there are partial arguments to suspect that entry barriers are too low and partial arguments supporting the view that entry is excessive. Whether entry should be regulated at all is an empirical question.

The argument in favour of entry regulation is based on the more general view that fixed costs, and as a consequence decreasing average costs with the increase of demand imply that there is “excess capacity”: Exit decisions are held to be determined by the fact that the investment costs are sunk. A reduction of the number of suppliers by entry regulation would lead to a higher degree of capacity utilisation and therefore to lower costs per consumer. On the theoretical level this argument is incomplete to the extent that it neglects crowding of an individual supplier and resulting increasing costs of the provision of taxi services. Empirical studies have shown that the individual taxi driver incurs low fixed costs, and as the cars can be sold on secondary markets for other uses, the sunk costs are, in general, unimportant.

The opposite argument for entry regulation concerns the consumer side. The argument for increased entry starts out from the fact that consumers do not have the opportunity to pay for a reduction of waiting times. Excess capacity in the form of empty taxis is therefore a non-marketable service in that expected waiting time of a customer at a kerbside or rank, which in turn increases demand for all taxi service providers. Due to the impossibility of turning the benefits of reduced waiting times into revenues of the taxi providers there is an underprovision of taxi services. This argument then suggests not the restriction of access to the taxi market but even government subsidies to increase the supply.

Regulation

As the analysis and the discussion showed arguments for restricting access to the taxi market are far weaker than the actual level of restrictions would suggest. The reduction of barriers to the taxi market helps to shorten waiting times. Shortened waiting times provide a social service that could potentially even invite the subsidy of entry. However, the economic benefits of increased entry would have to be weighed against the possible negative effects of negotiated contributions to taxi services, which could go beyond the level of obtaining a socially optimal level of service supply. In any case, there seems to be a growing consensus that entry to taxi markets is in overly restricted, at least if it is not connected to a quality control.

REGULATION OF THE QUALITY OF TAXI SERVICES

Analysis

Another demand for regulation arises from the fact that the users of taxis cannot ex ante identify the quality of the service offered. An unsafe vehicle or the incompetence of a driver cannot normally be identified by the customer ex ante. In this sense also taxi service constitute a 'credence good', a good with unobservable quality dimensions. Some of these quality dimensions are not even observable ex post, for example the safety risk the customer has been exposed to. In 'credence good' contexts of this sort it is typically efficient that the unobservable dimensions of quality be subject to direct regulation.

Regulation

The Round Table discussion confirmed the result of the analysis that quality regulation is dimension that is underrated in many geographical contexts. A major difficulty of quality regulation is the fact that the need and the operational specification depend on the technical environment. Knowledge of the geography of a city for example has become less important for the quality of taxi service by the availability of electronic pilot systems. The discussion clearly showed the importance of the distinction between entry and quality regulation. The objective of quality regulation has to be the protection of the consumer. Some proposed quality regulations could work as an entry regulation without serving consumer interest.

DEREGULATORY EXPERIENCE

In many countries the taxi industry has been de-regulated. The Round Table looked into the experience of Ireland, New Zealand, Sweden, Norway, the Netherlands, the US and Canada. In line with the conceptual analysis the most important field of de-regulation was entry. The country experience differed with respect to a concomitant de-regulation of fares. In some cases entry de-regulation was accompanied by a stricter regulation of quality of the services.

Entry Regulation

In all cases where entry was de-regulated there was a substantial increase in the number of drivers and vehicles. The regional distribution of entry was, however, uneven. In some cases the strongest increase in vehicles occurred at locations (airports, train stations) where waiting times were already relatively short. Hopes that entry regulation would lead to an improvement of rural areas, as in Sweden, have been disappointed.

The most dramatic increase of supply occurred in Ireland. The number of taxis tripled on average in major cities, reflecting strong restrictions to entry before the reform. The Irish example also shows the potentially dramatic consequences for the incumbents. The small number of licenses that had been issued had led to the effect that the price of a licence had increased from 1980 to 2000 by 2500 per cent. The price of a license in Dublin was 4 times higher than the price of the

license in New York. The massive devaluation of the licenses after the reform has led to major political controversy. Demands for compensation of the loss of wealth were initially rejected by the argument that a license is not a normal financial asset, that it was not accepted as a medium to store wealth by the banking system and therefore revenues from sales of licenses were windfall profits. The opposite argument insisted that the license was the equivalent of the property right to produce taxi services in a restricted market. The increase of the license price over time was seen as a failure of the government to properly auction the license.

Political protests after the massive increase of supply of taxi operators finally led to a compensation of pre-reform license holders, amounting to aggregate expenditures of 12.6 million Euros. The compensations were not based on an assessment of the pre-reform wealth of the license holders but on the degree of their economic situation being threatened, like age, absence of a pension, invalidity etc.

To avoid economic crises of taxi firms due to the reform of the increase of the number of licenses entry deregulation in New Zealand was designed to lead to some increase of concentration in the industry. All taxi operators were required to be affiliated to an association providing services 24 hours for seven days of the week and telephone booking opportunities. Furthermore, new associations must have at least five vehicles.

Price regulation

The expectation that the deregulation of entry could at the same time lead to a decrease of the price of taxi services, which was the basis of the simultaneous de-regulation of entry and the dismantling of price controls in Sweden, was disappointed. With the in some cases massive increase of the number of competitors the number of produced vehicle operational hours has decreased. Due to the fact that a major part of the vehicle cost and labour costs are fixed, the costs per hour of actually servicing customers went up. This means that entry de-regulation could only become effective by accommodating price increases.

To limit price increases, and to achieve objectives to increase the market share of taxis as a means of public transport, the government of the Netherlands allowed price increases up to an upper limit. This upper limit seems to have worked as a coordinating advice by taxi firms such that pricing converged to a unique market price identical to the regulated maximum price. No case was reported where price competition between taxi firms after the reform led to a decrease of the market price.

There are strong arguments for the continuation of some form of price regulation. They relate to the low bargaining power of consumers and strong market powers of firms when regulators try to limit the number of firms to decrease consumers' search costs. Strong price control will, however, impact negatively on the objectives of entry deregulation. In New Zealand and in Norway the association with a dispatch centre is required for new entrants to reduce search costs.

In Sweden strict requirements on fare information have been introduced. Some analysts support a two-tier system with maximum fares for the street segments and no fare regulations for the telephone booking segments.

Quality regulation

In one respect the de-regulation of entry has in all reform countries led to an improvement of the quality of service: The waiting times have decreased as a result of the increase of the number of taxis and drivers. Despite this general greater attractiveness the market share of taxis in overall passenger transport has not increased. This is due to the price increase resulting from the cost increase due to longer waiting times of taxis or longer empty cruising times. If both objectives were to be achieved, of shorter waiting times and an increase of the share of taxis in passenger transport, subsidies have to be granted to increase entry coupled with stricter price controls.

A general impression from the Round Table discussion is that the stronger the additional entry into the taxi industry due to the reform of entry the higher the frequency of complaints on the quality of service. Complaints were related to driver competence, vehicle standards and safety. Decreasing service quality after the de-regulation was the most important reason for re-regulation after the de-regulation phase. Ireland, which had one of the most radical taxi reforms, re-established a national taxi regulator who has to set standards for driving abilities, comprehensive local knowledge, vehicle standards and even a dress code.

To make quality regulation effective requires a strong commitment to enforcement. The more quality controls are effectively implemented the more this regulation restricts entry with the effect to increase waiting times of customers. In some cases quality controls seem to be used to implicitly re-introduce entry controls. The Irish taxi regulator has the mandate of “bringing stability to the industry, creating a proper and effective structure, and establishing lasting career opportunities”. To achieve these objectives the regulator enjoys autonomy in setting license fees.

Public Transport Service Obligations of the Taxi Industry

Policies of the Province of Quebec were discussed as an example of introducing and supporting services for special target groups like the population of remote areas, for disabled people, the elderly etc. Access to taxi and other public transport services are currently further improved, based on an Act of the National Assembly amending the Disabled Persons Act and other legislative arrangements in December 2004.

The number of users of specialised services has increased spectacularly, from 4300 in 1980 to about 65.000 today. The example of the Province of Quebec suggests that specialised transport for disadvantaged groups requires strong support by public expenditures. The overall budget for specialised transport increased from some 1.65 mill. \$ in 1980 to 56 mill. \$ in 2004. In 2004 disabled persons made 4.8 million trips throughout the province. 43 per cent of these trips were

done by taxis. The contracts awarded to these taxis were worth 18.5 mill. \$, provided by specialised transportation authorities.

To enhance the role of taxis as the means of transportation of disabled the Province of Quebec had set up a Subsidy Scheme for the Adaptation of Taxis for Wheelchair Users. It led to the adaptation of 4 per cent of the provincial fleet to improve taxi accessibility of wheelchair users. The Scheme is endowed with a budget of 1.4 mill. \$ annually. Over the years the number of adapted cars has risen dramatically leading to the risk of an underfunding of the scheme. The example shows the difficulty of supporting government schemes to remain linked to demand of the targeted group.

3. CONCLUSIONS

The Round Table led to the following major conclusions:

- Arguments in favour of entry regulation have been overrated in the past. Entry has been de-regulated in many countries with the result of substantially reduced waiting times. Experience suggests that the entry de-regulation should be accompanied by other regulatory measures. The market structure of the taxi industry improves if entry is not atomistic but is established by the increase of the number of vehicles of firms that pass a certain minimum threshold.
- Price regulation remains necessary to protect the consumer against a weak bargaining position due to search and switching costs. Price de-regulation has not led to a price decrease due to an increase in competition. Entry de-regulation will lead to an increase of the cost per hour of effective passenger travel. Entry de-regulation can in general only be effective when accompanied by a price reform or by subsidies to increase entry with the objective of decreasing waiting times. Price controls like maximum prices can be counterproductive as they work as a coordinating device of price setting by taxi firms. Important differences exist between cruising markets and dispatch centre markets. The less important the cruising market subsector the less important is price regulation.
- Where massive entry occurred after entry de-regulation a decrease of service quality was observed in general. This has led to re-regulation in the form of stricter norms for the service quality. There seems to be a danger of regulatory capture as in some countries quality regulation has worked like the re-introduction of entry regulation.
- Support for specialised taxi services for disadvantaged groups can lead to a strong development impetus for the industry. Where a strong role of the taxi industry for public transport has been envisaged it had the consequence of substantial budgetary demands.

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Annex 4

ROUND TABLE 134: CONCLUSIONS

1. INTRODUCTION

On 12 and 13 May 2005, the Joint OECD/ECMT Transport Research Centre held a regional Round Table in Thessaloniki on the theme “*Europe and Central Asia: Trade In Transport Services, Market Access and Trade Facilitation*”. This Round Table was part of the follow-up to the work on “Transport and International Trade” and “Time and Transport” which, *inter alia*, addressed the latter aspect from the standpoint of the transport of goods. The regional Round Table was aimed at exploring a general issue through a careful examination of a specific geographical area. This approach focused on the following points:

- The multilateral liberalisation of trade in transport services;
- The consequences of liberalisation in imperfect transport markets;
- The problem of underinvestment in infrastructure;
- Security and trade facilitation issues.

The brief report which follows provides a summary of the discussions held at the regional Round Table.

2. MULTILATERAL LIBERALISATION OF TRADE IN TRANSPORT SERVICES

The Round Table started with a discussion of the progress made in liberalising the trade in transport services. A point of reference for this discussion is the process of negotiated, mutual access to transport markets under the auspices of the World Trade Organisation. The background paper of the WTO representative and the discussion clearly showed that there are no strong arguments, *in principle*, why transport should play a particular role in the liberalisation of services. *In practice*, however, a special role for the transport sector results from the strong role played by the public sector in providing transport and infrastructure services, as well as high levels of market concentration in the market for transport services, at least for some modes.

Dependent on this high level of inter-reliance between transport policy, competition policy and trade policy, the WTO negotiations on liberalising trade in transport services have developed into a very complex process which has considerably distanced itself from the basic principles of the trade negotiations, i.e. reciprocity and the “most favoured nation” clause.

Given the current impediments to global multilateral negotiations, bilateral or regional arrangements to liberalise trade in transport services might appear as stepping stones towards a more general process of liberalisation of international trade in transport services. The larger the country – or rather, the more individual countries are able to influence bilateral terms of trade – the greater is the danger that agreements bias the outcomes towards individual, national interests

rather than a mutual, international benefit. An unequal distribution of gains from bilateral or regional agreements may sufficiently restrict the benefits to some countries to impede the liberalisation process altogether.

Bilateral agreements can be the first stage for broader agreements. The greater bargaining power of large countries may disappear if small countries form a coalition and give it negotiating powers. In this case, bilateral agreements may be seen as the first stage towards broader agreements if the coalition is also able to impose its bargaining power on large countries. However, it is likely that an initially negotiated multilateral agreement will produce more positive effects, in particular by keeping transaction costs to a minimum.

Lastly, it should be pointed out that transport services are increasingly becoming logistics activities and that the need to break down these activities to negotiate the liberalisation of each aspect hinders the liberalisation process significantly.

Nevertheless, the liberalisation of transport services must take into account the current structure of transport markets and its consequences in terms of transport costs. In this regard, the most salient feature of the structure of transport markets regarding relations between Europe and Asia is the fact that these markets are imperfect in terms of the basic requirements for competitive markets.

3. THE CONSEQUENCES OF LIBERALISATION IN IMPERFECT TRANSPORT MARKETS

The Round Table discussion pointed out that trade in goods between countries had a cost, which will be called here the cost of trade -- equivalent to a tax of, for example in the case of the US, 170 per cent, on average, on the value of the goods. Within this figure, transport accounts for slightly over 20 per cent, customs barriers for 95 per cent and the logistics costs of distribution for 55 per cent.

Given the magnitude of these costs, the regional Round Table initially observed that there was a lack of competition and competitiveness in transport and related services. Some transport markets are imperfect and it is not sufficient to liberalise trade in goods. Producers are even subject to a form of rent capture in international trade, for the closer one comes to free trade in goods, the more the transport sector is able to capture the benefits of this trade in goods. As a result, the gains of international trade will be absorbed by transport. This being the case, it can be affirmed that insufficient competition in transport has a greater impact in a regime of free trade in goods between countries and that transport may even become a serious barrier to trade.

In this context, the role played by public transport enterprises is considerable. They do not run services on a commercial basis, but benefit from a transfer of subsidies from one activity to another (cross-subsidisation). They receive direct subsidies from the State and also engage in

price wars on certain markets using the public service subsidies that they receive on other markets.

Consequently, there is a frequent explicit and implicit subsidisation of public enterprises which distorts competition and resource allocation. In addition, many countries in the region of South-East Asia are still not aware of the need for a separation between the operation of enterprises and the bodies responsible for regulating the sector. This inevitably results in regulatory bodies being “captured” by the public enterprise in the same sector of activity.

Certain precautions must be taken in liberalising the transport sector when public enterprises have a dominant position on markets. In such cases, it is essential:

- to set up an internal accounting system for the activities of public enterprises so as to be able to allocate costs on the basis of activities with complete transparency;
- to ensure that any dominance or supremacy on certain markets is eliminated, which means that no “grandfather” rights should be granted;
- to introduce competition law, which ensures that all enterprises are in a fair position and have identical obligations;
- to establish regulatory authorities in the field of transport which will monitor developments in the sector and prevent any practices contrary to the interests of individuals and businesses.

In some cases, public enterprises have a significant advantage over their competitors, benefiting from asymmetric information provided by government. As their survival is a given factor, they are never as accountable as private companies. Because of the market penetration by public enterprises of different nationalities, the issue of governance and regulation should logically be handled by supranational authorities.

In this regard, the Round Table emphasized that the transport relations between Asia and Europe involved a high degree of market concentration and that the issues raised concerned the market power of certain players and the creation of value in this framework. It seems very difficult to ensure perfect competition on these markets. This means that it will never be possible to reap all, but only some of the benefits of international trade. Although international trade has undergone an expansion, this process has remained threatened by the imperfections of transport markets, whether they involve land, sea or air transport. It therefore seemed appropriate for the Round Table to recommend a restructuring of transport markets in relations between Asia and Europe, in particular with regard to the issue of public enterprises, before undertaking a complete liberalisation of these markets.

4. THE PROBLEM OF UNDERINVESTMENT IN INFRASTRUCTURE

The Round Table introduced this point by distinguishing between physical and non-physical infrastructure. For example, while the improvement of physical infrastructure leads to productivity gains in transport and promotes interregional integration of local economies, non-physical infrastructure, such as improved customs clearance, telecommunications networks and deregulation processes, lowers transaction costs and promotes the international integration of economies.

In both cases, the integration process is driven by an increase in the variety of products available and a decrease in their prices. This leads to an expansion of markets and a specialisation of economies through the global complementarity of products. In some cases, production processes are disintegrated spatially and reconstituted elsewhere.

A qualitative leap in the integration of economies can be achieved by reducing transport costs, a reduction that can be due to new infrastructure. However, it is important to point out initially that the cost of building and making a new physical infrastructure available is considerable, and this holds true for virtually all countries. With regard to the impact of this infrastructure, it will depend largely on the context into which the infrastructure is integrated. In developed countries, where the territory is highly networked in terms of infrastructure, the impact of an additional segment is sometimes marginal even though the gains in time, safety and comfort are clearly felt in the economy. As a result, before any decision to invest in infrastructure is made, it is essential to compare its potential contribution in relation to other investments, for it must be borne in mind that infrastructure also promotes agglomeration economies, which lead to spatial concentration of activities and therefore to problems of congestion.

It should also be pointed out that new infrastructure can create a divergence in economic integration, for there are often losers because of the new competition which is imported. These are industries and the employees of the least productive companies that cannot meet the challenge of competition. This shows the importance of policies to support the development of new infrastructure.

If the link between infrastructure investment and international trade is considered more specifically, it can be shown that a 10 per cent increase in investment in infrastructure will cause bilateral trade to grow at a rate ranging between 1.8 to 4.6 per cent. In fact, infrastructure promotes international trade if it leads to the subdivision and relocation of enterprises, in particular through the internal trade of companies. This being the case, if a country creates infrastructure on its territory that promotes trade with a neighbouring country, it is obvious that the other country will also benefit from this infrastructure without having to pay the price. This shows that any discussion of the problems involved in transport and international trade always raises the underlying issue of the need for the international co-ordination of initiatives. In addition, it can be shown that there is a tendency to under-invest in this type of infrastructure,

since the benefits stretch beyond the end of politicians' terms of office, while the politician who made the decision is held directly responsible for the cost.

In his introductory report, P. Demitrides showed that public investment tended to have a higher socioeconomic rate of return than investments made in the private sector. During the regional Round Table, it was thought that this observation should be investigated further through additional studies, one aspect of which would be the ability of cost-benefit analysis to encompass all the benefits of new investments. It seemed that this type of analysis was not imaginative enough and systematically had to be evaluated *a posteriori* to be fully satisfactory. The Round Table clearly recommended additional research on these issues.

5. SECURITY AND TRADE FACILITATION ISSUES

The main idea to emerge from the discussions was that the removal of trade policy barriers was not sufficient to promote the integration of the economies of South-East Europe and Central Asia. Complementary measures had to be taken, linked to port throughput, information technologies, market regulation, technical interoperability of means of transport, etc. However, the greatest gains could be expected in the field of port efficiency and information technologies. Furthermore, these two approaches are complementary since port operations are dependent on advanced information technologies, in particular for customs clearance operations.

The issue of customs clearance was discussed specifically and it was concluded that there had been no tangible improvement in South-East Europe and Central Asia, but that customs clearance and border crossing conditions had deteriorated in some cases. It is clear that transport markets which are heavily or even over-regulated are also a barrier to trade, but the main barrier remains waiting times and the costs of border crossings. In this regard, econometric studies have shown that a 63 per cent reduction in waiting times and a 65 per cent reduction in the time required for the operations themselves will result in a 45 per cent increase in trade between two countries. One of the problems is that the sources of financing to improve the situation are not clearly identified and that customs clearance often involves corruption. To solve this problem will therefore require strong policies and consistent action.

Another aspect highlighted during the discussions was security and, here again, the sources of financing to change the situation are not clearly identifiable. There may be some benefits to tighter security measures, for shippers and carriers have been forced to redefine their chain of operations and this has proved highly beneficial to the movement of goods, which has in fact been accelerated. For example, advance notification of cargo has made it possible to speed up transport, storage and customs operations in many cases, while increasing transparency. However, the implementation of tighter security measures raises the issue of determining who has the legal responsibility in this area. There must be an evaluation of the risk level as well as of the advisability of taking measures to reduce it. To countries which are relatively weak economically, multilaterally agreed security measures might work as effective barriers to trade.

Technical assistance could help to avoid trade losses by the most disadvantaged economies due to their contribution to international security. In addition, the technologies needed to carry out cargo verification operations are controlled by only a few producers, with associated attempts to achieve market dominance, and the United States, for example, requires that their own technology be used.

Assuming that all the problems mentioned above can be settled, the fact would still remain that there is a lack of logistic platforms in South-East Europe, as the IMONODE project showed. In fact, what is needed here is a local approach to transport policies (i.e. bottom-up) to ensure the specialisation and improvement of the facilities of existing platforms rather than the creation of new ones. In this regard, until now there has perhaps been a case of failure of co-ordination between the various players which has prevented reaching an optimum situation and which calls for policy and transport engineering measures.

6. CONCLUSIONS

Transport and trade facilitation issues are not simple, for they mix aspects such as investment infrastructure with that of port efficiency and now the security of operations. However, it is clear that if time can be saved in transport operations, this will increase trade between the countries concerned. This increase in trade can, in turn, generate growing income for the trading country and thus a favourable growth dynamic. These mechanisms should be studied further through additional research, for the linkage between transport and economic development in connection with international trade is a key issue at a time of rapidly growing trade between Asia and Europe and Asia and the United States. This is an issue which must be studied in greater depth. The Thessaloniki Round Table showed clearly that the cost of trade was equivalent to a tax and that it was often higher than the production cost of goods. This points to areas for further investigation, such as the degree of competition on export transport markets, the role of public enterprises, standards for transport markets and border crossing as well as other aspects. It would also seem that there is an inherent underinvestment in infrastructure of international importance, which calls for the co-ordination of international transport policies.
